Chapter 5

Data Analysis

Results of the data analyses are presented in two parts: (a) data analysis and (b) the model estimation and testing. The first part describes the demographic data of the exporting companies in different modes of data including the opinions of respondents to export performance, marketing innovation, firm resources, firm characteristics and environment. The second part is the model estimation and fitting the model to the data. Linear Structural Relationship (LISREL) analysis is used as the statistical tool to discover the model which best fit to or best represent the data. All eight hypotheses stated in Chapter 3 are tested and results are reported.

Response Rate

After 480 questionnaires have been mailed, 11 questionnaires are returned as undeliverable. Consequently, a total of 267 responses are received, leading to a response rate of 56.92 per cent. Of this returned questionnaires, 18 questionnaires are disqualified as the respondents are not currently exporting, have less than one year of export experience, run the business as a subsidiary company, or have closed a factory. The response rate is thus 53.09 per cent. This response rate can be considered satisfactory, given that studies with top management as respondents typically achieve a mail survey with response rates of around 20 per cent (Powell, 1992; Tootelian and Gaedeke, 1987).

Of the 249 responses, the majority of the respondents held a top management position: 26 presidents (10.4 per cent), 15 vice-president (6 per cent), 131 managing directors (52.6 per cent), 20 export managers (8.0 per cent), 21 marketing managers (8.4 per cent) involved in export marketing decision-making. The remaining 56 respondents (22.4 per cent) represents middle-level managers such as plant managers, financial and accounting managers, production managers with substantial responsibility for export activities. Working experience in the export field ranges from six months to 35 years with a median of 10 years. In terms of types of business,

73 (29.3 per cent) are working in food companies, 55 (22.1 per cent) are working in gems and jewelry companies, 59 (23.7 per cent) are working in garments and the rest (62 companies, 24.9 per cent) in electronics and electrical products.

Data Analysis

Demographics of Exporting Companies

Data in this part have been organized into different types according to the distinctive characteristics of the variables under consideration. The data are presented in term of number and percentage of respondents as shown in Table 5.1 and Table 5.2.

Table 5.1 Demographic Data of Firms

Items	Count (Percent)
Number of full-time employees	
Below 100	81 (32.53%)
100 to 500	102 (40.96%)
501 to 1,000	31 (12.45%)
1,001 or more	35 (14.06%)
Year of firm's international operation	
1 to 5 years	56 (22.49%)
6 to 10 years	81 (32.53%)
11 to 15 years	41 (16.47%)
16 to 20 years	35 (14.06%)
21 to 25 years	21 (8.43%)
26 or more	15 (6.02%)
Number of product lines (exports)	
1 to 3 product lines	125 (50.20%)
4 to 6 product lines	60 (24.10%)
7 to 9 product lines	16 (6.42%)
10 or more	48 (19.28%)
Average ratio of export to local sale	
1 % - 25%	38 (15.26%)
26% - 50%	39 (15.66%)
51% - 75%	35 (14.05%)
76% -100%	137 (55.03%)

Note: $n = 249$

Table 5.1 shows that for firm size, the number of full-time employees in most companies ranged from below 100 to 1,100 or more. Among the two hundred and fourty-nine exporting companies, 40.96% have between 100 and 500 full-time employees, while 32.53% have fewer than 100 full-time employees. 14.06 % of the

samples have 501 and 1,000 full-time employees and 12.45% of the samples have 1,001 or more full-time employees.

In terms of export experience, 32.53% of the sampled firms have been engaged in the export business for 6 - 10 years, 22.49% have been in international business for 1 - 5 years, 16.47%, have been engaged in the export business for 11 – 15 years. 14.06% have been engaged in the export business for 16 – 20 years. 8.43% have been engaged in the export business for 21 - 25 years. Only 6.02% of the samples have been in international business for 26 years or more.

For the product lines, 50.20% of 249 firms have 1-3 product lines and 24.10% have 4 to 6 product lines. 19.28% have 10 product lines or more and 6.43% of the samples have 7 to 9 product lines.

For the average ratio of export to local sale, 55.03% of firms export 76%-100% of their products, 15.66% of firms export 26%-50% of their products, 15.26% of firms export 1%-25%. Only 14.05% of firms have an average ratio of export to local sale 51%-75% of their products.

In conclusion, most of the sampled firms have 100-500 full-times employees, have engaged in the export business for 6-10 years, have 1-3 product lines, and have exported to foreign markets more than 76 % of their products.

