

Chapter 4

Research Methodology

4.1 Introduction

This chapter presents the research methodology used to examine the research objectives and the plan of execution of the study. The variables included in the conceptual framework are first described in operational terms and the measurement considerations involved are explained in Section 4.2. The research methodology in Section 4.3 describes the research design which was used to accomplish the research objectives. This section also describes the nature of the research study, the research instrument, the population, the sampling and the data collection procedures. Section 4.4 discusses the statistical methods used for the data analysis and the analytical approach employed to test the hypotheses.

4.2 Operationalization of Variables

The approach used in the variable operationalization process is to develop a scale item or multiple scale items aimed to measure these variables in quantitative ways. Most of the items were derived from prior research. These items are acceptable to use broadly and have been tested for scale validity in past studies. However, a number of items have been modified for this study, and some items were developed based on variable definitions. The operational definitions and measurements are summarized in Table 4.1. This section describes how the constructs that emerged from the literature were operationalized.

Table 4.1
Concept, Conceptual and Operational Definition and
Measurement of the Variables

Concept	Conceptual Definition	Operational Definition and Question No. in the Questionnaire	Measurement
Firm characteristics	1. Principal business	Measured on nominal scale (1-2)	
	2. Principal industry	Measured on nominal scale (1-14)	Based on the exporters' directories of The Department of Export Promotion of Thailand 2006
	3. Firm size	Measured on ratio scale (actual value) 1. Approximately how many full time employees in your firm last year? 2. Total assets of your firm as of last year	Based on Ditch et al.(1990); Seringhaus (1993b) ; and Lages et al (2005)
	4. Firm age/experience	Measured on ratio scale (actual value) (Approximately how long has your firm been in business?)	Based on Lages et al. (2005);Shamsuddoha (2006)
	5. Firm exporting experience	Measured on ratio scale (actual value) (Approximately how long has your firm been exporting?)	Based on Shamsuddoha (2006)
	5.Firm growth rate	Measured on ratio scale (actual value) (Approximately the growth rate of total sales%)	Based on Bodur (1994); Axinn et al. (1996)

Table 4.1
Concept, Conceptual and Operational Definition and
Measurement of the Variables (Continued)

Concept	Conceptual Definition	Operational Definition and Question No. in the Questionnaire	Measurement
Managerial characteristics (Managerial expertise in exporting and background)	1. Exporting experience	Measured on ratio scale (actual value) (How many years have you been involved in export activity?.....years)	Adjusted from Czinkota (1996) ; Leonidou et al. (1998)
	2. Experience with this firm	Measured on ratio scale (actual value) (How many years have you been involved with this firm?years)	Adjusted from Cavusgil and Zou (1994); Katsikeas, Piercy and Ioannidis (1996)
	3. Position	Measured on nominal scale (1-7) (Please indicate your position in the firm)	Adjusted from -Leonidou, Katsikeas and Piercy (1998)
	4. Age	Measured on nominal scale (1-5) (To which age group do you belong?)	Adjusted from -Cavusgil and Naor (1987)
	5. Highest education	Measured on nominal scale (1-5) (Your highest education)	Adjusted from -Axinn (1988)
	6. International exposure	Measured on ratio scale (actual value) -(How many years did you study in overseas (if any)?....years) -(How many business trips overseas did you have in the last two years?.....trips)	Adjusted from -Ali and Swiercz (1991)

Table 4.1
Concept, Conceptual and Operational Definition and
Measurement of the Variables (Continued)

Concept	Conceptual	Operational Definition	Measurement
Export trade	1. Region to export	Measured on nominal scale(1-4) 1. ASEAN: Brunei, Cambodia, Indonesia, Lao, Malaysia, Myanmar, Philippines, Singapore and Vietnam. 2. NICS: Korea, Taiwan, and Hong Kong. 3. Other Less Developed Countries: Countries in Asia (except item 1, 2 and Japan), countries in Africa, Central, and South America, and Eastern Europe. 4. Developed Countries: USA, Canada, EU, Australia, New Zealand and Japan.	Adjusted from Calof (1993)
	2. Export coverage	Measured on ratio scale (actual value) (Number of export countries)	Das and Mallika (1994)
	3. Export channels used	Measured on nominal scale (1-7) Export channels used by of your firm (More than one choice can be chosen) 1. My firm exports directly to final overseas users/consumers of the products 2. My firm exports directly to its wholly owned or partly owned overseas subsidiary 3. My firm exports directly to an distributor or an agent overseas 4. My firm exports directly to overseas retailer 5. My firm sells to an exporter or a broker in Thailand who, in turn, exports the firm's product overseas	Adjusted from Byford and Henneberry (1996)

Table 4.1
Concept, Conceptual and Operational Definition and
Measurement of the Variables (Continued)

Concept	Conceptual	Operational Definition	Measurement
Export trade	3. Export channels used	6. My firm exports directly to contractor/owner of the products overseas 7. Other (please specify).....	
	4. Export growth rate	Measured on ratio scale (actual value) (Approximately the growth rate of export sales%)	
Export involvement	Stage of development in export venture of a firm	Measured on a 10 - point Semantic Differential scale: (Please indicate the degree of export involvement of your firm: Very inexperienced exporter..... Very experienced exporter)	Adjusted from : a four-stage model of export development (Bilkey and Warren (1978)) - beginning exporter - occasional exporters - experienced exporter with limited scope - experienced exporter
			And the five stage model of Kotabe and Czinkota (1992): - partial interest in exporting, - exploring exports, - experimental exporter, - experienced exporter with limited scope, - experienced exporter.

Table 4.1
Concept, Conceptual and Operational Definition and
Measurement of the Variables (Continued)

Concept	Conceptual	Operational Definition	Measurement
Perception of importance of activities for export operations	Firms' perception of importance of activity are the concerns about exporting problems that affect international marketing	A construct measure with 18 scale items (Measured on a 11- point Semantic Differential scale) Question No. 1 1. Gathering information about export markets 2. Obtaining information about export distributors 3. Finding capital to finance exports 4. Providing national export promotional programs 5. Preparing export documentation 6. Dealing with red tape of Thailand public institutions 7. Developing qualified personnel in exporting 8. Finding "experts" in export consulting 9. Developing products to meet importer's quality standards 10. Developing product design and style for export markets 11. Developing export packaging 12. Setting the competitive prices in export markets 13. Identifying capable overseas distributors 14. Payment from overseas distributors 15. Transporting the product(s) exported 16. Promoting in export markets 17. Communicating with overseas customers 18. Protecting against currency exchange rate fluctuations	Adjusted from Katsikeas and Morgan (1994); Katsikeas et al.(1996); Crick and Chaudhry (2000)

Table 4.1
Concept, Conceptual and Operational Definition and
Measurement of the Variables (Continued)

