Summer 2003

Market Orientation and Export Performance in Thailand: A Moderating Effect of International Marketing Strategy

Phattarawan Tantong
Old Dominion University

Follow this and additional works at: https://digitalcommons.odu.edu/businessadministration_etds
Part of the Marketing Commons

Recommended Citation
https://digitalcommons.odu.edu/businessadministration_etds/58

This Dissertation is brought to you for free and open access by the College of Business (Strome) at ODU Digital Commons. It has been accepted for inclusion in Theses and Dissertations in Business Administration by an authorized administrator of ODU Digital Commons. For more information, please contact digitalcommons@odu.edu.
MARKET ORIENTATION AND EXPORT PERFORMANCE IN THAILAND:
A MODERATING EFFECT OF INTERNATIONAL MARKETING STRATEGY

by

Phattarawan Tantong

B.A. University of the Thai Chamber of Commerce, 1980
B.A. Sukhothaithammathirat University, 1992
M.B.A. Prince of Songkhla University, 1995
M.B.A. Old Dominion University, 1997

A Dissertation submitted to the Faculty of
Old Dominion University in Partial Fulfillment of the
Requirement for the Degree of

DOCTOR OF PHILOSOPHY

BUSINESS ADMINISTRATION-MARKETING

OLD DOMINION UNIVERSITY

August 2003

Approved by:

________________________
Anusorn Singhapakdi (Director)

________________________
Kiran Karande (Member)

________________________
Anil Nair (Member)
ABSTRACT

MARKET ORIENTATION AND EXPORT PERFORMANCE IN THAILAND:
A MODERATING EFFECT OF INTERNATIONAL MARKETING STRATEGY

Phattarawan Tantong
Old Dominion University, 2003
Director: Dr. Anusorn Singhapakdi

A lot of literature provides evidence of a positive relationship between market orientation (MO) and performance (e.g., Narver and Slater 1990; Jaworski and Kohli 1993). Some studies, however, found insignificant results of such a relationship (e.g., Selnes, Jaworski, and Kohli 1996; Pelham 1997), resulting in an open question of MO's predictive power on performance. Moreover, most of the research in this area has been conducted in the U.S. context, and the literature shows that there is a need to study MO in a non-U.S. context (e.g., Kohli, Jaworski, and Kumar 1993; Grewal and Tansuhaj 2001). Similarly, the standardization (adaptation) literature reveals that there is a need to study standardization (adaptation) strategy in a Non-U.S. context (e.g., Zou, et al. 1997). Also, although there exist repeated calls to investigate the effect of a standardization strategy (adaptation) on financial performance, little effort into such studies was found. In addition, no prior study empirically examines the role of the international marketing strategy type, standardization v.s. adaptation, as an alternative and potential moderator of the relationship between MO and a firm's business performance.

The proposed dissertation extends this body of research and empirically investigates the relevance of market orientation and export marketing strategy in determining export performance. Specifically, this research attempts to address three issues. First, the issue of whether or not MO has a positive effect on export performance
is addressed. Second, the issue of whether or not product adaptation strategy has a positive impact on export performance is addressed. Third, the issue of whether or not an international marketing strategy (characterized as high and low product adaptation strategy) moderates a relationship between MO and export performance is also addressed. The hypothetical structural equation model, including market orientation construct, product adaptation strategy construct, and export performance construct, is proposed. Exploratory factor analysis (using SPSS), as well as first-order and second-order confirmatory factor analysis, structural equation model, and multi-sample analysis (using LISREL 8.52) are applied in this research for measurement validity and hypothesis testing. The empirical study involved a mailed survey of 2,200 exporting firms in Thailand and obtained 252 usable responses. Results of the study indicate that (1) export performance is significantly and positively affected by market orientation, that (2) export performance is not significantly and positively affected by a product adaptation strategy, and that (3) the market orientation-export performance relationship is moderated by brand and label adaptation strategy, a subscale of product adaptation strategy. Theoretical and managerial implications and directions for future research are discussed. The results from this study will help to fill the gaps in the literature.
ACKNOWLEDGEMENTS

There are many people and organizations that have contributed to the successful completion of this dissertation. First, I will always be grateful to my committee director, Dr. Anusorn Singhapakdi, not only for his patience and hours of guidance on my research, but also for his encouragement and care during my entire doctoral program. Second, I would like to express my sincere gratitude to my committee member, Dr. Kiran Karande, not only for his outstanding research methodology guidance at each stage of the research, but also for the consistent encouragement and support during my doctoral program. Third, I am very appreciative of the support that I received from Dr. Anil Nair, another committee member. Fourth, I am deeply grateful to my husband, police lieutenant colonel Jakraporn Tantong, not only for his consistent and outstanding encouragement but also for his patience with my long-term study in the U.S.A. and our children, Natapat (Boom) Tantong and Pamitra (Pam) Tantong, who all live in Thailand. Fifth, I am also indebted to my younger sister, Jantira Tongsai, who took excellent care of my mother. Sixth, I’m also indebted to my older sister, Oratai Tavamit, who was (and is) trustworthy, reliable, and willing to help take great care of my children during my stay. Seventh, I am grateful to Dr. Patriya Tansuhaj at Michigan State University, Mr. Surapak Kuvasanon, and Mr. Kittipong Preecha for their support at the questionnaire development stage. Eighth, I would like to acknowledge the generous scholarship from the Royal Thai government as well as the support of faculty members at Walailak University, Thailand, during my Master and Doctoral programs. Finally, I would like to thank those export managers in Thailand who generously participated in this research.
TABLE OF CONTENTS

LIST OF TABLES................................................................. ix
LIST OF FIGURE.................................................................. xi

Chapter

I. INTRODUCTION.............................................................. 1
   PERSPECTIVE OF MARKET ORIENTATION............. 3
   PERSPECTIVE OF EXPORT MARKETING STRATEGY...... 5
   THAILAND AS THE COUNTRY CONTEXT.................. 7
   AN EVALUATION OF THE LITERATURE................. 9
   PURPOSE OF THE STUDY.......................................... 11
   ORGANIZATION OF THE DISSERTATION............... 13

Chapter

II. A REVIEW OF THE LITERATURE............................... 15
   A REVIEW OF MARKET ORIENTATION............... 15
   A REVIEW OF INTERNATIONAL MARKETING
   STRATEGY (STANDARDIZATION VS. ADAPTATION)...... 58
   INTERNATIONAL MARKETING STRATEGY TYPE AND
   THE RELATIONSHIP BETWEEN MARKET ORIENTATION
   AND EXPORT PERFORMANCE................................. 72

Chapter

III. RESEARCH METHODOLOGY...................................... 78
   SAMPLE AND DATA COLLECTION PROCEDURE......... 78
   QUESTIONNAIRE DEVELOPMENT.......................... 87
   MEASURES............................................................ 88
Chapter

IV. ANALYSIS AND RESULTS OF THE STUDY ............................................... 92

MEASUREMENT VALIDITY FOR PRODUCT ADAPTATION ........................................ 93
MEASUREMENT VALIDITY FOR MARKET ORIENTATION ................................ 110
MEASUREMENT VALIDITY FOR EXPORT PERFORMANCE ..................................... 120
THE STATISTICAL MODEL AND ANALYSIS .................................................. 129

Chapter

V. CONCLUSIONS AND IMPLICATIONS ............................................................. 152

CONCLUSIONS ........................................................................................... 153
IMPLICATIONS .......................................................................................... 158
LIMITATIONS AND FUTURE RESEARCH ISSUES ........................................ 168

BIBLIOGRAPHY ......................................................................................... 171

APPENDIXES

A. MEASURE OF MARKET ORIENTATION ................................................... 188
B. MEASURE OF EXPORT PERFORMANCE ................................................... 192
C. MEASURE OF PRODUCT ADAPTATION STRATEGY ....................................... 193
D. MEASURE OF MARKET ORIENTATION: A REVISED MODEL ....................... 194
E. MEASURE OF PRODUCT ADAPTATION STRATEGY: A REVISED MODEL .......... 196
F. LISREL 8.52 SYNTAX FOR FIRST-ORDER CFA FOR MO (31 ITEMS): AN ORIGINAL MODEL .......................................................... 197
G. LISREL 8.52 SYNTAX FOR FIRST-ORDER CFA FOR MO (16 ITEMS): A REVISED MODEL .......................................................... 199

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
| H. | LISREL 8.52 SYNTAX FOR FIRST-ORDER CFA FOR THE EXPORT PERFORMANCE MODEL .......................................................... | 200 |
| I. | LISREL 8.52 SYNTAX FOR SECOND-ORDER CFA FOR THE PRODUCT ADAPTATION MODEL .................................................. | 201 |
| J. | LISREL 8.52 SYNTAX FOR SECOND-ORDER CFA FOR THE MO MODEL .............................................................................. | 202 |
| K. | LISREL 8.52 SYNTAX FOR SECOND-ORDER CFA FOR THE EXPORT PERFORMANCE MODEL .................................................. | 203 |
| L. | LISREL 8.52 SYNTAX FOR STRUCTURAL EQUATION MODEL: MO, PRODUCT ADAPTATION, AND EXPORT PERFORMANCE .................................................................................. | 204 |
| M. | LISREL SYNTAX FOR A CONSTRAINT MODEL: HIGH VS. LOW PRODUCT ADAPTATION ...................................................... | 205 |
| N. | LISREL SYNTAX FOR A FREE MODEL: HIGH VS. LOW PRODUCT ADAPTATION ................................................................. | 206 |
| O. | LISREL SYNTAX FOR A CONSTRAINT MODEL: HIGH VS. LOW BRAND ADAPTATION ....................................................... | 207 |
| P. | LISREL SYNTAX FOR A FREE MODEL: HIGH VS. LOW BRAND ADAPTATION ..................................................................... | 208 |
| Q. | LISREL SYNTAX FOR A CONSTRAINT MODEL: HIGH VS. LOW DESIGN ADAPTATION ...................................................... | 209 |
| R. | LISREL SYNTAX FOR A FREE MODEL: HIGH VS. LOW DESIGN ADAPTATION ................................................................. | 210 |
| S. | LISREL SYNTAX FOR A CONSTRAINT MODEL: HIGH VS. LOW QUALITY & WARRANTY ADAPTATION ................................ | 211 |
| T. | LISREL SYNTAX FOR A FREE MODEL: HIGH VS. LOW QUALITY & WARRANTY ADAPTATION .............................................. | 212 |
| VITA | .......................................................................................................................................................... | 213 |
LIST OF TABLES

TABLE

1.1 Trade Statistics of Thailand.................................................................8

2.1 Empirical Research, Scale Development, and Consequences of
Market Orientation........................................................................27

2.2 Psychometric Properties of Narver and Slater’s (1990) Market Orientation
Scale................................................................................................33

2.3 Psychometric Properties of Kohli, Jaworski, and Kumar’s (1993)
Market Orientation Scale................................................................38

3.1 Assessment of Non-Response Bias.................................................81

3.2 Characteristics of the Analysis Sample: Job Title, Education, and
Working Experience.........................................................................82

3.3 Characteristics of the Analysis Sample: Export Markets...............83

3.4 Characteristics of the Analysis Sample: Product and Industry.........85

3.5 Characteristics of the Analysis Sample: Number of Export Markets,
Firm Experience, Firm Size, and Annual Sales..............................86

4.1 Measures of Sampling Adequacy and Partial Correlation a:
Product Adaptation.......................................................................95

4.2 Results for the Extraction of Components Factors: Product Adaptation 96

4.3 EFA Results for Product Adaptation Model: Eigenvalues and Communalities
Before Rotation........................................................................98

4.4 EFA Results for Product Adaptation Model: Eigenvalues and Communalities
After Rotation........................................................................100

4.5 EFA Results: A Revised Product Adaptation Model....................102

4.6 Final LISREL Standardized Estimates for Second-Order CFA for Product
Adaptation Model: Factor Loadings and t-values.........................106

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
4.7 Descriptive Statistics of Product Adaptation Construct
4.8 LISREL Parameter Estimates and Measurement Errors for First-Order CFA For Initial Market Orientation Model
4.9 LISREL Parameter Estimates and Measurement Errors for First-Order CFA For Revised Market Orientation Model
4.10 Final LISREL Standardized Estimates for Second-Order CFA for Market Orientation Model: Factor Loadings and t-values
4.11 Descriptive Statistics of Market Orientation Construct
4.12 LISREL Parameter Estimates and Measurement Errors for First-Order CFA For Export Performance Model
4.13 Final LISREL Standardized Estimates for Second-Order CFA for Export Performance Model
4.14 Descriptive Statistics of Export Performance Construct
4.16 Pairwise Comparisons of High and Low Product Adaptation: \( \chi^2 \), \( \gamma \) Estimates, and t-values
4.17 Pairwise Comparisons of High and Low Branding Adaptation: \( \chi^2 \), \( \gamma \) Estimates, and t-values
4.18 Pairwise Comparisons of High and Low Design Adaptation: \( \chi^2 \), \( \gamma \) Estimates, and t-values
4.19 Pairwise Comparisons of High and Low Design Adaptation: \( \chi^2 \), \( \gamma \) Estimates, and t-values

Page 4
LIST OF FIGURES

FIGURE PAGE

2.1 A Conceptual Model of Market Orientation, Product Adaptation Strategy, and Export Performance..........................................................76
2.2 A Conceptual Model of Market Orientation and Export Performance with High and Low Product Adaptation Strategy........................................77
4.1 Path Diagram for Hypothetical Model of Market Orientation, Product Adaptation Strategy, and Export Performance........................................128
4.2 Path Diagram for Hypothetical Model of Market Orientation and Export Performance with High and Low Product Adaptation Strategy: A Constraint Model.................................................................143
4.3 Path Diagram for Hypothetical Model of Market Orientation and Export Performance with High and Low Product Adaptation Strategy: A Free Model.................................................................144
CHAPTER 1
INTRODUCTION

Exporting plays an essential role in world economic affairs and its importance is expected to grow further in a more globalized market (Young 1995). According to the literature, four major global trends have been responsible for the increasing engagement of firms in exporting activities: (1) slowing growth in many countries due to their fiscal problems and decreased domestic market opportunity, (2) enduring trade deficits, coupled with the inefficient use of currency devaluations, capital transfers, and import restrictions, (3) liberalization of the world trading system due to minimized foreign market entry barriers, and (4) magnified worldwide competition because of the growing integration and globalization of the business environment (e.g., Leonidou, Katsikeas, and Piercy 1998; Douglas and Craig 1995).

Exporting is considered one of the fastest growing economic activities, consistently exceeding the growth rate of world economic output over the past two decades (IMF 1995; IMF 2001). The contribution of exports to total world economic activity has increased significantly, and currently accounts for approximately 20% of world gross domestic product (World Bank 1995). The notable growth of world export trade has escalated from approximately $40 billion in 1945 to more than $4.5 trillion and $6.3 trillion in 1993 and 2000 respectively, a value surpassing the gross national product of every nation in the world except the USA (World Bank 1995; IMF 2001). In 2000, exports from industrial countries to the world were $4.2 trillion, followed by Asian countries with $1.12 trillion (IMF 2001). Consequently, growth-oriented domestic firms
can seek capable and natural opportunities from foreign markets. In Asian countries such as Japan, Korea, Taiwan, and China, exports have fuelled their economic development.

Over the past three decades, the number of literature which aims to explain determinants of export performance has emerged (see review by Madsen, 1987; Aaby and Slater, 1989; Chetty and Hamilton, 1993; and Zou and Stan, 1998). Previous research has identified several factors determining export performance, including export marketing strategy (e.g., McGuinness and Little 1981; Rosson and Ford 1982; Bilkey 1982; Cooper and Klienschmidt 1985; Christensen, da Rocha, and Gertner 1987; Cavusgil and Zou, 1994; Katsikeas et al., 1996), management's attitudes and perceptions (Cavusgil and Zou, 1994), management characteristics (Das, 1994), firm characteristics and competencies (Louter et al., 1991; Kaynak and Kuan, 1993), firm size (Kaynak and Kuan, 1993; Bodur, 1994; Das, 1994), industry characteristics (Holzmuller and Kasper, 1991; Ito and Pucik, 1993; Cavusgil and Zou, 1994; Holzmuller and Stottinger, 1996), export market characteristics (Cavusgil and Zou, 1994), domestic market characteristics (Madsen, 1989; Katsikeas et al., 1996), and market orientation (Rose and Shoham 2002). This present study focuses on the relationship between market orientation, export marketing strategy, and export performance.

Market orientation construct is central to the development of essential marketing practice (Kohli and Jaworski 1990; Day 1994(b); and Grewal and Tansuhaj 2001). Based on the Kaplan and Norton's (1992; 1993) suggestion of a balanced scorecard and Kohli and Jaworski (1990), market orientation influences four categories of a firm: finance, employees, innovativeness, and customers. The study of the financial implications of being market oriented has received the most empirical attention. Evidence showed that
market orientation positively influenced a firm's performance (Narver and Slater 1990; Jaworski and Kohli 1993; Desphande, et. al. 1993; Slater and Narver 1994 (a); Pitt, Caruana, and Berthon 1996; Selnes et al. 1996; Pelham 1997; Kumar, et al. 1998; Ngai and Ellis 1998; Han, Kim, and Srivastava 1998; Baker and Sinkula 1999; Matsuno and Mentzer 2000). In international marketing literature, the global standardization of marketing activities has been considered an increasingly important issue among practitioners and academicians. There are arguments for and against standardization in the literature. It is essential to note that the decision of a firm about whether or not standardization should be pursued is suitable only to the degree to which such a strategy has a positive effect on the firm's performance.

**Perspectives of Market Orientation**

Market orientation is conceptualized along a continuum (Kohli and Jaworski 1990; Narver and Slater 1990) which is characterized by the degree to which the firm gathers, disseminates, and responds to information gleaned from customers, competitors, and coordination (Kohli and Jaworski 1990). The concept of market orientation construct was introduced in the late 1980s and first addressed by Shapiro (1980). Since then, a prolific amount of research has focused on the area of market orientation and on the highly related topic of market orientation. From their empirical study, Jaworski and Kohli (1993) found that top management emphasis, interdepartmental connectedness, and reward system orientation influenced overall market orientation and that overall market orientation decreased if interdepartmental conflict and centralization increased.
The pioneering effort began from Kohli and Jaworski's (1990) work with a conceptual framework including antecedents and consequences of the market orientation construct; however, no scale measurement was developed in their study. Narver and Slater's (1990) study was the first empirical study that developed a valid measure of market orientation. The studies of Kohli and Jaworski (1990), Narver and Slater (1990), Jaworski and Kohli (1993), and Kohli, Jaworski and Kumar (1993) can be considered research foundations in the market orientation area. Other marketing academicians have since then made contributions on the scale development of market orientation (e.g., Deshpande, Farley, and Webster 1993; Lado, Maydeu-Olivares, and Rivera 1998; Gray, Matear, Boshoff, and Matheson 1998. This enhancement in scale development helps support market orientation as an operational concept, which can be implemented by marketing practitioners.

Market orientation is conceptualized as the implementation of the marketing concept, an important cornerstone of the marketing discipline (Felton 1959; Barksdale and Darden 1971; McNamara 1972). According to Kohli and Jaworski (1990, pp.1), a market oriented organization is, "one whose actions are consistent with the marketing concept." They conclude that the definitions of marketing concept are underlined by three core themes: (1) customer focus, (2) coordinated marketing, and (3) profitability. A firm becomes market-oriented if these three core themes or pillars are operationally manifest. The marketing concept suggests two important success factors: understanding the customer’s needs and preferences and satisfying them more effectively than the firm’s competitors (Kotler 1997). The marketing concept has been accepted as the optimal marketing management philosophy or the normative philosophy underlying modern
marketing thought (Varadarajan and Jayachandran 1999). The early studies on the marketing concept by researchers such as Felton (1959) and Kotler (1994) play an important role in the evolution of the market orientation area.

Perspectives of Export Marketing Strategy

In the international marketing context, the past decade has witnessed considerable research interest into the factors that determine the export marketing strategy of an organization. Zou and Stan (1998) contribute to export marketing literature by providing an updated review and synthesis of the empirical literature between 1987 and 1997 of the determinants of export performance. They classify primary determinants of export performance into 7 broad categories: (1) firm characteristics and competencies, (2) industry characteristics, (3) export market characteristics, (4) domestic market characteristics, (5) management's attitudes and perceptions, (6) management’s characteristics, and (7) export marketing strategy.

First, firm characteristics and competencies include factors such as size, age, international competence, technology, characteristics, and the firm’s capabilities/competencies. Second, industry characteristics consist of industry technological intensity and industry instability. Third, export market characteristics comprise export market competitiveness, export market attractiveness, and export market barriers. Fourth, domestic market characteristics compose of one factor, the domestic market. Fifth, management’s attitudes and perceptions incorporate the following factors: (1) management export commitment, (2) international orientation, (3) export motivation.
(proactive), (4) management’s perceived export advantage, and (5) management’s perceived export barriers. Sixth, management’s characteristics contain management’s international experience and management’s education/experience.

Finally, a review by Zou and Stan (1998) shows that export marketing strategy involves strategic factors such as: (1) firm general export strategy, (2) marketing research utilization, (3) export planning, (4) export organization, (5) product adaptation, (6) product strengths, (7) price adaptation, (8) price competitiveness, (9) price determination, (10) promotion adaptation, (11) promotion intensity, (12) channel adaptation, (13) channel relationships, and (14) channel types. In export marketing strategy, it can be seen that such factors can be categorized into overall export marketing strategies and export marketing strategies related to marketing mix variables.

As overseas expansion has become an essential thrust for many firms in several countries (Craig, Douglas, and Reddy 1987) due to the four major global trends mentioned earlier, the question arises as to whether or not export marketing strategies which are effective in one country, specifically the U.S., will also be effective in other countries. The key consideration is whether or not the marketing strategy implemented by U.S. firms should be standardized or adapted to the conditions of the foreign market (Douglas and Craig 1989). The standardization vs. adaptation strategy issue has been studied and debated extensively for nearly four decades. Recent studies; however, have proposed that neither complete standardization nor complete adaptation of the marketing program is conceivable (e.g., Jain 1989), and a contingency perspective has been advocated. This present research adopts a contingency perspective of the standardization vs. adaptation strategy issue.
Thailand as the Country Context

The choice of Thailand as the country of interest for this study was based on several factors. Although much research in the international standardization topic has appeared lately, the literature is nowhere near conclusive or practical, the reason being the limited number of empirical studies in the area of international marketing (Jain 1989, Ozsomer et al. 1991). With regard to developing countries, empirical research on market orientation and international marketing standardization is even more limited because it is focused mainly on the markets in the U.S. and other developed countries. There appears to be a need for further empirical studies on the practice of market orientation and marketing standardization by exporting firms in developing countries which also assess the generalization of existing knowledge. Thailand provides rich opportunities for such research, with 13,635 exporting firms located in Thailand as of the end of 2001 (Department of Export Promotion 2002).

Thailand is a major trade partner of the United States. According to the IMF (2001), the United States was the largest export market of Thailand, followed by Japan, Singapore, and Hong Kong respectively. Table 1.1 shows that exports from Thailand to the United States increased from 15.32% ($10.07 billion) in 1995 to 25.66% ($14.68 billion) in 2000. Thailand was the United States’ thirteenth largest import market in 2000, while Canada, Mexico, Japan, China, and Germany served as the United States’ five largest import markets.
Another reason for choosing Thailand is that while most previous research in market orientation and marketing strategy has been conducted from a U.S. perspective, Thailand can be considered a starting point to investigating the marketing strategies which lead to success in exports and how successes which work in developed countries are not the same as those which work in developing countries. Thailand is a developing country where there exist differences from the U.S. in terms of culture, marketing

### TABLE 1.1

**Trade Statistics of Thailand**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Exports</strong></td>
<td>65.69</td>
<td>66.86</td>
<td>59.11</td>
<td>41.05</td>
<td>46.47</td>
<td>57.19</td>
</tr>
<tr>
<td><strong>Total Imports</strong></td>
<td>55.02</td>
<td>59.52</td>
<td>61.62</td>
<td>59.17</td>
<td>63.94</td>
<td>75.10</td>
</tr>
<tr>
<td><strong>Export to U.S.A.</strong></td>
<td>10.07</td>
<td>10.02</td>
<td>11.15</td>
<td>12.17</td>
<td>13.30</td>
<td>14.68</td>
</tr>
<tr>
<td><strong>Import from U.S.A.</strong></td>
<td>8.50</td>
<td>9.24</td>
<td>8.67</td>
<td>6.05</td>
<td>6.12</td>
<td>6.64</td>
</tr>
<tr>
<td><strong>Trade Balance</strong></td>
<td>1.57</td>
<td>0.78</td>
<td>2.48</td>
<td>6.12</td>
<td>7.18</td>
<td>8.04</td>
</tr>
<tr>
<td><strong>Thai Share of U.S. Imports (%)</strong></td>
<td>15.32</td>
<td>14.98</td>
<td>18.86</td>
<td>29.64</td>
<td>28.62</td>
<td>25.66</td>
</tr>
</tbody>
</table>

Source: IMF (2001)
infrastructure, government regulations, socioeconomic conditions, political and legal systems, stage of economic development, and customer values and life styles.

An Evaluation of the Literature

Regarding managerial determinants of export performance, a lot of research, in spite of numerous published studies, is characterized by fragmented efforts because of the lack of systematic analysis or assimilation of existing knowledge, and a critical synthesis is needed (Leonidou and Katsikeas, 1996). The efforts to review and synthesize export performance literature by Aaby and Slater (1989) and Chetty and Hamilton (1993) have made contributions towards the study on the effect of firm characteristics on export performance. In addition, the efforts to review and synthesize export performance literature by Zou and Stan (1998) have made contributions towards the determinants of export performance, and the determinants include six broad categories: (1) export marketing strategy, (2) managers' attitudes and perceptions, (3) managers' characteristics, (4) firm characteristics and competencies, (5) industry, and (6) foreign and domestic market characteristics. There are at least five limitations to current research on export performance, market orientation and export marketing strategy that inhibit researchers from claiming their centrality to the field of marketing.

First, although there was evidence of the positive relationship between market orientation and performance (Narver and Slater 1990; Jaworski and Kohli 1993; Slater and Narver 1994; Selnes, Jaworski, and Kohli 1996), the overall issue of market orientation's predictive power on performance is still an open question. Jaworski and
Kohli (1993) found no significant relationship between market orientation and market share. Pelham and Wilson (1996) did not find a positive relationship between market orientation and share/growth. Selnes et al. (1996) did not find any significant relationship between market orientation and market share. Pelham (1997) found no significant relationship between market orientation and profitability/cash flow as well as market position/growth. In addition, the literature on market orientation reveals that there is a need to study market orientation in a non-U.S. context (e.g., Kohli, Jaworski, and Kumar 1993).

Second, only a few studies were found which investigate the effect of market orientation on performance in the context of exporting firms, and no study was found in the context of Asian countries. A recent study by Rose and Shoham (2002) examined the effect of market orientation on export performance and the moderating effect of environmental variables in the context of Israeli exporting firms. Rose and Shoham (2002) employed Jaworski and Kohli’s (1993) conceptual and operational framework for market orientation and examined a relation between market orientation and export performance. Another recent study by Cadogan, Diamantopoulos, and Siguaw (2002) investigated the antecedents and consequences of market-oriented activities in the context of U.S. exporting firms and the moderating role of environmental factors on the relationship between market-oriented activities and export performance.

Third, although repeated calls to investigate the effect of standardization strategy on financial performance exist, little effort towards such studies was found. Unfortunately, results of previous studies about the relationship between export marketing strategy and performance are fragmented, and some conclusions about the
relationship between export marketing strategy and export performance are not totally clear (Aaby and Slater 1989; Madsen 1987; Cavusgil and Zou 1994; Zou and Stan 1998).

Fourth, there exist other gaps in the literature on adaptation strategy: (1) a major debate on whether or not company’s marketing program and marketing process should be standardized (e.g., Cavusgil et al. 1993; Douglas and Wind 1987; Levitt 1983; and Zou et al. 1997), (2) a need to empirically study the effects of standardization (adaptation strategy) on performance in a Non-U.S. context (e.g., Zou et al. 1997), and (3) a need to identify the underlying dimension of and develop corresponding constructs for adaptation of each of the four elements (4 Ps) of the marketing program (e.g., Zou et al. 1997).

Fifth, no prior study empirically examines the roles of export marketing strategy types: standardization v.s. adaptation, as an alternative, potential moderator of the relationship between market orientation and a firm’s business performance. Recent research by Matsuno and Mentzer (2000) empirically examined the moderating effects of a business strategy type: defender, prospector, analyzer, and reactor, on the market orientation–performance relationship. Our understanding of the relationship between market orientation and export performance can be advanced substantially by utilizing a comparison of export performance between firms with the standardization strategy and firms with the adaptation strategy.

**Purposes of the Study**

Significant progress has been made with respect to the positive relationship between market orientation and financial performance. Nevertheless, most previous research has
been conducted from the perspective of US-domestic firms. A major gap in the market orientation literature lies in whether or not our existing knowledge can be generalized for companies and exporting firms in other nations, especially in the developing countries. In addition, although international marketing researchers have made significant progress with respect to the degree of standardization of international marketing strategy (Cavasgil et al., 1993; Jain 1989), there is a need to develop knowledge about the comparisons of financial effects between high and low degrees of standardization. Significant room exists to advance extant knowledge on those variables which influence export performance. *The primary purpose of the present study is to extend this body of research and empirically study the relevance of market orientation and export marketing strategy in determining export performance.* Specifically, the intent of this research is to make three unique contributions to the literature:

1. examine whether or not there is a positive relationship between market orientation and performance in the context of exporting firms in Thailand,
2. empirically evaluate whether or not there is a positive relationship between the product adaptation strategy and the export performance of firms in Thailand,
3. extend the body of literature in market orientation and the international marketing strategy by empirically examining the role of the international marketing strategy type: adaptation v.s. standardization, as a moderator of the market orientation-export performance relationship.

Results from this present study will not only provide a suitable context to assess the generalization of the existing knowledge in current market orientation literature, but will also shed light on the controversial issue of the financial effects of standardizing
international marketing strategy. By studying both market orientation and export market strategy, it is likely that this present study will help firms with the compatibility decision between organizational capability (market orientation) and strategic orientation in order to increase performance. As exporting firms in Thailand and other developing countries are forced to compete against efficient firms from the U.S. and other developed countries, they will have to improve their marketing skills in order to survive. This improvement in competitive skill will enable them to become successful exporters in their own right. Aggressive exporting by firms in Thailand will provide a major boost to its economy.

**Organization of the Dissertation**

The dissertation is organized into five chapters. Chapter 1 provides an introduction to the study. It includes the topics of perspectives of market orientation, perspectives of export marketing strategy, Thailand as the country context, an evaluation of the literature, purposes of the study, and organization of the dissertation. Chapter 2 incorporates three topics: (1) a review of market orientation, (2) a review of international marketing strategy (standardization vs. adaptation), and (3) international marketing strategy type and the relationship between market orientation and export performance.

For a review of market orientation, the following issues will be presented: definitions of market orientation, antecedents to market orientation, scale development, consequences of market orientation, and the relationship between market orientation and export performance. Moreover, for a review of international marketing strategy, two topics will be discussed: three schools of thought regarding standardization and the
relationship between standardization and performance. Chapter 3 includes five sections: (1) sample and data collection procedure with respect to sample design, data collection, and non-response bias, (2) questionnaire development, and (3) measures with respect to market orientation, export performance, and product adaptation strategy.

Chapter 4 presents the analysis and the results of the study. The first three parts of the chapter discuss: (1) measurement validity for a product adaptation strategy with respect to an exploratory factor analysis (EFA), driving factors and assessing overall fits, and a second-order confirmatory factor analysis (CFA), (2) measurement validity for market orientation including first-order CFA and second-order CFA, and (3) measurement validity for export performance with respect to first-order CFA and second-order CFA. The fourth part discusses the statistical model and analysis including the structural equation model (SEM), hypotheses test results from the SEM, a multi-sample analysis, and hypothetical test results from a multi-sample analysis.

Chapter 5 discusses the study’s conclusions and implications. The first part discusses about the conclusions of market orientation and performance, product adaptation and performance, and the moderating effects of international marketing strategy on the market orientation-performance relationship. The second part presents theoretical and managerial implications. Finally, limitations and future research issues are offered in the last part of the chapter.
CHAPTER 2
A REVIEW OF THE LITERATURE

A Review of Market Orientation

In the international marketing context, there are several reasons why market orientation is particularly important for if exporting firms to succeed. First, these firms often encounter seemingly diverse needs and preferences by customers of different export markets. Second, they also often confront competitors that are supported by foreign governments, located in countries with low labor costs, or allied with financial institutions. Third, some of these competitors will be more familiar with export markets and be able to better satisfy their customers by tracking customer needs and preferences. The challenge for the exporting firm is finding how to better satisfy local customers' needs and preferences, while attaining the benefits of exporting, and responding in a timely manner to the strenuous strategic moves of foreign competitors.

According to Varadarajan and Jayachandran (1999), the market orientation concept is a set of tangible actions initiated by the firm as well as the underlying culture that enables a firm to keep track of changes in demand and supply and to respond appropriately to these changes. Market orientation is a precondition to formulate effective competitive responses and innovations. Hunt and Morgan (1995) point out that market orientation would be a resource if it provided information about customers and competitors necessary to the firm, and that market orientation can lead to comparative advantage only if it is rare among competitors. A sustainable competitive advantage
results from a firm's activities only if (1) those activities are unique, (2) they are difficult to achieve and copy, and (3) there exists a causal ambiguity between the activities and performance (Reed and DeFillippi 1990).

The value of thorough market intelligence and the necessity of functionally coordinated behaviors directed at gaining a competitive advantage are supported by a market driven culture (Day 1994 a). Slater and Narver (1994 b) propose a conceptual framework of market orientation, customer value, and superior performance. They assert that market-oriented cultures help develop and maintain core capabilities that continuously create superior customer value. Customer service, quality, and innovation are three components of core capability. To develop market orientation, a business can formulate two alternative strategies regarding top management leadership: the programmatic approach and the adaptive approach.