Table 5.2 Number of Markets and Regions of Key Exports Company's Products

Items	Count (Percent)
Number of markets in which products are exported	
1 to 3 countries	47 (18.87%)
4 to 6 countries	68 (27.31%)
7 to 9 countries	41 (16.47%)
10 or more	93 (37.35%)
Regions where about key export markets of the company's products	
North America	171 (68.67%)
Middle and West Europe	167 (67.07%)
Eastern Europe	39 (15.66%)
Central and South America	39 (15.66%)
Africa	39 (15.66%)
ASEAN	135 (54.22%)
Asia and Pacific	198 (79.52%)

Note: $n = 249$

Table 5.2 shows that 37.35% of exporting firms have exported to ten countries or more, 27.31 % of respondents' companies have exported their products to 4 to 6 countries. 18.87% of exporting firms have exported to 1 to 3 countries and 16.47% of exporting firms have exported to 7 to 9 countries. Major markets of the companies' products are Asia and Pacific (79.52%), North America (68.67 %), Middle and West Europe (67.07%), ASEAN (54.22%). Only 15.66% of respondents in this study report that their companies' key regions are in Eastern Europe, Central and South America and Africa.

In conclusion, most of the exporting firms in this study have exported to ten countries or more and major export regions are Asia and Pacific, North America and Middle and West Europe. It is interesting to see that ASEAN is the fourth major market.

Opinions of the Respondents Upon Various Issues

Data in this part have been organized according to the opinions of the respondents upon various issues. The data are presented in terms of frequency count and percentage of respondents as shown in Table 5.3 to Table 5.5. These three tables show respondents' opinions on different issues such as technologies, research and development (R&D) budget, marketing strategies and management styles of firms

Table 5.3 Respondents' Opinions on Technology and Research and Development Budget

Items	Count (percent)
Technological orientation compared with competitors in foreign market	
a) below competitors	33 (13.25%)
b) relatively same or equal competitors	176 (70.69%)
c) above competitors	40 (16.06%)
R&D budget as percentage of total sale	
No budget	98 (39.36%)
Less than 1 percent	51 (20.48%)
1-3 percent	64 (25.70%)
4-6 percent	20 (8.03%)
7-9 percent	5 (2.01%)
10 percent or more	11 (4.42%)

Note: $n = 249$

From Table 5.3, 70.69% of the respondents state that the technologies used in their firms are similar to that of their foreign competitors, while 16.06% state that their technologies are better, and 13.25% state that their technologies are less efficient than that of foreign competitors.

For the research and development (R&D) budget, 39.36% of the respondents report that they have not set any budget for R&D, 20.48% of respondents report that

they have set their budget for R&D less than 1 percent of their companies' total sale, and 25.70% of respondents report that they have set their budget for R&D 1–3 percent of their companies' total sale. 8.03% of respondents report that they have set their budget for R&D 4–6 percent of their companies' total sale. 2.01% of respondents report that they have set their budget for R&D 7–9 percent of their companies' total sale. Only 4.42% of respondents report that they have set their budget 10 percent or more of their companies' total sale.

In conclusion, most of respondents from the exporting companies state that the technologies used in their firms are similar to that of their foreign competitors. The majority of the respondents' companies (39.96%) state that they do not set budget for R&D. Only 11 companies have set their R&D budget 10% or more of the total sale.

Table 5.4 Respondents' Opinions on Firm's Marketing Strategy

Items	Count (Percent)
Marketing strategy of company	
a) "We try to be the "*first mover*" in new product and market areas, even some of our effort fail".	80 (32.13%)
b) "We try to be the "*first mover* " in selling our product (old or new) in new market areas".	61 (24.50%)
c) "We prefer to maintain secure positions in relatively stable product or service area. Emphasis is on protecting our market share".	56 (22.49%)
d) "We are seldom first in new product and markets but are often fast followers".	30 (12.05%)
e) "We tend not to have a well-defined growth strategy. We feel that we can react to changes well, once these are clear to us. As a rule, we prefer to let others assume the risks of new product or market development".	22 (8.83%)

Note: a) $n = 249$

b) This question adopted from Gomez-Mejia and Luis, R.. (1988), "The Role of Human Resources Strategy in Export Performance: A Longitudinal Study," *Strategic Management Journal*. 9, (1988), 503.

Table 5.4 shows the respondents' opinions on exporting firm's marketing strategy. From this table.32.13% of the samples have employed the "*first mover*" strategy in new product and new market, 24.50% have used the "*first mover*" strategy in selling their old products in new markets, 22.49% of the sampled firms prefer to maintain their market share, and 12.05% of firms report that they are not the first movers but are fast followers. Only 8.83% report that they do not have any well-defined growth strategy but prefer to let others assume the risks of new product or market development.