Concept	Conceptual	Operational Definition	Measurement
Satisfaction with export promotion programs regarding the export activities	Satisfaction with governmental assistance programs designed to help firms' export activity regarding the export problems which the firm perceives.	An index of the satisfaction with EPPs and their perceived benefits measured on 11-point Semantic Differential scale Question No. 1	Adjusted from Marandu (1995)
Perceived Gap	Product variable of firm's perception of importance of export activity times dissatisfaction with governmental assistance programs designed to help firm's export activity	The results derived from the multivariate of perception of importance of each activity and the value of dissatisfaction with governmental export promotion programs designed to help firms' export activity to overcome each exporting problem	Measurement scale was developed following the concept of Importance Performance Analysis (Kotler 2003) and Fishbein's Multiattribute Model of attitude (Assael 1995)

Table 4.1
Concept, Conceptual and Operational Definition and
Measurement of the Variables (Continued)

Concept	Conceptual	Operational Definition	Measurement
Export marketing strategy	The presence of any export strategies in the firm, comprised of general export strategy and marketing mix strategy	A construct measure with 15 scale items (Measure on 10-point Likert scale) Question No. 2 - General export strategy comprises of statements 1- 9: 1. My firm has clearly identified the export customers to be served 2. My firm has developed strategies for competing in export markets 3. My firm has established distinct goals and objectives for export operations 4. My firm has developed adequate capabilities to collect necessary information about export markets 5. My firm has provided sufficient budget to exploit export markets 6. My firm has clearly identified export countries to be entered 7. My firm has developed strategies to expand export markets over the years 8. My firm has developed products in meeting export customers' wants over the years 9. My firm has had strategies to expand number of exportable products over the years - Marketing mix strategy comprises of statements 10-15: 10. My firm has developed brand building strategies for export markets 11. My firm has developed pricing strategies for competing in export markets 12. My firm has strategies to develop channel distribution in export markets 13. My firm has adequate promotion support to the distributors/subsidiaries 14. My firm has provided training given to the firm's sales force and distributors /subsidiaries 15. My firm has capabilities in adaptation of promotional strategy for export market venture	Based on Zou and Stan (1998) And Shamsuddoha (2006)

Table 4.1
Concept, Conceptual and Operational Definition and
Measurement of the Variables (Continued)

Concept	Conceptual	Operational Definition	Measurement
Export performance	1. Objective (Financial) export performance: The extent to which a firm 's measurable objectives respect to exporting have been achieved	A construct measure with 4 scale items (Measured on a ratio scale/actual value) - Growth rate of export sales - Total sales (Total sales of the last year) - Export sales (Export sales of the last year) - Ratio of export sales to total sales (Approximately percentage of export sales to total sales of the last year.....%) - Profitability (Export profit rate/return on sales of the last year.....%) Question No. 10,16,17,18,19	Based on Shoham (1998); Lages et al., (2005)
	2. Subjective (Non-financial) export performance: The extent to which a firm 's perception to exporting objectives have been achieved (Achievement of objectives)	A construct measure with 9 scale items (Measured on 11-point Semantic Differential scale) 1. Increase export sales revenues 2. Increase export profits 3. Gain a foothold in the export markets 4. Increase firm's ability to compete 5. Improve international marketing skills 6. Build brand awareness and image 7. Improve product development skills 8. Increase distribution competence 9. Increase production capacity for exporting Question No. 3	Based on Shoham (1998); Lages et al., (2005)
	2. Subjective (Non-financial) export performance: The extent to which a firm 's perception to exporting objectives have been achieved (Satisfaction with the trend of performances)	A construct measure with 5 scale items (Measured on 11-point Semantic Differential scale) 1. Trend of export sales volume <u>of the last three years</u> 2. Trend of export sales revenue <u>of the last three years</u> 3. Trend of ratio of export sales to total sales <u>of the last three years</u> 4. Trend of export profit <u>of the last three years</u> 5. Export sales growth <u>of the last three years</u> Question No. 4	Based on Cavusgil and Zou (1994); Madsen (1994)

4.2.1 Firms' Perception of Importance of Activities for Export Operations

Firms' perception of importance of activities for export operations were derived from exporting problems and barriers. Due to a major impetus for export development and success, there is a need to develop the capabilities required to manage exporting problems (Yang *et al.* 1992). The management perception of activities for export operations is an important factor for an exporting firm to continue to export or to expand export activities. High importance given to activities for export operations will induce the exporting firm to consider managerial guidelines to deal with those activities. It is implied that any activity that is considered important for firms' export operations is a problematic area for firms. As a result, firms must increase their abilities in that area or search for suitable assistance so that they can react appropriately to those problems.

The 24 export problems used in this study were initially identified by a review of previous studies in Greece conducted by Katsikease and Morgan (1994); Katsi kease et al., (1996). The battery of 24 export problem items produced eight problem dimensions proposed by the authors. These problems areas were labeled as follows: information/communication with export markets (Problem1); product adaptation (Problem2); export pricing constraints (Problem3); marketing organization adaptation(Problem4); exogenous logistical constraints(Problem5); national export policy(Problem6); perceived procedural complexity(Problem7); domestic currency devaluation(Problem8). The details of each dimension are described as below:

Problem1 is comprised of six export problem items:

- Insufficient information about overseas markets
- Inadequate promotion in export markets
- Lack of export marketing research
- Difficulty in identifying capable overseas distributors
- Lack of information on overseas distributors
- Ineffective communication with overseas customers

Problem2 is comprised of three export problem items:

- Poor quality in export packaging
- Difficulty in meeting importers' product quality standards
- Poor product design and style for export markets

Problem3 is comprised of four export problem items:

- High cost of capital to finance exports
- Inability to self-finance exports
- Lack of competitive price
- Strong international competition

Problem4 is comprised of three export problem items:

- Poor organization of firms' export department
- Lack of personnel qualified in exporting
- Lack of experts in exporting consulting

Problem5 is comprised of three export problem items:

- High transportation costs
- Difficulties in transporting the products(s) exported
- Payment delays from overseas distributors

Problem6 is comprised of two export problem items:

- Lack of government assistance in overcoming export barriers
- Ineffective national export promotion programs

Problem7 is comprised of two export problem items:

- Complexity of export documentation requirements
- Red tape in public institutions

Problem8 is comprised of only one export problem item:

- Insufficient devaluation of domestic currency

Subsequently, 18 of the 24 export problem items identified by Katsikease and Morgan (1994); Katsikease et al., (1996) were selected for this study. These 18 selected items have been used to examine firms' perceptions of importance of activities for export operations. As shown in Table 4.2, the 18 selected items were adjusted to measure firms' perceptions of the importance of activities for export operations via 18 statements of export activities. The respondents were asked to rate

the importance of the 18 activities for their firms' export operations. All items were tapped via 11 point semantic differential scales ranging from 'not at all important' (0) to 'extremely important (10). These were operationalized in questionnaire format and extensively pretested and refined in consultation with exporting firm executives and international marketing academicians to determine the accuracy, relevance and clarity of the research questions. The list of item scales for this variable is summarized in Table 4.2.