Jaworski, Kohli, and Sahay (2000) suggest that there are two complementary approaches to market orientation—a market-driven and a driving-markets approach. They define market-driven as, “learning, understanding, and responding to a stakeholder’s perceptions and behaviors within a given market structure” and driving markets as “changing the composition and/or roles of players in a market and/or the behavior(s) of players in the market.” A firm can simultaneously pursue a market-driven approach and a driving-market approach. Learning about market developments, sharing information with appropriate personnel, and adapting offerings to a changing market is the philosophy of the market orientation concept.
There are several definitions of market orientation. Shapiro (1980) uses the term market oriented to represent a set of processes touching on all aspects of the company. He asserts that there are three characteristics making a company market-driven: (1) information on all important buying influences permeates every corporate function, (2) strategic and tactical decisions are made interfunctionally and interdivisionally, and (3) divisions and functions make well-coordinated decisions and execute them with a sense of commitment. However, the definition provided is not operational. Operational definition of market orientation are contributed by Kohli and Jaworski (1990) and Narver and Slater (1990) respectively as follows:

"The organizationwide generation of market intelligence pertaining to current and future customer needs, dissemination of the intelligence across departments, and organizationwide responsiveness to it". (Kohli and Jaworski, p.6, 1990)

"The organization culture that most effectively and efficiently creates the necessary behaviors for the creation of superior value for buyers and, thus, continuous superior performance for the business. (Narver and Slater, p., 21, 1990)

Although Kohli and Jaworski (1990) contributed the first operational definition of market orientation to the discipline, their study did not include scale development. The clear domain of the market orientation construct from their study was delineated through the methodology used, including the literature in marketing and related disciplines, field interviews with managers in diverse functions, hierarchical levels, and organizations. The field research consisted of in-depth interviews with 62 U.S. managers. Three core themes or pillars underline the operational definition: intelligence generation,
intelligence dissemination, and responsiveness. According to Kohli and Jaworski (1990), market intelligence pertains to not only the current customer's needs and preferences, but also to the customer's future needs and preferences. It also analyzes the effects of exogenous variables such as technology and competitors. Intelligence dissemination means that participation of all departments in an organization is required for responding effectively to a market need. Responsiveness involves taking action, such as selecting target markets, designing and offering products, as well as producing, distributing, and promoting the needed product, in response to intelligence that is generated and disseminated. On the other hand, Narver and Slater (1990) hypothesize that the market orientation construct is a one-dimensional construct consisting of three behavioral components—competitor orientation, customer orientation, and interfunctional coordination. Deshpande, Farley, and Webster (1993) use the term customer orientation for market orientation. As they note, "we define customer orientation as the set of beliefs that puts the customer's interest first, while not excluding those of all other stakeholders such as owners, managers, and employers, in order to develop a long-term profitable enterprise."

Among these definitions, Kohli and Jaworski's (1990) definition and Narver and Slater's (1990) definition are the two most cited. There are differences and similarities between the two definitions. Two differences between the two definitions can be addressed. First, whereas Kohli and Jaworski (1990) define market orientation definition from a behavioral perspective, Narver and Slater (1990) define market orientation from a cultural perspective. Kohli and Jaworski (1990) use the term market orientation to mean the implementation of the marketing concept. However, Narver and Slater (1990)
assert that market orientation is an essential element of business culture. Second, there are differences in the dimensions of the market orientation construct. Kohli and Jaworski (1990) hypothesize that market orientation consists of three dimensions: (1) intelligence generation, (2) intelligence dissemination, and (3) responsiveness while Narver and Slater (1990) hypothesize that market orientation is a one-dimensional construct consisting of customer orientation, competitor orientation, and interfunctional coordination.

These two definitions of market orientation result from different perspectives; however, there are three distinct similarities between them. First, both studies place emphasis on the customer as the focal point of the definition in the belief that a firm needs to know what customers need. Second, these authors have focused implicitly or explicitly on responsiveness to customer needs. Finally, they agree that market orientation comprises a continuum. According to these two definitions, this present study takes a behavioral activities/process perspective and considers that Kohli and Jaworski’s (1990) definition is more comprehensive and more applicable. Another reason that this study chooses to focus on the Kohli and Jaworski (1990) framework is due to its widespread applicability. It is crucial to focus on what an organization actually does and how it goes about it, rather than focusing on what it feels or says is important.
Antecedents to Market Orientation

Knowledge about antecedents to market orientation is contributed by Kohli and Jaworski (1990), Jaworski and Kohli (1993), and Pelham and Wilson (1996). Kohli and Jaworski (1990) and Jaworski and Kohli (1993) propose that organizational structure is an antecedent to market orientation, which consists of three factors: (1) top management (emphasis, risk aversion), (2) interdepartmental dynamics (conflict, connectedness), and (3) organizational systems (formalization, centralization, departmentalization, and reward systems). Jaworski and Kohli (1993) empirically examined the effects of these factors on degrees of market orientation in large firms, and the market orientation in their study included market intelligence generation, market intelligence dissemination, and responsiveness of organization. The first antecedent of market orientation relates to top management, including top management’s emphasis and risk aversion. The firm is not likely to be market oriented if it does not receive clear signals from top managers about the importance of being responsive to customer needs (Jaworski and Kohli 1993). However, if top management is risk averse, junior managers are less likely to emphasize generating or disseminating market intelligence or responding to changes in customer needs (Kohli and Jaworski 1990). Jaworski and Kohli (1993) hypothesize that the greater the top management’s emphasis is on market orientation, the greater the focus market orientation will be.

Second, interdepartmental dynamics including conflict and connectedness are the set of factors that are hypothesized to have an effect on market orientation. According to Jaworski and Kohli (1993), interdepartmental conflict referring to the tension among
departments resulting from the incompatibility of actual or desired response (Gaski 1984; Raven and Kruglanski 1970) is likely to hinder communication across departments (Ruekert and Walker 1987). Moreover, a concerted response by the departments to changes in customer need is likely to be inhibited by tension among departments (Jaworski and Kohli 1993). It is proposed that the greater the interdepartmental conflict, the lower the (1) market intelligence dissemination and (2) responsiveness of the organization. According to Jaworski and Kohli (1993), market orientation is also posited to be influenced by interdepartmental connectedness referring to “the degree of formal and informal direct contact among employees across departments,” and connectedness facilitates information dissemination and actual utilization of the information (Cronbach and Associates 1981; Deshpande and Zaltman 1982; Paton 1978). Jaworski and Kohli (1993) hypothesize that connectedness has a positive impact on market intelligence dissemination and the responsiveness of the organization.

Third, organizational systems are hypothesized to affect market orientation. Organization systems include three structural variables—formalization, centralization, and departmentalization—and the reward system. According to Jaworski and Kohli (1993), the definitions of the three structural variables are as follows: (1) formalization indicates the degree to which an organization’s rules define roles, authority relations, communications, norms and sanctions, and procedures (Hall, Haas, and Johnson 1967); (2) centralization is defined as the opposite of the amount of delegation in decision-making authority throughout an organization and the extent of participation by organizational members in decision-making (Aiken and Hage 1968); and (3) departmentalization is defined as the number of departments into which organizational
activities are divided and compartmentalized. It is likely that both formalization and centralization have a negative impact on information utilization (Deshpande and Zaltman 1982; Zaltman, Duncan, and Holbek 1973). According to Jaworski and Kohli (1993), market orientation can be viewed as a form of innovative behavior because it concentrates on doing something new or different in response to market conditions (Zaltman, Duncan, and Holbek 1973). Innovative behavior is composed of two stages: (1) the initiation stage (i.e., awareness and decision-making) and (2) the implementation stage (i.e., carrying out the decision). Zaltman, Duncan, and Holbek (1973) argue that formalization, centralization, and departmentalization may hinder the initiation stage of innovative behavior, but they may facilitate the implementation stage of innovative behavior. Jaworski and Kohli (1993) hypothesize that formalization, centralization, and departmentalization have a negative relationship with the intelligence generation, dissemination, and response design, but a positive relationship with the response implementation.

The last variable of organizational systems is the reward system. Measurement/reward systems are influential in shaping the behaviors of employees (Anderson and Chambers 1985; Jaworski 1988). Webster (1988, pp. 38) argues that “...the key to developing a market-driven, customer-oriented business lies in how managers are evaluated and rewarded” and observes that if managers are evaluated on the basis of short-term profitability and sales, they are likely to put emphasis on these criteria and neglect market factors such as customer satisfaction. Jaworski and Kohli (1993) hypothesize that the reliance on market-based factors for evaluating and rewarding
managers has a positive effect on market intelligence generation, intelligence dissemination, and responsiveness of organization.

Jaworski and Kohli (1993) found significant results in that overall market orientation increased if the following factors increased: (1) top management emphasis, (2) interdepartmental connectedness, and (3) reward system orientation. In contrast, overall market orientation decreased if the following factors increased: (1) interdepartmental conflict and (2) centralization. Specifically, they also found that: (1) intelligence generation has a positive relationship with top management’s emphasis and reward system orientation, (2) intelligence dissemination has a positive relationship with top management emphasis and reward system orientation, but a negative relationship with interdepartmental conflict and centralization; and (3) responsiveness has a positive relationship with top management emphasis and reward system orientation, but negative relationship with top management risk aversion, interdepartmental conflict and centralization.

Pelham and Wilson (1996) empirically study antecedents to market orientation in small firms. The antecedents in their study include market structure, firm structure and firm strategy. Nevertheless, the proposed relationships of antecedents and market orientation in their study are different from those in Jaworski and Kohli’s (1993) study. Pelham and Wilson (1996) argue that in small firms, because of the typical low levels of formalization, greater formalization and control systems will not significantly decrease the innovative aspects of a market-oriented culture, but will have a positive effect on marketing implementation, which will reinforce market-oriented behavior. They further argue that, given the low levels of control and the coordinating systems in small firms,
greater use of such systems reinforces the appreciation of market information gathering and customer satisfaction across functions. Moreover, Pelham and Wilson (1996) contend that decentralization is likely to provide employees across functions and levels with a greater connection in activities designed to improve customer satisfaction, thus enhancing market orientation.

Pelham and Wilson (1996) also argue that, because of uncomplicated organization structure and small capital investment requirement, small firms have the potential qualities of flexibility and adaptability. As Pelham and Wilson (1996) state, "small firms have fewer built-in barriers to communication and a reduced tendency to foster subcultures based on functional specialty," and operating efficiencies may be improved by modifying their structure to accommodate product differences. However, they propose that communication is likely to be reduced by increasing the extent of firm structure, thus lowering the level of market orientation. Finally, Pelham and Wilson (1996) propose that innovation/differentiation, market dynamism, and competitive intensity have positive relationships with market orientation. Based on their yearly difference models and lagged variable models, the empirical results showed that: (1) formalization is positively related to market orientation in only a yearly difference model; (2) coordination is positively related to market orientation in a lagged variable model; and (3) competitive intensity is positively related to market orientation in a lagged variable model.

Powpaka (1998) proposed the conceptual model of factors affecting the adoption of market orientation in the context of Thailand and found empirical evidence. Through a structural equation approach, they found that the adoption of market orientation is
positively affected by the attitude toward market orientation and the attitude toward innovation in management orientation. There are four factors affecting attitudes toward market orientation: the relative advantage of market orientation, market turbulence, competitive intensity, and attitude toward innovation in management orientation. However, the attitude toward innovation in management orientation is positively affected by innovativeness and negatively affected by opinion leadership. Data were collected from 318 business managers in Thailand using personal interviews. However, this study did not directly apply to the market orientation construct. In the context of an exporting firm, Cadogan, Diamantopoulos, and Siguaw (2002) found that export experience, export dependence, and coordinating capabilities positively were positively related to export market-oriented (EMO) activities.

Scale Development

The market orientation scale was developed by several groups of researchers such as Narver and Slater’s (1990), Jaworski and Kohli (1993), and Deshpande, Farley, and Webster (1993). Based on a literature review, Narver and Slater (1990) developed a 15-item scale which is conceptualized as a one-dimensional construct consisting of three components: customer orientation, competitor orientation, and interfunctional coordination. Based on a literature review and field interview, Jaworski and Kohli (1993) developed a 32-item scale which is conceptualized as a three-dimensional construct including market intelligence generation, dissemination, and responsiveness. Kohli, Jaworski, and Kumar (1993) developed a 20-item market orientation scale called
MARKOR which is revised from Jaworski and Kohli’s (1993) 32-item scale. Deshpande, Farley, and Webster (1993) developed a customer orientation 9-item scale and used the term customer orientation to mean market orientation. More recent studies developed an improved market orientation scale. Matsuno, Mentzer, Rentz (2000) developed an improved scale built on Kohli et al. (1993). Deshpande and Farley (1998) synthesized a 10-item scale based on three different market orientation scales of Narver and Slater (1990), Kohli et al. (1993), and Deshpande et al. (1993). Table 2.1 illustrates the empirical research in market orientation and consequences of market orientation.

Narver and Slater’s (1990) study is the first empirical one that develops a valid measure of market orientation. Narver and Slater (1990) developed a 15-item scale. As mentioned earlier, through a literature review, the market orientation construct is conceptualized as a one-dimensional construct consisting of three behavioral components—competitor orientation, customer orientation, and interfunctional coordination—and two decision criteria, long-term focus and profit objective. A business can maximize its long-run profits if it continuously creates superior value for the target customer, which can be created if a business is customer oriented, competitor oriented, and interfunctionally coordinated.
**TABLE 2.1**

Empirical Research, Scale Development, and Consequences of Market Orientation

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Scale Basis</th>
<th>Performance</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Narver and Slater (1990)</td>
<td></td>
<td>A 15-item scale was developed. (based on literature review)</td>
<td>ROA</td>
<td>Positive</td>
</tr>
<tr>
<td>2. Jaworski and Kohli (1993)</td>
<td>U.S.A.</td>
<td>A 32-item scale was developed (based on Kohli and Jaworski (1990).</td>
<td>Overall performance, market share, organization commitment, esprit de corp</td>
<td>Positive except market share</td>
</tr>
<tr>
<td>3. Kohli, Jaworski and Kumar (1993)</td>
<td>U.S.A.</td>
<td>A 20-item scale called MARKOR was developed (based on Kohli and Jaworski (1990)'s 32-item scale)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4. Desphande, <em>et. al.</em> (1993)</td>
<td>Japan</td>
<td>A 9-item scale was developed. (based on personal interview and literature).</td>
<td>Profitability, size, market share, growth rate</td>
<td>Positive</td>
</tr>
<tr>
<td>5. Slater and Narver (1994 a)</td>
<td>U.S.A.</td>
<td>Narver and Slater (1990)'s 15-item scale</td>
<td>ROA, sales growth, new product success</td>
<td>Positive</td>
</tr>
</tbody>
</table>

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Scale Basis</th>
<th>Performance</th>
<th>Results</th>
</tr>
</thead>
</table>
TABLE 2.1 Continued

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Scale Basis</th>
<th>Performance</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. Lado et al. (1998)</td>
<td>Belgium and Spain</td>
<td>A 36-item scale was developed. (based on literature)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>11. Gray et al. (1998)</td>
<td></td>
<td>A 20-items scale was developed. (based on Narver and Slater (1990)'s scale, Jaworski and Kohli (1993)'s scale, Deng &amp; Dart (1994)'s scale)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>12. Kumar, et al. (1998)</td>
<td>U.S.A.</td>
<td>A 25-items scale was adapted. (based on Narver and Slater (1990)'s scale)</td>
<td>ROA, growth in revenue, success of new service/facilities, success in controlling operational expenses, success in retaining patients</td>
<td>Positive</td>
</tr>
</tbody>
</table>
TABLE 2.1 Continued

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Scale Basis</th>
<th>Performance</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>17. Lukas and Ferrell (2000)</td>
<td>U.S.A.</td>
<td>Narver and Slater (1990)'s scale</td>
<td>Product innovation (line extension, me-too products, new-to-the world products)</td>
<td>Positive and negative</td>
</tr>
<tr>
<td>18. Matsuno and Mentzer (2000)</td>
<td>U.S.A.</td>
<td>A 37-item scale was adapted. (based on Kohli and Jaworski (1993)'s MARKOR scale)</td>
<td>ROI, market share, growth, relative sales growth, new product sales</td>
<td>Positive and negative</td>
</tr>
</tbody>
</table>
TABLE 2.1 Continued

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Scale Basis</th>
<th>Performance</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.</td>
<td>Israel</td>
<td>Jaworski &amp; Kohli (1993)’s scale</td>
<td>Sales, change in sales, profit, change in profit</td>
<td>Positive</td>
</tr>
<tr>
<td>22.</td>
<td>China</td>
<td>Deshparde &amp; Farley (1998)’s 10-item scale</td>
<td>Organizational performance (changes in (1) product, (2) brand, (3) sale strategies, (4) promotion/advertising strategies)</td>
<td>Positive</td>
</tr>
</tbody>
</table>
The sample in Narver and Slater's (1990) study included 113 SBUs in the forest products division of a U.S. corporation which consisted of 36 commodity businesses, 23 specialty products businesses, 5 distribution businesses, and 3 export businesses. Split samples were used to check for reliability and combined samples were used for a check on construct validity. They validated a five-component market orientation scale and found that two of the subscales—long-term focus and profit emphasis—did not meet the scale reliability criteria of cronbach alpha of 0.70 recommended by Nunnally (1978, pp. 245).

Narver and Slater's (1990) study reports several psychometric properties shown in Table 2.2, including cronbach alpha, item-to-item correlation, and percent of variance explained. The cronbach alpha of customer orientation, competitor orientation, interfunctional coordination, long-term horizon, and profit emphasis scales for the first sample are 0.85, 0.72, 0.71, 0.48, and 0.14, respectively, and for the second sample are 0.87, 0.73, 0.73, 0.41, and 0.003, respectively. As a result, they had to proceed with the validation of the first three scales which exceeds the cronbach alpha of 0.70 recommended by Nunnally (1978, p.245) for exploratory research.

The market orientation score is calculated as the simple average of the scores of the three components to which Narver and Slater (1990) give equal conceptual importance. The authors noted that it may be possible that the items in the two subscales were insufficient and inappropriate. Therefore, the conclusions about the empirical relationship of the two decision criteria (e.g., long-term horizon, profit emphasis) cannot be confirmed.
TABLE 2.2
Psychometric Properties of Narver and Slater (1990)’s Market Orientation Scale

<table>
<thead>
<tr>
<th>Description</th>
<th>Cronbach Alpha</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Market Orientation Scale</td>
<td>- a 15-item scale is developed</td>
<td></td>
</tr>
<tr>
<td>2. Validity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1 Content Validity</td>
<td>- Based on literature review</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Consisting of three components: customer orientation; competitor orientation; and interfunctional coordination</td>
<td></td>
</tr>
<tr>
<td>2.2 Construct Validity</td>
<td>Cronbach Alpha</td>
<td>Correlation</td>
</tr>
<tr>
<td>2.2.1 Convergent Validity</td>
<td>0.8810</td>
<td>0.74</td>
</tr>
<tr>
<td>- Customer Orient. &amp; Competitor. Orient.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Customer Orient. &amp; Interfunc. Coord.</td>
<td>0.72</td>
<td></td>
</tr>
<tr>
<td>- Competr. Orient. &amp; Interfunc. Coord.</td>
<td>0.66</td>
<td></td>
</tr>
<tr>
<td>2.2.2 Discriminant Validity</td>
<td></td>
<td>0.53</td>
</tr>
<tr>
<td>- Interfunctional Coordination &amp; Human Resource Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Interfunctional Coordination &amp; Customer Orient.</td>
<td>0.72</td>
<td></td>
</tr>
<tr>
<td>- Interfunctional Coordination &amp; Competitor Orient.</td>
<td>0.66</td>
<td></td>
</tr>
<tr>
<td>2.2.3 Concurrent Validity</td>
<td></td>
<td>0.45</td>
</tr>
<tr>
<td>- Mkt. Orient.&amp; Differentiation Strategy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Mkt. Orientation &amp; Low Cost. Strategy</td>
<td>0.28</td>
<td></td>
</tr>
<tr>
<td>2.3 Predictive Validity (not found)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Reliability</td>
<td>Cronbach Alpha</td>
<td></td>
</tr>
<tr>
<td>3. Reliability</td>
<td>Sample 1</td>
<td>Sample 2</td>
</tr>
<tr>
<td>- Customer Orientation</td>
<td>0.85</td>
<td>0.87</td>
</tr>
<tr>
<td>- Competitor Orientation</td>
<td>0.72</td>
<td>0.73</td>
</tr>
<tr>
<td>- Interfunctional Coordination</td>
<td>0.71</td>
<td>0.73</td>
</tr>
<tr>
<td>- Long-Term Horizon</td>
<td>0.48</td>
<td>0.41</td>
</tr>
<tr>
<td>- Profit Emphasis</td>
<td>0.14</td>
<td>0.003</td>
</tr>
</tbody>
</table>

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Using exploratory factor analysis, however, the result from Narver and Slater's (1990) study is less than desirable, because they found a one factor solution explaining 44.8% of the variance. All of the correlations exceeded 0.67 and the high Cronbach alpha (0.881) was found. Therefore, convergent validity exists. In addition, using the test to find significant difference between dependent correlations, they found that the correlation between human resource management policy and interfunctional coordination (0.530) is significantly less than the correlations between interfunctional coordination and other market orientation components (higher than 0.65). As a result, discriminant validity is suggested. Narver and Slater (1990) propose that a differentiation strategy, being an external emphasis, shall be pursued by an SBU with strong market orientation, rather than a low cost strategy. They found that concurrent validity exists because the correlation of market orientation with differentiation (0.45) is higher than the correlation of market orientation with a low cost strategy (0.28).

Another scale was developed by Jaworski and Kohli (1993). They extend Kohli and Jaworski's (1990) conceptual framework and developed a 32-item scale of market orientation through a 4-phase iterative procedure. Data were collected from two samples. The first sample was 222 SBUs from 102 companies including members of MSI and companies listed in the Dun and Bradstreet Million Dollar Directory. The second sample was 230 executives from the American Marketing Association. This scale was revised later by Kohli, Jaworski, and Kumar (1993).

Kohli, Jaworski, and Kumar (1993) developed a valid measure of market orientation by continuing Jaworski and Kohli's (1993) study. They proposed the 20-item market orientation scale called MARKOR and assessed its psychometric properties.
The single-informant sample was 487 American Marketing Association people with 230 responses. The multi-informant sample consisted of 49 Marketing Science Institute firms with 13 responses as well as 479 companies listed in the Dun and Bradstreet Million Dollar Directory with 102 responses. They developed the MARKOR scale through the methodological process including revision, expansion, single-informant analysis, multi-informant sample analysis, replication analysis, and validation analysis.

To assess the quality of the measured items, 25 items were initially selected from the scale developed by Jaworski and Kohli (1993). This step was followed by three pretests. The first, second, and third pretests resulted in a scale of 21 items, 32 items, and 32 items, respectively. Using exploratory factor analysis, they got a first-order factor structure (MOD4) with one general factor and three correlated market orientation component factors: intelligence generation, intelligence dissemination, and responsiveness. The fit statistics for the 32 items did not show an adequate level of fit ($\chi^2 = 710.01$ at df = 429; GFI=.78; NCP=1.801; CFI=.83). Subsequent analysis resulted in the reduced set of 20 items. With the reduced 20-items scale, the fit statistics were considerably improved ($\chi^2 = 147$ at df = 223.55; GFI=.88).

To test several theoretically plausible models and to select the most appropriate factor, a multi-informant sample was then used. In this replication stage, potential informant-specific and item-specific factors were taken into account. However, because of discriminant validity concerns, they were not able to choose three models (MOD14, MOD20, and MOD22), all of which include a general factor and three component factors. The correlations between the intelligence dissemination component factor and the responsiveness component factor in these three models suggest that the two
component factors lack discriminant validity. They finally estimated an additional model (MOD25). The fit statistics of the MOD25 model were less than desirable ($\chi^2 = 955.21$ at df = 659; GFI=.681; NCP=296.21; CFI=.736) and worse than those with MOD4 solution. The multi-informant sample solution was different from the single-informant sample solution in that it consisted of five factors: (1) a general factor, (2) an intelligence generation factor, (3) a combined (or "collapse") dissemination and responsiveness factor, (4) an M (the marketing informant) factor, and (5) an N (the non-marketing informant) factor. It should be noted that, originally, the MARKOR was conceptualized as a three-dimensional construct.

It would be desirable for a scale to clearly represent the purported factorial structure. The MARKOR scale, however, combines different components and adds an additional factor fundamentally for an empirical fit purpose. These, as well as, other psychometric properties of the scale, are shown in Table 2.3. According to Kohli, Jaworski, and Kumar (1993), the MARKOR scale assesses the degree to which a SBU (1) engages in multi-department market intelligence generation, (2) disseminates this intelligence vertically and horizontally through both formal and informal channels, and (3) develops and implements marketing programs based on the intelligence generated. Moreover, there are three key attributes of the market orientation measurement: (1) a focus on customers of the SBU and the forces that drive their need and preferences, (2) activity-based items, not business philosophy, and (3) the boundary of a general market orientation factor and associated component factors.

Other researchers developed a market orientation scale in an international context, developed an improved market orientation scale, and synthesized/generalized
market orientation measurement. Deshpande, Farley, and Webster (1993) developed a customer orientation 9-item scale and used the term customer orientation to mean market orientation. The customer orientation 9-item scale is based on literature reviews, personal interviews, and pretesting in a small sample of the firms. Their study illustrated a unique sampling and methodology that involved 50 matched dyad pairs (called quadrads) of Japanese manufacturers (two marketing executives) and their key customers (two purchasing executives).

Deshpande, Farley, and Webster (1993) also empirically studied if customer orientation, as it related to corporate culture and in concordance with organizational innovativeness, was positively related to business performance. More details of this study will be discussed regarding the consequences of market orientation.

Lado, Maydeu-Olivares, and Rivera (1998) developed an operational measure of market orientation and examined the validity and reliability of this measure in two well-defined populations, Belgium and Spain. Market orientation is defined as the extent to which firms use information about their stakeholders to co-ordinate and implement strategic actions. The sample consisted of 34 and 32 insurance companies in Belgium and Spain, respectively. Market orientation scale in Lado, Maydeu-Olivares, and Rivera’s (1998) study consists of nine components. Based on a review of literature, 62 items were generated, and each of them was scaled on an 11-point scale ranging from 0 to 10. A 36-item scale resulted from the evaluation of the experts. They found a two-orthogonal model with an overall market orientation component and a country-specific residual component. Their model expands traditional definitions of market orientation by integrating the distributor orientation and the environmental orientation.
TABLE 2.3

Psychometric Properties of Kohli, Jaworski, and Kumar (1993)'s

Market Orientation Scale

<table>
<thead>
<tr>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Market Orientation Scale</strong></td>
</tr>
<tr>
<td>- 20 Items called MARKOR 20 conducted through 3Pretests( 21 items After the 1st and 32 items After the 2nd and the 3rd ); finally, 12 Items were eliminated</td>
</tr>
<tr>
<td><strong>2. Validity</strong></td>
</tr>
<tr>
<td><strong>2.1 Content Validity</strong></td>
</tr>
<tr>
<td>- Literature Review and Field Interview</td>
</tr>
<tr>
<td>- There are 3 Factors: Market Intelligence Generation; Dissemination; and Responsiveness</td>
</tr>
<tr>
<td><strong>2.2 Construct Validity</strong></td>
</tr>
<tr>
<td>Single Informant Sample (For Reliability and Validity Purpose)</td>
</tr>
<tr>
<td>Multi-Informant Sample (For Reliability and Validity Purpose)</td>
</tr>
<tr>
<td><strong>2.2.1 Model and Factor Solution</strong></td>
</tr>
<tr>
<td>MOD 4 (MARKOR 32):</td>
</tr>
<tr>
<td>- One General Factor and Three Correlated Market Orientation Component Factors</td>
</tr>
<tr>
<td>MOD 25 (MARKOR 20):</td>
</tr>
<tr>
<td>- 1 Factor for Intelligence Generation, 1 Factor for Dissemination and Responsiveness, 1 Factor for M, 1 Factor for N and 1 General Factor</td>
</tr>
<tr>
<td><strong>2.2.2 Fit Indices</strong></td>
</tr>
<tr>
<td>Single Informant Sample (MOD 4)</td>
</tr>
<tr>
<td>Multi-Informant Sample (MOD 25)</td>
</tr>
<tr>
<td>X2</td>
</tr>
<tr>
<td>710.01</td>
</tr>
<tr>
<td>955.21</td>
</tr>
<tr>
<td>df</td>
</tr>
<tr>
<td>429</td>
</tr>
<tr>
<td>659</td>
</tr>
<tr>
<td>GFI</td>
</tr>
<tr>
<td>0.784</td>
</tr>
<tr>
<td>0.681</td>
</tr>
<tr>
<td>NCP</td>
</tr>
<tr>
<td>1.801</td>
</tr>
<tr>
<td>3.612</td>
</tr>
<tr>
<td>RNICFI</td>
</tr>
<tr>
<td>.833</td>
</tr>
<tr>
<td>0.736</td>
</tr>
<tr>
<td>TLI</td>
</tr>
<tr>
<td>.806</td>
</tr>
<tr>
<td>0.687</td>
</tr>
</tbody>
</table>
TABLE 2.3 Continued

<table>
<thead>
<tr>
<th>2.3 Predictive Validity</th>
<th>Market Orientation Model Factors (Multi-Informant Sample)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Global Measure of MO</td>
<td></td>
</tr>
<tr>
<td>M’s Response</td>
<td>.165</td>
</tr>
<tr>
<td>N’s Response</td>
<td>.070</td>
</tr>
<tr>
<td>- Top Management Emphasis</td>
<td></td>
</tr>
<tr>
<td>M’s Response</td>
<td>.112</td>
</tr>
<tr>
<td>N’s Response</td>
<td>-.005</td>
</tr>
<tr>
<td>- Interfunctional Conflict</td>
<td></td>
</tr>
<tr>
<td>M’s Response</td>
<td>-.073</td>
</tr>
<tr>
<td>N’s Response</td>
<td>-.059</td>
</tr>
<tr>
<td>- Market-based Rewards</td>
<td></td>
</tr>
<tr>
<td>M’s Response</td>
<td>.330*</td>
</tr>
<tr>
<td>N’s Response</td>
<td>-.153</td>
</tr>
<tr>
<td>- Employees’ Commitment</td>
<td></td>
</tr>
<tr>
<td>M’s Response</td>
<td>.174</td>
</tr>
<tr>
<td>N’s Response</td>
<td>.001</td>
</tr>
<tr>
<td>- Subjective Performance</td>
<td></td>
</tr>
<tr>
<td>M’s Response</td>
<td>.426*</td>
</tr>
<tr>
<td>N’s Response</td>
<td>.070</td>
</tr>
</tbody>
</table>
Market orientation scale in Lado, Maydeu-Olivares, and Rivera's (1998) study consists of nine components. Based on a review of literature, 62 items were generated, and each of them was scaled on an 11-point scale ranging from 0 to 10. A 36-item scale resulted from the evaluation of the experts. They found a two-orthogonal model with an overall market orientation component and a country-specific residual component. Their model expands traditional definitions of market orientation by integrating the distributor orientation and the environmental orientation.

Gray, Matear, Boshoff, and Matheson (1998) tried to validate existing scale measures and developed a scale which is managerially useful for measuring market orientation in the context of New Zealand. To test market orientation, parts of three different instruments were utilized: (1) Narver and Slater (1990), (2) Jaworski and Kohli (1993), and (3) Deng and Dart (1994), and the 44-item scale was chosen using the Cronbach Alpha scores from the original studies as the basis for selection. The sample was collected from 490 senior executives in New Zealand. Ten of 44 items were deleted because of low reliability, and 14 items were deleted after using exploratory factor analysis. They found a parsimonious and interpretable solution containing a 20-item scale. Market orientation from this study consisted of 5 dimensions: (1) customer orientation, (2) competitive orientation, (3) interfunctional co-ordination, (4) profit emphasis, (5) responsiveness.

Deshpande and Farley (1998) contribute a generalization and synthesis of measuring market orientation to the marketing discipline. They retest the work of three separate groups of researchers developing market orientation. This work includes Narver and Slater's (1990) 15-item market orientation scale; Kohli, Jaworski, and Kumar's
(1993) MARKOR; and Deshpande, Farley, and Webster's (1993) customer orientation scale. Based on the data of 82 executives in 27 European and U.S. companies, Deshpande and Farley (1998) found that all three scales are reliable and valid. The results also showed that the three scales appear to generalize well internationally and seem to be interchangeable. Based on the three existing scales, a 10-item scale called MORTN is synthesized, and it is reliable and valid. The MORTN scale, however, deals with only one dimension of market orientation, which is customer focus.

Matsuno, Mentzer, and Rentz (2000) developed a market orientation scale that improves the operationalization and psychometric properties of the MARKOR scale. Based on the market orientation literature and interviews, 37 new items called the MO scale were generated. Included in the new scale are a broader market factor domain of intelligence-related activities, such as macro-economic elements, suppliers, social and cultural trends, and regulatory environments. These new items were added to the original set of Kohli and Jaworski's 32 items, thereby resulting in 69 original candidate items. Through pretest 1 and the purification of items procedure, the total number of items was reduced from 69 to 46. Through pretest 2 and the purification of items procedure, the MO scale came to consist of 22 items. The MO scale is a three-dimensional construct consisting of market intelligence generation, market intelligence dissemination, and responsiveness.