Table 5.5 Respondents' Opinions on Their Firms' Management Styles

Management Style	Count (Percent)
1. Eastern style management (family style)	66 (26.50%)
2. Western style (transparent management structure, marketing planning, intra-organizational communication with clear internal information and budgeting systems, executives selected based on their qualification with definite terms)	53 (21.30%)
3. 1 and 2	123 (49.40%)
4. Others	7 (2.80%)

Note: *n = 249*

Table 5.5 shows respondents' opinions on their firms' management styles. It can be seen that the management styles used by most sampled companies (49.40%) is the combination of Eastern and Western styles. The Eastern (family) style accounts for 26.50% and the Western style accounts for 21.30%. Only 7 companies (2.80%) report that they used other management styles.

The following data analysis results show respondents' opinions related to 5 issues. They are firms' international involvement, firms' characteristics, firms' resources, marketing innovation (new product, new process, new market), and the external factors impact upon their export performance. The results and the interpretation of analysis are shown in Table 5.6 – 5.12 as follows:

Table 5.6 Respondents' Opinions on the Importance of Different Modes of Firm's International Involvement to Marketing Innovation

Firm's International Involvement	Statistics Indicating Importance of Firms' International Involvement to Marketing Innovation	
	Mean	SD
1. Use of export trading company	2.66	1.23
2. Direct sales to foreign		
- customer/end users	4.24	1.05
- through agents	2.94	1.27
- through distributors	2.52	1.30
- through the government	1.57	0.89
3. Established branch office in foreign countries	2.49	1.50
4. Off-shore sourcing	2.08	1.28
5. Joint-venture	2.54	1.34
6. Patent	2.36	1.39

Note: a) n = 249

b) 5-point rating scale, where as 1 = least important and 5 = most important

Table 5.6 shows the respondents' opinions on the importance of different modes of firm's international involvement to marketing innovation. There are 6 different modes of activities that the firms' involvement in internationalization.

The mean of the opinions score for each mode indicates the important level of that mode, which the SD indicates the standard deviation of the involvement among firms. Since the scale used is a 5-point rating scale, the means between 2.5-3.5 represent the medium level of the importance of the international involvement of the firms to marketing innovation.

It can be seen that of all 9 categories of firms' international involvement, the direct sales to foreign customer/ end users shows the most important to marketing innovation with mean score of 4.24 and the SD of 1.05. Other five categories of firms' international involvement indicate a medium level of importance to marketing innovation. They are direct sales through foreign agents (mean = 2.94, SD = 1.27), use of export trading company (mean = 2.66, SD = 1.23), joint venture (mean = 2.54, SD = 1.34), direct sales through foreign distributors (mean = 2.52, SD = 1.30), and established branch office in foreign countries (mean = 2.49, SD = 1.50). Three categories of firms' international involvement are the least important. The three categories are patent (mean = 2.36, SD = 1.39), off-shore sourcing (mean = 2.08, SD = 1.28), and direct sales through the government (mean = 1.57, SD = 0.89).

In conclusion, all 9 categories of firms' international involvement, the direct sales to foreign customer/ end users is the most important to marketing innovation. The others categories are about medium level. The direct sales through the government is the least important to marketing innovation.

Table 5.7 Respondents' Opinions on the Importance of their Firms' Characteristics to Marketing Innovation

Firms' Characteristics	Statistics Indicating Importance of Firm's Characteristics to Marketing Innovation	
	Mean	SD
1. Number of full-time employee	3.05	1.09
2. Executives' determination to pursue export business	4.24	0.89
3. Executives' concern for profit from exports	3.82	0.99
4. Number of export product lines	3.35	1.01
5. Importance placed by executives on improving relationships between the firm and customers, financial information sources, civil servants, etc.	4.08	0.91
6. Simple organizational structure, horizontal management	3.57	0.99
7. Centralized management	3.23	1.15

Note: a) $n = 249$

b) 5-point rating scale, where as 1 = least important and 5 = most important

Table 5.7 shows respondents' opinions on the importance of their firms' characteristics to marketing innovation. The mean of opinions of respondents for each items indicates the important level of that item, which the SD indicates the standard deviation of the opinions. Since the scale used is a 5-point rating scale, the means between 2.51 – 3.50 represent the medium level of importance of firms' characteristics to marketing innovation.