Table 4.2
Scale Items in Firms' Perception of Importance of Activities
for Export Operations

Scale Items	Description	Scale Type
ep1	Gathering information about export markets	11- point Semantic Differential scale (Not at all important...Extremely important)
ep2	Obtaining information about export distributors	
ep3	Finding capital to finance exports	
ep4	Providing national export promotional programs	
ep5	Preparing export documentation	
ep6	Dealing with red tape of Thailand public institutions	
ep7	Developing qualified personnel in exporting	
ep8	Finding "experts" in export consulting	
ep9	Developing product to meet importer's quality standards	
ep10	Developing product design and style for export markets	
ep11	Developing export packaging	
ep12	Setting the competitive prices in export markets	
ep13	Identifying capable overseas distributors	
ep14	Payment from overseas distributors	
ep15	Transporting the product(s) exported	
ep16	Promoting in export markets	
ep17	Communicating with overseas customers	
ep18	Protecting against currency exchange rate fluctuations	

4.2.2 Satisfaction with Export Promotion Programs Regarding Export Activities

Firms' perceptions of the usefulness of export promotion programs have also been used as proxies to measure the impact of these programs. Attitudes towards government programs and perceptions of helpfulness or usefulness of export promotion programs provide valuable information (Clarke 1991; Diamantopoulos *et al.* 1993; Sbrana and Tangheroni 1991). Seringhaus (1986a) in a review of 21 empirical studies found that most of the studies measure the attitudes or perceptions of managers toward governmental promotion programs. Nearly all dealt in some way with a firm's degree of knowledge, and usage of the perceived benefits of such export assistance. Based on previous studies, it was not possible to determine whether or not promotional programs actually have any impact on exporting firms. Only a few studies measured the benefit of government programs in terms of quantitative responses (Gencturk and Kotabe 2001; Ifju and Bush 1994; Marandu 1995). Marandu (1995) measured satisfaction with 13 export promotion programs on a 5-point scale ranging from 'very dissatisfied' (1) to 'very satisfied' (5). However, his analysis involved only comparing the export performance of those who were to some degree satisfied against those who were to some degree dissatisfied. Neutral responses were deleted from the analysis. Marandu (1995) analyzed individual export promotion programs rather than developing a global measure. This study extends the model used in Marandu's study to measure the satisfaction of firms toward governmental export promotion programs. The previous studies indicated that numerous governmental export promotion programs have been developed to assist companies deal with export problems. Moreover, export barriers perceived by firms play a predominant role in explaining their export behavior and the types of assistance they require (Bilkey and Tesar 1977; Ditch *et al.* 1984). Thus, this study measured satisfaction of governmental programs by using the same statements of export problems as employed in measuring firms' perceptions of the importance of activities for export operations.

The scales used in this study are different from those in previous studies in that they ask respondents to indicate the degree of satisfaction that they have with Export Promotion Programs (EPPs) of Thailand offered by any governmental agency

in relation to each activity. All items were measured via 11 point semantic differential scales ranging from ‘not at all satisfied (0) to ‘extremely satisfied’ (10). A detailed list of the scale items embodies in this construct is shown in Table 4.3.

Table 4.3
Scale Items in Firms’ Satisfaction with Export Promotion Programs
Regarding the Export Activities

Scale Items	Description	Scale Type
sat1	Gathering information about export markets	11- point Semantic Differential scale (Not at all satisfied...Extremely satisfied)
sat2	Obtaining information about export distributors	
sat3	Finding capital to finance exports	
sat4	Providing national export promotional programs	
sat5	Preparing export documentation	
sat6	Dealing with red tape of Thailand public institutions	
sat7	Developing qualified personnel in exporting	
sat8	Finding “experts” in export consulting	
sat9	Developing product to meet importer’s quality standards	
sat10	Developing product design and style for export markets	
sat11	Developing export packaging	
sat12	Setting competitive prices in export markets	
sat13	Identifying capable overseas distributors	
sat14	Payment from overseas distributors	
sat15	Transporting the product(s) exported	
sat16	Promoting in export markets	
sat17	Communicating with overseas customers	
sat18	Protecting against currency exchange rate fluctuations	

4.2.3 Perceived Gap

An important aspect of this study is the approach used to gauge the effectiveness of export promotion programs relative to the importance that exporters placed on the problems they face in conducting export operations (Brooks and

Frances 1991; Dominguez and Sequeira 1991; Ramaswamai and Yang 1990). In some cases, problems are explicitly matched to current governmental programs offerings, and judgments are made as to the degree to which exporter needs are being met (Crick and Czinkota 1995). Kotabe and Czinkota (1992) proposed a model to improve the effectiveness of export assistance. They identified existing gaps between governmental assistance offerings and clients' assistance needs based on a comparison between export-related problems and the export assistance desired by firms. They also developed indices to reflect the extent of export assistance desired by firms and those showing the allocation of export assistance efforts across the various problem areas. Export assistance value indices were computed from the importance of export problems relative to firms' export business, and the extent of assistance firms would expect from the export promotion agency. The export-related problems were identified from previous research by Czinkota (1982), and included additional items used in other studies. The export promotion effort indices were computed from the score distribution that the staff of export promotion agencies themselves believed to reflect the allocation of resources for firms in each stage of the export development process. Kotabe and Czinkota (1992) found that a gap exists between exporters' priority assistance requirements and the level of government assistance allocated to improve the effectiveness of exporters operations.

The concept of gap analysis is crucial to the present study and an acceptable methodology is needed to assess the effectiveness of governmental programs relative to exporters needs for export assistance programs. The Kotabe and Czinkota study, however, failed to provide sufficient explanations on the computation of their export promotion efforts index. This failure stems from the subjective method used to obtain information on the export promotion agency's allocation of efforts and resources.

To address the limitation of the Kotabe and Czinkota method, this study offers a new perspective on gap analysis while retaining the most important notions of the gap concept. This study proposes to apply satisfaction theory to operationalize the concept which underlies perceived gap analysis. Based on customer satisfaction theory, satisfaction is one of the key global constructs predicting consumer behavior, including future intention to purchase (Ellen and Mark 1999) and relates the

customer's emotional and feeling reactions to the perceived difference between performance appraisal and expectations (Hennig-Thurau *et al.* 2002). Satisfaction is measured from the outcome of a comparison between expected and perceived actual performance of a product or service (Kotler 2003, p. 61).

In this study, the perceived gap is developed to measure the level of satisfaction firms have with government export promotion programs. The basic concept used in developing the perceived gap consists of Importance Performance Analysis (Kotler 2003) and Fishbein's Multiattribute Model of Attitudes (Assael 1995). The details of these concepts and the steps used to calculate the perceived gap are discussed below.

4.2.3.1 Importance Performance Analysis

As mentioned in Chapter 2, the service quality of a governmental provider is evaluated from customers' service expectations and perceptions (Kotler 2003). Customers compare the perceived actual service with the expected service. If the perceived service falls below the expected service, customers are disappointed. If the perceived service meets or exceeds their expectations, they are satisfied and are apt to use the provider again.

This study identifies firms' perceptions of the importance of activities associated with export operations as the indicator of expected performance by deriving them from export-related problems firms face. The perceived actual performance is measured by the extent to which exporters express satisfaction with export promotion programs regarding each export activity. Level of satisfaction refers to how well export promotion programs deal with each activity.