Using 667 executives for each scale, they validate the MO scale and compare MO with MARKOR. The results show that the MO scale is superior to the MARKOR scale in construct validity and reliability. The authors found that the MARKOR scale is tenable only in the measurement models (MARKOR 32 and MARKOR 20), and both
models could not hold up to the second-order factorial structure. Moreover, because of identification problem, it was not possible to estimate the path coefficients and use them for assessing predictive validity. On the other hand, the authors found that the MO scale retained the three distinct first-order dimensions as components of a broad, higher-order market orientation factor. A structural equation model was used to assess the predictive validity of the MO scale. The results ($\chi^2 = 338.83$ with 353 df; GFI= .87; AGFI= .84; PGFI= .70; NFI= .82; PNFI= .71; CFI= 1.00; and path estimates range from .42 to .63) showed that the MO scale is positively and significantly related to all seven performance measures: return on assets, return on investment, return on sales, market share growth, sales growth, percentage of new product sales, and overall performance. Moreover, the authors found that the MO scale showed a high level of reliability (.85), but the intelligence generation dimension had relatively low reliability (.65). They also found that the first-order-level reliabilities of the MO scale (IG=.65, ID=.75, RESP=.81) were greater than those of the original MARKOR 32-item scale (IG=.61, ID=.69, RESP=.81).

**Consequences of Market Orientation**

According to Kaplan and Norton (1992; 1993), the balanced scorecard can be used as a comprehensive framework that translates a business’s strategic objectives into a coherent set of performance measures. The scorecard complements the financial measures with operational measures on customer satisfaction, internal processes, and innovation and improvement. As Kaplan and Norton (1993) note, “the balanced score
card is not a template that can be applied to businesses in general or even industry-wide.” Different market strategies and different competitive environments involve different scorecards. Based on Kaplan and Norton’s (1992; 1993) suggestion of a balanced scorecard and Kohli and Jaworski (1990), the consequences of market orientation can be divided into four categories: innovativeness consequences, employee consequences, customer consequences, and financial consequences. The literature shows that researchers in this area focus on financial consequences.

*Innovativeness Consequences.* Deshpande, Farley, and Webster’s (1993) study is the first empirical study to relate simultaneously the concepts of organizational culture, customer orientation, and innovativeness to business performance. Relative profitability, relative size, relative growth rate, and relative share of markets are used to measure business performance. The results showed that culture types are determinants of business performance. Firms with cultures that are relatively responsive (market) and flexible (adhocracy) can gain higher performances than ones with cultures that are consensual (clan) and internally oriented and bureaucratic (hierachical). Moreover, they found that customer orientation and innovativeness are main determinants of business performance, even after culture was controlled.

Lukas and Ferrell (2000) examined the effect of market orientation on product innovation. Product innovation can be divided into three basic categories: (1) line extensions, (2) me-too products, and (3) new-to-the-world products. The market orientation construct is based on Narver and Slater’s (1990) scale. Data were provided by 194 SBUs of U.S. manufacturing companies listed in Dun & Bradstreet Information
Services using a mail survey. Through canonical correlation analysis and regression analysis, they found that product innovation varies with market orientation. First, customer orientation has a positive effect on the introduction of new-to-the-world products, but a negative effect on the launching of me-too products. Second, competitor orientation has a positive effect on the introduction of me-too products, but a negative effect on the launching of line extensions and new-to-the-world products. Finally, interfunctional coordination has a positive effect on the introduction of line extensions, but a negative effect on the launching of me-too products. Contrasting with this study, Parasuraman (1980) found no evidence between the marketing concept and the new product's innovativeness. Similarly, no evidence between market orientation and product newness was found in Atuahene-Gima's (1996) study. However, Pelham and Wilson (1995) found evidence that market orientation is related to managers' perceptions of relative product quality.

Employee Consequences. Jaworski and Kohli (1993) found that market orientation had a positive relationship with employee organizational commitment and employee esprit de corps. Siguaw, Brown, and Widing (1994) studied the effects of market orientation on the salesperson's behavior and attitude. The salesperson's perception of the firm's orientation was used to measure all constructs. The sampling data used were a group of 278 salespeople from U.S. firms listed in the Association for Information and Image management membership roster, and mail questionnaire was used. Market orientation was measured using the scale developed by Narver and Slater (1990). They found that market orientation affects salespeople's customer orientation, role stress, job satisfaction, and organizational commitment. The results show that the
market orientation of a firm significantly influences the job attitudes and customer orientation of its salespeople. From the salesperson’s perspective, if the firm has a high market orientation, the sales force practices greater customer orientation, has reduced role stress (conflict and ambiguity), and expresses greater job satisfaction and organizational commitment.

Customer Consequences. In the balanced score card proposed by Kaplan and Norton (1992), customer satisfaction tends to fall into four categories: time (customer based order-to-delivery times), quality (customer-perceived quality and value), performance and service (customer-perceived levels of service), and cost. Pelham and Wilson’s (1995) study showed that market orientation affected managers’ perceptions of relative product quality. Little research has examined the relationship between market orientation and customer satisfaction based on these four categories. According to Jaworski and Kohli (1996), there is little research studying market orientation -customer satisfaction relationship with quality, value, and lead times. It is likely that consequences from market orientation and improved customer satisfaction include customer retention and increased market share, which may result in increased financial performance. In other words, we can infer that if market orientation was found to have a positive effect on customer satisfaction, market orientation would create superior value for buyers, and thus, continuous superior performance.

Financial Consequences. The most empirical attention to date focuses on the financial implications of being market oriented. Most research studying the relationship
between market orientation and performance were conducted in the U.S. Some evidence suggests that market orientation positively affects business performance. Kaplan and Norton (1992) discuss a firm's three financial goals consisting of survival, success, and prosperity. Indicator(s) of survival is cash flow, of success are quarterly sales growth and operating income by division, and of prosperity are increased market share by segment and return on equity. The relationship between market orientation and performance is the issue that has been empirically studied by most researchers. Empirical evidence shows that market orientation has a positive effect on performance. Narver and Slater (1990) found a positive relationship between market orientation and ROA. Jaworski and Kohli (1993) found positive relationship between market orientation and overall performance. Desphande, et al. (1993) reported a positive effects of market orientation on profitability, size, market share, and growth rate. Slater and Narver (1994) found positive relationship between market orientation and ROA and sale growth. Pitt, Caruana, and Berthon (1996) found that market orientation positively affected overall performance.

Moreover, Selnes et al. (1996) reported a positive relationship between market orientation and overall performance. Pelham (1997) found a positive relationship between market orientation and effectiveness. Kumar, et al. (1998) also found a positive relationship between market orientation and ROA as well as growth in revenue. Ngai and Ellis (1998) found that market orientation has a positive effect on growth/share and profitability. Han, Kim, and Srivastava (1998) reported a positive relationship between market orientation and self-reported growth and self-reported ROA. Baker and Sinkula (1999) found that market orientation has positive effect on relative market share and
overall performance. Based on strategic types, Matsuno and Mentzer (2000) found a positive relationship between market orientation and market share growth, relative sales growth, and new product sales. Grewal and Tansuhaj (2001) found that market orientation has a negative effect on return on investment goals, sales goals, profit goals, and growth goals after a crisis in Thailand.

Although significant progress in the study of market orientation-performance relationship has been made, these findings are limited in two main respects. First, most researchers include subjective measures of performance or profitability rather than objective ones. Practically, it is less likely to be able to predict how much performance or profitability increases per given increase of market orientation of firms in different industries (Jaworski and Kohli 1996). Second, there are diverse metrics of measures of performance or profitability, such as cash flow, return on assets, market share, and net income. While Kaplan and Norton (1992) argue that a unique perspective on performance results from each dimension of performance, the diverse metrics require specific assessments of the relationships with market orientation. The details of the studies with regard to scale development and consequences of market orientation are discussed below, and the summarized results of these studies are shown in Table 1.

Narver and Slater’s (1990) study is the first to empirically test the relationship between market orientation and business performance (ROA). The authors propose the independent effects model of relationships between market orientation, business-specific factors, market-level factors, and performance. In this study, a 15-item market orientation scale was developed. Using the ordinary least squares regression analysis, they found a positive effect between market orientation and business profitability (ROA).
in non-commodity businesses of a U.S. corporation. This study helps support the proclamation stating that a business’s market performance will increase if it increases its market orientation, which has been proposed continuously by both marketing academicians and practitioners for more than 3 decades (see e.g., Levitt 1960, Webster 1988).

Jaworski and Kohli (1993) completed their first empirical study on market orientation and found a positive relationship between market orientation and overall (judgmental) business performance. They proposed a conceptual framework consisting of four items: antecedents, market orientation, moderator factors, and consequences. There are two consequences of market orientation: business and employee (organizational commitment and esprit de corps) performance. In this study, a 32-item market orientation scale was developed. Using regression analysis, they found a significantly positive relationship between market orientation and overall (judgmental) performance. However, there was not enough evidence to show a relationship between market orientation and market share. Moreover, their findings indicated that market orientation is a determinant of performance regardless of environmental contexts including market turbulence, competitive intensity, and technological turbulence.

Slater and Narver (1994 a) investigated whether or not a competitive environment influences the form and effectiveness of a business’s market orientation. They also tried to determine whether or not there are conditions that favor either a customer or competitor emphasis over balance. The sample was 81 SBUs in a forest product company and 36 SBUs in a diversified manufacturing corporation listed among Fortune 500’s largest industrial firms. They utilized the Narver and Slater’s (1990) 15-item
market orientation scale. Relative emphasis (customer versus competitor) is measured as a ratio of a business’s score on the customer orientation subscale to its score on the competitor orientation subscale. Market performance in this study includes ROA, sales growth, and new product success relative to all other competitors. The evidence showed that market orientation had a positive relationship with both sales growth and new product success.

Pitt, Caruana, and Berthon (1996) empirically investigated the relationship between market orientation and performance in the UK and Malta. Market orientation was measured using MARKOR, which is a 20-item instrument develop by Kohli et al. (1993). Instead of a five-point Likert-type scale, a seven-point Likert scale was used. Subjective perceptual measures of organization performance were used. Three measures of performance consist of ROCE, sales growth, and overall performance. Through factor analysis, these three items were found to be tapping into a unidimensional construct, and they were summed up to form one overall measure of performance. In the UK sample, the data came from 161 service firms using mailed questionnaires. In the Maltese sample, the data came from 193 firms of various types and sizes. Although the $R^2$ of 0.10 and 0.09 for the samples from the UK and Malta, respectively, was low, the results showed that market orientation had a positive effect on performance in both countries.

Pelham and Wilson (1996) examine the impact of market orientation on small-business performance in an integrated model using longitudinal data. Performance measures consist of relative product quality, new product success, growth/share, and profitability. A longitudinal database developed by the Center for Entrepreneurship at Eastern Michigan University measured a broad spectrum of internal firm and external
industry variables. The data were collected from 68 Michigan firms involved in manufacturing, wholesaling, business services, and construction, and used regression analysis. Market orientation consisted of nine items and was based upon Pelham’s (1993) analysis in measures of market orientation as used by Narver and Slater (1990) and Jaworski and Kohli (1993). Pelham’s (1993) study, consisting of 160 small manufacturing firms, found that Narver and Slater’s measures achieved the best reliability and validity scores for small firms, and they were therefore used in this study. Pelham and Wilson (1996) found that market orientation was significantly and positively related to relative product quality, new product success, and profitability, but not to growth/share.

Selnes, Jaworski, and Kohli (1996) proposed a conceptual framework consisting of a theoretical model of market orientation, organizational antecedents, and consequences embedded in a context of two cross-national factors, political-economy and national culture. The authors empirically studied market orientation in the U.S. and Scandinavia (Denmark, Norway, and Sweden). Using a mail survey, data were gathered from 222 SBUs in the U.S. and 237 SBUs in Scandinavia. Performance was measured as overall performance (subjective), market share, organizational commitment, and esprit de corps. Market orientation was based on Kohli, Jaworski, and Kumar’s (1993) MARKOR scale. In both samples, the results showed that market orientation had a positive effect on all performance variables except market share. Moreover, the empirical evidence showed that the relationship between market orientation and overall performance was stronger in the U.S. than in Scandinavia. The authors proposed that the overall level of market orientation in a market driven economy like the U.S. should be higher than that in.
more regulated markets such as those in the Scandinavia. It was found that market orientation on average in both countries was not significantly different.

They found some significant differences in the three component factors, however, but they were small in magnitude. Market intelligence generation in the U.S. firms (Mean=22.7) was higher than that in the Scandinavian firms (Mean=21.4). Responsiveness of the Scandinavian firms (Mean=34.3) was higher than that of the U.S. firms (Mean=33.1). This could imply that market orientation has the strongest effect on performance in a capitalism economy. No significant differences in the overall level of market orientation between the firms in the two countries could be found. This could mean that market orientation is driven not only by the external incentives, but also by organizational antecedents. The findings in organizational variables showed that Scandinavian firms have less conflict and less bureaucracy (formalization) when compared to U.S. firms. Furthermore, their reward systems are not market based. The authors suggest that some antecedents which facilitate and/or impede market orientation may cancel or balance one another out.

orientation-performance relationship is strongest in differentiated markets characterized by low levels of customer differentiation and high levels of product differentiation. They found market orientation significantly influenced firm effectiveness when the relationship was moderated by high customer differentiation. They concluded that the industry environment has little impact on the strength of the market orientation-performance relationship.

Kumar et al. (1998) studied the relationship between market orientation and performance in the health care industry. The market orientation scale was based on a 25-item scale revised from Narver and Slater (1990). The sample data came from 159 U.S. hospitals randomly drawn from the American Hospital Association Guide to the Health Care Field. The five performance criteria included growth in revenue, return on capital, success of new services/facilities, success in retaining patients, and success in controlling expenses. The four control variables consisted of relative size, profit orientation, location, and age. The three moderator variables included competitive hostility, supplier's power, and market turbulence. The authors found that market orientation was positively related to all of the performance criteria. The results of the moderated multiple regression analyses show that: (1) competitive hostility moderates the relationship between market orientation and three of the five measures—return on capital, success of new services, and success in controlling expenses, (2) market turbulence moderates the relationship between market orientation and four of the five measures—return on capital, success of new services, success in retaining patients, and success in controlling expenses, and (3) supplier's power moderates the relationship
between market orientation and three of the five measures—return on capital, success of new services, and success in controlling expenses.

Ngai and Ellis (1998) examined the relationship between market orientation and performance. Market orientation was measured using the Narver and Slater (1990) scale. Through mailed questionnaires, 73 textile and garment companies listed in the Directory of Hong Kong Industries were sampled. The performance measures included sales growth/market share growth and profitability. Regression analysis was conducted, and the authors found a positive relationship between market orientation and performance.

Han, Kim, and Srivastava (1998) proposed a framework to test the postulated "market orientation-innovation-performance" chain. The effect of market orientation on performance was tested with Narver and Slater's (1990) market orientation framework. The data sample consisted of 134 U.S. firms in the banking industry. Moderating variables included: (1) innovation, which consisted of technical innovation and administrative innovation, (2) market turbulence, and (3) technological turbulence. The authors found that market orientation was positive but not significant on performance. However, when innovations were accounted for, market orientation was a significant contributor to superior performance. The authors found that market orientation was significant to both types of innovations, which, in turn, helped corporate performance.

Baker and Sinkula (1999) propose positive relationships between market orientation and organizational performance—change in relative market share, new product success, and overall performance. The authors use the 20-item MARKOR scale developed by Kohli et al. (1993) to measure market orientation. Through ordinary least squares regression, the results show that market orientation is significantly and positively...
related to overall performance, market share, and new product success. Furthermore, when the degree of learning organization is high, there is a positive relationship between market orientation and change in relative market share. While there is an absence of market orientation on market share in the study by Jaworski and Kohli (1993), this study replicating and extending their research found evidence of this relationship because of the moderating effects of learning orientation on market-orientation-market share relationship. It is likely that long-term competitive advantage can result from an interactive effect between market orientation and learning orientation (Day 1994; Slater and Narver 1995). Baker and Sinkula (1999) confirm that the strong connection between market orientation and learning orientation can offer lower risk innovation.

Matsuno and Mentzer (2000) study the effects of strategy type on the relationship between market orientation and performance. The four strategic types defined by Miles and Snow (1978) consist of defenders, prospectors, analyzers, and reactors. Performance measures were ROI, market share growth, relative sales growth, and new product sales as a percentage of total sales. Data were collected from 364 U.S. manufacturing companies. The 37-item improved market orientation scale was based on Kohli and Jaworski’s (1993) scale. Using regression analysis, the empirical results showed that: (1) the strength of the relationship between market orientation and performance (ROI) is greater for defenders than for either prospectors or analyzers and (2) the strength of the relationship between market orientation and performance (market share growth, relative sales growth, and new product sales) is greater for prospectors than either defenders or analyzers.
Grewal and Tansuhaj (2001) studied the role of market orientation and strategic flexibility to help Thai firms manage during the Asian economic crisis. Data were gathered from 120 Thai managers of small and midsized firms. Performance criteria include return on investment goals, sales goals, profit goals, and growth goals. They found that market orientation has negative effect on firm performance after a crisis. This relationship is moderated by demand and technological uncertainty and is enhanced by competitive intensity.

In the context of an export market, export success is determined by the degree of the firm’s market orientation in oversea markets (e.g., Cadogan, Diamantopoulos, and de Mortanges 1999; Hart and Tzokas 1999; Cadogan, Diamantopoulos, and Siguaw 2002; and Rose and Shoham 2002). Hart and Tzokas (1999) investigated the relationship between export marketing research activities and SME export performance in the UK. They found that export performance was positively related to the type of data obtained, the research medium used, and the method (Hart and Tzokas 1999).

Rose and Shoham (2002) study the relationship between market orientation and export performance of 124 Israeli exporting firms. The market orientation scale operationalized in their study was based on Kohli et al.’s (1993) operationalization of market orientation. Four dimensions of export performance include sales, profitability, change in sales, and change in profits. They found that, except export sales, export performances were positively related to overall market orientation, intelligence generation, and responsiveness, but not to intelligence dissemination.

Cadogan, Diamantopoulos, and Siguaw (2002) investigated the antecedents and consequences of export market-oriented (EMO) activities in the context of U.S. exporting
firms and examined whether or not the strength of an exporting firm’s EMO activities and its export performance was weaker under conditions of low environmental turbulence than under conditions of high environmental turbulence. EMO activities were measured using the existing scale developed by Cadogan, Diamantopoulos, and Mortanges’ (1999) scale. They found that export market-oriented activities influenced export performance, measured as satisfaction with export sales, export profits, export market share, and rate of new market entry. The results, however, did not show the moderating effects of environmental turbulence on such a relationship.

A recent study by Liu, Luo, and Shi (2003) found a positive relationship between market orientation and organizational performance in China. Deshparde and Farley (1998)’s 10-item market orientation scale was adopted in this study. Organizational performance consisted of four items including changes in: (1) organization’s product, (2) brand, (3) sales strategy, and (4) sales promotion/advertising strategies.

**Market Orientation and Export Performance**

Export performance in this present study consists of three dimensions: financial export performance, strategic export performance, and satisfaction with the export firm. According to Aaby and Slater (1989) and Zou et al. (1998), a number of competencies result in improved export performance including export market knowledge, export planning, market research utilization, proactive export motivation, technological intensity, communication, formal policies for systematically exploring, identifying, and pursuing export opportunities, a firm’s international competence, quality control, and
management systems for monitoring and controlling export activities. Many of these variables are conceptually analogous to market orientation. According to Rose and Shoham (2002), intelligence generation relates to identifying opportunities and monitoring the environment, while intelligence dissemination and responsiveness, respectively, refers to a firm's ability to distribute, react, plan for, and capitalize on market information. Strategy theorists share the view that the strategic imperative of a firm should be sustained through superior financial performance (Hunt 1999). Becoming and remaining market oriented is crucial to the continuous creation of superior value, which results in maximized long-run profit (Narver and Slater 1990, Narver and Slater 1994). The external emphasis of market orientation is in developing information about customers and competitors, so the market-driven business is developed enough to anticipate the developing needs of customers and respond to them through the addition of innovative products and services (Slater and Narver 1995). As a result, a market-oriented export firm is likely to anticipate better performance, (in terms of financial export performance, strategic export performance, and satisfaction with export firm, than that of firms with less emphasis on market orientation. Based on the literature discussed above, a hypothesis can be developed as follows:

*Hypothesis 1: Export performance, as measured by financial export performance, strategic export performance, and satisfaction with export firm, increases as the degree of market orientation increases.*
A Review of International Marketing Strategy (Standardization vs. Adaptation)

In the area of international marketing, the marketing strategy formulation process can be viewed as the composing of a series of decisions relating to an organization’s (1) strategic orientation (standardization vs. adaptation), (2) desired degree of standardization of the strategic resource mix (i.e., the pattern of resource allocation among advertising, promotion, personal selling, and other marketing mix variables), and (3) the desired degree of standardization of the strategy content (i.e., decisions on product positioning, brand name, appropriate media, content of advertisements etc.) (Szymanski, Bharadwaj, and Varadarajan 1993). Researchers have conceptualized standardization in different ways. For instance, standardization strategy implies that the same marketing strategy is applied to all markets (e.g. Samiee and Roth 1992), or is conceptualized as a domestic marketing strategy applied to a foreign market (e.g. Cavusgil et al., 1993 and Zou et al. 1997).

There are two aspects of standardization: the marketing program and the marketing process (Cavusgil et al. 1993; Jain 1989; Sorenson and Wiechmann 1975), and a firm may standardize one or both of these aspects. While a marketing program pertains to various aspects of the marketing mix, the marketing process is pertinent to the tools that aid in development and implementation of a given marketing program (Cavusgil et al. 1993; Jain 1989; Sorenson and Wiechmann 1975; Walters 1986). This present study centers primarily on those issues related to the standardization (or adaptation) of marketing program.
Advances in communication and transportation technology, as well as increasing interdependences of markets, are major factors of significant research attention to the concept of global marketing over the last two decades. In the international marketing literature, the globalization of markets and the desirability of standardization vs. adaptation of marketing mix and other competitive strategy variables across national markets have been debated extensively among academicians and practitioners (e.g., Buzzell 1968; Cavusgil et al. 1993; Douglas and Wind 1987; Hill and Still 1984; Jain 1989; Levitt 1983; Sorenson and Wiechmann 1975). Such debates focus on the pros and cons of pursuing a strategy of total standardization across national markets versus complete adaptation to individual markets. Recent studies in standardization literature center on the (1) desired degree of standardization (or adaptation) of competitive strategy variables such as brand name, advertising, sales promotion, and pricing (Riesenbeck and Freeling 1991) and (2) moderating effects of organizational variables and environmental variables on the relationship between the desired degree of standardization (or adaptation) and these competitive strategies (Szymanski, Bharadwaj, and Varadarajan 1993; Quelch and Hoff 1986).

Three Schools of Thought Regarding Standardization

There are three schools of thought regarding the standardization of marketing mix and other competitive strategy variables: (1) the case for standardization, (2) the case for adaptation, and (3) the contingency perspective. Each school of thought has both advantages and disadvantages.
The Case for Standardization. In an extreme case, a firm may totally standardize its marketing program by offering identical product lines at identical prices through identical distribution systems with an identical promotional program (Buzzell 1968). Eliner (1961) first raised the issue of standardization with reference to advertising and stressed that uniform advertising is desirable and feasible because of emerging similarities among European consumers. One of the most noted advocates of standardization has been Levitt (1983). In his powerful article, Levitt (1983) argues forcefully that advances in communication and transportation technologies, as well as increased worldwide travel, have contributed to the homogenization of world markets, resulting in the emerging of global consumers who demand products with high quality at low prices. These changes in the global markets have resulted in the competitive advantages of the firms. The potential to produce a product at a low cost is a main source of competitive advantage. To compete successfully in the global market, Levitt argues that firms must seek a standardized product and international marketing strategy because standardization leads to economies of scale in production, distribution, marketing, and management. Levitt (1983) stated:

“A power force drives the world toward a converging commonality, and that force is technology.....The result is a new commercial reality---the emergence of global markets for standardized consumer products on a previously unimagined scale of magnitude. Corporations geared to this new reality benefit from enormous economies of scale in production, distribution, marketing, and management. By translating these benefits into reduced world prices, they can decimate competitors that still live in the disabling grip of old assumptions about how the world works.”

(Levitt 1983, p.92)
Proponents for the standardization school of thought argue that a firm can gain several advantages such as cost efficiencies, message consistency with customers, improved planning and distribution, and an ability to attract common cross-national market segments by standardizing the marketing program (e.g., Buzzell 1968; Levitt 1983). Sharing the same view, Buzzell (1968) argued that a firm could achieve magnificent cost savings, especially in product design, packaging, and promotion through marketing standardization. Sorenson and Wiechmann (1975) contended that to compete successfully, multinational companies (MNCs) have standardized their marketing decisions "process" by establishing a uniform system for "annual marketing planning".

_The Case for Adaptation._ Proponents of the adaptation school of thought generally point to the variations of national markets in terms of cultural and socioeconomic conditions, marketing infrastructure, political and legal systems, and customer values and life styles (e.g., Douglas and Wind 1987). Diverse government regulations and differences in marketing infrastructure are external factors that influence a standardization strategy (Zou and Cavusgil 1996; Zou, Andrus, and Norvell 1997). As long as significant differences exist among company and product characteristics, unique recipes for universal success are unlikely (Walters 1986). A company that focuses on product costs can be blind to eccentric customer needs and preferences across national markets, and find itself defenseless to competitive attacks in each foreign market (Cavusgil and Zou 1994; Zou et al. (1997). Douglas and Wind (1987) contend that:
"While global products may be appropriate for certain markets and in certain product segments, adopting such an approach as a universal strategy in relation to all markets may not be desirable and may lead to major strategic blunders. Furthermore, it implies a product orientation, and a product-driven strategy, rather than a strategy grounded in a systematic analysis of customer behavior and response patterns and market characteristics." (Douglas and Wind, 1987, p.19)

To advertise their products in national markets, firms must consider differences in factors such as culture, media availability, legal restrictions, and the stage of economic and industrial development (Agrawal 1995; Britt 1974). When government regulations are different in each national market, especially while there are the requirements of environmental regulation, product safety standards, or local content, a standardized approach is not feasible (Cavusgil et al. 1993; Zou et al. 1997). Similarly, when there are substantial differences in the marketing infrastructure of foreign markets, a firm requires adaptation strategy. The same marketing campaign may not succeed in another market due to its given deficiencies in infrastructure (Douglas and Wind 1987; Grosse and Zinn 1990; Hill and Still 1984; Zou et al. 1997).

The Contingency Perspective. More recently, researchers in standardization literature advocate the contingency perspective on the standardization vs. adaptation issue and propose that neither complete standardization nor complete adaptation is necessary. This perspective holds that the standardization vs. adaptation strategy of international marketing should be thought of as two extremes of the same continuum,
and firm operations fall somewhere in between the extremes (e.g., Daniel 1987; Jain 1989; Quelch and Hoff 1986, Cavusgil et al. 1993; Zou et al. 1997). According to this perspective, the degree of standardization vs. adaptation is influenced by the external environment and the internal organizational factors (Buzzell 1968; Cavusgil et al. 1993; Jain 1989; Ozsomer et al. 1991; Walters 1986; Zou and Cavusgil 1996). According to Zou et al. (1997), the broad theoretical foundation for the study of international marketing standardization is likely to be based on the contingency perspective (Andrus and Norvell 1990; Cavusgil and Zou 1994; Jain 1989; Kreutzer 1988).

Building on a review of previous research, Jain (1989) presented a conceptual framework for marketing program standardization that summarized the contingency perspective, but did not empirically test the proposition. According to Jain’s (1989) framework, the degree of marketing program standardization is influenced by: (1) target market (geographic area, economic factors), (2) market position (market development, market conditions, competition), (3) nature of product (type of product, product positioning), (4) environmental factors (physical environment, legal environment, political environment, marketing infrastructure), and (5) organization factors (corporate orientation, headquarters-subsidiary relationship, delegation of authority).

Zou and Cavusgil (1996) applied the contingency framework to the idea of a firm’s global strategy and proposed that global strategy is determined by internal organizational factors and external industry globalization drivers. In their framework, internal factors include: (1) market orientation, (2) managerial orientation and commitment, (3) organization culture, (4) organizational capabilities, and (5) international experience. External industry globalization drivers consist of: (1) market
factors, (2) cost factors, (3) competitive factors, (4) technology factors, and (5) environmental factors.

Cavusgil et al., (1993) adapted Jain’s (1989) conceptual framework to the case of export marketing in the contingency framework of marketing standardization, and their framework is more generalized than Jain’s (1989). They investigated the correlation of product and promotion adaptation in U.S. export venture. Their empirical results support the contingency perspective and suggest that the degree of product and promotion adaptation is significantly influenced by company characteristics, product/industry characteristics, and foreign market characteristics. Specifically, Cavusgil et al., (1993) found the following results. First, the degree of product adaptation upon entry is: (1) significantly and positively affected by the cultural specificity of a given product, (2) significantly but negatively affected by the technological orientation of industry and the similarity of legal regulations, and (3) higher when an export venture exports the product to a single export market than when an export venture simultaneously exports it to multiple export markets. Second, the degree of product adaptation after entry is: (1) significantly and positively influenced by a firm’s international experience, cultural specificity of the product, and the competitiveness of the export market, (2) significantly but negatively influenced by the technological orientation of industry and product familiarity to export customers; and (3) higher for consumer products than for industrial products.

Ozsomer, Bodur, and Cavusgil (1991), in a study of MNCs in Turkey, found that standardization of marketing mixed variables was more likely to occur when there existed a similarity between (1) external environmental conditions in the home and host
countries, (2) the consumers in both countries, and (3) the stage of a product’s life cycle in both countries. Samiee and Roth (1992) studied 147 SBUs of U.S. firms within the global industry context and found that the determinants of a global standardization strategy include: (1) the kind of products marketed, (2) the rate of technological change in specific industries, and (3) capacity utilization and market coverage. Specifically, they found that: (1) firms that produce industrial goods are more likely to use standardization than those that produce consumer goods, (2) firms that pursue global standardization are likely to face a rapid rate of technological change, and (3) firms that seek a global standardization have greater emphasis on capacity utilization, implying that standardization may be of greater importance in sourcing and production functions.

**Standardization (Adaptation) and Performance**

The pursuit of standardization vs. adaptation is generally considered to be suitable only to the extent to which it has a positive influence on financial performance. Export marketing strategies and management’s capability to implement the strategies determine the performance of an exporting firm (Aaby and Slater 1989; Cavusgil and Zou 1994; Cooper and Kleinschmidt 1985). The empirical results were grouped into three categories: (1) no difference in performance between the standardization and the adaptation strategy, (2) a negative relationship between performance and standardization (adaptation), and (3) a positive relationship between performance and adaptation. Although the literature suggests that the relationship between marketing standardization (adaptation) and business performance is not clear cut, most empirical results show a
positive relationship between performance and adaptation. No difference in the performance of firms with high and low standardization was found in some studies such as Samiee and Roth (1992) and Axinn, Noordewier, and Sinkula (1996). A study by Sriram and Manu (1995) found a negative relationship between product standardization and performance. Finally, results from some empirical studies support the positive relationship between performance and product adaptation (i.e., Cavusgil and Zou 1994; Cooper and Kleinschmidt 1985; Hill and Still 1984; Kirpalani and MacIntosh 1980; Shoham 1996) and between performance and promotion adaptation (Cavusgil and Zou 1994; Killough 1978). These empirical studies will be discussed below.

A Case of No Difference in Performance. In their study of 147 SBUs of U.S. firms within the global industry context, Samiee and Roth (1992) could not find significant difference in the key area of financial performance (ROI, ROA, and sales growth) between the firms that follow a high global standardization strategy and those that pursue a low global standardization strategy (adaptation strategy). In addition, drawing upon the work of Ansoff (1957, 1965, 1969), Kleinschmidt and Cooper (1984), Levitt (1983), and Porter (1980, 1985), Axinn, Noordewier, and Sinkula (1996) develop a products/markets typology of export strategy and examine the relationship between specific strategy choices and performance using a mailed survey to collect data from U.S. exporting firms. Their typology consists of four types of strategies: (1) customized broad-based exporters (who adapt products for export to many countries), (2) standardized broad-based exporters (who do not adapt products for export to many countries), (3) customized focused exporters (who adapt products for export to a few
countries), and (4) standardized focused exporters (who do not adapt products for export to a few countries). The results show that a standardized broad-based strategy, such as that advocated by Levitt (1983) does not result in better sales or profit performance than an adaptive, customized broad-based strategy.

**A Case of Negative Relationship.** Sriram and Manu (1995) investigate the differences in marketing strategies and export performance between 121 U.S. firms exporting (mainly) to developed countries and those exporting (mainly) to developing countries using a mailed questionnaire. Export performance includes export intensity, profit intensity, and market share. The significant results show that product standardization, direct distribution, the number of countries exported to, and a focus on price (or the importance to the customer of the product's price relative to the competitors' prices) are negatively associated with the market share of firms that export mainly to developing countries. Their study showed that the development of the exporter's marketing strategy should take into account the country of destination.

**A Case of Positive Relationship.** The following studies found the positive relationship between export performance and the adaptation strategy of a product. Kirpalani and MacIntosh (1980) investigate the relationship between product adaptation and export performance using a composite scale (called success) which consists of growth in sales, the level of export activity, and the ratio of export sales to total sales. Using personal interviews of 34 executives in U.S. and Canadian firms (mainly in the electronics, machinery, and autoparts industries), the results of their exploratory study
show that product adaptation is significantly associated with performance on the success scale.

Hill and Still (1984) study the relationship between product adaptation and performance and conduct a mailed survey of 61 subsidiaries of consumer packaged goods manufacturers operating in 22 LDCs. Most products sold had originated in the United States or the United Kingdom. Based on a survey of 174 of the 1,200 home-market products, they found that about 90% of the products are transferred into developing country markets using adaptation. Export performance is measured as strategic export performance. They also find that product adaptation relates to an MNC's improved position in the market place. Other results show that product adaptation is determined by marketing factors (local competition, consumer preferences, demands of local distribution systems) and environmental factors (legal, economic, climate, culture, and literacy and education).

Cooper and Kleinschmidt (1985) examine the relationship between export strategy and export performance of 142 firms in the Canadian electronics industry, using personal interviews. Performance measures include export growth (% growth) and export intensity (% exports/sales). The results show that product adaptation strategies, segmentation strategies, and the types of foreign markets selected have a significant impact on export sales and export growth.