It can be seen that of all 7 items, four items shows the most important to marketing innovation. They are the executives' determination to pursue export business (mean = 4.24, SD = 0.89), the importance placed by executives on improving relationships between the firm and customers, financial information sources, civil

servants, etc (mean = 4.08, SD = 0.91), executives' concern for profit from exports (mean = 3.82, SD = 0.99), and companies' simple organizational structure and horizontal management (mean = 3.57, SD = 0.99). Three items of firms' characteristics indicate a medium level of importance to marketing innovation. They are number of export product lines (mean = 3.35, SD = 1.01), company's centralized management (mean = 3.23, SD = 1.15), and number of full-time employees (mean = 3.05, SD = 1.09).

In conclusion, all 7 items of firms' characteristics, executives' determination to pursue export business is the most important characteristic to marketing innovation. Executives concern for improving business relationships is the second most important. Number of full-time employee is the lowest important to marketing innovation.

Table 5.8 Respondents' Opinions on the Importance of Firms' Resources to Marketing Innovation

Firms' Resources	Statistics Indicating Importance of Firm's Resources to Marketing Innovation	
	Mean	SD
1. Executives' marketing knowledge	3.94	0.93
2. Working hours of staffs at management level	3.90	0.87
3. Staff creativity encouraged by executives	3.86	1.04
4. Executives or managers who take responsibility for exports in particular	3.83	1.03
5. Export marketing department	3.81	1.10
6. Specific budget for exporting	3.50	1.04
7. Modern technology such as machinery, computers to facilitate designing and control of working processes	3.63	1.11

Note: a) $n = 249$

b) 5-point rating scale, where as 1 = least important and 5 = most important

Table 5.8 shows respondents' opinions on the importance of their firms' resources to marketing innovation. The mean of opinions of respondents for each items indicates the important level of that item, which the SD indicates the standard deviation of opinions. Since the scale used is a 5-point rating scale, the means between 2.51 – 3.50 represent the medium level of importance of firms' resources to marketing innovation.

It can be seen that of all 7 items, 6 items shows the high importance to marketing innovation and only one items shows a medium level of significant. Executives' marketing knowledge is the most important to marketing innovation (mean = 3.94, SD = 0.93). Working hours of staffs at management level is the second most important (mean = 3.90, SD 0.87). The third most important is staff creativity

encouraged by executives (mean = 3.86, SD = 1.04). The other firms' resources are also quite important. They are having executives or managers who take responsibility for exports in particular (mean = 3.83, SD = 1.03), having export marketing department (mean = 3.81, SD = 1.10), and having modern technology such as machinery, using computers to facilitate designing and control of working processes executives (mean = 3.63, SD = 1.11). The specific budget for exports receives the medium level of importance to marketing innovation (mean = 3.50, SD = 1.04)

In sum, of all 7 categories of firms' resources, executives' marketing knowledge demonstrates the highest importance to marketing innovation. Working hours of staff at management level is the second most important. A specific budget for exports is the least important to marketing innovation.

Table 5.9 Respondents' Opinions on the Agreement of Characteristics of Their Firms' New Product Innovation During 1993-1997

Characteristics of Firms' New Product Innovation	Statistics Indicating Agreement Level of Firms' New Product Innovation	
	Mean	SD
1. Most of your products are new to the market (newness).	2.43	1.30
2. Compared with competitive products, your new product has features or attributes that are more unique.	3.33	1.23
3. Your new product can obviously respond to customers' needs better than your competitors.	3.44	1.17
4. Your new products have better quality than your competitors, for example, more distinctive, stronger, more durable, etc.	3.67	1.07

Note: a) $n = 249$

b) 6-point rating scale, where as 1 = strongly disagree and 6 = strongly agree

c) This question adopted from Song, X. Michael, and Mark E. Parry (1997), "A Cross- National Comparative Study of New Product Development Processes: Japan and the United States," *Journal of Marketing*, 61 (April), 1-18.

Table 5.9 shows respondents' opinions on the agreement of characteristics of their firms' new product innovation during 1993-1997. The mean of opinions of respondents for each items indicates the important level of that item, which the SD indicates the standard deviation of the opinions. Since the scale used is a 6-point rating scale, the means between 3.51 – 4.50 represent the respondents medium level of of characteristics of their firms' new product innovation.