Generally, the quality of services can be judged on the basis of customer importance and company performance. Importance-performance analysis is used to rate the various elements of the service bundle and identify what actions are required. The results are derived from how customers rate all relevant service elements (attributes) of a provider's service on importance and performance. For example, assume that customers are asked to rate service attributes of an automobile dealer's service department on importance and performance. The results found that the attribute, "Job done right the first time" received a mean importance rating of 3.83

and a mean performance rating of 2.63, indicating that customers felt it was highly important but not performed well (Kotler 2003).

Thus, the first step of the perceived gap calculation in this study started employed importance-performance to find a value of importance (firms' perceptions of the importance of activities associated with export operations—the activity) and a value of performance (satisfaction with export promotion programs regarding export activities).

Studies of customer satisfaction have found that customers are dissatisfied with their purchases about 25 percent of the time but that only about 5 percent complain. The other 95 percent either feel that complaining is not worth the effort, or they do not know how or to whom to complain. On average, a satisfied customer tells three people about a good product experience, but the average dissatisfied customer gripes to 11 people. If each of them tells still other people, the number of people exposed to bad word of mouth may grow exponentially. The level of the perceived gap can thus be used to determine the export performance of firms. The greater perceived gap suggests that the actual performance of government assistance programs do not match the firm's expectations. Export promotion programs with which firms are dissatisfied and feel are useless to help the firm export activities will negatively effect the consequences of firms' export performance. The equation to find level of satisfaction is,

$$\text{dissatisfaction}_i (\text{dissat}_i) = 10 - \text{satisfaction}_i (\text{sat}_i)$$

10 is used in this equation because it is a maximum score to rate satisfaction with export promotion programs regarding export activities.

4.2.3.2 Fishbein's Multiattribute Model of Attitude

This model asserts that attitude formation as a function of consumer beliefs about attributes and benefits of a brand. Fishbein's model allows marketers to diagnose the strengths and weaknesses of their brands relative to those of the competition by determining how consumers evaluate brand alternatives on important attributes. In so doing, marketers can apply Fishbein's Multiattribute model directly to sets of attributes used to evaluate specific brands.

Fishbein's model states that an attitude (A) toward an object (o) depends on consumers' beliefs (b) that the object has certain attributes (i) and on the evaluation (e) of these product attributes (i). That is,

$$A_o = \sum b_i \times e_i$$

When

A	is	equal to the attitude toward object o ,
b_i	is	equal to the strength of belief i about o ,
e_i	is	equal to the evaluative aspect of b

This equation means that an attitude toward an object equals the sum of each belief about that object times its evaluation.

Fishbein's multiattribute model also states a linkage between brand (object) evaluations (A_o) and intended or actual behavior: A positive (negative) attitude toward a brand will increase (decrease) the likelihood that consumer intends to buy it. Positive buying intentions are likely to lead to actual behavior (Assael 1995).

In the second step to calculate the perceived gap, this study applied Fishbein's Multiattribute Model of Attitude as a fundamental concept. Respondents are asked to rate an importance of each activity in their export operations based on their perception of the programs which came from their impression or their information involving the programs. Perception of importance of the programs is similar to the strength of belief in product attribute about object (b_i) in Fishbein's Multiattribute Model of Attitude. Respondents are also asked to express their satisfaction with each activity which is an evaluative aspect the quality of each program. Satisfaction is transformed to be dissatisfaction value with export promotion programs. This value is similar to the evaluative aspect of belief (e_i) in Fishbein's Multiattribute Model of Attitude. Thus, attitude toward export promotion programs (perceived gaps) depends on respondents' perception of importance of export promotion programs and on the evaluation (dissatisfaction) of these programs. All variable are determined as follows:

$$epdissat\ i\ (perceived\ gap\ i) = activity\ importance\ i \times dissat\ i$$

When

epdissat i is the firms' perception of importance and dissatisfaction toward export activity i

activity importance i is the firms' perception of importance of activity for export operation i

dissat i is the transformed value of dissatisfaction with export promotion programs of the form : $10 - sat\ i$

This equation means that an attitude (*epdissat i* or *perceived gap i*) toward an object (export activity) equals the sum of each belief about that object (importance of activity) times its evaluation (dissatisfaction).

4.2.4 Firm Characteristics

Firm characteristics in this study include indicators of firm size and firm exporting experience. They are treated as control variables. Firm size has received more attention in the past research. Export researchers regard firm size as a critical variable in explaining export behavior and success (Cavusgil and Naor 1987; Kaynak and Kuan 1993). The number of employees, assets and sales volume are used to measure size by researchers (Cavusgil *et al.* 1979). The number of years the firm has engaged in exporting is also an important factor in export performance (Seifert and Ford 1989).

This study employed an approximately full time employees in the firm and the total assets of the firm as measures of firm size, based on Ditch *et al.* (1990), Seringhaus (1993a), and Lages *et al.*, (2005). For measuring firm exporting experience, this study used the firm's number of years in exporting, based on Lages *et al.* (2005), and Shamsuddoha (2006). A detailed list of firm size and firm exporting experience measures is shown in Table 4.4.

Table 4.4
Scale Items in Firm Characteristics

Scale Items	Description	Scale Type
employee	Number of full time employees (Firm size)	Ratio Scale
TTasset	Total assets (Firm size)	Ratio Scale
experience	Time has been in exporting (Firm exporting experience)	Ratio Scale

4.2.5 Export Involvement of Firm

The level of export involvement of the firm is reported as the relevance of export marketing strategy and export performance. Firms at different stages of export involvement have different competencies, resources, and strategies and face different obstacles to achieving their export objectives. Hence, firms differ greatly in their export marketing strategy depending on their level of export involvement. Madsen (1989) found that a firm's exporting experience has a positive effect on export performance, and attitudes towards future exports (Gripsrud 1990). Douglas and Wind (1987) and Cavusgil and Zou (1994) suggested that the more internationally experienced a firm is, the more likely it is to have competence in international operations. A competent firm is able to select better export markets, formulate suitable marketing strategy, and effectively implement the chosen strategy. The firm which has international experience knows the differences in environmental conditions and is more likely to adapt the marketing strategy to accommodate the specific needs of the market (Cavusgil and Zou 1994). An inexperienced firm seeks the closest match between its current offerings and foreign market conditions so that minimal adaptation is required (Douglas and Craig 1989).

This study measured export involvement of firms by adapting a four-stage model of export development from Bilkey (1978): beginning exporter; occasional exporters; experienced exporter with limited scope; and experienced exporter. It used this in conjunction with the five- stage model of Kotabe and Czinkota (1992): partial interest in exporting; exploring exports; experimental exporter; experienced exporter

with limited scope; and experienced exporter. However, the measures used in the Bilkey (1978) and Kotabe and Czinkota (1992) studies consist of qualitative responses, producing ordinal or nominal scale values rather than interval scales. The ordinal or nominal scale values present limitations in statistical analysis. To address the limitation of their models, this study offers a new perspective of export involvement analysis while retaining the important notions of their underlying concepts which focuses on experience of firm in exporting. This study employs a 10 - point Semantic Differential scale to measure firm's export involvement. The respondents were asked to indicate the degree of export involvement of their firm, from 'very inexperienced exporter' (1) to 'very experienced exporter'(10).