Cavusgil and Zou (1994) investigated whether or not adaptation and promotion strategies have a positive impact on export performance. Based on in-depth personal interviews with 202 managers of U.S. export ventures, their study found that the performance of an export venture is influenced strongly and positively by product
adaptation and moderately but negatively by promotion adaptation. They also find that the degree of product adaptation is related strongly and positively to a firm's international competence and the cultural specificity of product, moderately and positively to product uniqueness and export market competitiveness, and strongly but negatively to a firm's experience with the product and the technological orientation of industry.

Shoham (1996) investigated the relationship between adaptation strategy of marketing mixed variables and export performance of 100 U.S. manufacturing exporters using a mailed survey and found mixed results. The four sub-dimensions of performance include sales, change in sales, profits, and change in profits. Determinants of performance consist of planning and adaptation of 10 variables (product quality, product lines, advertising contents, price, salesforce management, services, design, promotion budget, distribution, and the items in line). The significant results show that adaptation of the number of product lines, price, and salesforce management is positively associated with performance while adaptation of the number of items in each line is negatively associated with performance.

A recent study by Julian (2003) validated Cavusgil and Zou's (1994) measurement scales and investigated the key factors that influence export marketing performance in the context of Thailand. The results from exploratory factor analysis showed that factors such as competition, commitment, export market characteristics, and product characteristics have a significant influence on export performance of Thai export ventures. One of the items that measures export market characteristics is the adaptation
of product packaging, which has inconsistent meaning with the other items in the factor called export market characteristic.

The international marketing literature has made frequent mention of cost savings associated with standardization. Buzzell (1968) made the point that, although significant cost savings may result from standardization, the final decision (on standardization vs. adaptation) should balance "the pros and cons... based on estimated overall revenues and costs" (p.113). In addition, Kotler (1991, p. 419) argues that, "rather than assuming that the company's product can be introduced as is in another country, the company should review all possible adaptation elements and determine which adaptations would add more revenue than cost."

The literature suggests two conclusions. First, based on Levitt's (1983) argument, it would be expected that the performance of firms with standardization is higher than that of firms with adaptation. Second, based on the arguments of some studies such as Buzzell (1968), Douglas and Wind (1987), Kotler (1991), and Samiee and Roth (1992), it would be expected that the difference in firm performance between firms with standardization and firms with adaptation depends upon a firm's analysis of the situation based on revenue and cost. Samiee and Roth (1992), similarly, observe that the primary objective of a firm is increased profitability, not reduced costs and competitive prices. They further confirm that higher profits caused from lower costs are possible only under the assumption of relatively fixed global, industrywide prices.

According to Cavusgil and Zou (1994), adaptation strategy of marketing mixed variables has been described as the means by which a firm's offerings adapt to or fit the idiosyncracies of foreign markets (e.g., Douglas and Craig 1989; Douglas and Wind
1987; Quelch and Hoff 1986). This strategy can be interpreted as the means by which a firm achieves coalignment between the marketing strategies and internal and external environments, and performance should therefore be positively determined by an adaptation strategy. As pointed out by Samiee and Roth (1992, pp.6), the theoretical arguments, “and the realities of the marketplace significantly weaken the appropriateness and applicability of global standardization. There is no empirical evidence in the literature that firms actually seek and identify intermarket segments, a task that provides the necessary condition for global standardization as prescribed by the theoretical basis for marketing and segmentation……Though the many economies associated with global standardization are intuitively sound, they are aimed at lowering costs, which is not the same as increasing profitability.” Based on the literature discussed above, the main hypothesis of this study claims that product adaptation leads to greater export performance as illustrated in as follows:

**Hypothesis 2: Export performance, as measured by financial export performance, strategic export performance, and satisfaction with export firm, increases as the degree of product adaptation strategy increases.**
International Marketing Strategy Type and the Relationship between
Market Orientation and Export Performance

Market orientation literature has established that business performance can be enhanced by market orientation, in which customers and competitors are the core of a company's strategy (e.g., Jaworski and Kohli 1993; Narver and Slater 1990). Researchers have studied the moderating effects of industry and the market environment on the market orientation-performance relationship, but only limited support has been found. Narver and Slater (1990) propose that the market orientation of a business is influenced by the nature of demand-side and supply-side factors of a business and may not have a strong effect on performance under conditions of limited competition, stable market preferences, technologically turbulent industries, and booming economies. However, Kohli and Jaworski (1990) argue that market orientation is relevant in every market environment.

Slater and Narver (1994 a) investigated the moderating effects of a competitive environment on the form and effectiveness of a business's market orientation, as well as determining whether or not there are conditions that favor either a customer or competitor emphasis. However, little supports that environment moderates either the nature of the market orientation-performance relationship or the effectiveness of different relative emphasis within market orientation. More results indicated that low market turbulence had a moderating effect on the market orientation-performance relationship. Slater and Narver (1994 a) assert that market orientation is a particular form of business culture and that businesses that are more market oriented are best positioned for success.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
under any environmental conditions. They argue that such a moderating effect is conceptually quite plausible. Deshpande and Farley (1998) investigate industry characteristics as a potential moderator of market orientation and business performance. They find that those industries classified as consumer goods, industrial goods, and service have little or no effect on either market orientation or performance.

Rose and Shoham (2002) study the relationship between market orientation and export performance and the moderating effects of environment (market turbulence, competitive intensity, technological change) on such a relationship in the context of 124 Israeli exporting firms. Among four dimensions of export performance including sales, profitability, change in sales, and change in profits, they found that market orientation had a significantly greater effect on profit and change in profits in an environment with high technological change, so the results partially support their hypothesis.

A recent study by Matsuno and Mentzer (2000) investigates the role of business strategy type as a potential moderator of the market orientation-performance relationship in 3,300 U.S. manufacturing companies. The four strategic types, in their study, defined by Miles and Snow (1978) include (1) defenders, (2) prospectors, (3) analyzers, and (4) reactors. They find evidence that supports the moderating effects of a business strategy type on the strength of the market orientation-performance relationship. Performance includes ROI, market share, sales growth, and percentage of new product sales to total sales. The results show that the strength of the relationship between market orientation and performance (ROI) is greater for defenders than for either prospectors or analyzers and that the strength of the relationship between market orientation and performance (as measured by market share growth, relative sales growth, and new product sales as a
percentage of total sales) is greater for prospectors than either defenders or analyzers. It can be concluded from their results that the relationships between market orientation and performance are not monotonic.

According to Matsuno and Mentzer (2000), the, “structure-conduct-performance” paradigm (Thorelli 1977) suggests that a firm’s conduct is determined by internal and external structures (i.e., environments), and the responses (conducts) to such environments determines their economic performance. As pointed out by Matsuno and Mentzer (2000, p.3), “business strategy as a general direction of the firm’s response based on the filtered or distilled environmental information...can conceivably explain the varying magnitude of relationship between performance measures and a firm’s specific marketing response (or conduct) mechanism, such as market orientation.” The degree to which market orientation as an organized set of marketing activities is related to business performance could vary more across different business strategies than the market environment that determines the business strategies (Hambrick 1982; Matsuno and Mentzer 2000).

In international marketing literature, our understanding of the relationship between market orientation and export performance can be advanced substantially by utilizing a comparison of export performance between firms with a standardization strategy and firms with an adaptation strategy. Firms can gain competitive advantage as low cost or differentiation (Porter 1980). Slater and Narver (1990) found a higher correlation between the three market orientation components (customer orientation, competitor orientation, and interfunctional coordination) and a differentiation strategy than between those components and a low cost strategy. It is more likely that an SBU
with a strong market orientation pursues a differentiation strategy, an external emphasis, than a low cost strategy, which is not necessarily an external emphasis (Slater and Narver (1990). Axinn, Noordewier, and Sinkula (1996) suggest that the adaptation strategy is analogous to a differentiation strategy while standardization is analogous to a cost leadership strategy. In drawing on Porter’s (1985) framework for, “generic strategies,” as pointed out by Axinn, Noordewier, and Sinkula (1996, p.35), “we note the parallel between Porter’s “competitive advantage” dimension and product adaptation---We suggest that firms adapting their products are doing what Porter would call “differentiation” and that not adapting products is closely allied to following a “low cost” strategy.”

While the standardization strategy implies a product’s orientation (Douglas and Wind 1987; Zou et al. (1997), the adaptation strategy implies a customer’s and a competitor’s orientation. According to Samiee and Roth (1992), firms that emphasize an adaptation strategy serve markets and customers that tend to be unique, so they would have a higher propensity to develop external global information networks and secure governmental assistance in order to penetrate markets. Samiee and Roth (1992, p. 12) also made the point that, “we do not suggest that the more standardized firms do not need market information; rather, the standardized nature of their operations reduces the frequency and the need for their types of detailed data demanded by firms that view the industry as fragmented and nonstandardized (i.e., a low level of standardization requires closer monitoring of more segments and products).” Based on the literature discussed above, the hypothesis in this study can be developed (below). Figures 2.1 and 2.2

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
illustrate a visual presentation of the first two hypotheses and the third hypothesis tested in the study, respectively.

*Hypothesis 3: The positive relationship between market orientation and performance is higher for firms with high adaptation strategy than that for firms with low adaptation strategy (standardization strategy).*

Figure 2.1

A Conceptual Model of Market Orientation,
Product Adaptation Strategy, and Export Performance
Figure 2.2

A Conceptual Model of Market Orientation and Export Performance with

High vs. Low Product Adaptation Strategy
Sample and Data Collection Procedure

Sample Design

A self-administered questionnaire was used as the data collection method in this study. This study investigated the effect of market orientation and performance and the extent of standardization practice among export firms located in Thailand. The sampling data frame used for selecting companies was obtained from the Directory of Thai Exporters (Department of Export Promotion of Thailand 2001) with 13,635 companies. The research targeted only manufacturing firms with non-commodity products. Many firms, including those dealing with agricultural products/mineral/fuels, printing service/packaging, service trade, as well as trading companies, were excluded, resulting in a total of about 7,033 companies. The 2,200 export companies were randomly chosen based on a proportion of the number of export companies in each industry from the finalized 13-industry list: (1) households, (2) textiles, garments, and fashion accessories, (3) gift, decorative items, and handicrafts, (4) gems and jewelry, (5) furniture, (6) leather, footwear, and sporting goods, (7) foods, (8) cosmetics and pharmaceutical products, (9) electronic, electrical products, and parts, (10) building material and hardware items, (11) chemicals, (12) automotive, parts, and machinery, and (13) toys, games, and stationery.
Informants in this study were either the marketing manager or the export manager of the export companies.

*Data Collection*

Data collection involved one mailing because of the high cost of gathering primary data in a foreign country. The mailing consisted of a personalized cover letter, a copy of the questionnaire, and a stamped, pre-addressed return envelope. The cover page indicated that the focus of the research was international marketing strategy. The instructions and scales were provided. Each survey instrument was addressed to the marketing or export manager of each of the 2,200 Thai export firms in the sampling frame. Fifty four questionnaires were returned undelivered, and sixteen that were returned were from ineligible respondents (they generally indicated that they were no longer involved in export operation). Ten questionnaires were returned uncompleted. Of the remaining 2,120 questionnaires, 252 usable responses were obtained, resulting in a response rate of 11.89%, which is quite low. As mentioned by Hunt and Chonko (1987), high level executives are typically less likely to respond to mailed surveys than people in general.

*Non-response Bias*

Potential non-response bias was carried out by using the extrapolation method of Armstrong and Overton (1977). This means information from “early” respondents was
compared to that from "late" respondents, classified by a medium-split in the order of response. The two groups of respondents were compared in terms of (1) two exogenous variables, market orientation and product adaptation strategy, (2) one endogenous variable, export performance, and (3) characteristics of export firms, sales and the number of full-time employees. Results from an analysis of variance (ANOVA) between the "early" and "late" respondent groups showed that there was no statistical difference between the two groups in regards to any of these variables (see Table 3.1).

**Respondents Profile.** Results of this study were based on information pertaining to 252 export company cases across 13 industries. Table 3.2, 3.3, and 3.4 present a detailed profile of the sample. Table 3.2 shows that the percentage of the manager category was highest while the percentage of the president/CEO category was lowest. The results show that the sample was a fair representation of the population of exporting firms in that marketing or export manager is the key person making decisions for their international business. The majority of respondents had bachelor degrees and continued at the graduate level, consisting of 59.1% and 34.1%, respectively. 62.7% of respondents had less than 10 years experience, and 25.0% of respondents had experience between 11-19 years.
### TABLE 3.1
Assessment of Non-Response Biases

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Category</th>
<th>Mean</th>
<th>F-value</th>
<th>Sig. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market Orientation</td>
<td>Early response export firms</td>
<td>149.159</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Late response export firms</td>
<td>153.937</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.590</td>
<td>0.059</td>
<td></td>
</tr>
<tr>
<td>Product Adaptation</td>
<td>Early response export firms</td>
<td>37.198</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Late response export firms</td>
<td>35.437</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.623</td>
<td>0.204</td>
<td></td>
</tr>
<tr>
<td>Export Performance</td>
<td>Early response export firms</td>
<td>38.333</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Late response export firms</td>
<td>39.254</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.604</td>
<td>0.438</td>
<td></td>
</tr>
<tr>
<td>Annual Sales</td>
<td>Early response export firms</td>
<td>303.960</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Late response export firms</td>
<td>584.553</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.926</td>
<td>0.088</td>
<td></td>
</tr>
<tr>
<td>Number of Employees</td>
<td>Early response export firms</td>
<td>341.722</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Late response export firms</td>
<td>460.405</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.546</td>
<td>0.215</td>
<td></td>
</tr>
</tbody>
</table>
TABLE 3.2

Characteristics of the Analysis Sample:

Job Title, Education, and Working Experience

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Case</th>
<th>Percentage of Total</th>
<th>Cumulative Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Job Title</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assistant Manager</td>
<td>51</td>
<td>20.2</td>
<td>20.2</td>
</tr>
<tr>
<td>Manager</td>
<td>142</td>
<td>56.3</td>
<td>76.6</td>
</tr>
<tr>
<td>General Manager</td>
<td>55</td>
<td>21.8</td>
<td>98.4</td>
</tr>
<tr>
<td>President/CEO</td>
<td>4</td>
<td>1.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>252</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under Bachelor</td>
<td>17</td>
<td>6.7</td>
<td>6.7</td>
</tr>
<tr>
<td>Bachelor</td>
<td>149</td>
<td>59.1</td>
<td>65.9</td>
</tr>
<tr>
<td>Graduate</td>
<td>86</td>
<td>34.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>252</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td><strong>Years of Respondent's International Business Experience</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 10</td>
<td>158</td>
<td>62.7</td>
<td>62.7</td>
</tr>
<tr>
<td>11-19</td>
<td>63</td>
<td>25.0</td>
<td>87.7</td>
</tr>
<tr>
<td>20 or more</td>
<td>31</td>
<td>12.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>252</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
Table 3.3 showed that (1) 34.9% of export markets were in Asian countries excluding Japan and China, (2) 23.8% in U.S.A., (3) 20.2% in European countries, (4) 13.1% in Japan, (5) 4.4% in other countries, and (6) 3.6% in China. Most of the sampled export companies had been involved in international business for 11-19 years, and most of the respondents for less than 10 years. As can be seen in the export market of the U.S.A., this sample was consistent with Table 1.1 (Trade Statistics of Thailand) in that exports from Thailand to U.S.A. was about 25.66% in 2000.

### TABLE 3.3

**Characteristics of the Analysis Sample: Export Markets**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Case</th>
<th>Percentage of Total</th>
<th>Cumulative Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Region of Export Markets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S.A.</td>
<td>60</td>
<td>23.8</td>
<td>23.8</td>
</tr>
<tr>
<td>Japan</td>
<td>33</td>
<td>13.1</td>
<td>36.9</td>
</tr>
<tr>
<td>European Countries</td>
<td>51</td>
<td>20.2</td>
<td>57.1</td>
</tr>
<tr>
<td>China</td>
<td>9</td>
<td>3.6</td>
<td>60.7</td>
</tr>
<tr>
<td>Other Asian Countries</td>
<td>88</td>
<td>34.9</td>
<td>95.6</td>
</tr>
<tr>
<td>Others</td>
<td>11</td>
<td>4.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>252</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
Table 3.4 shows that the textiles, garments, and fashion accessories category represented the majority of the respondents. In addition, of these 252 cases, about 69.0% were related to consumer products, and 31.0% to industrial products. The results show that the sample was also representative of the populations of exporting firms in that the textiles, garments, and fashion accessories category has the highest percentage of population. Similarly, in population, the number of Thai exporting firms with consumer products is higher than those with industrial products.

Table 3.5 shows that all respondents were from manufacturing firms and that the majority of respondents had: (1) a number of export markets between 10-19 countries, (2) international experience between 10-19 years, (3) number of full-time employees of between 50-499, and (4) annual sales between 1-4.99 millions of dollars. Of these 252 cases, about 50.0% had their export markets in less than 10 countries. The results from annual sales indicated that the majority of exporting firms in this sample are small and medium, and the sample was representative of the population in that most exporting firms in Thailand are small and medium. Small and medium enterprises (SME) in Thailand, as a developing country, play important roles domestically and internationally.
TABLE 3.4

Characteristics of the Analysis Sample: Product and Industry

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Case</th>
<th>Percent of Total</th>
<th>Cumu. Percen.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumer Products</td>
<td>174</td>
<td>69.0</td>
<td>69.0</td>
</tr>
<tr>
<td>Industrial Products</td>
<td>78</td>
<td>31.0</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>252</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td><strong>Industry</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Households</td>
<td>20</td>
<td>7.9</td>
<td>7.9</td>
</tr>
<tr>
<td>Textiles, Garments, and Fashion Access.</td>
<td>42</td>
<td>16.7</td>
<td>24.6</td>
</tr>
<tr>
<td>Gift, Decorative Items, and Handicrafts</td>
<td>17</td>
<td>6.7</td>
<td>31.3</td>
</tr>
<tr>
<td>Gems &amp; Jewelry</td>
<td>8</td>
<td>3.2</td>
<td>34.5</td>
</tr>
<tr>
<td>Furniture</td>
<td>19</td>
<td>7.5</td>
<td>42.1</td>
</tr>
<tr>
<td>Leather, Footwear, and Sporting Goods</td>
<td>13</td>
<td>5.2</td>
<td>47.2</td>
</tr>
<tr>
<td>Foods</td>
<td>23</td>
<td>9.1</td>
<td>56.3</td>
</tr>
<tr>
<td>Cosmetics and Pharmaceutical Products</td>
<td>25</td>
<td>9.9</td>
<td>66.3</td>
</tr>
<tr>
<td>Electronic, Electrical Products and Parts</td>
<td>24</td>
<td>9.5</td>
<td>75.8</td>
</tr>
<tr>
<td>Building Materials and Hardware Items</td>
<td>26</td>
<td>10.3</td>
<td>86.1</td>
</tr>
<tr>
<td>Chemicals</td>
<td>7</td>
<td>2.8</td>
<td>88.9</td>
</tr>
<tr>
<td>Automotive, Parts, and Machinery</td>
<td>7</td>
<td>2.8</td>
<td>91.7</td>
</tr>
<tr>
<td>Others (Toys, Games, and Stationery)</td>
<td>21</td>
<td>8.3</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>252</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
### TABLE 3.5

Characteristics of the Analysis Sample: Number of Export Markets, Firm Experience, Firm Size, and Annual Sales

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Case</th>
<th>Percent. of Total</th>
<th>Cumu. Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Export Markets in Which Firm Operates</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 10</td>
<td>126</td>
<td>50.0</td>
<td>50.0</td>
</tr>
<tr>
<td>10-19</td>
<td>78</td>
<td>31.0</td>
<td>81.0</td>
</tr>
<tr>
<td>20 or more</td>
<td>48</td>
<td>19.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>252</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years of Firm’s International Operation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 10</td>
<td>88</td>
<td>34.9</td>
<td>34.9</td>
</tr>
<tr>
<td>10-19</td>
<td>112</td>
<td>44.4</td>
<td>79.4</td>
</tr>
<tr>
<td>20 or more</td>
<td>52</td>
<td>20.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>252</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm Size (number of full-time employees)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 50</td>
<td>71</td>
<td>28.2</td>
<td>28.2</td>
</tr>
<tr>
<td>50-499</td>
<td>120</td>
<td>47.6</td>
<td>75.8</td>
</tr>
<tr>
<td>500-999</td>
<td>35</td>
<td>13.9</td>
<td>89.7</td>
</tr>
<tr>
<td>1,000 or more</td>
<td>26</td>
<td>10.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>252</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Sales of Firm (in millions of dollars)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 1</td>
<td>67</td>
<td>26.6</td>
<td>26.6</td>
</tr>
<tr>
<td>1-4.99</td>
<td>84</td>
<td>33.3</td>
<td>59.9</td>
</tr>
<tr>
<td>5-24.99</td>
<td>80</td>
<td>31.7</td>
<td>91.7</td>
</tr>
<tr>
<td>25-49.99</td>
<td>7</td>
<td>2.8</td>
<td>94.4</td>
</tr>
<tr>
<td>50 or more</td>
<td>14</td>
<td>5.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>252</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Questionnaire Development

Questionnaire development involved several stages. First, the initial questionnaire was reviewed by four academicians who were familiar with international marketing strategy and marketing research in Asia to assess its content and face validity. Some statements were dropped and others were modified; some new items were added to the list. Second, to translate the original items to Thai, this study used two bilingual individuals who hold MBAs from a major U.S. university and were familiar with marketing and international marketing terminology. Third, two different bilingual individuals who were familiar with marketing and international marketing research back-translated the Thai version to English.

Fourth, another bilingual individual compared the back-translated version with the original version to check the equivalence of the meaning of the statements before and after the translations. Minor differences in the meanings of the items was found and resolved by consultation of the five individuals involved. The Thai version of the questionnaire was finalized. Finally, the two versions of the questionnaires were considered equivalent. For the Thai version of the questionnaire's 31-item market orientation scale, this study adopted Grewal and Tansuhaj (2001)'s Thai version questionnaire.
Measures

Market Orientation

Market orientation was operationalized with three subconstructs: intelligence generation, intelligence dissemination, and responsiveness. This study adopted Jaworski and Kohli’s (1993) market orientation measure with 10 items for intelligence generation, 7 items for intelligence dissemination, and 14 items for responsiveness, resulting in 31 items. Sample items for these three subscales were: (1) “In this business unit, we meet with customers at least once a year to find out what products or services they will need in the future” (intelligence generation), (2) “Data on customer satisfaction are disseminated at all levels in this business unit on a regular basis” (intelligence dissemination), (3) “It takes us forever to decide how to respond to our competitors’ price changes” (reverse-scored, responsiveness). These 31 statements were put into Likert-type statements and were coded on a scale of one (very strongly disagree) to seven (to very strongly agree). Of these 31 items, 10 items were reversed-score. Appendix A illustrates the statements asked for soliciting measures of the variables, and R represents reversed-score. V in every appendix represents a statement or an item of each scale.

According to Grewal and Tansuhaj (2001), after this market orientation measure was developed, advances in psychometric research on instrument development provided evidence of two potential issues with this measure. First, it is recommended by Bagozzi and Baumgartner (1994) that five or fewer items of each subscale be used to measure a unidimensional construct. Since all of the subconstructs of market orientation include
more than 5 items, it is possible that problems will be posed by assessing the unidimensionality of such subconstructs. Second, as stated by Herche and Engelland (1996), reverse-scored items should be avoided because they need not be the opposite of positively worded items. One can see that in the 31-item measure of market orientation, there are 10 reversed scored items. Follow a study by Grewal and Tansuhaj (2001), this present study sought to assess the psychometric properties of this measure as a peripheral objective in the context of Thailand. Grewal and Tansuhaj (2001) assert that the market orientation scale needs to be revised. The 31-item market orientation measure is shown in Appendix A.

**Export Performance**

Based on literature, export performance has been measured in three different ways: financial outcomes, strategic outcomes, and perceptual or attitudinal measures of performance (Zou, Taylor, and Osland (1998). Export performance in this study was operationalized by using existing scales, called EXPERF, which were developed by Zou, Taylor, and Osland (1998). Three dimensions of an export performance construct include financial export performance (3 items), strategic export performance (3 items), and satisfaction with export firm (3 items). These nine items were rated on a 7-point scale. These scale items are illustrated in Appendix C. Sample items were: (1) "This export market has been very profitable" (financial export performance), (2) "This export firm has improved our global competitiveness" (strategic export performance), and (3)
"The performance of this export firm has been very satisfactory" (satisfaction of export performance). The 9-item measure of export performance is presented in Appendix B.

**Product Adaptation Strategy**

The product adaptation strategy of a major product of an exporting company can be measured with respect to one major export market and was conceptualized as a continuum. This means that a low degree of product adaptation is comparable to a high degree of product standardization and vice versa. A thorough international marketing review revealed that there was a limited number of developed scales measuring adaptation strategy or standardization with the exception of Zou, Andrus, and Norvell (1997). This present study adopted 9 items of product adaptation construct based on literature (see Appendix B). Specifically, items 1-6 were adopted from Zou, Andrus, and Norvell (1997). While item 7 was adopted from Shoham (1996), item 8 was adopted from Cavusgil and Zou (1994). Finally, item 9 was adopted from Whitelock (1987). Sample items were: (1) “Degree of adaptation of product core design,” (2) “Degree of adaptation of brand names,” and (3) “Degree of adaptation of product quality.” These items were put into Likert-type statements and were coded on a scale of one (very strongly disagree) to seven (very strongly agree). These statements aimed to assess the degree of difference between the various aspects of products exported by Thai exporting firms and those products involved in their domestic marketing strategy. The 9-item product adaptation measure is showed in Appendix C.
High and Low Product Adaptation Strategy Groups. To divide the responding firms into two groups with different international marketing strategies, the index of the product adaptation strategy was used, and this study followed the study by Samiee and Roth (1992). Given that the measure of a 9-item product adaptation scale ranges between 9 and 63, a mean score of 36 \([\frac{9+63}{2}]\) would be selected as the dividing point for the two groups if no item was deleted in the scale validation process. However, in the measure validation process of this study (which will be discussed next), the results showed that (1) three items were eliminated from the product adaptation scale, so a mean score of 24 \([\frac{6+42}{2}]\) would be chosen and (2) the 6-item measure was grouped into three factors based on Principal Component Factor Analysis (PFA) with two items for each, resulting in a mean score of 8 \([\frac{2+14}{2}]\). Exporting firms that scored above that value were classified as pursuing a “high” adaptation strategy and others as seeking a “low” adaptation strategy (or standardization).
CHAPTER 4

ANALYSIS AND RESULTS OF THE STUDY

This chapter included two sections: measurements validity of three constructs (product adaptation strategy, market orientation, and export performance) and the statistical model and analysis. A multi-stage approach to data analysis was performed. First, EFA (Exploratory Factor Analysis) was applied for the product adaptation scale, resulting in 6 items retained. Second, second-order Confirmatory Factor Analysis (CFA) was performed for the revised product adaptation model. Third, first-order CFA was applied for the 31-item market orientation scale, resulting in 16 items retained. Fourth, second-order CFA was performed for the revised market orientation model. Fifth, first-order CFA was applied for the 9-item export performance measure. Sixth, second-order CFA was applied for the export performance model. Seventh, to evaluate a moderating effect of a strategy type (measured as “high” vs. “low” product adaptation strategy), a multi-sample analysis was performed.

The revised market orientation scale includes 16 items and is shown in Appendix D. The revised product adaptation strategy scale includes 6 items and is shown in Appendix E. With regard to first-order CFA, the LISREL syntaxes are shown in Appendixes F to H, respectively. In addition, with regard to second-order CFA, the LISREL syntaxes are shown in Appendixes I to K, respectively,
Measurements Validity for Product Adaptation Strategy

Based on literature, 9-item product adaptation strategy measure was adopted. Appendix A shows the 9-item scale. Since literature in international marketing suggests that no a priori assumption is made about the dimensionality of product adaptation strategy (Zou, Andrus, and Norvell (1997), EFA (Exploratory Factor Analysis) using SPSS 11.0 was applied to uncover the specific dimensions of a product adaptation strategy of Thai exporting firm. In order to further test the validity of this scale, CFA (Confirmatory Factor Analysis) using LISREL 8.51 was conducted. Convergent and discriminant validity for the measurement models could be assessed by CFA (Gerbing and Anderson 1988). With regard to EFA, Principal Component Analysis (PCA) and varimax rotation was performed. The principal components model is a model that has been modified to represent the original variables as the sum of two parts, common factors and unique factors. Nine test variables in this study were grouped into 3 components (factors), and the labels were assigned to them. The results from models using EFA, including: (1) KMO and Bartlett's test, (2) communalities and eigenvalue, (3) rotation, and (4) number of principal components to extract, will be discussed as follows:
Exploratory Factor Analysis (EFA)

Assessment of Overall Significance of Correlation Matrix. KMO and Bartlett’s Test were applied to assess the overall significance of the correlation matrix. The results of testing MSA (Measure of Sampling Adequacy) based on KMO and Bartlett’s test are presented in Table 4.1. First, the results show that KMO is 0.790 and meets 0.5 criteria (Hair et al. 1995). Specifically, based on Anti-image Correlation in Anti-image Matrices, MSA of all 9 variables, which are diagonal values, are greater than 0.5 criteria. MSA of V41, V42, V43, V44, V45, V46, V47, V48, and V49 are .788, .836, .836, .771, .804, .760, .756, and .853, respectively. In addition, the results show weak negative partial correlation (unique variance), which are off diagonal values. Examples are: (1) a negative partial correlation between V41 and V42 is -.327, (2) between V41 and V43 is -.326, and (3) between V42 and V43 is -.176. As a result, no variable is deleted. All variables are nice and clean.

Second, Bartlett’s test of Sphericity shows that this study could reject the null hypothesis at p = 0.000 ($\chi^2 = 894.2$, d.f. = 36). The hypotheses for Bartlett’s test are shown below. The null hypothesis states that the correlations in a correlation matrix are zero.

$H_0: \rho = 0$

$H_1: \rho \neq 0$

(where $\rho$ is correlation.)
TABLE 4.1

Measures of Sampling Adequacy and Partial Correlation*: Product Adaptation

<table>
<thead>
<tr>
<th>Item</th>
<th>V41</th>
<th>V42</th>
<th>V43</th>
<th>V44</th>
<th>V45</th>
<th>V46</th>
<th>V47</th>
<th>V48</th>
<th>V49</th>
</tr>
</thead>
<tbody>
<tr>
<td>V41</td>
<td>.788</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V42</td>
<td>-.327</td>
<td>.836</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V43</td>
<td>-.326</td>
<td>-.176</td>
<td>.836</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V44</td>
<td>.087</td>
<td>.036</td>
<td>-.166</td>
<td>.771</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V45</td>
<td>-.343</td>
<td>-.093</td>
<td>.035</td>
<td>-.327</td>
<td>.804</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V46</td>
<td>.115</td>
<td>-.128</td>
<td>.009</td>
<td>-.165</td>
<td>-.214</td>
<td>.760</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V47</td>
<td>-.056</td>
<td>.029</td>
<td>-.015</td>
<td>.233</td>
<td>-.166</td>
<td>-.573</td>
<td>.738</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V48</td>
<td>-.047</td>
<td>.115</td>
<td>-.263</td>
<td>-.348</td>
<td>.214</td>
<td>-.149</td>
<td>-.112</td>
<td>.756</td>
<td></td>
</tr>
<tr>
<td>V49</td>
<td>-.048</td>
<td>-.050</td>
<td>.052</td>
<td>-.102</td>
<td>-.228</td>
<td>.086</td>
<td>-.102</td>
<td>-.331</td>
<td>.853</td>
</tr>
</tbody>
</table>

Overall Measure of Sampling Adequacy: .790
Bartlett Test of Sphericity: 894.3 Significance .000

* Diagonal values are measures of sampling adequacy for individual item; off-diagonal values are anti-image correlations (negative partial correlations).
Driving Factors and Assessing Overall Fit

*Selecting the Number of Components.* The first step deals with selecting the number of components (factors) to be retained for further analysis. Table 4.2 contains the information with respect to the nine possible factors and their relative explanatory power, as measured by their eigenvalues. Based on the eigenvalue-greater-than-one rule and the scree plot test, three components (factors) were extracted for the next analysis.