It can be seen that of all 4 items, only one item shows the respondents' medium level of agreement toward characteristics of their firms' new product innovation

during 1993-1997. The respondents agree that their new products have better quality than the competitors' products, for example, more distinctive, stronger, more durable, etc. (mean = 3.67, SD = 1.07). For other items, respondents moderately agree that their new products can respond to customers' needs better than their competitors (mean = 3.44, SD = 1.17) and that their new products have features or attributes that are more unique than competitors' products (mean = 3.33, SD = 1.23). Interestingly, respondents less agree that their products during 1993-1997 are new to the markets (mean = 2.43, SD = 1.30).

In conclusion, the respondents agree that the characteristic of firms' new product innovation during 1993-1997 is their new products that have better quality than the competitors's products.

Table 5.10 Respondents' Opinions on the Level of Change of Their Firms' Working Process Innovation During 1993-1997

Firms' Working Process Innovation	Statistics Indicating the Level of Change of Firms' Working Process Innovation	
	Mean	SD
1. IT/computers.	4.70	1.33
2. International standard application, e.g. ISO, HACCP.	3.33	2.00
3. Downsizing of an organization or department.	3.44	1.51
4. Re-engineering.	3.67	1.49
5. New technology, e.g. new machinery.	4.16	1.43

Note: a) $n = 249$

b) 6-point rating scale, where as 0 = no change and 5 = most change

Table 5.10 shows respondents' opinions on the level of change of their firms' working process innovation during 1993-1997. The mean of opinions of respondents for each items indicates the level of change of that item, which the SD indicates the standard deviation of opinions. Since the scale used is a 6-point rating scale, the means between 3.51 – 4.50 represent the medium level of change of firms' working process innovation.

It can be seen that of all 5 categories of firms' working process innovation, the employing of information technology/computers shows the most level of change during 1993-1997 (mean = 4.70, SD = 1.33). Two categories of firms' working process innovation indicate the medium level of change during 1993-1997. They are bringing new technology, e.g. new machinery in the company (mean = 4.16, SD = 1.43) and re-engineering (mean = 3.67, SD = 1.49). Another two categories of firms's working process innovation show low level of change. They are downsizing of an

organization or the department (mean = 3.44, SD = 1.51) and the application for international standards (mean = 3.33, SD = 2.00).

In sum, of all 5 categories of firms' working process innovation during 1993-1997, firms' employing IT/computer shows the highest level of change. Firms' applying for international standards, e.g. ISO, HACCP shows the lowest level of change.

Table 5.11 Respondents' Opinions on the Level of Change of Their Firms' Market Innovation During 1993-1997

Firms' Market Innovation	Statistics Indicating the Level of Change of Firms' Market Innovation	
	Mean	SD
1. New market expansion.	4.39	1.38
2. New packaging.	3.41	1.56
3. New sales promotion approach.	3.27	1.43
4. Training salespeople of firm's agents or branches in foreign countries.	2.59	1.49
5. New sales promotion approach to support firm's agents or branches in foreign countries.	2.75	1.52
6. New pricing for better competitiveness in foreign markets.	4.39	1.39

Note: a) $n = 249$

b) 6-point rating scale, where as 0 = no change and 5 = most change

Table 5.11 shows respondents' opinions on the level of change of firms' marketing innovation during 1993-1997. The mean of opinions of respondents for each items indicates the level of change of that item, which the SD indicates the standard deviation of opinions. Since the scale used is a 6-point rating scale, the means between 3.51 – 4.50 represent the medium level of change of firms' marketing innovation.

It can be seen that of all 6 categories of firms' marketing innovation, only two categories which are new market expansion (mean 4.39, SD = 1.38) and new pricing for better competitiveness in foreign markets (mean = 4.39, SD = 1.39) show the medium level of change during 1993-1997. Another two categories of firms'

marketing innovation indicate little level of change. They are creating new packaging (mean = 3.41, SD = 1.56), applying new sales promotion (mean = 3.27, SD = 1.43). The other two categories have very little level of change. They are having new sales promotion approach to support firm's agents or branches in foreign countries (mean = 2.75, SD = 1.52) and training salespeople of firm's agents or branches in foreign countries (mean = 2.59, SD = 1.49).

In conclusion, from these 6 categories of firms' marketing innovation during 1993-1997, new market expansion and new pricing for better competitiveness in foreign markets show the highest level of change. Training salespeople of firm's agents or branches in foreign countries demonstrates the lowest level of change.