4.2.6 Export Marketing Strategy

Export marketing strategy is treated as a mediator variable in this study. This construct is specified in the research model as part of a causal chain that is affected by firm characteristics, export involvement, and satisfaction with export promotion programs and that, in turn, affects the export performance of the firm. Export marketing strategy comprises general export strategy, product quality, product line, product adaptation, price adaptation, dealer support and promotion adaptation (Reid 1981).

Zou and Stan (1998) found that export marketing strategy involves such strategic factors 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. Shamsuddoha (2006) conducted a similar study in Bangladesh, a Less Developed Countries (LDCs) with a chronic trade deficit. He used items to measure export marketing strategies that are based on the definition of the relevant variables as applied in LDCs. The items covered the identification of export customers, developing strategies for competing in export markets, establishing distinct goals and objectives for export operations, developing capabilities to collect

the necessary information, providing sufficient budgets to exploit overseas markets and identifying export countries to enter.

The export marketing strategy variables used in this study were based on those employed by Zou and Stan (1998), and by Shamsuddoha (2006). They were measured via statements that tapped the extent of all items on a 10 point Likert scales with responses ranging from strongly disagree (1) to strongly agree (10). A detailed list of the item scales embodied in the export marketing strategy construct is shown in Table 4.5.

Table 4.5
Scale Items in Export Marketing Strategy

Scale Items	Description	Scale Type
genstg1	My firm has clearly identified the export customers to be served	10- point Semantic Differential scale (strongly disagree...strongly agree)
genstg2	My firm has developed strategies for competing in export markets	
genstg3	My firm has established distinct goals and objectives for export operations	
genstg4	My firm has developed adequate capabilities to collect necessary information about export markets	
genstg5	My firm has provided sufficient budget to exploit export markets	
genstg6	My firm has clearly identified export countries to be entered	
genstg7	My firm has developed strategies to expand export markets over the years	
genstg8	My firm has developed products to meet export customers' wants over the years	
genstg9	My firm has had strategies to expand the number of exportable products over the years	
mktstg1	My firm has developed brand building strategies for export markets	
mktstg2	My firm has developed pricing strategies for competing in export markets	
mktstg3	My firm has strategies to develop channel distribution in export markets	
mktstg4	My firm has adequate promotion support to the distributors/subsidiaries	
mktstg5	My firm has provided training given to the firm's sales force and distributors /subsidiaries	
mktstg6	My firm has capabilities in adaptation of promotional strategy for export market venture	

4.2.7 Export Performance

The two principal modes of performance assessment identified in the general model are objective and strategic (non-financial) indicators. The popular financial measures of performance include: level of export sales, export intensity, export growth, and export profitability (Katsikeas *et al.* 2000). The most common financial measures of export performance used in academic studies have been exports as a proportion of sales, export profitability, and growth in export sales (Culpan 1989; Madsen, T.K. 1989; Naidu, G. M. and Prasad 1994; Samiee and Walters 1990). Researchers in recent years, have also emphasized the achievement of strategic objectives such as market share, competitive position, etc. (Cavusgil and Kirpalani 1993; Cavusgil and Zou 1994). Since there are some limitations involved in the use of financial variables as a measure of export performance (Evangelista 1994; Katsikeas *et al.* 1996), the use of non-financial measures has increased in recent years. Non- financial measures are based on the systematic assessment by managers of such items as: goal achievement (Cavusgil and Zou 1994; Katsikeas *et al.* 1996), satisfaction (Evangelista 1994), and perceived success (Cavusgil and Zou 1994; Louter *et al.* 1991).

This study measured export performance via three indicators:

1. Objective (Financial) export performance: the extent to which a firm's measurable objectives with respect to exporting have been achieved, based on Naidu and Prasad (1994); Shoham (1998); Lages *et al.*, (2005), measured on a ratio scale/actual value with 3 scale items. A detailed list of the item scales of objective export performance is shown in Table 4.6.

Table 4.6
Scale Items in Objective Export Performance

Scale Items	Description	Scale Type
Exgrowth	Growth rate of export sales	Ratio Scale
Exratio	Ratio of export sales to total sales (Approximately percentage of export sales to total sales of the last year.....%)	Ratio Scale
Exprofit	Profitability (Export profit rate/return on sales of the last year.....%)	Ratio Scale

2. Subjective (Non- financial) export performance¹: the extent to which a firm 's perception to exporting objectives have been achieved (Satisfaction with the trend of performances), based on Cavusgil and Zou (1994) and Louter et al. (1991). It is measured on 11-point Semantic Differential scale with 5 scale items.

3. Subjective (Non-financial) export performance²: the extent to which a firms' perception that exporting objectives have been achieved (Achievement of export objectives), based on Shoham (1998); Lages et al., (2005). It is measured via 11-point Semantic Differential scale with 9 scale items.

A detailed list of the item scales of subjective export performance is shown in Table 4.7.

Table 4.7
Scale Items in Subjective Export Performance

Scale Items	Description	Scale Type
<i>Subjective performance1: the extent to which a firm 's perception to exporting objectives have been achieved (Satisfaction with the trend of performances).</i>		11-point Semantic Differential Scale (Not at all satisfied... Very satisfied)
subperf1_1	Trend of export sales volume <u>of the last three years</u>	
subperf1_2	Trend of export sales revenue <u>of the last three years</u>	
subperf1_3	Trend of ratio of export sales to total sales <u>of the last three years</u>	
subperf1_4	Trend of export profit <u>of the last three years</u>	
subperf1_5	Export sales growth <u>of the last three years</u>	
<i>Subjective export performance2: the extent to which a firm's perception to exporting objectives have been achieved (Achievement of export objectives).</i>		11-point Semantic Differential Scale (Not at all achieved... Completely achieved)
subperf2_1	Increase export sales revenues	
subperf2_2	Increase export profits	
subperf2_3	Gain a foothold in the export markets	
subperf2_4	Increase firm's ability to compete	
subperf2_5	Improve international marketing skills	
subperf2_6	Build brand awareness and image	
subperf2_7	Improve product development skills	
subperf2_8	Increase distribution competence	
subperf2_9	Increase production capacity for exporting	

For this study, the main variables employed include the 90 items listed in Table 4.8.

Table 4.8
Summary of Measures in This Research Study

Export Involvement	Importance of activities for firms' export operations	Firm's satisfaction with EPPs	Perceived gap	General Export Strategy	Marketing Mix Strategy	Firms' Export Performance	Firm Characteristics
Exp_inv	ep1	sat1	epdissat1	genstg1	mktstg1	Exgrowth	Employee
	ep2	sat2	epdissat2	genstg2	mktstg2	Expratio	TTasset
	ep3	sat3	epdissat3	genstg3	mktstg3	Exprofit	Experience
	ep4	sat4	epdissat4	genstg4	mktstg4	subperf1_1	
	ep5	sat5	epdissat5	genstg5	mktstg5	subperf1_2	
	ep6	sat6	epdissat6	genstg6	mktstg6	subperf1_3	
	ep7	sat7	epdissat7	genstg7		subperf1_4	
	ep8	sat8	epdissat8	genstg8		subperf1_5	
	ep9	sat9	epdissat9	genstg9		subperf2_1	
	ep10	sat10	epdissat10			subperf2_2	
	ep11	sat11	epdissat11			subperf2_3	
	ep12	sat12	epdissat12			subperf2_4	
	ep13	sat13	epdissat13			subperf2_5	
	ep14	sat14	epdissat14			subperf2_6	
	ep15	sat15	epdissat15			subperf2_7	
	ep16	sat16	epdissat16			subperf2_8	
	ep17	sat17	epdissat17			subperf2_9	
	ep18	sat18	epdissat18				

4.3 Research Design

This is a cross-sectional study, and the quantitative research employed in the study was applied in the following sequence of steps:

1. The research commenced with a literature review which explored exporting problems, government export promotion programs, export marketing strategy and export performance. The results of this research were expected to shed light on the facts and the relationships among the mainly aspects of exporting.
2. The initial questionnaire was developed to be the survey instrument for the study based on the theories and the literature.