**TABLE 4.2**

Results for the Extraction of Components Factors: Product Adaptation

<table>
<thead>
<tr>
<th>Factor</th>
<th>Eigenvalue</th>
<th>% of Variance</th>
<th>Cumulative % of Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4.061</td>
<td>45.127</td>
<td>45.127</td>
</tr>
<tr>
<td>2</td>
<td>1.178</td>
<td>13.084</td>
<td>58.211</td>
</tr>
<tr>
<td>3</td>
<td>1.079</td>
<td>11.989</td>
<td>70.200</td>
</tr>
<tr>
<td>4</td>
<td>.690</td>
<td>7.671</td>
<td>77.871</td>
</tr>
<tr>
<td>5</td>
<td>.609</td>
<td>6.762</td>
<td>84.632</td>
</tr>
<tr>
<td>6</td>
<td>.495</td>
<td>5.497</td>
<td>90.130</td>
</tr>
<tr>
<td>7</td>
<td>.364</td>
<td>4.045</td>
<td>94.174</td>
</tr>
<tr>
<td>8</td>
<td>.265</td>
<td>2.949</td>
<td>97.123</td>
</tr>
<tr>
<td>9</td>
<td>.259</td>
<td>2.877</td>
<td>100.000</td>
</tr>
</tbody>
</table>

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Eigenvalues of component 1 to 9 are 4.061, 1.178, 1.079, .690, .609, .495, .364, .265, and .259, respectively. One can see that eigenvalue of the first component is the highest. Percent of variance of component 1 to 9 are 45.12, 13.08, 11.99, 7.67, 6.76, 5.49, 4.05, 2.95, and 2.87, respectively. Eigenvalue of each factor is percent (%) of common factor variance of that factor and is calculated by summing squared loading down for each factor. Communality is the amount of common factor variance shared with other tests (variables) in the analysis. The sum of the squared coefficients (loadings) for a test (variable) will equal the total amount of variance indicated in the corresponding diagonal of correlation, (i.e., communalities). Table 4.3 shows the relationship between communalities and eigenvalues of all variables before rotation. Examples of computations of communality and eigenvalue are as follows:

Communality of variable 41 = \((0.68)^2 + (0.53)^2 + (0.08)^2\)

\[= 0.462 + 0.281 + 0.006\]

\[= 0.75.\]

Eigenvalue of factor 1 = \((0.68)^2 + (0.57)^2 + (0.66)^2 + (0.66)^2 + (0.77)^2 + (0.71)^2 + (0.65)^2 + (0.66)^2 + (0.66)^2\)

\[= 0.462 + 0.325 + 0.436 + 0.436 + 0.593 + 0.504 + 0.423 + 0.436 + 0.436\]

\[= 4.06\]

Eigenvalue of factor 1 + 2 + 3 = \(4.06 + 1.18 + 1.08 = 6.32\)

Comunalities of V41-49 = \(0.75 + 0.71 + 0.64 + 0.67 + 0.64\)

\[+ 0.81 + 0.82 + 0.75 + 0.52\]

\[= 6.32\]
TABLE 4.3
EFA Results of the Relationship between Eigenvalue and Communalities:
Before Rotation

<table>
<thead>
<tr>
<th>Variables</th>
<th>Loadings</th>
<th>Squared Loadings</th>
<th>Com.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Factor 1</td>
<td>Factor 2</td>
<td>Factor 3</td>
</tr>
<tr>
<td>Var. 41</td>
<td>0.68</td>
<td>0.53</td>
<td>0.08</td>
</tr>
<tr>
<td>Var. 42</td>
<td>0.57</td>
<td>0.62</td>
<td>-0.06</td>
</tr>
<tr>
<td>Var. 43</td>
<td>0.66</td>
<td>0.24</td>
<td>0.38</td>
</tr>
<tr>
<td>Var. 44</td>
<td>0.66</td>
<td>-0.30</td>
<td>0.38</td>
</tr>
<tr>
<td>Var. 45</td>
<td>0.77</td>
<td>0.12</td>
<td>-0.19</td>
</tr>
<tr>
<td>Var. 46</td>
<td>0.71</td>
<td>-0.26</td>
<td>-0.48</td>
</tr>
<tr>
<td>Var. 47</td>
<td>0.65</td>
<td>-0.20</td>
<td>-0.60</td>
</tr>
<tr>
<td>Var. 48</td>
<td>0.66</td>
<td>-0.44</td>
<td>0.35</td>
</tr>
<tr>
<td>Var. 49</td>
<td>0.66</td>
<td>-0.24</td>
<td>0.19</td>
</tr>
<tr>
<td>Eigen.</td>
<td></td>
<td>4.06</td>
<td>1.18</td>
</tr>
</tbody>
</table>

a Total eigenvalue of 6.32 is the same as total communality.

The results from communalities matrix shows that there are initial and extraction communalities. The initial estimates of the communalities with 1.00 value mean all of variances are factored. It is found that variable 47 (degree of adaptation of product quality) has the highest value of extraction communalities with 0.82 and that variable 49 (degree of adaptation of color) has the lowest value of extraction communalities with 0.52. Total eigenvalue of factor 1, 2, and 3 are 4.061, 1.178, and 1.079, respectively.
Eigenvalue of factor 1, 2, and 3 are 45.127 %, 13.084 %, and 11.989 % of variance, respectively. It can be seen that before rotation all variables load highly on factor 1.

**Rotation.** Rotation is used in factor analysis so as to achieve a simpler factor structure. PCA with orthogonal rotation using varimax was conducted in this study. The major objective of varimax rotation is to have a factor structure in which each variable loads highly on one and only one factor (Sharma 1996). The results from rotated component matrix show that the extraction communalities are the same as before rotation and that eigenvalues are different. Eigenvalue of factor 1, 2, and 3 are 2.228, 2.106, and 1.985, respectively. This means rotation does not change communalities but eigenvalue. The relationships between communalities and eigenvalue of all variables after rotation are shown in Table 4.4.

One can see that: (1) variable 41, 42, and 43 load highly on factor 2, (2) variable 43, 44, 48, 49 load highly on Factor 1, and (3) variable 45, 46, 47 load highly on factor 3. Loading of variable 43 on factor 1 and 2 are 0.52 and 0.61, respectively, and loading of variable 45 on factor 2 and 3 are 0.51 and 0.54, respectively. Therefore, variable 43 and 45 are complex variables and are eliminated from further analysis. On the other hand, it can be seen that: (1) variables 41 and 42 have high loading on factor 2 and near zero loading on other factors, (2) variable 44, 48, and 49 have high loading on factor 1 and near zero loading on other factors, and (3) variable 46 and 47 have high loading on factor 3 and near zero loading on other factors.
**TABLE 4.4**

EFA Results of the Relationship between Eigenvalue and Communalities:

After Rotation

<table>
<thead>
<tr>
<th>Variables</th>
<th>Loadings</th>
<th>Squared Loadings</th>
<th>Communalities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Factor 1</td>
<td>Factor 2</td>
<td>Factor 3</td>
</tr>
<tr>
<td>Var. 41</td>
<td>0.205</td>
<td>0.828</td>
<td>0.162</td>
</tr>
<tr>
<td>Var. 42</td>
<td>0.000</td>
<td>0.822</td>
<td>0.192</td>
</tr>
<tr>
<td>Var. 43</td>
<td>0.518</td>
<td>0.608</td>
<td>0.002</td>
</tr>
<tr>
<td>Var. 44</td>
<td>0.788</td>
<td>0.165</td>
<td>0.148</td>
</tr>
<tr>
<td>Var. 45</td>
<td>0.304</td>
<td>0.514</td>
<td>0.540</td>
</tr>
<tr>
<td>Var. 46</td>
<td>0.276</td>
<td>0.142</td>
<td>0.843</td>
</tr>
<tr>
<td>Var. 47</td>
<td>0.141</td>
<td>0.144</td>
<td>0.883</td>
</tr>
<tr>
<td>Var. 48</td>
<td>0.838</td>
<td>0.051</td>
<td>0.205</td>
</tr>
<tr>
<td>Var. 49</td>
<td>0.638</td>
<td>0.197</td>
<td>0.275</td>
</tr>
<tr>
<td>Eigenvalue</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
The results from factor component analysis show that there are two complex variables, variable 43 and variable 45, and they are deleted from the model. Complex variables are variables which loadings are greater than 0.40 on two or more factors. Table 4.5 shows the factor structure of product adaptation strategy, including three factors. The three product constructs are labeled as “brand & label adaptation”, “design adaptation”, and “quality and warranties adaptation”, respectively. A content analysis was conducted to purify the uncovered factor. After a thorough analysis of the substantive meanings of the factors and corresponding items was performed to purify the uncovered factors, one item, variable 49 (adaptation of color), was eliminated from “brand & label adaptation” so that only the items with consistent meaning are retained for measuring factors.

At the completion of analysis, there are six items retained for three purified factors with two items for each. Specifically, these three factors include: (1) factor 1 (brand & label adaptation) with variable 44 (adaptation of brand name) and variable 48 (adaptation of product label), (2) factor 2 (design adaptation) with variable 41 (adaptation of product core design) and variable 42 (adaptation of number of product line), and (3) factor 3 (quality and warranties adaptation) with variable 46 (adaptation of product warranties) and variable 47 (adaptation of product quality). Second-order CFA using LISREL 8.52 will be performed in the next step. The following topics will discuss about: (1) notation, definitions, and model specification, (2) model identification, and (3) evaluating goodness-of-fit criteria.
TABLE 4.5

EFA Results *. A Revised Product Adaptation Strategy Model

<table>
<thead>
<tr>
<th>Exogenous Factor (Construct)</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor Label</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Branding Adaptation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design Adaptation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality and Warranties Adaptation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eigenvalue</td>
<td>4.061</td>
<td>1.178</td>
<td>1.079</td>
</tr>
<tr>
<td>Percent of Variance</td>
<td>45.13</td>
<td>13.08</td>
<td>11.99</td>
</tr>
<tr>
<td>Variables</td>
<td>Factor Loading</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V41 Adaptation of product core design</td>
<td>.205</td>
<td>.828</td>
<td>.162</td>
</tr>
<tr>
<td>V42 Adaptation of number of product lines</td>
<td>.000</td>
<td>.822</td>
<td>.192</td>
</tr>
<tr>
<td>V44 Adaptation of brand name</td>
<td>.788</td>
<td>.165</td>
<td>.148</td>
</tr>
<tr>
<td>V46 Adaptation of product warranties</td>
<td>.276</td>
<td>.142</td>
<td>.843</td>
</tr>
<tr>
<td>V47 Adaptation of product quality</td>
<td>.141</td>
<td>.144</td>
<td>.883</td>
</tr>
<tr>
<td>V48 Adaptation of product label</td>
<td>.838</td>
<td>.051</td>
<td>.205</td>
</tr>
</tbody>
</table>

Note: * Principal Component Analysis and Verimax Rotation Method are applied.

Three items, V43, V45, and V49, are eliminated due to complex variables and purification process.
Second-Order Confirmatory Factor Analysis (CFA)

*Notation, Definitions, and Model Specification.* As defined by Rindskopf and Rose (1988), second-order model include at least one second-order factor, and the first-order factors are linear combinations of second-order factor as well as a unique variable for each first-order factor. Moreover, the observed variables are linear combinations of the first-order factors as well as a residual variable for each observed variable.

According to Rindskopf and Rose (1988), in the second-order models, $\xi$ (Ksi), $\eta$ (Eta), and $y$ will represent the vector of second-order factors, the first-order factors, and the observed variables respectively. The loadings of the observed variables are contained in the matrix $\Lambda y$ (Lamda $y$), and the loadings of the first-order on the second-order factors are contained in $\Gamma$ (Gamma). $\Phi$ (Phi) will represent the covariance matrix of the second order factors. $\zeta$ (Zeta) will represent the vector of residual variables in the first-order factors, and $\epsilon$ (Epsilon) will represent the unique variables in the observed variables; the variance-covariance matrix of the residuals and uniquenesses will be called $\psi$ (Psi) and $\theta$ (Theta Epsilon), respectively.

Therefore, the equation for the observed variables in terms of the first-order factors is

$$y = \Lambda y \eta + \epsilon$$

and the equation for the first-order factors in terms of the second-order factors is

$$\eta = \Gamma \xi + \zeta$$
Model Identification. Based on Rindskopf and Rose (1988), the product adaptation strategy model with three first-order factors on a second-order factor (PRO) and with two measured variables per first-order factor is identified. According to Rindskopf and Rose (1988), it is difficult to set practical necessary and sufficient conditions for model identification. For the first part of the model, the rule is that there must be at least three first-order factors if the model is to be identified if there is only one second-order factor. This part of the model is just identified, if there are only three first-order factors. An exception is that there is a case of empirical underidentification (Kenny 1979; Rindskopf 1984) if one or more first-order factors turn out to have nothing in common with the other first-order factors which supposedly measure the same second order factor. This means there would be a zero or near-zero direct effect from the second-order to the first-order factor. For the second part of the model, which is the measured variables, there should be at least two measured variables per first-order factor as in any other structural equation model.

Evaluating Goodness-of-Fit Criteria. There are three topics with regard to evaluate goodness-of-fit criteria: (1) parameter estimates, (2) overall model fit, and (3) measurement model fit (Hair, Anderson, Tatham, and Black (1995). First, this present study proceeds to evaluate the specific results for the second-order factor model. Follow a study by Joreskog and Sorbom (1996, pp. 205-208) and Rindskopf and Rose (1988), the second-order confirmatory factor analysis was conducted. To get standardized parameter estimates, this study specified values of 1.0 in $\Lambda_y$ (Lamda y) for one indicator of each
first-order factor as reference indicator. The LISREL program; however, does not provide t-value for a fixed scale.

The LISREL results illustrated in Table 4.6 show that standardized path coefficients or first-order loading are significant at the $\alpha = .05$ level. One can see that: (1) for branding subscale, variable 48 has higher loading of 1.06 with t-value of 8.24 than variable 44, (2) for design subscale, variable 41, a fixed variable, has higher loading than variable 42, and (3) for quality and warranties subscale, variable 46 has higher loading of 1.27 with t-value of 8.60 than variable 47.

In addition, factor loadings ($\gamma$; Gamma) between a second-order factor and three first-order factors are all significant at the $\alpha = .05$ level, and there is no zero or near-zero direct effect from the second-order to the first-order factor. Specifically, a loading of brand & label adaptation on product adaptation is 0.99 (t-value = 6.61), a loading of design adaptation on product adaptation is 0.80 (t-value = 6.02), and a loading for quality & warranties adaptation on product adaptation is 1.09 (t-value = 6.37). The standardized second-order factor loadings of these three dimensions, BRAND, DESIGN, and QUALITY, are 0.76, 0.57, and 0.76, respectively.

Second, the overall fit of the model was assessed. The fit statistics with $\chi^2 = 20.74$ at p-value = 0.002, degree of freedom [d.f.] = 6, goodness-of-fit index [GFI] = .97, adjusted goodness-of-fit index [AGFI] = .91, non-normed fit index [NNFI] = .91, root mean square error of approximation [RMSEA] = .099, and comparative fit index [CFI] = 0.96 demonstrate an adequate level of fit. Third, this study assessed the measurement model fit, including examination of the loadings and assessment of data quality and reliability of linear combination of construct.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
TABLE 4.6

Final LISREL Standardized Estimates for Second-Order CFA for Product Adaptation Strategy Model: Factor Loadings and t-value

<table>
<thead>
<tr>
<th>Parameter</th>
<th>LISREL Estimates</th>
<th>t-value</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standardized</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>First Order</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Loadings</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Lamda: λ)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Loadings of</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>First-on</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Second-Order</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Factors</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Gamma: γ)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Standardized</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Loadings of</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>First-on</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Second-Order</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Factors (γ)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRO (6 items)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>BRAND (2 items):</td>
<td>0.99</td>
<td>0.76</td>
<td>6.61</td>
</tr>
<tr>
<td>γ(BRAND-PRO)</td>
<td>-</td>
<td>0.85 c</td>
<td>-</td>
</tr>
<tr>
<td>λ(BRAND V44)</td>
<td>1.00 a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>λ(BRAND V48)</td>
<td>1.06</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>DESIGN (2 items):</td>
<td>0.80</td>
<td>0.57</td>
<td>6.02</td>
</tr>
<tr>
<td>γ(DESIGN -PRO)</td>
<td>-</td>
<td>0.70 b</td>
<td>-</td>
</tr>
<tr>
<td>λ(DESIGN V41)</td>
<td>1.00 a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>λ(DESIGN V42)</td>
<td>0.76</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>QUALITY (2 items):</td>
<td>1.09</td>
<td>0.76</td>
<td>6.37</td>
</tr>
<tr>
<td>γ(QUALITY-PRO)</td>
<td>-</td>
<td>0.82 b</td>
<td>-</td>
</tr>
<tr>
<td>λ(QUALITY V46 b)</td>
<td>1.27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>λ(QUALITY V47)</td>
<td>1.00 a</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. a: Indicates fixed item which was designed to be reference indicator. b: Indicates reliability of each subconstruct. c: Indicates reliability of linear combinations for a second-order factor structure with an average of three subconstructs as items.
Examination of the Loadings. The first step of measurement model fit assessment is an examination of loadings, particularly focusing on any nonsignificant loading. Referring to Table 4.6, one can see that all items are statistically significant for each factor. All standardized factor loadings are greater than the .40 cutoff (Nually and Bernstein 1994).

Assessment of Data Quality and Reliability of Linear Combination. The next step deals with assessing data quality and reliability of linear combinations for second-order factor structure with an average of three subconstructs as items. To assess data quality, the means, standard deviations, kurtosis and skewness were computed and are shown in Table 4.7. Each subconstruct was measured as an item. A close examination of the kurtosis column in Table 4.7 reveals that kurtosis of three subscales of product adaptation are below 1.00, smaller than a lower bound of nonnormality of distribution concern of 2.00. Similarly, the skewness column in Table 4.7 presents that the skewness of three subscales of product adaptation is smaller than 1.00, far smaller than the lower bound of concern of 5.00. Therefore, the kurtosis and skewness of the items do not indicate that variables used in this research are distributed nonnormally.

An examination of the means of the purified factors in Table 4.7 shows that Thai exporting firms pursue different degrees of a product adaptation strategy. Since the median of the measurement scale is 3.5, a factor mean score of 3.5 or larger would be categorized as a high degree of adaptation for the factor, whereas a score smaller than 3.5 would be categorized as a low degree of adaptation (or standardization). Mean score of brand & label adaptation, design adaptation, and quality & warranty adaptation are 3.43,
4.48, and 4.26, respectively. Thus, Thai exporting firms seem to pursue a low level of product adaptation with respect to brand & label adaptation and a high level of product adaptation with respect to design adaptation, as well as quality & warranty adaptation, respectively.

### TABLE 4.7
Descriptive Statistics of Product Adaptation Construct

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Number of Items</th>
<th>Kurtosis</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Branding</td>
<td>3.43</td>
<td>0.21</td>
<td>2</td>
<td>-0.82</td>
<td>0.20</td>
</tr>
<tr>
<td>Design</td>
<td>4.48</td>
<td>0.18</td>
<td>2</td>
<td>-0.29</td>
<td>-0.35</td>
</tr>
<tr>
<td>Quality &amp; Warranty</td>
<td>4.26</td>
<td>0.23</td>
<td>2</td>
<td>-0.83</td>
<td>-0.42</td>
</tr>
</tbody>
</table>

The next step deals with assessing the reliability of the product adaptation construct. Table 4.6, presents LISREL estimates, reliability (Cronbach’s alpha) for three subscales of the product adaptation, and reliability of linear combinations of the product adaptation construct. The previous use of reliability of linear combinations of a construct can be found in a study by Grewal and Tansuhaj (2001). As can be seen, reliabilities...
(Cronbach’s Alpha) of each factor meets the recommended level of 0.70 (Hair, Anderson, Tatham, and Black 1995), and factor 1, 2, and 3 represent reliability of 0.70, 0.70, and 0.82, respectively.

In addition, reliability of linear combinations for a second-order factor structure with an average of three subconstructs as items is 0.85, and the computations is presented below (see Nunnally and Bernstein 1994, pp. 266-73). The results of these reliabilities suggest an adequate reliability for an exploratory study of this nature (Cronbach 1947 and 1951; Nunnally and Bernstein 1994). The reliability of a linear combination of construct ($\rho$) is calculated as the following:

Reliability of linear combination:

$$\rho = 1 - \left( \sum \sigma_i^2 - \sum r_{ii} \sigma_i^2 \right) / \sigma_y^2$$

where $\rho$ is the reliability of linear combinations,

$\sigma_i^2$ is the variance for subconstruct $i$,

$r_{ii}$ is the reliability of subconstruct $i$, and

$\sigma_y^2$ is the variance of the construct (i.e., product adaptation strategy in this study).

The reliability of the sum is

$$\rho = 1 - \left[ \{(10.33+8.55+12.82)} - {(10.33*0.70)+(8.55*0.70)+(12.82*0.82)} \right] / 54.73$$

$$= 1 - [(31.70) - {(7.23)+(5.99)+(10.51)}/54.73 = 1 - \{(31.70)-(23.73)}/54.73$$

$$= 1 - \{7.97/54.73\} = 1-0.146$$

$$= 0.85$$
Measurements Validity for Market Orientation

Since the market orientation scale in this study is developed by Jaworski and Kohli (1993), CFA using LISREL 8.52 was performed to assess the convergent and discriminant validity for measurement model of market orientation. The 31-item market orientation scale consists of three subscales, market intelligence generation (10 items), market intelligence dissemination (7 items), and responsiveness (14 items). First-order CFA and second-order CFA using LISREL 8.53 were applied. The analysis of second-order CFA for market orientation scale is similar to that of the product adaptation strategy scale, which is discussed in the last section. This section will discuss about: (1) purification process, (2) model identification, and (3) evaluating goodness-of-fit criteria.

First-Order Confirmatory Factor Analysis (CFA)

Purification Process. The LISREL results from first-order CFA of the initial market orientation model are shown in Table 4.8. The parameter estimates for the initial 31-item market orientation model from table 4.8 show that factor loadings range from -0.11 to 0.68. Reliability of market intelligence generation (MG), market intelligence dissemination (MD), and responsiveness (RES) were 0.62, 0.69, and 0.74, respectively. Thus, reliability of market intelligence generation (MG) and market intelligence dissemination (MD) do not meet the .70 Cronbach's criteria.
TABLE 4.8
LISREL Parameter Estimates and Measurement Errors for First-Order CFA
for Initial Market Orientation Model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Factor Loading (Lambda: $\lambda$)</th>
<th>t - Value</th>
<th>Measurement Error (Theta Delta: $\delta$)</th>
<th>Cronbach's Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>MG ($\xi_1$: 10 items)</td>
<td></td>
<td></td>
<td></td>
<td>0.62</td>
</tr>
<tr>
<td>V1</td>
<td>0.66</td>
<td>10.15</td>
<td>0.56</td>
<td></td>
</tr>
<tr>
<td>V2</td>
<td>0.23</td>
<td>3.18</td>
<td>0.95</td>
<td></td>
</tr>
<tr>
<td>V3</td>
<td>0.64</td>
<td>9.67</td>
<td>0.60</td>
<td></td>
</tr>
<tr>
<td>V4</td>
<td>0.28</td>
<td>3.92</td>
<td>0.92</td>
<td></td>
</tr>
<tr>
<td>V5</td>
<td>0.25</td>
<td>3.54</td>
<td>0.94</td>
<td></td>
</tr>
<tr>
<td>V6</td>
<td>0.56</td>
<td>8.34</td>
<td>0.69</td>
<td></td>
</tr>
<tr>
<td>V7</td>
<td>0.38</td>
<td>5.48</td>
<td>0.85</td>
<td></td>
</tr>
<tr>
<td>V8</td>
<td>0.31</td>
<td>4.35</td>
<td>0.91</td>
<td></td>
</tr>
<tr>
<td>V9</td>
<td>0.18</td>
<td>2.54</td>
<td>0.97</td>
<td></td>
</tr>
<tr>
<td>V10</td>
<td>0.20</td>
<td>2.84</td>
<td>0.96</td>
<td></td>
</tr>
<tr>
<td>MD ($\xi_2$: 7 items)</td>
<td></td>
<td></td>
<td></td>
<td>0.69</td>
</tr>
<tr>
<td>V11</td>
<td>0.25</td>
<td>3.57</td>
<td>0.94</td>
<td></td>
</tr>
<tr>
<td>V12</td>
<td>0.58</td>
<td>8.95</td>
<td>0.66</td>
<td></td>
</tr>
<tr>
<td>V13</td>
<td>0.38</td>
<td>5.55</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>V14</td>
<td>0.60</td>
<td>9.21</td>
<td>0.65</td>
<td></td>
</tr>
<tr>
<td>V15</td>
<td>0.63</td>
<td>9.78</td>
<td>0.61</td>
<td></td>
</tr>
<tr>
<td>V16</td>
<td>0.52</td>
<td>7.80</td>
<td>0.73</td>
<td></td>
</tr>
<tr>
<td>V17</td>
<td>0.43</td>
<td>6.31</td>
<td>0.82</td>
<td></td>
</tr>
</tbody>
</table>
The overall fit of the 31-item market orientation model was assessed. The fit statistics with $\chi^2 = 1,432.21$ at p-value = 0.00, degree of freedom [d.f.] = 431, goodness-of-fit index [GFI] = .73, adjusted goodness-of-fit index [AGFI] = .69, root mean square error of approximation [RMSEA] = .096, standardized root mean square residual
[SRMR] = .097, and comparative fit index [CFI] = 0.59 indicate an inadequate level of fit. $\chi^2$ statistic; however, is sensitive to sample size. According to Sharma (1996), good-fitting models should have a value of GFI greater than 0.90 and a value of AGFI of 0.80 to be used as the cutoff values.

Items with factors loadings less than the 0.40 cutoff (Nunnally and Bernstein 1994) were deleted in the next analysis. The total number of items was reduced from 31 to 16 after the purification of items through multiple iterations of confirmatory factor analysis, reliability evaluation, and item-by-item substantive evaluation. All purified factors loadings are greater than the .40 cutoff (Nunnally and Bernstein 1994) and significant. This study encounters the problems in the market orientation subscales, especially for market intelligence generation (MG), which has 10 items and two of 10 items are reversed-scores. The reliability of market intelligence generation (MG), market intelligence dissemination (MD), and responsiveness (RES) are 0.65, 0.71, and 0.80, respectively.

Items that were deleted include: (1) V 2, V4, V5, V7, V8, V9, and V10 (in MG), (2) V11, V16, and V17 (in MD), and (3) V 21, V22, V23, V25, and V28 (in RES). The overall fit of the 16-item revised model was assessed. The fit statistics with $\chi^2 = 262.03$ at p-value = 0.00, degree of freedom [d.f.] = 101, goodness -of- fit index [GFI] = .88, adjusted goodness-of-fit index [AGFI] = .84, root mean square error of approximation [RMSEA] = .080, standardized root mean square residual [SRMR] = .074, and comparative fit index [CFI] = 0.85 indicate an adequate level of model fit. Table 4.9 presents the results and the reliability of each subscale for the revised market orientation model. Subsequently, a second-order confirmatory factor analysis was conducted.
TABLE 4.9
LISREL Parameter Estimates and Measurement Errors for First-Order CFA for Revised Market Orientation Model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Factor Loading (Lambda: ( \lambda ))</th>
<th>t - Value</th>
<th>Measurement Error (Theta Delta: ( \delta ))</th>
<th>Reliability (Cronbach's Alpha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MG (( \xi_1:3 ) items)</td>
<td></td>
<td></td>
<td></td>
<td>0.65</td>
</tr>
<tr>
<td>V1</td>
<td>0.69</td>
<td>9.88</td>
<td>0.53</td>
<td></td>
</tr>
<tr>
<td>V3</td>
<td>0.67</td>
<td>9.66</td>
<td>0.55</td>
<td></td>
</tr>
<tr>
<td>V6</td>
<td>0.51</td>
<td>7.32</td>
<td>0.74</td>
<td></td>
</tr>
<tr>
<td>MD (( \xi_2:4 ) items)</td>
<td></td>
<td></td>
<td></td>
<td>0.71</td>
</tr>
<tr>
<td>V12</td>
<td>0.55</td>
<td>8.36</td>
<td>0.70</td>
<td></td>
</tr>
<tr>
<td>V13</td>
<td>0.48</td>
<td>7.20</td>
<td>0.77</td>
<td></td>
</tr>
<tr>
<td>V14</td>
<td>0.74</td>
<td>11.82</td>
<td>0.45</td>
<td></td>
</tr>
<tr>
<td>V15</td>
<td>0.74</td>
<td>11.72</td>
<td>0.45</td>
<td></td>
</tr>
<tr>
<td>RES (( \xi_3:9 ) items)</td>
<td></td>
<td></td>
<td></td>
<td>0.80</td>
</tr>
<tr>
<td>V18</td>
<td>0.48</td>
<td>7.36</td>
<td>0.77</td>
<td></td>
</tr>
<tr>
<td>V19</td>
<td>0.42</td>
<td>6.35</td>
<td>0.83</td>
<td></td>
</tr>
<tr>
<td>V20</td>
<td>0.48</td>
<td>7.42</td>
<td>0.77</td>
<td></td>
</tr>
<tr>
<td>V24</td>
<td>0.51</td>
<td>8.00</td>
<td>0.74</td>
<td></td>
</tr>
<tr>
<td>V26</td>
<td>0.62</td>
<td>10.07</td>
<td>0.61</td>
<td></td>
</tr>
<tr>
<td>V27</td>
<td>0.60</td>
<td>9.69</td>
<td>0.64</td>
<td></td>
</tr>
<tr>
<td>V29</td>
<td>0.54</td>
<td>8.50</td>
<td>0.71</td>
<td></td>
</tr>
<tr>
<td>V30</td>
<td>0.73</td>
<td>12.28</td>
<td>0.47</td>
<td></td>
</tr>
<tr>
<td>V31</td>
<td>0.65</td>
<td>10.56</td>
<td>0.58</td>
<td></td>
</tr>
</tbody>
</table>
Second-Order Confirmatory Factor Analysis (CFA)

Model identification. Based on Rindskopf and Rose’s (1988) suggestion mentioned previously, the market orientation scale was identified. This means the model includes 3 items for market intelligence generation (MIG), 4 items for market intelligence dissemination (MID), and 9 items for responsiveness.

Evaluating Goodness-of-Fit Criteria. There are three topics related to evaluating goodness-of-fit criteria: (1) parameter estimates, (2) overall model fit, and (3) measurement model fit (Hair, Anderson, Tatham, and Black (1995). First, the specific results for the second-order factor model were evaluated. Follow a study by Joreskog and Sorbom (1996, pp. 205-208) and Rindskopf and Rose (1988), the second-order confirmatory factor analysis was conducted. Similar to the analysis of the product adaptation construct, to get standardized parameter estimates, this study specified the values of 1.0 in $\Lambda y$ (Lamda y) for one indicator of each first-order factor (MIG, MID, RES) as reference indicator.

Table 4.10 shows LISREL parameter estimates from the second-order CFA. The LISREL results show that all standardized path coefficients or first-order loading are significant at the $\alpha = .05$ level. Specifically, (1) for MIG subscale, variable 3, has the highest loading of 1.15 with t-value of 7.09; (2) for MID subscale, variable 14, has the highest loading of 1.74 with t-value of 7.41; and (3) for RES subscale, variable 30 has the highest loading of 1.13 with t-value 6.84.
TABLE 4.10
Final LISREL Standardized Estimates for Second-Order CFA for Market Orientation Model

<table>
<thead>
<tr>
<th>Parameter</th>
<th>LISREL Estimates</th>
<th>t-value</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standardized First Order Loadings (Lamda: λ)</td>
<td>Loadings of First-on Second-Order Factors (Gamma: γ)</td>
<td>Standardized Loadings of First-on Second-Order Factors (Gamma: γ)</td>
</tr>
<tr>
<td>MO (16 items)</td>
<td>-</td>
<td>0.89d</td>
<td></td>
</tr>
<tr>
<td>MIG (3 items):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>λ(MIG V1)</td>
<td>1.00a</td>
<td>0.73</td>
<td>7.18</td>
</tr>
<tr>
<td>λ(MIG V3)</td>
<td>1.15</td>
<td>0.78</td>
<td></td>
</tr>
<tr>
<td>λ(MIG V6)</td>
<td>0.89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MID (4 items):</td>
<td></td>
<td>0.55</td>
<td>6.27</td>
</tr>
<tr>
<td>λ(MID V12)</td>
<td>1.00a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>λ(MID V13)</td>
<td>1.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>λ(MID V14)</td>
<td>1.74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>λ(MID V15)</td>
<td>1.57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RES (9 items):</td>
<td>0.58</td>
<td></td>
<td></td>
</tr>
<tr>
<td>λ(RES V18b)</td>
<td>1.00a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>λ(RES V19)</td>
<td>0.76</td>
<td>0.72</td>
<td></td>
</tr>
<tr>
<td>λ(RES V20b)</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>λ(RES V24b)</td>
<td>1.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>λ(RES V26)</td>
<td>1.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>λ(RES V27b)</td>
<td>0.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>λ(RES V29)</td>
<td>1.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>λ(RES V30)</td>
<td>1.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>λ(RES V31)</td>
<td>1.08</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Note. a Indicates fixed item. b Indicates reverse-coded item. c Reliabilities (Cronbach’s Alpha) for the facets of MO including MIG, MID, RES are 0.69, 0.82, and 0.85 respectively. d Reliability for a second-order factor structure with an average of three subconstructs as items. It was calculated using the method of linear combinations (see Nunnally and Bernstein 1994, p.266-73). This method resulted in the reliability value of 0.89.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
In addition, the second-order factor loadings ($\gamma$ Gamma) between a second-order factor (MO) and three first-order factors (MIG, MID, and RES) are all significant at the $\alpha = .05$ level, and there is no zero or near-zero direct effect from the second-order to the first-order factor. Specifically, a loading of market intelligence generation on market orientation (MO) is 0.73 (t-value = 7.18), a loading of market intelligence dissemination (MID) on MO is 0.55 (t-value = 6.27), and a loading for responsiveness on MO is 0.58 (t-value = 5.85). The standardized second-order factor loadings of these three dimensions, MIG, MID, and RES, are 0.78, 0.72, and 0.72, respectively.

Second, the overall fit of the model was assessed. The fit statistics with $\chi^2 = 262.03$ at p-value = 0.00, degree of freedom [d.f.] = 101, goodness-of-fit index [GFI] = .88, adjusted goodness-of-fit index [AGFI] = .84, non-normed fit index [NNFI] = .83, root mean square error of approximation [RMSEA] = .080, and comparative fit index [CFI] = 0.85 demonstrate an adequate level of fit. One can see that the fit statistics in this model are the same as those from the first-order CFA of the revised 16-item model. Third, this study assessed the measurement model fit, including examination of the loadings and assessment of data quality and reliability of linear combination of construct.

Examination of the Loadings. The first step of measurement model fit assessment deals with an examination of loadings, particularly focusing on any nonsignificant loading. Referring to Table 4.10, one can see that all items are statistically significant for each factor, and all standardized factor loadings are greater than the .40 cutoff (Nually and Bernstein 1994). Regarding loadings of first-order factor on second-order factor, market intelligence generation (MIG) has the highest loading among three factors.
Assessment of Data Quality and Reliability of Linear Combination. The next step deals with assessing data quality and reliability of linear combinations for the second-order factor structure with an average of three subconstructs as items. To assess data quality, the means, standard deviations, kurtosis and skewness were computed and are shown in Table 4.11. Each subconstruct was measured as an item. A close examination of the kurtosis column in Table 4.11 shows that kurtosis of three subscales of market orientation are below 0.50, far smaller than a lower bound of nonnormality of distribution concern of 2.00. Similarly, the skewness column in Table 4.11 show that the skewness of three subscales of market orientation is smaller than 1.00, far smaller than the lower bound of concern of 5.00. Therefore, the kurtosis and skewness of the items do not indicate that variables used in this research are distributed nonnormally.