Table 5.12 Respondents' Opinions on Various External Factors Impact Upon the Export Performance

External Factors	Statistics Indicating the Impact of External Factors to Export Performance	
	Mean	S.D.
1. Politics	3.55	1.36
2. Economy	3.50	2.04
3. Society (e.g. population)	4.13	0.93
4. Thailand's membership in the WTO, APEC and other international organizations	4.52	1.18
5. Public laws, regulation	3.71	1.54
6. Culture, religion, traditions	4.12	0.83
7. Environmental reserves	4.12	1.16
8. Foreign currency exchanges	4.71	2.12
9. Thailand's commitment to the International Monetary Fund (IMF)	3.37	1.65

Note: a) $n = 249$

b) 7 - point scale where 1 = least impact and 7 = most impact.

Table 5.12 shows the respondents' opinions on the impact of various external factors upon the export performance. The mean of opinions of respondents for each items indicates the level of impact of that item, which the SD indicates the standard deviation of opinions. Since the scale used is a 7-point rating scale, the means between 4.51 – 5.50 represent the medium level of impact of external factors upon the export performance.

It can be seen that of all 9 categories of external factors, the foreign currency exchange (mean = 4.71, SD = 2.12) and Thailand's membership in the WTO, APEC and other international organizations (mean = 4.52, SD = 1.18) show the medium

significant level of impact upon the export performance. Three external factors show the same level of low impact to export performance. They are society (e.g. population) (mean = 4.13, SD = 0.93), culture, religion, traditions (mean = 4.12, SD = 0.83), and environmental reserves (mean = 4.12, SD = 1.16). The other external factors, namely public laws and regulation (mean = 3.71, SD = 1.54), politics (mean = 3.55, SD = 1.36), economy (mean = 3.50, SD = 2.04) are reported by respondents that their companies receive low impact from these three factors. The least impact factor is Thailand's commitment to the International Monetary and Fund (mean = 3.37, SD = 1.65)

When the respondents have been asked to rank 3 environment factors having impact to their companies, they rank economy (35.20%), exchange rate (31.40%) and the condition of Thai economy under IMF (29.75%) respectively.

In sum, of all 9 categories of the external factors, foreign currency exchanges has the highest impact on export performance. Thailand's membership in the WTO, APEC and other international organizations shows the second most impact. The other factors show about the same level of impact. Thailand's commitment to the International Monetary and Fund shows the lowest impact on export performance.

Export Performance

Export performance has been treated as the dependent variable. The measured variables in this construct include both strategic and economic measures. The following tables are the analysis results.

Strategic Performance

Table 5.13 Respondents' Opinions on Strategic Objectives of Their Companies

Rank No.	Strategic Objectives	Count (Percent)
1	Gain of share from new export markets	78 (31.36%)
2	Increasing the profitability of the company	72 (28.98%)
3	Improving the company's market share position	70 (28.16%)
4	Increasing the awareness of the product/ company	65 (26.12%)
5	Responding to demand from abroad	62 (24.95%)
6	Responding to competitive pressure	58 (20.64%)
7	Others	32 (11.20%)

Note: $n = 249$ for each item.

Table 5.13 shows respondents' opinions on strategic objectives of their companies, measuring from rating for each strategic objectives in relation to their importance (1 is the most important and the 7 is the least important). The result shows that gaining share in new export markets is deemed the most important among the given seven strategic objectives (31.36%). The second most important strategy is to increase the profitability of the company (28.98%), followed by improving the company's market share position (28.16%), increasing the awareness of the product/company (26.12%), responding to demand from abroad (24.95%), and responding to competitive pressure (20.64.%). Other objectives (11.20%) specified by the executive includes desire to create customer relationships, finding commercial partners or foreign joint investors to gain access to their better expertise, developing and promoting Thai products to the world market, and developing human resources.

Table 5.14 Respondents' Report on Strategic Objectives' Achievement of Company

Item	Strategic Objectives' Achievement	Count (Percent)
1	Gain of share from new export markets	152 (61.0%)
2	Increasing the profitability of the company	124 (49.8%)
3	Improving the company's market share position	140 (56.2%)
4	Responding to demand from abroad	174 (69.9%)
5	Increasing the awareness of the product/ company	115 (46.2%)
6	Responding to competitive pressure	124 (49.8%)

Note: $n = 249$ for each items

Table 5.14 shows respondents' report the strategic objectives' achievement by the companies. The highest achieved strategy is a responding to demand from abroad (69.9%). The second highest achieved strategy is gaining a share in new export markets (61.0%), and the third highest achieved strategy is improving the company's market share position (56.2%). Approximately 50% of respondents report that they could make an achievement in increasing the profitability of the company and responding to competitive pressure. In addition, 46.2% of respondents report that the achievement of the strategy is the increasing the awareness of the product or the company.