3. The questionnaire was subsequently pre-tested with a group of export managers, together with academics considered to be knowledgeable in this field of research.

4. A mail survey was employed to collect the primary data from a random sample of Thai firms that engage in exporting activities.

5. To facilitate a good response rate, the questionnaire was constructed in an optical readable format, and confidentiality was assured. The cover letter was personally addressed where possible to the executive mentioned in database. Where an executive was not named in the database, the questionnaire was sent to the managing director. The cover letter asked that the questionnaire be passed to the executive with exporting responsibility if this is someone other than the recipient (Crick and Chaudhry 2000).

6. Data collected was analyzed to examine associative and causal relationships between the constructs identified in the research model.

4.4 Sampling Plan

4.4.1 Population of Interest

This study focuses on Thai firms involved in exporting products to one or more countries. The sampling frame for this study consists of representatives from Thai firms who are senior decision-makers in managerial position and directly involved in their company's international marketing or export ventures. In smaller companies, in particular, these managers are likely to bear the title of chief executive or managing director as marketing manager (Llanes, Gray, and Joseph 1991). The emphasis on managers reflects the strategic importance of international marketing and the increased likelihood that the decisions of key managers will impact companies' international marketing performance.

The sampling frame is based on the most comprehensive and up-to-date exporter directories of 2005-2006, published by the Department of Export Promotion of Thailand, Ministry of Commerce. There are 9,725 Thai firms in this database. This study is specifically concerned with only manufacturing firms that export non-

commodity products and with trading firms. Many firms, including those dealing with agricultural products (584), restaurants (30), and all service firms except trading firms and inter-trading firms (365) were excluded from the sampling frame, resulting in a total of 8,746 firms included in the sampling frame.

4.4.2 Sampling Method

Bearing a low response rate in mind, approximately 30 % of firms in the sampling frame (2,624 firms) were subsequently surveyed following a forced random selection of every three exporters in the database. It was also assumed that there would be some problems from wrong addresses and mailing services, and the number of firms in the sample was increased to 2,800 firms to account for unexpected problems.

Table 4.9
Calculation of Mailing Requirements

Name of Industry	Total population	Mailing Estimation	
		No.	% of total Population
Automotive, Auto parts, and Accessories	431	144	33.5%
Chemical/Machinery/Plastic Products	440	143	32.5%
Electronic and Electrical Appliances	584	184	31.5%
Food Products and Beverages	1233	407	33.0%
Furniture/Building Materials/Hardware Items	1092	340	31.2%
Household products	661	218	33.0%
Gift, Decorative Items and Handicrafts	732	230	31.6%
Gems and Jewelry	759	235	31.0%
Leather, PVC, and Footwear	386	128	33.0%
Traveling and Sporting Goods	78	25	32.0%
Textiles, Garments and Fashion Accessories	1141	360	31.5%
Medical Supplies, Health and Beauty Products, Cosmetics	701	217	31.0%
Trading Companies	17	17	100.0%
Other	491	152	31.0%
Total	8,746	2,800	32.02%

Based on this number, disproportionate stratified random sampling method was used by stratifying the total population into the finalized 13-industry list: (1) automotive, auto parts, and accessories, (2) chemical/machinery/plastic products, (3)

electronic and electrical appliances, (4) food products and beverages, (5) furniture/building materials/hardware items, (6) household products, (7) gift, decorative items and handicrafts, (8) gems and jewelry, (9) leather, PVC, and footwear, (10) traveling and sporting goods, (11) textiles, garments and fashion accessories, (12) medical supplies, health and beauty products and cosmetics, and (13) trading companies. The results of this procedure are shown in Table 4.9.

4.4.3 Sample Size

Of the sample of 2,800 firms, 187 stated that they no longer exported and 268 questionnaires were returned by the mailing service. These firms had either closed down or had moved without leaving a forwarding address. Thus, the sample size was reduced to 2,345. Based on a minimum expected response rate 20 % from the two mail-outs, nearly 500 replies were expected (the actual rate was 16%). To help boost response rates, a number of actions were taken. Subjects were told that the study was being conducted by Thammasat University Ph.D. student. Assurances were given about confidentiality to eliminate concerns about the commercial sensitivity of performance information.

4.5 The Research Instrument

4.5.1 Survey Questionnaire

A questionnaire is a formalized set of questions for obtaining information from respondents (Malhotra 2004). The study employed the development and administration of a self-completed survey administered via mail. First, the research instruments of relevant previous studies were incorporated into a preliminary questionnaire and pre-tested via a series of personal interviews with the managers of 12 Thai firms involved in exporting, following similar procedures by Li and Ogunmokun (2000). The pre-test was conducted in order to ensure that the questionnaire design and concepts were meaningful to respondents. The questionnaire was designed to collect information on managers' perceptions of importance of export

activity for firm export operations, satisfaction with export promotion programs, export trade of firms, export strategy, and export performance.

4.5.2 Translation of Research Instrument

The questionnaire was first developed in English and then translated into Thai, the native language of the respondents. In order to avoid translation error, the questionnaire was also back translated to English. Only a few significant changes were required as the back-translated questionnaire was very similar to the original English version, ensuring measurement equivalence of the instrument. A professional translator, who is bilingual, was hired to complete this task. Moreover, the researcher had a discussion with both exporters and translators about any problems in the translation procedures which could have influence the questionnaire.

4.5.3 Pre-Test of Research Instrument

The questionnaire was pre-tested to determine the willingness and ability of respondents to complete it and to discover any flaws in its design or in specific questions. The preliminary questionnaire was reviewed by two academics who are familiar with the export promotion and export performance literature to assess the questionnaire items for the content validity of the constructs. The suggestions were incorporated in a revised questionnaire. Then the questionnaire was used in the field to determine whether the revised questionnaire was easily understood and whether it is possible to get cooperation from the potential respondents when the questionnaires were finally mailed. Twelve people from Thai exporting firms were chosen for personal interview. All aspects of the questionnaire were tested, including question content, wording, sequence, form, layout, question difficulty and instructions. They were also asked to provide additional comments and suggestions about the questions on the questionnaire. Minor adjustments were made to improve questions in need of clarification.