**TABLE 4.11**

Descriptive Statistics of Market Orientation Construct

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Number of Items</th>
<th>Kurtosis</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIG</td>
<td>5.06</td>
<td>0.22</td>
<td>3</td>
<td>-0.18</td>
<td>-0.52</td>
</tr>
<tr>
<td>MID</td>
<td>4.80</td>
<td>0.30</td>
<td>4</td>
<td>0.11</td>
<td>-0.52</td>
</tr>
<tr>
<td>RES</td>
<td>5.41</td>
<td>0.52</td>
<td>9</td>
<td>0.43</td>
<td>-0.55</td>
</tr>
</tbody>
</table>
Since the median of the measurement scale is 3.5, a factor mean score of 3.5 or larger would be categorized as a high degree of market orientation for the factor, whereas a score smaller than 3.5 would be categorized as a low degree of market orientation. An examination of the means of the purified factors in Table 4.11 shows that mean score of market intelligence generation (MIG), market intelligence dissemination (MID), and responsiveness (RES) are 5.06, 4.80, and 5.41, respectively. Thus, Thai exporting firms are high market-oriented with respect to three dimensions of market orientation. Specifically, they have the highest degree of market orientation with respect to responsiveness (RES), followed by market intelligence generation (MIG) and market intelligence dissemination (MID), respectively.

The next step deals with assessing reliability of linear combinations for second-order factor structure with an average of three subconstructs as items. Referring to Table 4.10, all reliabilities of three dimensions of market orientation construct meet 0.70 criteria (Nunnally and Bernstein 1994), with the exception of market intelligence generation subconstruct, which is slightly lower. Subconstruct 1, 2, and 3 represent the reliability of 0.69, 0.82, and 0.85, respectively. In addition, the reliability of a linear combinations for a second-order factor structure with an average of three subconstructs as items is 0.89. The computation of MO’s reliability is the same as that for the product adaptation construct (see Nunnally and Bernstein 1994, pp. 266-73). The results of these reliabilities suggest an adequate reliability for an exploratory study of this nature (Cronbach 1947 and 1951; Nunnally and Bernstein 1994).
The formula for reliability of linear combination of construct ($\rho$) is:

Reliability of linear combination:

$$\rho = 1 - \frac{(\Sigma \sigma_i^2 - \Sigma \sigma_i^2 r_{ii})/\sigma_y^2}{\sigma_y^2} = 0.89$$

where

$\rho$ is the reliability of linear combinations,

$\sigma_i^2$ is the variance for subconstruct $i$,

$r_{ii}$ is the reliability of subconstruct $i$, and

$\sigma_y^2$ is the variance of the construct (i.e., market orientation in this study).

**Measurements Validity for Export Performance**

The first-order CFA and the second-order CFA using LISREL 8.52 were performed to assess the convergent and discriminant validity for measurement model of export performance. The analysis of first-order CFA for export performance scale is similar to that of market orientation scale, and the analysis of second-order CFA is similar to that of product adaptation scale and market orientation scale discussed previously. This section will discuss about: (1) purification process, (2) model identification, and (3) evaluating goodness-of-fit criteria.
First-Order Confirmatory Factor Analysis (CFA)

Purification process. The parameter estimates for the 9-item export performance model show that all factor loadings are greater than the .40 cutoff (Nunnally and Bernstein 1994). Table 4.12 shows the results and reliability of three subscales of export performance construct. V34 represents the highest loading of 0.87 for financial export performance (FIX) subscale, both V35 and V36 represent the highest loading of 0.81 for strategic export performance (STX), and V39 represents the highest loading of 0.90 for satisfaction with export firm.

The overall fit of the 9-item export performance model was assessed. The fit statistics with $\chi^2 = 60.25$ at p-value = 0.00, degree of freedom [d.f.] = 24, goodness-of-fit index [GFI] = .95, adjusted goodness-of-fit index [AGFI] = .91, root mean square error of approximation [RMSEA] = .078, standardized root mean square residual [SRMR] = .042, and comparative fit index [CFI] = 0.97 indicate an adequate level of fit. Reliability coefficients for financial export performance (FIX), strategic export performance (STX), and satisfaction with export firm (SAX) are .74, .83, and 0.88, respectively, and they are greater than the 0.70 criteria. The reliability of the export performance construct will be discussed in the next discussion. The next analysis deals with conducting a second-order confirmatory factor analysis of export performance scale.
TABLE 4.12
LISREL Parameter Estimates and Measurement Errors for
First-Order CFA for Export Performance Model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Factor Loading (Lambda: $\lambda$)</th>
<th>$t$ - Value</th>
<th>Measurement Errors (Theta Delta: $\delta$)</th>
<th>Reliability (Cronbach’s Alpha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIX ($\xi_1$:3 items)</td>
<td></td>
<td></td>
<td></td>
<td>0.74</td>
</tr>
<tr>
<td>V32</td>
<td>0.45</td>
<td>7.03</td>
<td>0.79</td>
<td></td>
</tr>
<tr>
<td>V33</td>
<td>0.73</td>
<td>12.28</td>
<td>0.47</td>
<td></td>
</tr>
<tr>
<td>V34</td>
<td>0.87</td>
<td>15.45</td>
<td>0.24</td>
<td></td>
</tr>
<tr>
<td>STX ($\xi_2$:3 items)</td>
<td></td>
<td></td>
<td></td>
<td>0.83</td>
</tr>
<tr>
<td>V35</td>
<td>0.81</td>
<td>14.91</td>
<td>0.34</td>
<td></td>
</tr>
<tr>
<td>V36</td>
<td>0.81</td>
<td>14.66</td>
<td>0.35</td>
<td></td>
</tr>
<tr>
<td>V37</td>
<td>0.76</td>
<td>13.45</td>
<td>0.43</td>
<td></td>
</tr>
<tr>
<td>SAX ($\xi_3$:3 items)</td>
<td></td>
<td></td>
<td></td>
<td>0.88</td>
</tr>
<tr>
<td>V38</td>
<td>0.74</td>
<td>13.19</td>
<td>0.45</td>
<td></td>
</tr>
<tr>
<td>V39</td>
<td>0.90</td>
<td>17.46</td>
<td>0.20</td>
<td></td>
</tr>
<tr>
<td>V40</td>
<td>0.87</td>
<td>16.77</td>
<td>0.24</td>
<td></td>
</tr>
</tbody>
</table>
Second-Order Confirmatory Factor Analysis (CFA)

*Model identification.* The export performance model was identified based on Rindskopf and Rose's (1988) suggestion. This means the export performance model (EXP) includes 3 items for financial export performance (FIX), 3 items for strategic export performance (STX), and 3 items for satisfaction with export firm (SAX).

*Evaluating Goodness-of-Fit Criteria.* There are three topics related to evaluating goodness-of-fit criteria: (1) parameter estimates, (2) overall model fit, and (3) measurement model fit (Hair, Anderson, Tatham, and Black (1995). First, the specific results for the second-order factor model were evaluated. Follow a study by Joreskog and Sorbom (1996, pp. 205-208) and Rindskopf and Rose (1988), the second-order confirmatory factor analysis was conducted. Similar to the analysis of product adaptation construct and market orientation construct, to get standardized parameter estimates, this study specified values of 1.0 in $\Lambda y$ (Lamda $y$) for one indicator of each first-order factor (FIX, STX, and SAX) as reference indicator. Table 4.13 shows the LISREL parameter estimates for second-order CFA for export performance.
TABLE 4.13
Final LISREL Standardized Estimates for
Second-Order CFA for Export Performance Model

<table>
<thead>
<tr>
<th>Parameter</th>
<th>LISREL Estimates</th>
<th></th>
<th></th>
<th>t-value</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standardized</td>
<td>Loadings of</td>
<td>Standardized</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>First Order</td>
<td>First-on Second-Order</td>
<td>First-on Second-Order</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Loadings (Lamda: λ)</td>
<td>Factors (Gamma: γ)</td>
<td>Factors (Gamma: γ)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXP (9 items)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIX (3 items):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>γ(FIX-EXP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>λ(FIX V32)</td>
<td>1.00 a</td>
<td></td>
<td></td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>λ(FIX V33)</td>
<td>1.50</td>
<td></td>
<td></td>
<td>6.63</td>
<td></td>
</tr>
<tr>
<td>λ(FIX V34)</td>
<td>1.89</td>
<td></td>
<td></td>
<td>6.88</td>
<td></td>
</tr>
<tr>
<td>STX (3 items):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>γ(STX-EXP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>λ(STX V35)</td>
<td>1.00 a</td>
<td></td>
<td></td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>λ(STX V36)</td>
<td>0.98</td>
<td></td>
<td></td>
<td>13.63</td>
<td></td>
</tr>
<tr>
<td>λ(STX V37)</td>
<td>0.90</td>
<td></td>
<td></td>
<td>12.69</td>
<td></td>
</tr>
<tr>
<td>SAX (3 items):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>γ(SAX-EXP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>λ(SAX V38)</td>
<td>1.00 a</td>
<td></td>
<td></td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>λ(SAX V39)</td>
<td>1.25</td>
<td></td>
<td></td>
<td>13.87</td>
<td></td>
</tr>
<tr>
<td>λ(SAX V40)</td>
<td>1.16</td>
<td></td>
<td></td>
<td>13.63</td>
<td></td>
</tr>
</tbody>
</table>

a Indicates fixed item.
The LISREL results show that standardized path coefficients or first-order loading are significant at the $\alpha = .05$ level. One can see that: (1) for financial export performance (FIX) subscale, variable 34 has the highest loading of 1.89 with $t$-value of 6.88, (2) for strategic export performance (STX) subscale, variable 35 has the highest loading of 1.00, which is a fixed value and the LISREL program does not provide a $t$-value; and (3) for satisfaction with export firm (SAX) subscale, variable 39 has the highest loading of 1.25 with $t$-value of 13.87.

In addition, second-order factor loadings ($\gamma$, Gamma) between a second-order factor (EXP) and three first-order factors (FIX, STX, SAX) are all significant at the $\alpha = .05$ level, and there is no zero or near-zero direct effect from the second-order to the first-order factor. Specifically, a loading of financial export performance (FIX) on export performance (EXP) is 0.55 ($t$-value = 6.38), a loading of strategic export performance (STX) on EXP is 1.21 ($t$-value = 13.36), and a loading for satisfaction of export performance on EXP is 0.75 ($t$-value = 9.80). The standardized second-order factor loadings of these three dimensions, FIX, STX, SAX, are 0.81, 1.00 and 0.75, respectively.

Second, the overall fit of the model was assessed. The fit statistics with $\chi^2 = 60.25$ at $p$-value = 0.00, degree of freedom [d.f.] = 24, goodness-of-fit index [GFI] = .95, adjusted goodness-of-fit index [AGFI] = .91, non-normed fit index [NNFI] = .96, root mean square error of approximation [RMSEA] = .078, and comparative fit index [CFI] = 0.97 demonstrate an adequate level of fit. Third, this study assessed the measurement model fit, including: (1) examination of the loadings and (2) assessment of data quality and reliability of linear combination of construct.
Examination of the Loadings  The first step of measurement model fit assessment was an examination of loadings, particularly focusing on any nonsignificant loading. Referring to Table 4.13, one can see that all items are statistically significant for each factor, and all standardized factor loadings are greater than the .40 cutoff (Nually and Bernstein 1994).  Regarding loadings of first-order factor on second-order factor, the strategic export performance subscale has the highest loading among three subscales.

Assessment of Data Quality and Reliability of Linear Combination.  The next step deals with assessing data quality and reliability of linear combinations for a second-order factor structure with an average of three subconstructs as items.  To assess data quality, the means, standard deviations, kurtosis and skewness were computed and are shown in Table 4.14.  Each subconstruct was measured as an item.  A close examination of the kurtosis column in Table 4.14 shows that kurtosis of three subscales of export performance are below 0.10, far smaller than a lower bound of nonnormality of distribution concern of 2.00.  Similarly, the skewness column in Table 4.14 shows that the skewness of three subscales of export performance is smaller than 0.50, far smaller than the lower bound of concern of 5.00.  Therefore, the kurtosis and skewness of the items do not indicate that variables used in this research are distributed nonnormally.
Since the median of the measurement scale is 3.5, a factor mean score of 3.5 or larger would be categorized as a high degree of export performance for the factor, whereas a score smaller than 3.5 would be categorized as a low degree of export performance. An examination of the means of the purified factors in Table 4.14 shows that mean score of financial export performance (FIX), strategic export performance (STX), and satisfaction with export firm (SAX) are 4.04, 4.29, and 4.60, respectively. As a result, Thai exporting firms have a high degree of export performance with respect to three subscales. Specially, Thai exporting firms have the highest degree of export performance with respect to satisfaction with export firm (SAX), followed by strategic export performance (STX) and financial export performance (FIX), respectively.
The next step deals with assessing reliability of linear combinations for a second-order factor structure with an average of three subconstructs as items. Referring to Table 4.13, all reliabilities of three dimensions of export performance meet 0.70 criteria (Nunnally and Bernstein 1994). Subconstruct 1, 2, and 3 represent the reliability of 0.85, 0.77, and 0.88, respectively. In addition, the reliability of linear combinations for a second-order factor structure with an average of three subconstructs as items is 0.92, and the computation of export performance construct's reliability is the same as those for the product adaptation and market orientation constructs. (see Nunnally and Bernstein 1994, pp. 266-73). The results of these reliabilities suggest an adequate reliability for an exploratory study of this nature (Cronbach 1947 and 1951; Nunnally and Bernstein 1994).

The formula for reliability of linear combination of construct ($\rho$) is:

Reliability of linear combination:

$$\rho = 1 - \left( \sum \sigma_i^2 - \sum \sigma_i^2 r_{ii} \right) / \sigma_y^2 = 0.92$$

where

- $\rho$ is the reliability of linear combinations,
- $\sigma_i^2$ is the variance for subconstruct i,
- $r_{ii}$ is the reliability of subconstruct i, and
- $\sigma_y^2$ is the variance of the construct (i.e., export performance in this study).
The previous hypotheses in this present study state that: (1) there is a positive relationship between market orientation and export performance (H₁), (2) there is a positive relationship between product adaptation strategy and export performance (H₂), and (3) the strength of a relationship between market orientation and performance is higher for firms with high product adaptation strategy than that for firms with low product adaptation strategy (product standardization strategy) (H₃). To test the hypothesis 1 and the hypothesis 2, a structural equation model was performed using LISREL 8.52. Next, to test the hypothesis 3, a multi-sample analysis using LISREL 8.52 was performed.

Follow a study by Matsuno and Mentzer (2000), for hypothesis testing, this study aggregated: (1) the market orientation scale (MO) to have three indicators of MIG, MID, and RES, (2) the product adaptation strategy scale (PRO) to have three indicators of BRAND, DESIGN, and QUALITY, and (3) the export performance scale (EXP) to have three indicators of FIX, STX, and SAX) by summing the measurement items at the first-order construct level (see Matsuno and Mentzer 2000, pp. 6, about the reasons that this aggregation is justified).
Structural Equation Model (SEM)

Equations for the Path Diagram. The path diagram for hypothetical model to test the hypotheses 1 and 2 is shown in Figure 4.1. There are 6 x-variables as the indicators of two latent $\xi$-variables. There is one latent $\eta$ -variable with three $y$-indicators. The three latent variables are connected in one-equation interdependent system. The model involves error in equations ( $\zeta$ ) and errors in variables ( $\epsilon$’s and $\delta$’s) (see Joreskog and Sorbom 1996, pp. 1-8).

The structural equation is

$$\eta_1 = \gamma_{11} \xi_1 + \gamma_{12} \xi_2 + \zeta_1$$

where

$\eta_1$ (Eta) = a latent dependent variable (i.e., export performance)

$\xi_1$ (Ksi) = a latent independent variable (i.e., market orientation)

$\xi_2$ (Ksi) = a latent independent variable (i.e., product adaptation)

$\gamma_{11}$ (Gamma) = a coefficient of the $\xi_1$ -variable

$\gamma_{12}$ (Gamma) = a coefficient of the $\xi_2$ -variable

$\zeta_1$ (Zeta) = an equation error (random disturbance or residual variance) in the structural relationship between $\eta$ and $\xi$. 

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
FIGURE 4.1
Path Diagram for Hypothetical Model of
Market Orientation, Product Adaptation, and Export Performance

Chi-Square=36.12, df=24, P-value=0.05339, RMSEA=0.045
The measurement model equations for y-variables are

\[\begin{align*}
y_1 &= \lambda_{11}^{(y)} \eta_1 + \epsilon_1 \\
y_2 &= \lambda_{21}^{(y)} \eta_1 + \epsilon_2 \\
y_3 &= \eta_1 + \epsilon_3
\end{align*}\]

where

\[\lambda_{11}^{(y)} (\text{Lamda } y) = \text{a coefficient of the regression of } y_1 \text{ on } \eta_1 \text{ (i.e., of financial export performance on export performance).}\]

\[\lambda_{21}^{(y)} (\text{Lamda } y) = \text{a coefficient of the regression of } y_2 \text{ on } \eta_1 \text{ (i.e., of strategic export performance on export performance).}\]

\[\epsilon_1 (\text{Epsilon}) = \text{a measurement error (or unique variance) in } y_1 \text{ (i.e., in financial export performance).}\]

\[\epsilon_2 (\text{Epsilon}) = \text{a measurement error (or unique variance) in } y_2 \text{ (i.e., in strategic export performance).}\]

\[\epsilon_3 (\text{Epsilon}) = \text{a measurement error (or unique variance) in } y_3 \text{ (i.e., in satisfaction with export firm).}\]

Note:

A coefficient of the regression of \(y_3\) on \(\eta_1\) (i.e., of satisfaction of export performance on export performance or \(\lambda_{31}^{(y)}\)) is fixed as a reference indicator.
The **measurement model** equations for x-variables are

\[
\begin{align*}
    x_1 &= \xi_1 + \delta_1 \\
    x_2 &= \lambda^{(x)}_{21} \xi_1 + \delta_2 \\
    x_3 &= \lambda^{(x)}_{31} \xi_1 + \delta_3 \\
    x_4 &= \lambda^{(x)}_{42} \xi_2 + \delta_4 \\
    x_5 &= \xi_2 + \delta_5 \\
    x_6 &= \lambda^{(x)}_{62} \xi_2 + \delta_6
\end{align*}
\]

where

\(\lambda^{(x)}_{21}\) (Lambda x) = a coefficient of the regression of \(x_2\) on \(\xi_1\) (i.e., of market intelligence dissemination on market orientation).

\(\lambda^{(x)}_{31}\) (Lambda x) = a coefficient of the regression of \(x_3\) on \(\xi_1\) (i.e., of responsiveness on market orientation).

\(\lambda^{(x)}_{42}\) (Lambda x) = a coefficient of the regression of \(x_4\) on \(\xi_2\) (i.e., of branding adaptation on product adaptation).

\(\lambda^{(x)}_{62}\) (Lambda x) = a coefficient of the regression of \(x_6\) on \(\xi_2\) (i.e., of quality and warranty adaptation on product adaptation).

Note:

1. A coefficient of the regression of \(x_1\) on \(\xi_1\) (i.e., of market intelligence generation on market orientation) is fixed as a reference indicator.

2. A coefficient of the regression of \(x_5\) on \(\xi_2\) (i.e., of design adaptation on product adaptation) is fixed as a reference indicator.
Hypotheses Test Results from SEM

To test the hypotheses 1 and 2, LISREL 8.52 was applied. The maximum-likelihood estimates, standard errors, and t-values are reported in LISREL 8.52 output. Standard errors appear in parenthesis. For each free parameter estimate, t-value equals to the parameter estimate divided by its standard error. If a t-value is between −1.96 and 1.96, it is not significantly different from zero (see Joreskog and Sorbom 1996, pp. 100-122). As mentioned earlier, the LISREL 8.52 program does not provide t-value for each fixed parameter estimate. The LISREL syntax for testing the model of market orientation, product adaptation, and export performance is shown in Appendix L. The next step deals with evaluating goodness-of-fit criteria.

Evaluating Goodness-of-Fit Criteria. There are three topics related to evaluating goodness-of-fit criteria: (1) parameter estimates, (2) overall model fit, and (3) measurement model fit (Hair, Anderson, Tatham, and Black 1995). First, the specific parameter estimates for the structural equation model and measurement model were evaluated. To get standardized parameter estimates, this study specified values of 1.0 in $\Lambda x$ (Lamda x) and $\Lambda y$ (Lamda y) for one indicator of each subscale of market orientation model, product adaptation model, and export performance model. The parameter estimates of structural equation and the measurement model equations are shown in Table 4.15.
### TABLE 4.15

LISREL Parameter Estimates for Structural Equation Model:

Market Orientation, Product Adaptation Strategy, and Export Performance

<table>
<thead>
<tr>
<th>Structural Equation Model</th>
<th>Exogenous Variable</th>
<th>Endogenous Variable</th>
<th>Parameter</th>
<th>Factor Loadings</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MO (ξ₁)</td>
<td>EXP (η₁)</td>
<td>γ₁₁ (MO-EXP)</td>
<td>0.53</td>
<td>4.59**</td>
<td></td>
</tr>
<tr>
<td>PRO (ξ₂)</td>
<td>EXP (η₁)</td>
<td>γ₁₂ (PRO-EXP)</td>
<td>0.13</td>
<td>0.92</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measurement Model</th>
<th>Exogenous Variable</th>
<th>Endogenous Variable</th>
<th>Parameter</th>
<th>Factor Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>MO:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MIG</td>
<td></td>
<td>λₘ₁₁₂</td>
<td>1.00</td>
<td>-</td>
</tr>
<tr>
<td>MID</td>
<td></td>
<td>λₘ₁₁₂</td>
<td>1.10</td>
<td>5.94**</td>
</tr>
<tr>
<td>RES</td>
<td></td>
<td>λₘ₁₁₂</td>
<td>2.24</td>
<td>6.32**</td>
</tr>
<tr>
<td>PRO:</td>
<td></td>
<td>λₘ₁₁₂</td>
<td>1.14</td>
<td>5.39**</td>
</tr>
<tr>
<td>BRAND</td>
<td></td>
<td>λₘ₁₁₂</td>
<td>1.00</td>
<td>-</td>
</tr>
<tr>
<td>DESIGN</td>
<td></td>
<td>λₘ₁₁₂</td>
<td>1.46</td>
<td>5.28**</td>
</tr>
<tr>
<td>QUALITY</td>
<td></td>
<td>λₘ₁₁₂</td>
<td>1.00</td>
<td>-</td>
</tr>
<tr>
<td>EXP</td>
<td></td>
<td>λ₁₁₁₂</td>
<td>0.92</td>
<td>10.31**</td>
</tr>
</tbody>
</table>

**Significant results

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
The LISREL results show that a coefficient of the \( \xi_1 \) -variable (Gamma: \( \gamma_{11} \)) or market orientation (MO) is statistically significant. A coefficient of the \( \xi_2 \) -variable (Gamma: \( \gamma_{21} \)) or product adaptation strategy (PRO); however, is not statistically significant. As a result, \( H_1 \) is supported, but \( H_2 \) is not supported. The results from structural equation model, the measurement model equations for \( y \)-variables, and the measurement model equations for \( x \)-variables will be represented as follows:

*The structural equation is*

\[
\begin{align*}
\eta_1 &= \gamma_{11} \xi_1 + \gamma_{12} \xi_2 + \xi_1 \\
\text{EXP} &= 0.53 \text{*MO} + 0.13 \text{*PRO} + 5.37 \\
&\quad (0.12) \quad (0.14) \quad (0.93) \\
&\quad 4.59 \quad 0.92 \quad 5.80
\end{align*}
\]

Note: The parameter estimate of product adaptation strategy is not significant because its t-value is less than 1.96 with Gamma of 0.13. Standardized factor loadings of MO and PRO on EXP are 0.47 and 0.08, respectively.

*The measurement model equations for \( y \)-variables are*

\[
\begin{align*}
y_1 &= \lambda_{11}^{(y)} \eta_1 + \epsilon_1 \\
y_2 &= \lambda_{21}^{(y)} \eta_1 + \epsilon_2 \\
y_3 &= \eta_1 + \epsilon_3
\end{align*}
\]
\[ \text{FIX} = 0.92 \times \text{EXP} + 6.36 \]
\[ (0.08) \quad (0.70) \]
10.31 \quad 9.04

\[ \text{STX} = 1.27 \times \text{EXP} + 3.08 \]
\[ (0.11) \quad (0.82) \]
11.18 \quad 3.77

\[ \text{SAX} = 1.00 \times \text{EXP} + 5.93 \]
\[ (0.72) \]
8.25

Note: A parameter estimate of \text{SAX} is fixed. All t-values were greater than 1.96, and \text{STX} was the most significant variable with Lamda of 1.27.

The \textit{measurement model} equations for x-variables are

\[ x_1 = \xi_1 + \delta_1 \]
\[ x_2 = \lambda^{(x)}_{21} \xi_1 + \delta_2 \]
\[ x_3 = \lambda^{(x)}_{31} \xi_1 + \delta_3 \]
\[ x_4 = \lambda^{(x)}_{42} \xi_2 + \delta_4 \]
\[ x_5 = \xi_2 + \delta_5 \]
\[ x_6 = \lambda^{(x)}_{62} \xi_2 + \delta_6 \]
\[
\begin{align*}
\text{MIG} &= 1.00 \times \text{MO} + 7.05 \\
        &\quad (1.02) \\
        &\quad 6.93 \\
\text{MID} &= 1.10 \times \text{MO} + 16.26 \\
        &\quad (0.18) \quad (1.80) \\
        &\quad 5.94 \quad 9.03 \\
\text{RES} &= 2.24 \times \text{MO} + 38.74 \\
        &\quad (0.35) \quad (5.32) \\
        &\quad 6.32 \quad 7.28 \\
\text{LABEL} &= 1.14 \times \text{PRO} + 6.82 \\
           &\quad (0.21) \quad (0.88) \\
           &\quad 5.39 \quad 7.76 \\
\text{DESIGN} &= 1.00 \times \text{PRO} + 5.84 \\
              &\quad - \quad (0.72) \\
              &\quad 8.14 \\
\text{QUALITY} &= 1.46 \times \text{PRO} + 7.03 \\
              &\quad (0.28) \quad (1.20) \\
              &\quad 5.28 \quad 5.84
\end{align*}
\]

Second, the overall fit of the model was assessed. The fit statistics with \(\chi^2 = 36.12\) at p-value = 0.53, degree of freedom [d.f.] = 24, goodness-of-fit index [GFI] = .97, adjusted goodness-of-fit index [AGFI] = .94, non-normed fit index [NNFI] = .97,
root mean square error of approximation $[\text{RMSEA}] = .045$, and comparative fit index [CFI] = 0.98 demonstrate an adequate level of fit.

Third, the measurement model fit was assessed, and it deals with an examination of the loadings. Referring to Table 4.15, one can see that all items in measurement model are statistically significant for each factor, and all standardized factor loadings are greater than the .40 cutoff (Nually and Bernstein 1994). In addition, the factor loading of MO on EXP in a structural equation model is statically significant while factor loading of PRO on EXP is not statistically significant.

**Multi-Sample Analysis**

Follow a study by Matsuno and Mentzer (2000), multi-sample analysis was applied for hypothesis testing. LISREL 8.52 with SIMPLIS language can be used to analyze data from several samples simultaneously (see Joreskog and Sorbom 1993, pp. 51-84). The mechanics of this analysis involve several steps. First, the sample was divided into the two strategy type groups, high and low. Based on the 6-item product adaptation strategy scale, there are two groups of data, high product adaptation strategy and low product adaptation strategy.

Furthermore, for in-depth analysis, this study applied multi-sample analysis for each subscale of product adaptation strategy, (BRAND, DESIGN, and QUALITY), resulting in: (1) two groups of high and low brand & label adaptation, (2) two groups of high and low design adaptation, and (3) two groups of high and low quality & warranty adaptation. As a result, there are four models including: (1) the model of market orientation and export performance with two groups of high and low product adaptation,
(2) the model of market orientation and export performance with two groups of high and low brand & label adaptation, (3) the model of market orientation and export performance with two groups of high and low design adaptation, and (4) the model of market orientation and export performance with two groups of high and low quality & warranty adaptation.

Second, for each subsample, a covariance matrix, standard deviation, and means were calculated. The parameter estimates in this study are provided by LISREL 8.52 with SIMPLIS language. The focus of this analysis is on the $\gamma$s of the two strategy types between market orientation and export performance. The four pairwise comparisons of the two strategy types were conducted. More specifically, the pairwise comparison was based on the chi-square difference between the two models. The first model was assumed that all parameters were the same for both groups (i.e., "an equality constraint model", in which the effect of market orientation on export performance was constrained to be equal across two different strategy types. Specifically, this model constrained the two $\gamma$s to be equal. The second model was assumed that the two $\gamma$s were free (i.e., "a free model", in which the effect of market orientation and export performance was allowed to be different). The difference of the two models' statistical significance was used as a test for the equality constraint model, that is, whether or not this model produced a better fit than the free model (see Matsuno and Mentzer 2000).

There are eight APPENDIXES of the LISREL syntaxes for testing the moderating effect of a strategy type on the market orientation - export performance relationship for eight groups. First, Appendix M shows the LISREL syntax for a constraint model of 2 groups, high and low product adaptation. Second, Appendix N shows the LISREL
syntax for a free model of 2 groups, high and low product adaptation. Third, Appendix O shows the LISREL syntax for a constraint model of 2 groups, high and low brand & label adaptation. Fourth, Appendix P shows the LISREL syntax for a free model of 2 groups, high and low brand & label adaptation. Fifth, Appendix Q shows the LISREL syntax for a constraint model of 2 groups, high and low design adaptation. Sixth, Appendix R shows the LISREL syntax for a free model of 2 groups, high and low design adaptation. Seventh, Appendix S shows the LISREL syntax for a constraint model of 2 groups, high and low quality & warranty adaptation. Finally, Appendix T shows the LISREL syntax for a free model of 2 groups, high and low quality & warranty adaptation.

**Hypothesis Test Results from Multi-Sample Analysis**

The chi square statistics, $\gamma$ estimates, t-values, and statistic model fit of the model are provided in Tables 4.16 to 4.19. $H_3$ evaluates a moderating effect of high and low product adaptation strategy on the relationship between market orientation (MO) and export performance (EXP). $H_3$ predicts that the parameter would be greater for export firms with high product adaptation strategy than for firms with low product adaptation strategy. Since product adaptation strategy type were divided into four categories (product adaptation scale, brand & label subscale, design subscale, and quality & warranty subscale), the results from multi-sample analysis will include four pairs of strategy types as follows:
**Low vs. High Product Adaptation Strategy.** As examples, the path diagrams for the constraint model and the free model are shown in Figure 4.2 and 4.3, respectively. The results from the comparison between low and high product adaptation strategy show that the chi-square is 49.05 (d.f. = 35) for the equal-γ model and 48.58 (d.f. = 34) for the free-γ model. The chi-square difference is 0.47 (d.f. = 1). The critical value of chi-square statistical difference with one d.f. at the α = .05 level is 3.84. As a result, the chi-square statistic is not worsened by constraining the two parameters to be equal. Overall, the results demonstrate an adequate level of fit for the equal-γ model (RMSEA = 0.05, SRMR = 0.13, GFI = 0.90, NNFI = .98) and for the free-γ model (RMSEA = 0.05, SRMR = 0.13, GFI = 0.91, NNFI = .98).

The γ estimates for the equal-γ model is 0.51 with t-value of 4.81 different product adaptation strategies. One can see that the γ estimates for the equal-γ model are significant at the α = .05 level. The γ estimates for the free-γ model are 0.47 (with t-value of 3.06 for low product adaptation) and 0.53 (with t-value of 4.39 for high product adaptation). The γ estimates for the free-γ model for low product adaptation strategy and for high product adaptation strategy are significant at the α = .05 level. Therefore, H3 is not supported when a strategy type is based on the product adaptation scale. The chi-square statistics, γ estimates, t-values, and statistic model fit of the model are shown in Table 4.16.
FIGURE 4.2

Path Diagram for Hypothetical Model of MO and Export Performance with High vs. Low Product Adaptation: A Constraint Model

Chi-Square=49.05, df=35, P-value=0.05786, RMSEA=0.057
FIGURE 4.3

Path Diagram for Hypothetical Model of MO and Export Performance with
High vs. Low Product Adaptation: A Free Model

Chi-Square=48.58, df=34, P-value=0.05021, RMSEA=0.059

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
TABLE 4.16

Pairwise Comparisons of International Marketing Strategy Types

(Product Adaptation Scale): $\chi^2$, $\gamma$ Estimates, and t-values

<table>
<thead>
<tr>
<th>Groups</th>
<th>Equality Constraint Model</th>
<th>Free Model</th>
<th>$\chi^2$ Difference</th>
<th>$\gamma$ Estimates of Equality Constraint Model (t-value)</th>
<th>$\gamma$ Estimates of Free Model (t-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Product Adaptation &amp;</td>
<td>$\chi^2$ = 49.05 (d.f.=35)</td>
<td>$\chi^2$ = 48.58 (d.f.=34)</td>
<td>$\chi^2$ = 0.47* (d.f.=1)</td>
<td>Low: 0.51 (4.81)</td>
<td>Low: 0.47 (3.06)</td>
</tr>
<tr>
<td>High Product Adaptation &amp;</td>
<td>p=0.0578</td>
<td>p=0.0502</td>
<td>RMSEA=0.05</td>
<td>High: 0.51 (4.81)</td>
<td>High: 0.53 (4.39)</td>
</tr>
<tr>
<td></td>
<td>SRMR =0.13</td>
<td>SRMR =0.13</td>
<td>GFI =0.90</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>GFI =0.90</td>
<td>GFI =0.91</td>
<td>NNFI =0.98</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Non-significant result (The critical value of chi-square statistical difference with one d.f. at the $\alpha = 0.5$ level is 3.84.)