Interestingly enough, comparing the results of respondents' opinions in table 5.13 and 5.14, it is clear that the highest rank strategic objective is not the highest strategic objectives' achievement of a company. It is the strategy of responding to demand from abroad, which is ranked number four, indicates the most strategic objective's achievement of a company.

Economics Performance

Table 5.15 Respondents' Reports on Sales Growth of the Company During 1993-1997

	Sales Growth							
Year	Decreased	stable 0%	increased 1-5%	Increased 6-10 %	Increased 11-15%	increased 16% or more	Un answered	Total
1993	20 (8.0%)	33 (13.3%)	64 (25.7%)	43 (17.3%)	28 (11.2%)	33 (13.3%)	28 (11.2%)	249 (100%)
1994	15 (6.0%)	26 (10.4%)	69 (27.7%)	48 (19.3%)	30 (12.0%)	34 (13.7%)	27 (10.8%)	249 (100%)
1995	25 (10.0%)	36 (14.5%)	60 (24.1%)	46 (18.5%)	24 (9.6%)	39 (15.7%)	19 (7.6%)	249 (100%)
1996	37 (14.9%)	28 (11.2%)	68 (27.3%)	34 (13.7%)	27 (10.8%)	44 (17.7%)	11 (4.4%)	249 (100%)
1997	39 (15.7%)	27 (10.8%)	43 (17.3%)	35 (14.1%)	23 (9.2%)	74 (29.7%)	8 (3.2%)	249 (100%)

Note: Sales growth in year 1997 is not included in the analysis in LISREL model due to the economics crisis in South East Asia.

Table 5.15 shows respondents' reports on sales growth of the companies during 1993-1997.

In 1993, 25.7% of respondents report that their companies sales growth increased 1-5%, 17.3% of respondents report that sales growth of their company increased 6-10%, 13.3% of respondents report that their companies sales growth increased 16% or more. 13.3% of the respondents report that their companies sales growth is stable. 8.0% of respondents report that their companies' sales decreased and 11.2% of respondents do not answer.

In 1994, 27.7% of respondents report that their companies sales growth increased 1-5%, 19.3% of respondents report that sales growth of their company

increased 6-10%, and 13.7% of respondents report that their companies' sales growth increased 16% or more. 10.4% of the respondents report that their companies sales growth is stable. 6% of respondents report that their companies' sales decreased and 10.8% of respondents do not answer.

In 1995, 24.1% of respondents report that their companies sales growth increased 1-5%, 18.5% of respondents report that sales growth of their company increased 6-10%, 15.7% of respondents report that their companies sales growth increased by 16% or more. 9.6% of respondents report that their companies sales growth increased 11-15%. 14.5% of the respondents report that their companies sales growth is stable.10% of respondents report that their company sales growth decreased and 10.8% of respondents do not answer.

In 1996, 27.3% of respondents report that their companies sales growth increased 1-5%. 17.7% of respondents report that sales growth of their companies increased by 16% or more. 10.8% of respondents report that their companies sales growth increased 11-15%. 11.2% of the respondents report that their companies sales growth is stable. 14.9% of respondents report that their companies sales growth decreased and 4.4% of respondents do not answer.

In 1997, 29.7% of respondents report that their companies sales growth increased 16% or more. 14.1% report that their companies sales growth increased 6-10%. 17.3% of respondents report that sales growth of their company increased 1-5% and 9.2% report that their company sales growth increased 11-15%. 13.3% of the respondents report that their companies sales growth is stable.15.7% of respondents report that their companies sales growth decreased and 3.2% of respondents do not answer.

In conclusion, in terms of the respondents report on the extent of their companies' sale growth, the pattern of the sales growth are similar among the first four year. Most of the respondents (25.7-27.7%) report that their sales growth increased by 1-5%. The pattern of sales growth in 1997 is different from others. Most of the respondents (29.7%) report that their sales increased 16% or more. In sum, there are 13.3-29.7% of the respondents report that their sales growth between 1993 and 1997 increased 16% or more, while 8.0-15.7% state that their sales growth during 1993-1997 decreased..