4.5.4 Final Questionnaire

The final questionnaires (both English and Thai versions) were produced after the last revisions and are shown in Appendices A and B respectively. The final questionnaire consisted of 8-pages and a front page that contained a statement that introduced the objectives of the study, the structure of the questions, the contact address and phone number of the researcher, and the questionnaire identification number. Moreover, the privacy statement declared that, “ALL INFORMATION WILL BE TREATED BY US AS STRICTLY CONFIDENTIAL. ALL DATA WILL BE AGGREGATED PRIOR TO ANALYSIS FOR EDUCATION PURPOSE ONLY”.

The questionnaire was divided into three sections. Section 1 (questions 1 and 2) related to the opinions regarding different aspects of export trade. The main areas covered included the importance of activities for the firm’s export operations, satisfaction with export promotion programs offered by any Thai governmental organization, and export marketing strategy. Section 2 (questions 3 and 4) related to export performance. Section 3 (questions 5 to 31) related to information about the firm and a profile of the person responding to the questionnaire. The questionnaire contained questions pertaining to all constructs described in section 4.2.

4.6 Data Collection, Data Editing and Entry

The data collection was conducted in the first quarter of 2007. The pre-test results indicated a strong need for an incentive to motivate the respondents to participate. One manager’s suggestion was incorporated into the data collection: respondents would be offered a free copy of the initial research report. This incentive was stated in the last page of questionnaire.

A mail survey with telephone follow up was used to gather the data. The self-administered mail survey approach was deemed appropriate for this research for administrative and temporal reasons, given the nature of the study, and number and geographic dispersion of respondents throughout the country. Mail surveys have been criticized because of low response rates and the implied potential of non-response bias

(Churchill 1999). Further, considering the relatively low response rate to mail surveys in developing countries (Ray 1988), a two-wave mailing with a telephone follow-up was selected as the most adequate technique to achieve a high response rate.

Data collection began in the first week of January 2007 by sending an advance official letter from the university to clearly describe the study to respondents in broad terms, asking them for their cooperation, ethical requirements, some general guidelines for completion of the questionnaire, and telling them to expect a questionnaire in the next few days. The names and addresses of the respondents were obtained from the directory lists. The complete survey packet was sent about two weeks later, containing a cover letter, a questionnaire and a postage paid envelope. Out of the total questionnaires that were mailed out, 147 were returned within the next three weeks. A second wave of mailings was carried out in late February, 2007. After a four to five week period, individuals who did not return a completed questionnaire were followed up by a reminder letter along with telephone contacts to remind them to reply. A total of 403 questionnaires were received by the end of April 2007, resulting in a 17 percent response rate. This result is considered satisfactory, given that the average management domestic survey response rate is between 15 and 20 percent (Lages and Montgomery 2005; Menon, Bharadwaj, Adidam, and Edison 1999).

All responses were checked and edited thoroughly for completeness. Nineteen cases were considered to be unqualified respondents for this research, including non-manufacturing firms, non-trading firms, and firms that no longer exported. Fourteen returned questionnaires were discarded on the basis of missing data on the measures of interest. As a result, there were 370 usable questionnaires, generating a net response rate of 16%, which is close to expectations. Table 4.10 depicts the total population, the sample drawn and the response rate for each industry sub-set. Initially all data collected were coded and entered into a SPSS for WINDOWS 13 spread sheet which was previously tested. The data set was screened through examination of basic descriptive statistics (means, standard deviations, ranges) and frequency distribution. Values that are out of range or improperly coded can be detected with such simple checks (Kline 1998).

Table 4.10
Total Population, Sample Drawn and Response Rate

Name of Industry	Total population	Sample Drawn		Total Response Received	
		No.	% of total Population	No.	Response Rate
Automotive, Auto parts, and Accessories	431	137	31.8%	25	18.25%
Chemical/Machinery/Plastic Products	440	128	29.1%	19	14.84%
Electronic and Electrical Appliances	584	159	27.2%	24	15.09%
Food Products and Beverage	1233	391	31.7%	58	14.83%
Furniture/Building Materials/Hardware Items	1092	332	30.4%	32	9.64%
Household products	661	207	31.3%	15	7.25%
Gift, Decorative Items and Handicraft	732	127	17.3%	36	28.35%
Gems and Jewelry	759	176	23.2%	18	10.23%
Leather, PVC, and Footwear	386	123	31.9%	16	13.01%
Traveling and Sporting Goods	78	21	26.9%	2	9.52%
Textiles, Garment and Fashion Accessories	1141	296	25.9	42	14.19%
Medical Supplies, Health and Beauty Products, Cosmetics	701	136	19.4%	18	13.24%
Trading Company	17	17	100.0%	16	94.12%
Other	491	95	19.3%	49	51.58%
Total	8,746	2,345	26.8%	370	15.78%

4.7 Data Analysis Procedures

The statistical techniques applied at each stage of the data analysis are described below:

4.7.1 Preliminary Data Analysis

After data collection was completed, the data were screened for missing values and inconsistent responses. The SPSS program was used to complete this task.

4.7.1.1 Descriptive Statistics

The objective of using descriptive statistics is gain insights about central tendencies, variability, and the shape of different variables under study (Malhotra 2004). Descriptive statistics of all variables were computed including means, standard error of means, modes, standard deviations, variances, range, minimums, and skewness and kurtosis. Moreover, charts and histograms were examined to detect any outliers, to determine the shape of the distribution of the means, and to examine whether the observed distribution is consistent with an expected distribution.

4.7.1.2 Factor and Reliability Analysis

Factor analysis is considered to be exploratory in the sense that the researcher has no prior knowledge that the items do indeed measure the intended constructs. Exploratory factor analysis (EFA) is designed for the situation where links between the observed and latent variables are unknown or uncertain. The analysis proceeds in an exploratory mode to determine how the observed variables are linked to their underlying factors. Typically, the researcher wishes to identify the minimal number of factors that underlie the observed variables. In this research most of the variables, especially satisfaction of export promotion programs, export marketing strategy, and export performance, were latent variables and were measured with other observed items either generated from the literature or developed by the researcher for this study. This analysis was used to identify the number of factors that underlie the observed variables and to conduct a test of the dimensionality of the constructs.

EFA was also used to assess the convergent and discriminant validity of the construct measures (Churchill 1979). Convergent validity was undertaken to examine the extent to which the item correlated positively with measures of the same construct. In this study, convergent validity was indicated by high loadings on the construct to which the variable belonged. Discriminant validity examined the extent to which a measure did not correlate with other constructs from which it was suppose to differ. In this study, discriminant validity was indicated by low loadings on constructs to which a variable did not belong. A test of internal consistency was applied in this study for assessing the reliability of the scale (Malhotra 2004). Cronbach's coefficient alpha was used to measure the internal consistency of the set

of measure used in each scale. According to Nunnally (1979) and Peter (1977), all of the coefficient alphas should meet the minimum acceptable level of 0.70.

4.7.2 Path Analysis

Following the assessment of reliability and validity of the primary construct measurements by employing EFA, the next stage of analysis employed path analysis using the AMOS 7 program . Path analysis or SEM with observed variables was used for assessing the hypothesized relationships contained in the model. Finally, cluster analysis, multivariate analysis of variance, and multiple discriminant analysis were used. All analytical approaches were conducted using SPSS 13.0. A brief description of each analytical approach follows.