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Low vs. High Brand & Label Adaptation Strategy. The results from the comparison between low and high brand adaptation strategy show that the chi-square is 51.13 (d.f. = 35) for the equal-γ model and 46.91 (d.f. = 34) for the free-γ model. The chi-square difference is 4.22 (d.f. = 1). The critical value of chi-square statistical difference with one d.f. at the α = .05 level is 3.84. As a result, the chi-square statistic was worsened by constraining the two parameters to be equal. Overall, the results demonstrate an adequate level of fit for the equal-γ model (RMSEA = 0.06, SRMR = 0.16, GFI = 0.95, NNFI = .96) and for the free-γ model (RMSEA = 0.05, SRMR = 0.09, GFI = 0.96, NNFI = .97).

The γ estimates for the equal-γ model are 0.52 with t-value of 4.84 for low and high brand & label adaptation strategy. One can see that the γ estimates for the equal-γ model for low and high brand & label adaptation strategy are significant at the α = .05 level. The γ estimates for the free-γ model are 0.38 (with t-value of 3.27 for low brand & label adaptation strategy) and 0.79 (with t-value of 5.09 for high brand & label adaptation strategy). The γ estimates for the free-γ model for low and high brand & label adaptation strategy are significant at the α = .05 level. Therefore, H₁ is partially supported when a strategy type is based on the brand & label adaptation subscale. The chi square statistics, γ estimates, t-values, and statistic model fit of the model are provided in Table 4.17.
**TABLE 4.17**

Pairwise Comparisons of International Marketing Strategy Types

*(Brand & Label Adaptation Subscale): $\chi^2$, $\gamma$ Estimates, and t-values*

<table>
<thead>
<tr>
<th>Groups</th>
<th>Equality Constraint Model</th>
<th>Free Model</th>
<th>$\chi^2$ Difference</th>
<th>$\gamma$ Estimates of Equality Constraint Model (t-value)</th>
<th>$\gamma$ Estimates of Free Model (t-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Branding &amp; Adaptation &amp; High Branding Adaptation</td>
<td>$\chi^2 = 51.13$ (d.f. = 35)</td>
<td>$\chi^2 = 46.91$ (d.f. = 34)</td>
<td>$\chi^2 = 4.22^{**}$ (d.f. = 1)</td>
<td>Low: 0.52 (4.84)</td>
<td>Low: 0.38 (3.27)</td>
</tr>
<tr>
<td></td>
<td>p=0.0384 RMSEA=0.06 SRMR =0.16 GFI =0.95 NNFI =0.96</td>
<td>p=0.0694 RMSEA=0.05 SRMR =0.09 GFI =0.96 NNFI =0.97</td>
<td></td>
<td>High: 0.52 (4.84)</td>
<td>High: 0.79 (5.09)</td>
</tr>
</tbody>
</table>

**Significant Results** (The critical value of chi-square statistical difference with one d.f. at the $\alpha = 0.5$ level is 3.84.)

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
**Low vs. High Design Adaptation Strategy.** The results from the comparison between low and high design adaptation strategy show that the chi-square is 12.61 (d.f. = 35) for the equal-γ model and 12.61 (d.f. = 34) for the free-γ model. The chi-square difference is 0.00 (d.f. = 1). The critical value of chi-square statistical difference with one d.f. at the α = .05 level is 3.84. As a result, the chi-square statistic was not worsened when the two parameters were constrained to be equal. Overall, the results demonstrate an adequate level of fit for the equal-γ model (RMSEA = 0.00, SRMR = 0.04, GFI = 0.98, NNFI = 1.05) and for the free-γ model (RMSEA = 0.00, SRMR = 0.04, GFI = 0.98, NNFI = 1.05).

The γ estimates for the equal-γ model are 0.51 with t-value of 4.69 for low and high design adaptation strategy. One can see that the γ estimates for the equal-γ model for low and high design adaptation strategy are significant at the α = .05 level. The γ estimates for the free-γ model are 0.51 (with t-value of 3.10 for low design adaptation strategy) and 0.51 (with t-value of 4.17 for high design adaptation strategy). The γ estimates for the free-γ model for low and high design adaptation strategy are significant at the α = .05 level. Therefore, H₁ is not supported when a strategy type was based on the design adaptation subscale. The chi square statistics, γ estimates, t-values, and statistic model fit of the model are provided in Table 4.18.
TABLE 4.18

Pairwise Comparisons of International Marketing Strategy Types

(Design Adaptation Subscale): $\chi^2$, $\gamma$ Estimates, and t-values

<table>
<thead>
<tr>
<th>Groups</th>
<th>Equality Constraint Model</th>
<th>Free Model</th>
<th>$\chi^2$ Difference</th>
<th>$\gamma$ Estimates of Equality Constraint Model (t-value)</th>
<th>$\gamma$ Estimates of Free Model (t-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Design Adaptation &amp; High Design Adaptation &amp;</td>
<td>$\chi^2 = 12.61$ (d.f.=35)</td>
<td>$\chi^2 = 12.61$ (d.f.=34)</td>
<td>$\chi^2 = 0.00^*$ (d.f.=1)</td>
<td>Low: 0.51 (4.69)</td>
<td>Low: 0.51 (3.10)</td>
</tr>
<tr>
<td></td>
<td>$p = 0.9997$</td>
<td>$p = 0.9998$</td>
<td></td>
<td>High: 0.51 (4.69)</td>
<td>High: 0.51 (4.17)</td>
</tr>
<tr>
<td></td>
<td>RMSEA=0.00</td>
<td>RMSEA=0.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SRMR =0.04</td>
<td>SRMR =0.04</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>GFI =0.98</td>
<td>GFI =0.98</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NNFI =1.05</td>
<td>NNFI = 1.05</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Non-significant result (The critical value of chi-square statistical difference with one d.f. at the $\alpha = 0.5$ level is 3.84.)

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Low and High Quality & Warranty Adaptation Strategy. The results from the comparison between low and high quality & warranty adaptation strategy show that the chi-square is 71.85 (d.f. = 35) for the equal-γ model and 71.89 (d.f. = 34) for the free-γ model. The chi-square difference is 0.14 (d.f. = 1). The critical value of chi-square statistical difference with one d.f. at the $\alpha = .05$ level is 3.84. As a result, the chi-square statistic was not worsened when the two parameters were constrained to be equal. Overall, the results demonstrate an adequate level of fit for the equal-γ model (RMSEA = 0.09, SRMR = 0.18, GFI = 0.85, NNFI = 0.94) and for the free-γ model (RMSEA = 0.09, SRMR = 0.16, GFI = 0.85, NNFI = 0.94).

The γ estimates for the equal-γ model are 0.51 with t-value of 4.82 for low and high quality & warranty adaptation strategy. One can see that the γ estimates for the equal-γ model for low and high quality & warranty adaptation strategy are significant at the $\alpha = .05$ level. The γ estimates for the free-γ model are 0.63 (with t-value of 3.82 for low quality & warranty adaptation strategy) and 0.47 (with t-value of 4.11 for low and high quality & warranty adaptation strategy). The γ estimates for the free-γ model for low quality & warranty adaptation strategy are significant at the $\alpha = .05$ level. Therefore, $H_1$ is not supported when a strategy type was based on the quality & warranty adaptation strategy subscale. The chi square statistics, γ estimates, t-values, and statistic model fit of the model are provided in Table 4.19.
TABLE 4.19

Pairwise Comparisons of International Marketing Strategy Types
(Quality & Warranty Adaptation Subscale): $\chi^2$, $\gamma$ Estimates, and t-values

<table>
<thead>
<tr>
<th>Groups</th>
<th>Equality Constraint Model</th>
<th>Free Model</th>
<th>$\chi^2$ Difference</th>
<th>$\gamma$ Estimates of Equality Constraint Model (t-value)</th>
<th>$\gamma$ Estimates of Free Model (t-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Quality Adaptation &amp;</td>
<td>$\chi^2 = 71.85$ (d.f.=35)</td>
<td>$\chi^2 = 71.99$ (d.f.=34)</td>
<td>$\chi^2 = 0.14$ (d.f.=1)</td>
<td>Low: 0.51 (4.82)</td>
<td>Low: 0.63 (3.82)</td>
</tr>
<tr>
<td>High Quality Adaptation</td>
<td>p = 0.0002</td>
<td>p = 0.0001</td>
<td>RMSEA = 0.09</td>
<td>RMSEA = 0.09</td>
<td>High: 0.51 (4.82)</td>
</tr>
<tr>
<td></td>
<td>RMSE = 0.18</td>
<td>SRMR = 0.16</td>
<td>GFI = 0.85</td>
<td>GFI = 0.85</td>
<td>NNFI = 0.94</td>
</tr>
</tbody>
</table>

*Nonsignificant Results (The critical value of chi-square statistical difference with one d.f. at the $\alpha = 0.5$ level is 3.84).*
CHAPTER 5
CONCLUSIONS AND IMPLICATIONS

This study empirically examined: (1) the positive effect of market orientation on export performance (H₁), (2) the positive effect of a product adaptation strategy on export performance (H₂), and (3) the moderating role of the strategy type --- adaptation v.s. standardization--- on the relationship between market orientation and export performance by extending the body of literature in market orientation and international marketing strategy (H₃). The results from the structural equation model (SEM) and the multi-sample analysis using LISREL 8.52 indicated that all hypotheses except (H₂) were supported. It was found that there was a positive relationship between market orientation and export performance and that the relationships between market orientation and export performance are not monotonic.

The findings of this research (using a large sample size of 252 companies) provide some insights into issues that are of significant managerial and theoretical interest. The research successfully links the market orientation construct, the product adaptation construct, and the export performance construct to offer a more complete explanation of the determinants of export performance with the international marketing strategy type as a moderator. In the following sections, conclusions, the theoretical implications, the managerial implications, the limitations of the study, and possible future research will be discussed.
Conclusions

Market Orientation and Performance

The literature is filled with a number of perspectives on the definitions of market orientation. The most influential are Kohli and Jaworski's (1990) behavioral perspective and Narver and Slater's (1990) cultural perspective. As defined by Kohli and Jaworski (1990, pp. 6), market orientation is, “the organizationwide generation of market intelligence pertaining to current and future customer needs, dissemination of the intelligence across departments, and organizationwide responsiveness to it.” Narver and Slater (1990, pp. 21) define market orientation as “the organization culture that most effectively and efficiently creates the necessary behaviors for the creation of superior value for buyers and, thus, continuous superior performance for the business. A market-oriented firm initiates a set of tangible actions and has the underlying culture that enables a firm to keep track of change in demand and supply and respond appropriately to these changes (Varadarajan and Jayachandran 1999).

According to Powpaka (1998), the adoption of market orientation depended on the attitude toward market orientation and the attitude toward innovation in management orientation. Attitude toward market orientation were influenced by four factors: the relative advantage of market orientation, market turbulence, competitive intensity, and attitude toward innovation in management orientation. Attitude toward innovation in management orientation is positively affected by innovativeness and negatively affected by opinion leadership.
A valid measure of market orientation (including 15 items) was first developed by Narver and Slater (1990). Jaworski and Kohli (1993) developed a 32-item scale. Kohli, Jaworski, and Kumar (1993) developed a 20-item market orientation scale called MARKOR which was revised from Jaworski and Kohli's (1993). Deshpande, Farley, and Webster (1993) developed a customer orientation 9-item scale and used the term customer orientation to mean market orientation. The most used scales in the literature are the scale developed by Narver and Slater (1990) and Jaworski and Kohli (1993). Jaworski and Kohli's (1993) market orientation scale is conceptualized as a three-dimensional construct including market intelligence generation, dissemination, and responsiveness. Narver and Slater's (1990) market orientation scale is conceptualized as a one-dimensional construct consisting of three behavioral components: competitor orientation, customer orientation, and interfunctional coordination.

There are some antecedents to and consequences of market orientation. Regarding antecedents to market orientation, Jaworski and Kohli (1993) found that market orientation was positively influenced by top management emphasis, interdepartmental connectedness, and a reward system orientation. Market orientation was negatively influenced by interdepartmental conflict and centralization. The consequences of market orientation can be divided into four categories: innovativeness consequences, employee consequences, customer consequences, and financial consequences. To date, the most empirical attention focused on the financial implications of being market oriented, and this research focuses on the financial implications.

The literature shows evidence of the positive relationship between market orientation and business performance. Narver and Slater's (1990) study was the first
empirical study that investigated the relationship between market orientation and business performance (ROA). Using ordinary least squares regression analysis, they found that market orientation had a positive impact on business profitability (ROA).

Other examples are: (1) a positive relationship between market orientation and overall performance was found by Jaworski and Kohli (1993), (2) Desphande et. al. (1993) found evidence of positive effects of market orientation on profitability, size, market share, and growth rate, (3) a positive relationship between market orientation and ROA and sales growth was found by Slater and Narver (1994 a), (4) Pitt, Caruana, and Berthon (1996) found that overall performance was positively affected by market orientation, (5) Selnes et al.(1996) provide evidence of a positive relationship between market orientation and overall performance, (6) a positive relationship between market orientation and effectiveness was revealed by Pelham (1997), (7) Kumar, et al. (1998) provided support of a positive relationship between market orientation and ROA as well as between market orientation and growth in revenue, (8) Ngai and Ellis (1998) found a positive effect of market orientation on growth/share and profitability, (9) Han, Kim, and Srivastava (1998) showed evidence of a positive effect of market orientation on self-reported growth and self-reported ROA, (10) Baker and Sinkula (1999) found a positive effect of market orientation on relative market share and overall performance, (11) a positive effect of market orientation on market share growth, relative sales growth, and new product sales was found by Matsuno and Mentzer (2000), (12) in the crisis context, Grewal and Tansuhaj (2001) found a negative effect of market orientation on return on investment goals, sales goals, profit goals, and growth goals after a crisis in Thailand, (13) in the export context, Rose and Shoham (2002) was the first empirical study that
found a positive relationship between market orientation and the export performance of 124 Israeli exporting firms, (14) Cadogan, Diamantopoulos, and Siguaw (2002) found a positive effect of export market-oriented (EMO) activities on satisfaction with export sales, export profits, export market share, and rate of new market entry, and (15) Liu, Luo, and Shi (2003) found a positive relationship between market orientation and organizational performance in the China context.

**Adaptation Strategy and Export Performance**

Based on the literature in adaptation (standardization) strategy, the majority of results suggest the positive relationship between marketing adaptation and performance. There are several empirical studies on this topic. The negative relationship between product standardization and performance was found in a study by Sriram and Manu (1995), suggesting a positive relationship between product adaptation and performance. The positive relationship between performance and product adaptation was found in the studies such as Cavusgil and Zou (1994), Cooper and Kleinschmidt (1985), Hill and Still (1984), Kirpalani and MacIntosh (1980), and Shoham (1996). Similarly, a positive relationship between performance and promotion adaptation was found in studies by Cavusgil and Zou (1994) and Killough (1978). However, two studies by Samiee and Roth (1992) and Axinn, Noordewier, and Sinkula (1996) found no difference in performance of firms with high and low levels of standardization.
Researchers have investigated whether or not environment, industry, and strategy moderate the relationship between market orientation and export performance. Most studies focused on the role of environment and industry. Only a study by Matsuno and Mentzer (2000) evaluated the role of strategy type on such a relationship. The literature shows that the moderating effects of industry and market environment on the market orientation-performance relationship were not clear cut. No support has been found in the early research (e.g., Slater and Narver 1994 a; Deshpande and Farley 1998); however, recent research finds that the relationship between market orientation and performance is not monotonic across different market environment (i.e., market turbulence, competitive intensity, and technological turbulence) (e.g., Rose and Shoham 2002) and across different strategy types (i.e., defenders, prospectors, and analyzers)(Matsuno and Mentzer 2000).

Slater and Narver (1994 a) investigated the moderating effects of a competitive environment, and there was little support showing that environment moderates the nature of the market orientation-performance relationship. Moreover, Deshpande and Farley (1998) investigated whether industry characteristics (classified as consumer goods, industrial goods, and service) moderated the market orientation - business performance relationship, but they could not find significant results. On the other hand, a study (in the context of Israeli exporting firms) by Rose and Shoham (2002) found that market orientation had a significantly greater effect on profit and change in profits in an
environment with high technological change. The environment in their study included market turbulence, competitive intensity, and technological change.

In addition, Matsuno and Mentzer (2000) investigated whether or not business strategy types (classified as defenders, prospectors, analyzers, and reactors) affected the market orientation-performance relationship. They found that the relationships between market orientation and performance are not monotonic. The results show that (1) when performance was measured as ROI, the strength of the relationship between market orientation and performance was greater for defenders than for either prospectors or analyzers, and (2) when performance was measured as market share growth, relative sales growth, and new product sales as a percentage of total sales, the strength of the relationship between market orientation and performance was greater for prospectors than for either defenders or analyzers.

**Implications**

*Theoretical Implications*

This study makes an important contribution to the literature in a couple of ways. First, to the best of the author’s knowledge, it is the first study that simultaneously and comprehensively investigated firms’ marketing practices, including market orientation, product adaptation strategy, and export performance.

Second, this study contributes to the literature on market orientation as well. The literature shows that there is a need to study market orientation in a non-U.S. context.
This study takes an important step in this direction, and three issues can be highlighted. The first is that the psychometric properties of Kohli, Jaworski, and Kumar's (1993) MARKOR measure are examined. Like a suggestion by Grewal and Tansuhaj's (2001) study, the results from this study suggest further refinement of this measure. The second is that this study illustrates that market orientation positively influences export performance. The third is that the study also shows that the strength between market orientation and export performance is greater for firms with a high degree of product adaptation, specifically brand & label adaptation, than for firms with low degree of product adaptation/branding & label adaptation. This means it is more useful for a firm to be market-oriented with a product adaptation strategy, specifically, brand & label adaptation strategy.

Third, while a study by Rose and Shoham (2002) is the first in the literature that investigates the effect of market orientation on performance in the context of exporting firms in Israel, this present study is the first to investigate market orientation and export performance in Asia. Rose and Shoham (2002) adopted Kohli et al.'s (1993) 20-item market orientation scale (which was developed in U.S.A); however, their measurement of market orientation has serious flaws which significantly compromise the validity of their findings. They refined the market orientation scale (consisting of three subscales) and deleted three items with low item-to-scale correlations. Without using first-order CFA and second-order CFA; however, it is not clear if their refined market orientation scale is tenable in the measurement model, or if the model could hold up to the second-order factorial structure. If this identification problem was the case, it was not possible
to estimate the path coefficients and use them for assessing predictive validity of the MO scale.

On the other hand, this present study assesses the psychometric properties of the three constructs. The validity and reliability of product adaptation construct are assessed by EFA, first-order CFA, and second-order CFA while the validity and reliability of the market orientation construct and export performance are assessed by first-order CFA and second-order CFA. The original product adaptation scale includes 9 items, and there are six items retained after the purification process. These six items are grouped into three factors and labeled as brand & label adaptation, design adaptation, and quality & warranty adaptation. The original market orientation scale (with three subscales) consists of 31 items, and the revised scale includes 16 items, but no item of export performance is deleted. In light of the above discussion, caution should be taken with interpreting Rose and Shoham's (2002) findings.

Fourth, this present study contributes to market orientation literature on the degree of market orientation in each subscale. The results show that Thai exporting firms seem to pursue a high level of three dimensions of market orientation (including market intelligence generation (MIG), market intelligence dissemination (MID), and responsiveness (RES)). Specifically, they are highly market-oriented in responsiveness (RES), market intelligence generation (MIG), and market intelligence dissemination (MID), respectively.

Fifth, this present study also contributes to export performance literature on the degree of export performance of each scale dimension. The results show that the mean score of financial export performance (FIX), strategic export performance (STX), and
satisfaction of export performance (SAX) were 4.04, 4.29, and 4.60, respectively, which are categorized as high performance. As a result, Thai exporting firms in this sample seem to have a high degree of export performance with respect to the three subscales of export performance. Specifically, Thai exporting firms seem to have the highest degree of export performance with respect to satisfaction of export performance (SAX), strategic export performance (STX) and financial export performance (FIX), respectively.

Sixth, this study also contributes to the literature on export performance. To the knowledge of the author, this is the first empirical study that links market orientation and product adaptation strategy to an export performance scale. Also, this is the first study in which export performance is empirically examined in the breadth of the construct domain (consisting of three dimensions), and the export performance still retains the second-order factorial structure that is conceptually consistent with the three-component export performance construct developed by Zou et al. (1998).

Seven, this study also contributes to the literature on adaptation (standardization) strategy. There exist gaps in the literature on adaptation strategy: (1) a major debate related to the globalization of markets and the extent to which a company's international marketing strategy can be standardized (e.g., Cavusgil et al. 1993; Douglas and Wind 1987; Levitt 1983; and Zou et al. 1997); (2) a need to study adaptation strategy in a Non-U.S. context (e.g., Zou et al. 1997); and (3) a need to identify the underlying dimension of and develop corresponding constructs for adaptation of each of the four elements of the marketing program (e.g., Zou et al. 1997). The results from this study will help fill these gaps in the literature.
This study examines the perspective of Thai exporting firms to shed light on international marketing adaptation (standardization) by firms from a developing country in Asia. This study has identified the extent to which Thai exporting firms adapted their product marketing strategy, uncovered the finer dimensions of product adaptation strategy, and linked the product adaptation strategy to their export performance and market orientation. Regarding the generalization of the adaptation literature to the Non-U.S. context, the findings of this study offer several insights, and help fill such gaps in the adaptation literature. To the author's knowledge, this is the first empirical study that evaluates the perspective of exporting firms from Asia regarding marketing product adaptation strategy and export performance while incorporating market orientation, product adaptation strategy, and export performance. The product adaptation strategy is linked to export performance and to the relationship between market orientation and export performance as a moderating effect. The key findings are highlighted in the following discussion.

**Thai Exporting Firms' Perspective of Marketing Adaptation.** Findings of the current study show that Thai exporting firms seem to have more elaborated dimensions of marketing adaptation, revealing finer aspects within the product element of the marketing mix. For instance, the adaptation of brand & label is distinguishable from that of design and that of quality & warranty. It is likely that Thai exporting firms may be more conscious in conceiving their export marketing strategies.

The results show that Thai exporting firms pursue different degrees of the product adaptation strategy. The Thai firms seem to pursue a low level of product adaptation (or
standardization) with respect to brand adaptation but a high level of product adaptation with respect to design adaptation and quality & warranty adaptation, respectively, revealing that they do not simply follow their domestic marketing strategy. The results also indicate that they tend to adapt their marketing strategy for their foreign market penetration. Since in most developing countries, market systems may not be well developed, the domestic marketing strategy of firms from those countries may not be sophisticated enough to ensure success in their export markets (Zou et al. 1997). The findings suggest that researchers should examine international marketing adaptation (standardization) of firms from developing countries along finer dimensions of the product element. The conventional product adaptation that has been investigated in the U.S. context is too broad to expose the finer aspects of these firms' adaptation strategies.

Although there is a recent study by Julian (2003) that validated Cavusgil and Zou's (1994) measurement scales and investigated the key factors that influence export marketing performance in the context of Thailand, however, serious flaws were found in the study. Using exploratory factor analysis, Julian (2003) found that export market characteristics have a significant influence on the export performance of Thai export venture, and one of four items that measures export market characteristics is product adaptation. There existed the problem of measurement validity.

It can be seen that the items with inconsistent meaning were retained for the uncovered factors such as the export market characteristic in Julian's (2003) study. The items that measured the export market characteristic factor included: (1) the level of sophistication of the marketing infrastructure in the export market, (2) the degree of adaptation of your product's packaging in the export market venture, (3) the extent of
government intervention in the export market, and (4) the degree of adaptation of the product positioning strategy in the export market.

One can see that these four items should be categorized into two groups. The first group should include the first and the second items because they have consistent meanings, and the second group should include the third and the forth items because they have consistent meanings. However, if the content analysis and purification process were assessed in Julian’s (2003) study, the second group would not be included in the export market characteristic factor. This means only one group with two items was supposed to be chosen for further analysis. There is the need for a purification process in Julian’s (2003) study, and caution should be taken with interpreting the findings from such a study.

Managerial Implications

Market Orientation, and Export Performance. This study highlights the performance consequences of market orientation. The results point to tangible outcomes of market orientation. Companies can improve their performance with respect to financial export performance, strategic export performance, and satisfaction (with export firm) through being market-oriented. Market orientation of export firms can be enhanced if they seek information about their current and future international customers’ needs as well as about their international competitors in the industry, disseminate this information within their organization, and respond to the information effectively on an international basis.
To be market-oriented, (1) top management should realize the importance of being responsive to foreign customer needs and their competitors' behavior, (2) managers or junior managers should be evaluated and rewarded on the basis of not only profitability and sales, but also on market-based factors, such as customer satisfaction, and (3) every department should realize the importance of market intelligence generation, market intelligence dissemination, and responsiveness to the information.

Market orientation leads to enhancing export performance. For managerial implications, it is a measure of the effect that can be expected when market orientation is increased one unit. Note that the $\gamma$ coefficient represents the ratio of change in the dependent variable (export performance) to a unit change in the independent variable (market orientation). Regarding the results from the structural equation model (SEM) of market orientation, product adaptation, and export performance, the value of $\gamma$ with 0.53 means that if market orientation is increased 1 unit, export performance as measured by financial export performance, strategic export performance, and satisfaction of export performance, is increased 0.53 unit when other variables are controlled.

Product Adaptation and Export Performance. The findings of the current study offer several guidelines for Thai exporting firms that compete internationally. These guidelines may also be relevant for firms from some other Asian developing countries. In general, firms are recommended to pursue finer dimensions of product adaptation (standardization) instead of simple product adaptation or the standardization of a marketing strategy.
Currently, Thai exporting firms seek a high degree of design adaptation, quality & warranty adaptation, and brand & label adaptation, respectively. However, following this strategy does not lead to increase in export performance. The lack of a significant effect of product adaptation strategy with respect to three dimensions on export performance begs some explanation. Compared with means of three dimensions of market orientation, means of three dimensions of product adaptation are far lower, and this comparison indicates that the degree of product adaptation of Thai exporting firms is not high enough to significantly influence export performance. There are several factors that can explain why a degree of product adaptation of Thai exporting firms is not high enough.

First, firms may have less international competence, meaning they have low international experience and resources. If firms have less experience, they are likely to seek the closest match between its current offerings and foreign market conditions in order to minimize a degree of adaptation (Douglas and Craig 1989). Second, products in this sample may not meet only unique needs, so greater adaptation of the product would not be required to meet the export customers’ product use condition or appealing. When a product meets universal needs, the standardization of product is required (Levitt 1983). Third, the majority of products that are exported to foreign markets are not culture-specific. If a product is a culture-specific, it must be adapted to the cultural idiosyncrasies of the export market (Douglas and Craig 1989). Finally, there do not exist high variations in export markets in terms of cultural and socioeconomic conditions, customer values and life styles, and government regulations, because the majority of export markets in this sample are in Asian countries (excluding Japan and China).
Market Orientation, Product Adaptation, and Export Performance. Another managerial implication is that market orientation should be stressed in the adaptation strategy type. The current research finds that the relationship between market orientation and performance is not monotonic across different international marketing strategies (brand & label adaptation vs. brand & label standardization). When brand & label strategy is characterized as “high” brand & label adaptation and “low” brand & label adaptation (or brand & label standardization), the effects of market orientation on export performance are different. The results suggest that firms should have a high degree of brand & label adaptation (low standardization) to improve their export performance, consisting of the three dimensions of financial export performance, strategic export performance, and satisfaction of export performance.

The explanation about the significant effect of “high” brand & label adaptation is that market intelligence in exporting firms with “high” brand & label adaptation strategy is already generated and disseminated, and firms already respond to market intelligence by adapting their brand & label. Their export strategy is grounded in a systematic analysis of customer behavior, response patterns, and market characteristics. This means that firms with “high” brand & label adaptation realize the variations in their export markets in terms of cultural and socioeconomic conditions, customer values and life styles, and government regulations about product safety standards and local content. They feel that a standardized approach is not feasible and adapt their brand & label in order to meet the requirement of such factors.

Regarding the results from the multi-sample analysis model of three constructs (market orientation, export performance, and adaptation strategy), the values of γ are
0.79 for firms with high brand & label adaptation, and 0.38 for firms with low brand &
label adaptation (or brand & label standardization). The value of $\gamma$ with 0.79 means that
if the market orientation for a firm with high branding adaptation is increased 1 unit,
export performance (as measured by financial export performance, strategic export
performance, and satisfaction of export performance) is increased 0.79 unit when other
variables are controlled. The value of $\gamma$ with 0.38 means that if market orientation for a
firm with low branding adaptation is increased 1 unit, export performance (as measured
by financial export performance, strategic export performance, and satisfaction of export
performance) is increased 0.38 unit when other variables are controlled.

Limitations and Future Research Issues

There are a number of limitations of this study which should be kept in mind. First, regarding product adaptation construct, the current study has examined the Thai exporting firms' perspective of marketing adaptation (standardization), instead of comparing the US firms with the Thai exporting firms directly. As a result, and in comparing to compare the research findings with those involving U.S. firms, one should have a clear understanding of the differences in the sample, marketing infrastructure, regulations, and cultural contexts. Second, since the items to measure product adaptation strategy in this study are adopted from the literature, the insignificant results of the effects of product adaptation strategy on performance may result from inadequate items that measure such a construct. Future research should revise the product adaptation scale.
and investigate whether there exists the positive relationship between product adaptation and performance.

Third, the sample in this study contains more firms with consumer products than firms with industrial products. Whether or not samples that contain firms with only industrial products and samples that contain firms with only consumer products are likely to have a different strengths of their relationships between product adaptation and performance is intriguing and should be explored in future studies. Fourth, the majority of the sample comes from textiles, garments, and fashion accessory industry, as well as building materials and hardware items industry in which the rate of technology change is low. Future research should investigate the adaptation strategy of firms from industry in which the rate of technology change is high, such as computer and software industry.

Fifth, future research should compare the strength of the relationship between an adaptation strategy and the performance of firms with a product that meets unique needs with that of firms with a product that meets universal needs. Sixth, the relationship between a product adaptation strategy and export performance may be influenced by another type of strategy. Whether or not the strength of the relationship between a product adaptation strategy and export performance is greater for firms that exports the product to a single export market than that for firms that exports the product to multiple export markets is interesting and should also be investigated in future research. Seventh, regarding market orientation construct, although the results are generally consistent with previous research and theory (e.g., Jaworski and Kohli 1993; Selnes et al., 1996; Rose and Shoham 2002), there is a need for additional research from a non-U.S. context to assess the generalization of the existing knowledge.
Eighth, regarding the moderating effect of the adaptation strategy type on the relationship between market orientation and performance, there is need to investigate the moderating effect of other marketing mix elements—promotion adaptation, distribution adaptation, and price adaptation—on such a relationship. Finally, replications of the study of the moderating effect of a product adaptation strategy on the market orientation—performance relationship with different samples from other countries should render proper qualifications to the results of this study.
REFERENCES


Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.


Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
APPENDIX A

MEASURE OF MARKET ORIENTATION (MO)

Market Orientation - Information Generation

V1 In this business unit, we meet with customers at least once a year to find out what products or services they will need in the future.
V2 Individuals from our manufacturing department interact directly with customers to learn how to serve them better.
V3 In this business unit, we do a lot of in-house market research.
V4 We are slow to detect changes in our customers' product preferences. ®
V5 We poll end users at least once a year to assess the quality of our products and services.
V6 We often talk with or survey those who can influence our end users' purchases (e.g., retailers, distributors).
V7 We collect industry information through informal means (e.g., lunch with industry friends, talks with trade partners).
V8 In our business unit, intelligence on our competitors is generated independently by several departments.
V9 We are slow to detect fundamental shifts in our industry (e.g., competition, technology, regulation). ®
V10 We periodically review the likely effect of changes in our business environment
(e.g., regulation) on customers.

Market Orientation—Information Dissemination

V11 We have interdepartmental meetings at least once a quarter to discuss market trends and developments.

V12 Marketing personnel in our business unit spend time discussing customers’ future needs with other functional departments.

V13 Our business unit periodically circulates documents (e.g., reports, newsletters) that provide information on our customers.

V14 When something important happens to a major customer or market, the whole business unit knows about it in a short period.

V15 Data on customer satisfaction are disseminated at all levels in this business unit on a regular basis.

V16 There is minimal communication between marketing and manufacturing departments concerning market developments. ®

V17 When one department finds out something important about competitors, it is slow to alert other departments. ®
Market Orientation-Responsiveness

V18 It takes us forever to decide how to respond to our competitors' price changes.®

V19 Principles of market segmentation drive new product development efforts in this business unit.

V20 For one reason or another we tend to ignore changes in our customers' product or service needs.®

V21 We periodically review our product development efforts to ensure that they are in line with what customers want.

V22 Our business plans are driven more by technological advances than by market research.®

V23 Several departments get together periodically to plan a response to changes taking place in our business environment.

V24 The product lines we sell depend more on internal politics than real market needs.®

V25 If a major competitor were to launch an intensive campaign targeted at our customers, we would implement a response immediately.

V26 The activities of the different departments in this business unit are well coordinated.

V27 Customer complaints fall on deaf ears in this business unit.®

V28 Even if we came up with a great marketing plan, we probably would not be able to implement it in a timely fashion.®
V29 We are quick to respond to significant changes in our competitors' pricing structures.

V30 When we find out that customers are unhappy with the quality of our service, we take corrective action immediately.

V31 When we find that customers would like us to modify a product or service, the departments involved make concerted efforts to do so.

*Source:* Jaworski and Kohli's (1993) 31-item market orientation scale
APPENDIX B

MEASURE OF EXPORT PERFORMANCE

Financial Export Performance

V32. This export firm has been very profitable.
V33. This export firm has generated a high volume of sales.
V34. This export firm has achieved rapid growth.

Strategic Export Performance

V35. This export firm has improved our global competitiveness.
V36. This export firm has strengthened our strategic position.
V37. This export firm has significantly increased our global market share.

Satisfaction of Export Performance

V38. The performance of this export firm has been very satisfactory.
V39. This export firm has been very successful.
V40. This export firm has fully met our expectations.

Source: Zou, Taylor, and Osland’s (1998) 9-items export performance scale
APPENDIX C

MEASURE OF PRODUCT ADAPTATION STRATEGY

V41. Degree of adaptation of product core design
V42. Degree of adaptation of number of product lines
V43. Degree of adaptation of packaging design
V44. Degree of adaptation of brand names
V45. Degree of adaptation of product features
V46. Degree of adaptation product warranties
V47. Degree of adaptation of product quality
V48. Degree of adaptation of product label

Source: Items 1-6 are adopted from Zou, Andrus, and Norvell (1997).

Item 7 is adopted from Shoham (1996).

Item 8 is adopted from Cavusgil and Zou (1994).

Item 9 is adopted from Whitelock (1987).
APPENDIX D

MEASURE OF MARKET ORIENTATION: A REVISED MODEL

Market Orientation-Information Dissemination

V1 In this business unit, we meet with customers at least once a year to find out what products or services they will need in the future.

V3 In this business unit, we do a lot of in-house market research.

V6 We often talk with or survey those who can influence our end users’ purchases (e.g., retailers, distributors).

V12 Marketing personnel in our business unit spend time discussing customers’ future needs with other functional departments.

V13 Our business unit periodically circulates documents (e.g., reports, newsletters) that provide information on our customers.

V14 When something important happens to a major customer or market, the whole business unit knows about it in a short period.

V15 Data on customer satisfaction are disseminated at all levels in this business unit on a regular basis.
Market Orientation-Responsiveness

V18 It takes us forever to decide how to respond to our competitors’ price changes.®

V19 Principles of market segmentation drive new product development efforts in this business unit.

V20 For one reason or another we tend to ignore changes in our customers’ product or service needs.®

V24 The product lines we sell depend more on internal politics than real market needs.®

V26 The activities of the different departments in this business unit are well coordinated.

V27 Customer complaints fall on deaf ears in this business unit.®

V29 We are quick to respond to significant changes in our competitors’ pricing structures.

V30 When we find out that customers are unhappy with the quality of our service, we take corrective action immediately.

V31 When we find that customers would like us to modify a product or service, the departments involved make concerted efforts to do so.
APPENDIX E

MEASURE OF PRODUCT ADAPTATION STRATEGY: A REVISED MODEL

V41. Degree of adaptation of product core design
V42. Degree of adaptation of number of product lines
V44. Degree of adaptation of brand names
V46. Degree of adaptation product warranties
V47. Degree of adaptation of product quality
V48. Degree of adaptation of product label
APPENDIX F

LISREL 8.52 SYNTAX FOR FIRST-ORDER CFA FOR MO MODEL
(31 ITEMS): AN ORIGINAL MODEL

FIRST-ORDER CFA (S FACTORS)—MARKET ORIENTATION
DA NI = 31 NO = 252 MA = KM

LA
'MOG1' 'MOG2' 'MOG3' 'MOG4' 'MOG5' 'MOG6' 'MOG7' 'MOG8' 'MOG9' 'MOG10'
'MOD11' 'MOD12' 'MOD13' 'MOD14' 'MOD15' 'MOD16' 'MOD17'
'MOR18' 'MOR19' 'MOR20' 'MOR21' 'MOR22' 'MOR23' 'MOR24'
'MOR25' 'MOR26' 'MOR27' 'MOR28' 'MOR29' 'MOR30' 'MOR31'

KM SY
1.00
.19 1.00
.45 .13 1.00
.13 -.01 .18 1.00
.18 -.12 .14 -.07 1.00
.39 .17 .32 .07 .15 1.00
.26 .17 .13 .09 .07 .37 1.00
.17 .12 .23 .01 .00 .26 .34 1.00
.05 -.04 .17 .55 -.10 -.02 -.15 1.00
.12 .00 .09 -.12 .27 .15 .16 .13 -.10 1.00
.15 -.04 .11 .13 .30 .09 .16 .01 .10 .18 1.00
.32 .09 .28 .10 .23 .23 .19 .16 .08 .18 .36 1.00
.13 .07 .20 .03 .10 .09 .15 .16 -.03 .14 .25 .36 1.00
.20 .14 .28 .09 .15 .13 .00 .09 -.01 .06 .08 .30 .39 1.00
.25 .11 .35 .07 .16 .25 .10 .04 .08 .06 .05 .36 .32 .58 1.00
.20 -.02 .20 .38 .11 .11 .08 -.01 .35 -.05 .06 .23 .01 .20 .22 1.00
.19 .12 .19 .38 .11 .13 -.05 -.03 .35 -.05 .05 .16 -.07 .16 .17 .55 1.00
| .05 | .04 | .17 | .35 | .06 | .12 | .05 | -.07 | .32 | -.04 | .12 | .06 | .03 | .17 | .07 | .31 | .36 | 1.00 |
| .30 | .05 | .34 | .12 | .22 | .20 | .12 | .10 | .04 | .09 | .19 | .32 | .10 | .24 | .31 | .28 | .22 | .10 | 1.00 |
| .17 | .06 | .09 | .35 | .09 | .08 | .09 | -.06 | .31 | .07 | .14 | .17 | -.01 | .13 | .07 | .32 | .45 | .11 | 1.00 |
| .02 | .08 | -.10 | -.04 | .06 | -.00 | .00 | -.01 | -.17 | .10 | .08 | -.01 | .06 | .06 | -.09 | -.07 | -.05 | -.06 | -.08 | -.12 | 1.00 |
| .12 | .04 | .25 | .22 | .04 | .15 | .02 | -.09 | .14 | -.00 | -.05 | .17 | .03 | .16 | .22 | .29 | .23 | .28 | .14 | .22 | -.17 | 1.00 |
| .08 | -.01 | .04 | -.03 | .15 | -.03 | .07 | .11 | .05 | .24 | .27 | .12 | .12 | -.04 | -.04 | .05 | .01 | -.08 | .09 | -.01 | -.37 | -.26 | 1.00 |
| .13 | -.00 | .08 | .19 | .09 | .12 | -.03 | -.11 | .18 | .11 | .04 | .19 | -.02 | .10 | .06 | .35 | .26 | .33 | .19 | .39 | -.08 | -.29 | -.04 | 1.00 |
| .22 | .03 | .35 | .23 | .19 | .15 | .03 | .11 | .18 | .11 | .04 | .34 | .13 | .38 | .40 | .41 | .34 | .28 | .28 | .23 | -.07 | .23 | .06 | .32 | .23 |
| 1.00 |
| .29 | .05 | .20 | .24 | .16 | .12 | .06 | -.02 | .17 | .11 | .10 | .27 | .08 | .23 | .22 | .41 | .28 | .26 | .22 | .38 | -.02 | .17 | .12 | .40 | .12 |
| .43 | 1.00 |
| .07 | -.08 | .02 | -.11 | .11 | -.05 | -.00 | .08 | .09 | .14 | .16 | .08 | -.02 | -.10 | -.01 | -.05 | -.10 | .13 | .06 | -.07 | .13 | -.08 | .08 | -.12 | -.05 | -.08 | -.07 | 1.00 |
| .20 | .04 | .29 | .17 | .16 | .21 | .16 | .10 | .18 | .13 | .09 | .24 | .14 | .25 | .30 | .33 | .20 | .36 | .34 | .19 | .09 | .18 | .06 | .24 | .47 | .38 |
| .21 | -.08 | 1.00 |
| .31 | .10 | .22 | .21 | .06 | .19 | .08 | .02 | .17 | .09 | .04 | .25 | .09 | .23 | .23 | .33 | .20 | .32 | .25 | .37 | -.01 | .15 | .00 | .36 | .22 | .40 |
| .43 | -.08 | .34 | 1.00 |
| .27 | .16 | .21 | .14 | .12 | .17 | .09 | .06 | .11 | .02 | .08 | .19 | .12 | .23 | .21 | .24 | .18 | .25 | .26 | .21 | .03 | .10 | .09 | .27 | .26 | .35 |
| .35 | -.04 | .38 | .62 | 1.00 |

MO NX=31 NK=3 PH=ST

LK

GENERATION SEMINATION SPONSE

FR LX(1,1) LX(2,1) LX(3,1) LX(4,1) LX(5,1) LX(6,1) LX(7,1) LX(8,1) LX(9,1) LX(10,1)
FR LX(11,2) LX(12,2) LX(13,2) LX(14,2) LX(15,2) LX(16,2) LX(17,2) LX(18,3) LX(19,3)
FR LX(20,3) LX(21,3) LX(22,3) LX(23,3) LX(24,3) LX(25,3) LX(26,3) LX(27,3) LX(28,3)
LX(29,3)
FR LX(30,3) LX(31,3)

PD

OU AD = OFF MI RS IT=400

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
APPENDIX G

LISREL 8.52 SYNTAX FOR FIRST-ORDER CFA FOR

THE MO MODEL (16 ITEMS): A REVISED MODEL

FIRST-ORDER CFA (3 FACTORS)---MARKET ORIENTATION (16 ITEMS)
DA NI = 16 NO = 252 MA = KM
LA
'MOG1' 'MOG3' 'MOG6' 'MOD12' 'MOD13' 'MOD14' 'MOD15'
'MOR18' 'MOR19' 'MOR20' 'MOR24'
'MOR26' 'MOR27' 'MOR29' 'MOR30' 'MOR31'
KM SY
1.00
.45 1.00
.39  .32 1.00
.32  .28  .23 1.00
.13  .20  .09  .36 1.00
.20  .28  .13  .36  .39 1.00
.25  .35  .25  .36  .32  .58 1.00
.05  .17  .12  .06  .03  .17  .07 1.00
.30  .34  .20  .32  .10  .24  .31  .10 1.00
.17  .09  .08  .13  .07  .45  .11 1.00
.13  .08  .12  .19  .02  .10  .06  .33  .19  .39 1.00
.22  .35  .15  .34  .13  .38  .40  .28  .28  .23  .32 1.00
.29  .20  .12  .27  .08  .23  .22  .26  .22  .38  .40  .43 1.00
.20  .29  .21  .24  .14  .25  .30  .36  .34  .19  .24  .38  .21 1.00
.31  .22  .19  .25  .09  .23  .23  .32  .25  .37  .36  .40  .43  .34 1.00
.27  .21  .17  .19  .12  .23  .21  .25  .26  .21  .27  .35  .35  .38  .62 1.00
MO NX=16 NK=3 PH=ST
LK
GENERATION DISSEMINATION RESPONSE
FR LX(1,1) LX(2,1) LX(3,1) LX(4,2) LX(5,2) LX(6,2) LX(7,2) LX(8,3) LX(9,3)
LX(10,3)
FR LX(11,3) LX(12,3) LX(13,3) LX(14,3) LX(15,3) LX(16,3)
PD
OU AD = OFF MI RS IT=400

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
APPENDIX H

LISREL 8.52 SYNTAX FOR FIRST-ORDER CFA FOR
THE EXPORT PERFORMANCE MODEL

FIRST-ORDER CFA (3 FACTORS): EXPORT PERFORMANCE
DA NI =9 NO =252 MA = KM
LA
'FIX32' 'FIX33' 'FIX34' STX35' STX36' STX37' SAX38' SAX39' SAX40'
KM SY
1.00
.348 1.00
.383 .637 1.00
.380 .517 .636 1.00
.251 .408 .502 .640 1.00
.258 .357 .569 .592 .658 1.00
.240 .421 .411 .499 .521 .454 1.00
.241 .450 .420 .512 .584 .481 .655 1.00
.270 .470 .437 .516 .548 .437 .634 .792 1.00
MO NX=9 NK=3 PH=ST
LK
FINANCE STRATEGY SATISFACTION
FR LX(1,1) LX(2,1) LX(3,1) LX(4,2) LX(5,2) LX(6,2) LX(7,3) LX(8,3) LX(9,3)
PD
OU AD = OFF MI RS IT=400
APPENDIX I

LISREL 8.52 SYNTAX FOR SECOND-ORDER CFA FOR
THE PRODUCT ADAPTATION MODEL

SECOND-ORDER FACTOR ANALYSIS ---PRODUCT ADAPT.(6 ITEMS)---
GAMMA ESTIMATION
DA NI=6 NO=252
LA
P44 P48 P41 P42 P46 P47
KM SY
1.00
0.54 1.00
0.28 0.28 1.00
0.21 0.15 0.54 1.00
0.40 0.41 0.29 0.31 1.00
0.21 0.35 0.31 0.26 0.69 1.00
SD
1.81 1.85 1.76 1.57 1.94 1.95
MO NY=6 NE=3 NK=1 GA=F PH=ST PS=DI
LE
BRAND DESIGN QUALITY
LK
PRO
FR LY 2 1 LY 4 2 LY 5 3
VA 1 LY 1 1 LY 3 2 LY 6 3
FR GA 1 1 GA 2 1 GA 3 1
ST 1 ALL
PD
OU SS NS
APPENDIX J

LISREL 8.52 SYNTAX FOR SECOND-ORDER CFA FOR

THE MO MODEL

SECOND-ORDER FACTOR ANALYSIS—MARKET ORIENTATION (16 ITEMS) GAMMA
ESTIMATION
DA NI=16 NO=252
LA
'MIG1' 'MIG3' 'MIG6' 'MID12' 'MID13' 'MID14' 'MID15'
'RES18' 'RES19' 'RES20' 'RES24'
'RES26' 'RES27' 'RES29' 'RES30' 'RES31'
KM SY
1.00
.45 1.00
.39 .32 1.00
.32 .28 .23 1.00
.13 .20 .09 .36 1.00
.20 .28 .13 .36 .39 1.00
.25 .35 .25 .36 .32 .58 1.00
.05 .17 .12 .06 .03 .17 .07 1.00
.30 .34 .20 .10 .24 .31 .10 1.00
.17 .09 .08 .17 -.01 .13 .07 .45 .11 1.00
.13 .08 .12 .19 -.02 .10 .06 .33 .19 .39 1.00
.22 .35 .15 .34 .13 .38 .40 .28 .28 .23 .32 1.00
.29 .20 .12 .27 .08 .23 .22 .26 .22 .38 .40 .43 1.00
.20 .29 .21 .24 .14 .25 .30 .36 .34 .19 .24 .38 .21 1.00
.31 .22 .19 .25 .09 .23 .23 .32 .25 .37 .36 .40 .43 .34 1.00
.27 .21 .17 .19 .12 .23 .21 .25 .26 .21 .27 .35 .35 .38 .62 1.00
SD
1.38 1.62 1.63 1.37 1.77 1.77 1.61 1.71 1.49 1.70 1.61 1.33 1.07 1.62 1.27 1.37
MO NY=T
LE
MIG MID RES
LK
MAR
FR LY 2 1 LY 3 1 LY 5 2 LY 6 2 LY 7 2 LY 9 3
FR LY 10 3 LY 11 3 LY 12 3 LY 13 3 LY 14 3 LY 15 3 LY 16 3
VA 1 LY 1 1 LY 4 2 LY 8 3
FR GA 1 1 GA 2 1 GA 3 1
ST 1 ALL
PD
OU SS NS

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
APPENDIX K

LISREL 8.52 SYNTAX FOR SECOND-ORDER CFA FOR
THE EXPORT PERFORMANCE MODEL

SECOND-ORDER FACTOR ANALYSIS ----EXPORT PERFORM.(9 ITEMS)--------
GAMMA ESTIMATION
DA NI=9 NO=252
LA
'FIEX32' 'FIEX33' 'FIEX34' 'STEX35' 'STEX36' 'STEX37' 'SAEX38' 'SAEX39'
'SAEX40'
KM SY
1.00
.348 1.00
.383 .637 1.00
.380 .517 .636 1.00
.251 .408 .502 .640 1.00
.258 .357 .569 .592 .658 1.00
.240 .421 .411 .499 .521 .454 1.00
.241 .450 .420 .512 .584 .481 .655 1.00
.270 .470 .437 .516 .548 .437 .634 .792 1.00
SD
1.510 1.415 1.483 1.492 1.478 1.448 1.347 1.384 1.325
MO NY=9 NE= 3 NK=1 GA=FI PH=ST PS=DI
LE
FINANCE STRATGY SATISFY
LK
EXPERF
FR LY 2 1 LY 3 1 LY 5 2 LY 6 2 LY 8 3 LY 9 3
VA 1 LY 1 1 LY 4 2 LY 7 3
FR GA 1 1 GA 2 1 GA 3 1
ST 1 ALL
PD
OU SS NS

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
APPENDIX L

LISREL 8.52 SYNTAX FOR STRUCTURAL EQUATIONAL MODEL:
MO, PRODUCT ADAPTATION, AND EXPORT PERFORMANCE

PATH ANALYSIS: MO16, PRO ADAPT.6, EXPORT PERFORMANCE
Observed Variables: MIG MID RES FIEX STEX SAEX LABEL DESIGN QUALITY
Covariance Matrix:
12.65
6.64 23.02
11.51 14.79 66.87
2.99 1.18 5.28 12.36
4.17 2.86 10.78 8.38 14.70
3.49 1.97 9.19 6.63 9.07 13.09
.89 1.16 2.25 .66 .27 .48 10.33
2.39 1.97 4.74 1.72 2.79 1.67 2.84 8.55
1.81 .52 1.21 1.64 1.25 .87 4.88 3.80 12.82
Sample Size: 252
Latent Variables: Market Experf Proadap
Relationships:
MIG = l*Market
MID = Market
RES = Market
FIEX = Experf
STEX = Experf
SAEX = 1*Experf
LABEL = Proadap
DESIGN = l*Proadap
QUALITY = Proadap
Experf = Market Proadap
Path Diagram Standardized Solution
APPENDIX M

LISREL SYNTAX FOR A CONSTRAINT MODEL:

HIGH VS. LOW PRODUCT ADAPTATION

Group: HIGH PRO. ADAPT. (MO 16, ProductAdap.6, Export Per.--CON. MODEL
Observed Variables: MIG MID RES FIEX STEX SAEX
Covariance Matrix:
12.56
7.00 21.41
11.51 14.00 64.18
3.82 2.14 6.42 12.00
4.19 2.66 10.66 8.07 14.18
3.61 1.44 7.26 7.19 9.58 13.53
Standard Deviation:
3.54 4.63 8.01 3.46 3.77 3.68
Means:
15.36 19.29 49.09 12.39 13.15 13.86
Sample Size: 171
Latent Variables: Market Exp erf
Relationships:
MIG = CONSTANT + 1*Market
MID - RES = CONSTANT + Market
FIEX = CONSTANT + 1*Exp erf
STEX - SAEX = CONSTANT + Exp erf
Exp erf = Market
Path Diagram

Group: LOW PRO. ADAPT.--MO16, ProductAdap.6, Export Per.--CON. MODEL
Observed Variables: MIG MID RES FIEX STEX SAEX
Covariance Matrix:
12.76
5.82 26.63
11.12 16.33 72.23
94.94 -1.04 2.21 12.82
3.82 3.10 10.37 8.66 15.44
3.22 3.07 13.25 5.44 8.00 12.30
Standard Deviation:
3.57 5.16 8.50 3.58 3.93 3.51
Means:
14.77 18.91 47.78 11.59 12.26 13.68
Sample Size: 81
End of Problem

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
APPENDIX N

LISREL SYNTAX FOR A FREE MODEL:
HIGH VS. LOW PRODUCT ADAPTATION

Group: HIGH PRO. ADAPT. ( MO 16, Pro. Adap.6, Export Per.)--FREE MODEL
Observed Variables: MIG MID RES FIEX STEX SAEX
Covariance Matrix:
12.56
7.00 21.41
11.51 14.00 64.18
3.82 2.14 6.42 12.00
4.19 2.66 10.66 8.07 14.18
3.61 1.44 7.26 7.19 9.58 13.53
Standard Deviation:
3.54 4.63 8.01 3.46 3.77 3.68
Means:
15.36 19.29 49.09 12.39 13.15 13.86
Sample Size: 171
Latent Variables: Market Experf
Relationships:
MIG = CONSTANT + 1*Market
MID - RES = CONSTANT + Market
FIEX = CONSTANT + 1*Experf
STEX - SAEX = CONSTANT + Experf
Experf = Market
Path Diagram

Group: LOW PROD. ADAPT. ( MO16, Pro. Adap.6, Export Per.)--FREE MODEL
Observed Variables: MIG MID RES FIEX STEX SAEX
Covariance Matrix:
12.76
5.82 26.63
11.12 16.33 72.23
.94 -1.04 2.21 12.82
3.82 3.10 10.37 8.66 15.44
3.22 3.07 13.25 5.44 8.00 12.30
Standard Deviation:
3.57 5.16 8.50 3.58 3.93 3.51
Means:
14.77 18.91 47.78 11.59 12.26 13.68
Sample Size: 81
Experf = Market
End of Problem
APPENDIX O

LISREL SYNTAX FOR A CONSTRAINT MODEL:

HIGH VS. LOW BRAND ADAPTATION

Group: HIGH BRAND ADAPT.—MO16, Export Per.—CONSTRAINT MODEL
Observed Variables: MIG MID RES FIEX STEX SAEX
Covariance Matrix:
11.47
7.29 23.85
9.65 15.13 65.41
3.90 1.98 5.88 13.52
4.37 3.73 12.35 10.29 17.61
4.47 1.07 7.56 8.12 11.58 14.95
Standard Deviation:
3.39 4.88 8.09 3.68 4.20 3.87
Means:
15.52 19.68 49.60 12.31 12.85 13.83
Sample Size: 114
Latent Variables: Market Experf
Relationships:
MIG = CONSTANT + 1*Market
MID - RES = CONSTANT + Market
FIEX = CONSTANT + 1*Experf
STEX - SAEX = CONSTANT + Experf
Experf = Market
Path Diagram

Group: LOW BRAND ADAPT.—MO16, Export Per.—CONSTRAINT MODEL
Observed Variables: MIG MID RES FIEX STEX SAEX
Covariance Matrix:
13.52
5.89 22.10
12.64 13.90 67.25
2.17 0.40 4.58 11.44
4.05 2.17 9.59 6.87 12.41
2.69 2.70 10.55 5.44 7.07 11.64
Standard Deviation:
3.68 4.70 8.20 3.38 3.52 3.41
Means:
14.88 18.75 47.91 11.99 12.87 13.77
Sample Size: 138
End of Problem
APPENDIX P

LISREL SYNTAX FOR A FREE MODEL:

HIGH VS. LOW BRAND ADAPTATION

Group HIGH BRAND ADAPT.—MO 16, Export Performance—FREE MODEL
Observed Variables: MIG MID RES FIEX STEX SAEX
Covariance Matrix:
11.47 7.29 23.85
9.65 15.13 65.41
3.90 1.98 5.88 13.52
4.37 3.73 12.35 10.29 17.61
4.47 1.07 7.56 8.12 11.58 14.95
Standard Deviation:
3.39 4.88 8.09 3.68 4.20 3.87
Means:
15.52 19.68 49.60 12.31 12.85 13.83
Sample Size: 114
Latent Variables: Market Experf
Relationships:
MIG = CONSTANT + 1*Market
MID - RES = CONSTANT + Market
FIEX = CONSTANT + 1*Experf
STEX - SAEX = CONSTANT + Experf
Experf' = Market
Path Diagram

Group: LOW BRAND ADAPT.—MO 16, Export Performance—FREE MODEL
Observed Variables: MIG MID RES FIEX STEX SAEX
Covariance Matrix:
13.52 5.89 22.10
12.64 13.90 67.25
2.17 0.40 4.58 11.44
4.05 2.17 9.59 6.87 12.41
2.69 2.70 10.55 5.44 7.07 11.64
Standard Deviation:
3.68 4.70 8.20 3.38 3.52 3.41
Means:
14.88 18.75 47.91 11.99 12.87 13.77
Sample Size: 138
Experf' = Market
End of Problem
APPENDIX Q

LISREL SYNTAX FOR A CONSTRAINT MODEL:

HIGH VS. LOW DESIGN ADAPTATION

Group: HIGH DESIGN ADAPT. ---MO 16, Export Performance—CON. MODEL
Observed Variables: MIG MID RES FIEX STEX SAEX
Covariance Matrix:
11.69
6.55 22.47
9.92 11.87 55.32
3.41 1.16 5.21 12.83
3.61 2.64 8.36 8.23 13.82
3.47 1.57 7.16 6.73 8.64 12.87
Standard Deviation:
3.42 4.74 7.44 3.58 3.72 3.59
Means:
15.70 19.72 49.61 12.50 13.32 14.02
Sample Size: 173
Latent Variables: Market Experf
Relationships:
MIG = CONSTANT + 1*Market
MID - RES = CONSTANT + Market
FIEX = CONSTANT + 1*Experf
STEX -SAEX = CONSTANT + Experf
Experf = Market
Path Diagram

Group : LOW DESIGN. ADAPT. -- MO 16, Export Performance -- CON. MODEL
Observed Variables: MIG MID RES FIEX STEX SAEX
Covariance Matrix:
11.69
6.55 22.47
9.92 11.87 55.32
3.41 1.16 5.21 12.83
3.61 2.64 8.36 8.23 13.82
3.47 1.57 7.16 6.73 8.64 12.87
Standard Deviation:
3.42 4.74 7.44 3.58 3.72 3.59
Means:
15.70 19.72 49.61 12.50 13.32 14.02
Sample Size: 79
End of Problem

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
APPENDIX R

LISREL SYNTAX FOR A FREE MODEL:

HIGH VS. LOW DESIGN ADAPTATION

Group: **HIGH DESIGN ADAPT.** -- MO 16, Export Performance -- FREE MODEL
Observed Variables: MIG MID RES FIEX STEX SAEX
Covariance Matrix:

\[
\begin{pmatrix}
11.69 & 6.55 & 22.47 \\
9.92 & 11.87 & 55.32 \\
3.41 & 1.16 & 5.21 & 12.83 \\
3.61 & 2.64 & 8.36 & 8.23 & 13.82 \\
3.47 & 1.57 & 7.16 & 6.73 & 8.64 & 12.87 \\
3.42 & 4.74 & 7.44 & 3.58 & 3.72 & 3.59 \\
\end{pmatrix}
\]

Standard Deviation:

\[
\begin{pmatrix}
3.42 \\
4.74 \\
7.44 \\
3.58 \\
3.72 \\
3.59 \\
\end{pmatrix}
\]

Means:

\[
\begin{pmatrix}
15.70 \\
19.72 \\
49.61 \\
12.50 \\
13.32 \\
14.02 \\
\end{pmatrix}
\]

Sample Size: 173

Latent Variables: Market Experf
Relationships:

\[
\begin{align*}
\text{MIG} & = \text{CONSTANT} + 1\times \text{Market} \\
\text{MID - RES} & = \text{CONSTANT} + \text{Market} \\
\text{FIEX} & = \text{CONSTANT} + 1\times \text{Experf} \\
\text{STEX - SAEX} & = \text{CONSTANT} + \text{Experf} \\
\text{Experf} & = \text{Market}
\end{align*}
\]

Path Diagram

Group: **LOW DESIGN, ADAPT.** -- MO 16, Export Performance -- FREE MODEL
Observed Variables: MIG MID RES FIEX STEX SAEX
Covariance Matrix:

\[
\begin{pmatrix}
11.69 & 6.55 & 22.47 \\
9.92 & 11.87 & 55.32 \\
3.41 & 1.16 & 5.21 & 12.83 \\
3.61 & 2.64 & 8.36 & 8.23 & 13.82 \\
3.47 & 1.57 & 7.16 & 6.73 & 8.64 & 12.87 \\
3.42 & 4.74 & 7.44 & 3.58 & 3.72 & 3.59 \\
\end{pmatrix}
\]

Standard Deviation:

\[
\begin{pmatrix}
3.42 \\
4.74 \\
7.44 \\
3.58 \\
3.72 \\
3.59 \\
\end{pmatrix}
\]

Means:

\[
\begin{pmatrix}
15.70 \\
19.72 \\
49.61 \\
12.50 \\
13.32 \\
14.02 \\
\end{pmatrix}
\]

Sample Size: 79

Experf = Market

End of Problem
APPENDIX S

LISREL SYNTAX FOR A CONSTRAINT MODEL:
HIGH VS. LOW QUALITY & WARRANTY ADAPTATION

Group: **HIGH QUALITY ADAPT.-- MO16, Export Per. --CONSTRAINT MODEL**
Observed Variables: MIG MID RES FIEX STEX SAEX
Covariance Matrix:
\[
\begin{array}{cccccc}
6.68 & 10.67 & 3.48 & 3.86 & 3.21 & 13.51 \\
21.65 & 10.67 & 3.86 & 3.21 & 3.86 & 21.65 \\
1.67 & 1.67 & 3.48 & 3.86 & 3.21 & 10.67 \\
25.86 & 25.86 & 25.86 & 13.52 & 13.52 & 25.86 \\
1.25 & 1.25 & 1.25 & 1.25 & 1.25 & 1.25 \\
15.25 & 15.25 & 15.25 & 15.25 & 15.25 & 15.25 \\
\end{array}
\]
Standard Deviation:
\[
\begin{array}{cccccc}
3.68 & 4.65 & 3.86 & 3.52 & 3.21 & 3.68 \\
4.65 & 2.72 & 2.72 & 2.72 & 2.72 & 4.65 \\
8.23 & 8.23 & 8.23 & 8.23 & 8.23 & 8.23 \\
3.48 & 3.48 & 3.48 & 3.48 & 3.48 & 3.48 \\
15.25 & 15.25 & 15.25 & 15.25 & 15.25 & 15.25 \\
\end{array}
\]
Means:
\[
\begin{array}{cccccc}
15.25 & 19.43 & 48.68 & 12.30 & 12.91 & 13.83 \\
12.30 & 12.30 & 12.30 & 12.30 & 12.30 & 12.30 \\
12.91 & 12.91 & 12.91 & 12.91 & 12.91 & 12.91 \\
\end{array}
\]
Sample Size: 173
Latent Variables: Market Experf
Relationships:
\[
\begin{align*}
\text{MIG} & = \text{CONSTANT} + \text{1*Market} \\
\text{MID - RES} & = \text{CONSTANT} + \text{Market} \\
\text{FIEX} & = \text{CONSTANT} + \text{1*Experf} \\
\text{STEX - SAEX} & = \text{CONSTANT} + \text{Experf} \\
\text{Experf} & = \text{Market}
\end{align*}
\]
Path Diagram

Group: **LOW QUALITY ADAPT.-- MO16, Export Per. --CONSTRAINT MODEL**
Observed Variables: MIG MID RES FIEX STEX SAEX
Covariance Matrix:
\[
\begin{array}{cccccc}
10.86 & 13.52 & 1.84 & 4.89 & 4.14 & 6.51 \\
25.86 & 13.52 & 1.84 & 4.89 & 4.14 & 25.86 \\
5.89 & 1.37 & 1.37 & 1.37 & 1.37 & 5.89 \\
\end{array}
\]
Standard Deviation:
\[
\begin{array}{cccccc}
3.30 & 3.09 & 3.70 & 3.92 & 3.09 & 5.09 \\
5.12 & 3.09 & 3.70 & 3.92 & 3.09 & 5.12 \\
3.77 & 1.37 & 1.37 & 1.37 & 1.37 & 3.77 \\
4.15 & 4.15 & 4.15 & 4.15 & 4.15 & 4.15 \\
3.63 & 3.63 & 3.63 & 3.63 & 3.63 & 3.63 \\
18.61 & 18.61 & 18.61 & 18.61 & 18.61 & 18.61 \\
\end{array}
\]
Means:
\[
\begin{array}{cccccc}
12.76 & 12.76 & 12.76 & 12.76 & 12.76 & 12.76 \\
13.74 & 13.74 & 13.74 & 13.74 & 13.74 & 13.74 \\
\end{array}
\]
Sample Size: 79
End of Problem

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
APPENDIX T

LISREL SYNTAX FOR A FREE MODEL:
HIGH VS. LOW QUALITY & WARRANTY ADAPTATION

Group: HIGH QUALITY ADAPT. -M 016, Export Per.- FREE MODEL
Observed Variables: MIG MID RES FIEX STEX SAEX
Covariance Matrix:
13.51
6.68 21.65
10.67 16.37 67.70
3.48 2.72 5.78 11.50
3.86 3.52 10.57 7.63 13.65
3.21 2.68 7.65 6.81 9.32 13.13
Standard Deviation:
3.68 4.65 8.23 3.39 3.70 3.62
Means:
15.25 19.43 48.68 12.30 12.91 13.83
Sample Size: 173
Latent Variables: Market Experf
Relationships:
MIG = CONSTANT + 1*Market
MID - RES = CONSTANT + Market
FIEX = CONSTANT + 1*Experf
STEX - SAEX = CONSTANT + Experf
Experf = Market

Path Diagram

Group: LOW QUALITY ADAPT. --MO16, Export Per.-- FREE MODEL
Observed Variables: MIG MID RES FIEX STEX SAEX
Covariance Matrix:
10.86
6.51 25.86
13.52 11.51 65.89
1.84 -2.49 4.25 14.20
4.89 1.37 11.38 10.10 17.19
4.14 0.38 12.70 6.29 8.63 13.15
Standard Deviation:
3.30 5.09 8.12 3.77 4.15 3.63
Means:
14.99 18.61 48.66 11.77 12.76 13.74
Sample Size: 79
Experf = Market
End of Problem
VITA

PHATTARAWAN TANTONG

Personal Information
Born in Nakornsritammarat, Thailand, September 29, 1960

Educational Background
B.A. Economics, University of the Thai Chamber of Commerce, Thailand, 1980
B.A. Law, Sukhothaithammathirat University, Thailand, 1992
M.B.A. Business, Prince of Songkhla University, Thailand, 1995
M.B.A. Marketing, Old Dominion University, U.S.A., 1997
Ph.D. Marketing, Old Dominion University, U.S.A., 2003

Professional Background
Instructor, Satun Technical College, Thailand, 1983-1989
Instructor, Songkhla Vocational College, Thailand, 1990-1995