Path analysis is known as structural equation modeling and involves developing measurement models to define observed variables and then establishing relationships among them. The results describe the causal effect and assign the explained and unexplained variance. The fundamental objective of structural equation modeling is to map and test hypothetically postulated causal relationships among variables (Homburg 1991). In contrast to conventional procedures, structural equation modeling allows the testing of an entire model simultaneously instead of testing each hypothesis step by step (Schumacker and Lomax 1996) The structural component of the model examines relationships among sets of independent variables and the dependent variables they are hypothesized to influence based on theoretical reasoning. For path analysis, the variables of concern are observable.

4.7.2.1 Assumptions

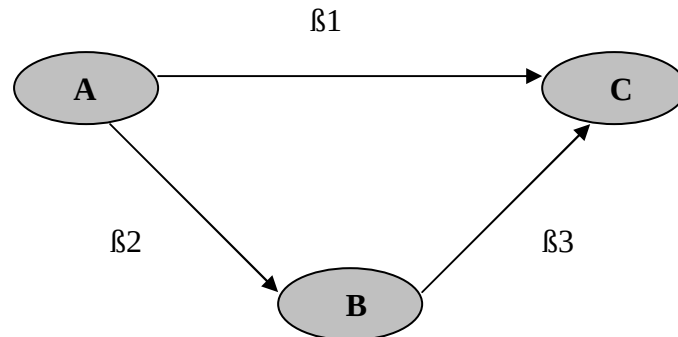
The assumptions for this type of path analysis are as follows:

1. All relations are linear and additive. The causal assumptions (what causes what) are shown in the path diagram.
2. The residuals (error terms) are uncorrelated with the variables in the model and with each other.
3. The causal flow is one-way.
4. The variables are measured on interval scales or better.
5. The variables are measured without error (perfect reliability).

Path analysis differs from traditional regression analysis as it performs multiple regression analyses concurrently, and allows the direct and indirect effects of variables to be simultaneously calculated. Direct effects are measured by path coefficients, represented as β_1 (beta) in Figure 4.1 (A-C). Path coefficients were computed on the hypothesized relationships between the independent and dependent variables. Presented in standardized form, these β (beta) values represent a standardized partial regression coefficient. The value of this standardized parameter indicates the resultant change in a dependent variable as a result of a one-unit change in an independent variable attributable to this direct relationship.

A dependent variable might also be indirectly influenced by an independent variable through another mediating variable. Indirect effects exist when the dependent variable may be reached from the independent variable via the paths connecting each to one or more other variables (See example A-B-C in Figure 4.1). The indirect effects are measured as a product of the structure coefficients involved, represented as β_2 and β_3 in Figure 4.1. This value represents the resultant change in the dependent variable as a result of a one-unit increase in an independent variable, attributable to this indirect relationship. To calculate the total change in a dependent variable as a result of a one-unit increase in an independent variable, the indirect and direct effects are summed together (Schumacker and Lomax 1996).

Figure 4.1
The Direct and Indirect Effects



Direct Effect = β_1

Indirect Effect = $\beta_2 * \beta_3$

Total Effects = $\beta_1 + \beta_2 * \beta_3$

The model procedure of path analysis was divided into the three stages as SEM. First, Just-Identified Base Model specification was done by composing the observed variables of interest, their path diagrams, and their path coefficients. Second, model identification status was investigated, followed by an attempt to estimate the parameters of the model. At this stage, weak causal paths from the independent variables to the dependent variables with bad fit indicators were trimmed. The final model was then developed that contains all variables that remained after trimming. The final model is used in a more restrictive structural model with the measurement model values.

4.7.2.2 Assessment of Overall Model Fit

The AMOS program provides powerful instruments to assess the fit and to detect the lack of fit of the model. The following values are used:

1. Parameter estimates
2. Standard errors
3. The coefficient of determination
4. Overall goodness-of-fit (GOF) measures

The first three values give reasonable estimates to assess the goodness of fit of the model. If any of these values is unreasonable, then it is an indication that the

model it fundamentally wrong, and that it is not suitable for the data. Negative variances and correlations larger than one in magnitude are examples of a bad model.

Table 4.11
Goodness of Fit Criteria and Acceptable Fit Interpretation

Goodness-of-Criterion	Acceptable Level	Interpretation
Chi-square Statistic (χ^2)	$p > 0.05$	> 0.05 indicates a significance model fit
Normed Chi-Square (χ^2/df)	Less than 2	$\leq 1-1.5$ indicates an adequate fit
Goodness-of-Fit(GFI)	≥ 0.95	Value close to 0.95 reflects a good fit
Adjusted GFI	> 0.90	Value adjusted for df, with > 0.90 indicates a good model fit
Root Mean Square Error of Approximation (RMSEA)	< 0.08	Value less than 0.08 indicates a good model fit
Standardized Root Mean Square residual (SRMR)	Less than p	Value close to 0.00 indicates a better model fit. Value less than 0.08 indicates acceptable fit.

4.7.3 Cluster Analysis

Cluster analysis is the procedure for assigning cluster membership to objects being investigated based on selected characteristics of individual objects so that objects in the same cluster are more similar to one another than they are to objects in other clusters (Hair Jr., Black, Anderson, and Tatham 1998, p. 555). Cluster analysis was employed in this study for examining the performance of firms which have different perceived gaps. Cluster analysis can classify respondents so that resulting clusters of respondents exhibit high internal (within-cluster) homogeneity and high external (between-cluster) heterogeneity. The advantage of cluster analysis is that it minimizes the effects of by linearity, normality, and homoscedasticity, which are limitations of other statistical techniques. Cluster analysis requires representativeness of samples, absence of multicollinearity among variables used to cluster individual objects, and an absence of outliers as statistical assumptions (Hair Jr. *et al.* 1998).

This study follows the three-step clustering procedure recommended by Singh (1990) and uses multiple discriminant analysis to validate the different characteristics that distinguish between cluster groups. Multiple Discriminant Analysis (MDA) is a statistical technique often used for testing differences of two or more group means with regard to a set of independent variables.

A hierarchical clustering analysis is the first task to determine the optimal number of clusters and the internal validity of the alternative solutions. This step is useful in generating starting centroids, exploring possible alternative cluster solutions, and identifying outliers. The centroids from hierarchical clustering are then used as inputs to a non-hierarchical *K*-means clustering procedure that generates and internally validates a final cluster solution. The *K*-means cluster analysis derives and internally validates a chosen cluster solution. (Punj and Stewart 1983; Singh 1990). Multivariate analysis of variance (MANOVA) is also used in the final step of cluster analysis. It is the multivariate extension of univariate ANOVA techniques for assessing differences between group means.

4.8 Conclusion

This chapter has described the research methodology used to analyze the data and test the hypothesized model. The chapter has explored the study's design and the research sampling plan, the data collection instrument, and the data collection and analysis techniques. Operational definitions and measurement of the variables have also been described. The next chapters provide the study's results and discusses the results as they relate to the hypotheses testing.