Table 5.16 Respondents' Report on Profit Due to Marketing Innovation During 1993-1997

Year	Profit Due to Marketing Innovation					
	Yes	No	Don't know	Not sure	Unanswered	Total
1993	91 (36.5%)	68 (27.3%)	27 (10.8%)	35 (14.1%)	28 (11.2%)	249 (100%)
1994	100 (40.2%)	65 (26.1%)	25 (10.0%)	35 (14.1%)	24 (9.6%)	249 (100%)
1995	109 (43.8%)	67 (26.9%)	21 (8.4%)	34 (13.7%)	18 (7.2%)	249 (100%)
1996	128 (56.4%)	58 (23.3%)	17 (6.8%)	34 (13.7%)	12 (4.8%)	249 (100%)
1997	136 (54.6%)	63 (25.3%)	16 (6.4%)	25 (10.0%)	9 (3.6%)	249 (100%)

Note: Profit from year 1997 is not included in the analysis in LISREL model due to the economics crisis in South East Asia.

Table 5.16 shows respondents'report on profit of their companies from marketing innovation activity during 1993-1997.

In 1993, 36.5% of respondents report that their companies have profit from marketing innovation while 27.3% of respondents report that their companies have no profit. There are 10.8% of respondents who report that they do not know, 14.1% of respondents report that they are not sure and 11.2% of respondents give no answer.

In 1994, 40.2% of respondents report that their companies have profit from marketing innovation while 26.1% of respondents report that their companies have no profit. There are 10% of respondents who report that they do not know, 14.1% of respondents report that they are not sure and 9.6% of respondents give no answer.

In 1995, 43.8% of respondents report that their companies have profit from marketing innovation while 26.9% of respondents report that their companies have no profit. There are 8.4% of respondents who report that they do not know, 13.7% of respondents report that they are not sure and 4.8% of respondents give no answer.

In 1996, 56.4% of respondents report that their companies have profit from marketing innovation while 23.3% of respondents report that their companies have no profit. There are 6.8% of respondents who report that they do not know, 13.7% of respondents report that they are not sure and 4.8% of respondents give no answer.

In 1997, 54.6% of respondents report that their companies have profit from marketing innovation while 25.3% of respondents report that their companies have no profit. There are 6.4% of respondents report that they do not know, 10% of respondents report that they are not sure and 3.6% of respondents give no answer.

In sum, 36.5-56.4% of respondents report that their marketing innovation between 1993 and 1997 had helped to increase their companies' profit, 23.3-27.3% of respondents report that marketing innovation does not help their companies profit and 6.4-10.8% of respondents report that they do not know if the profit comes to make from marketing innovation. There are 10.0-14.1% of respondents report that they are not sure whether the profit comes from marketing innovation and 3.6-11.2% of respondents give no answer.

Table 5.17 Respondents' Opinions on the Success of Marketing Innovation Classified by New Product, New Working Process, and New Market

Marketing Innovation	Statistics Indicating Success Level of Marketing Innovation	
	Mean	SD
1. New product	3.87	1.48
2. New working process	3.84	1.31
3. New market	3.89	1.27

Note: a) *n = 249*

b) 6-point rating scale, where as 0 = no change 1 = least success to 5 = most success

Table 5.17 shows respondents' opinions on the success of marketing innovation in their companies classified by new product, new working process, and new market. The mean of opinion of respondents for each item indicating the success level of that item, which the SD indicates the standard deviation of opinions. Since the scale used is a 6-point rating scale, the means between 3.51 – 4.50 represent the medium level of success of marketing innovation in their companies.

It can be seen that of all 3 categories of marketing innovation, all of these three items show the medium level of success. New market shows the highest level of success with mean score of 3.89 and the SD of 1.27. New product shows the second medium level of success (mean = 3.87, SD = 1.48). The third medium level of success is new working process (mean = 3.84, SD = 1.31).

Table 5.18 Respondents' Opinions on Overall Company's Performance Due to the Adoption of Marketing Innovation

Company's Overall Performance	Statistics Indicating the Level of Company's Overall Performance	
	Mean	SD
1. Profit	2.69	0.94
2. Ability to penetrate new markets	2.69	0.90
3. Sales' growth rates	2.86	0.96
4. Image	3.08	0.93

Note: a) $n = 249$

b) 5-point rating scale, where as 1 = far below expectations and 5 = far exceeded expectations

Table 5.18 shows respondents' opinions on overall company's performance due to the adoption of marketing innovation. The mean of opinions for each items indicates the level of the company's overall performance, and SD indicates the standard deviation of opinions. Since the scale used in this part is a 5-point rating scale, the means between 2.51 – 3.50 represent the medium level of success of companies 'overall performance.

From 4 categories of companies' overall performance, image of the company shows the highest success level in meeting the expectation of the respondents with mean score of 3.08 and the SD of 0.93. The remaining three categories of companies' overall performance indicate that they have average success due to the adoption of the marketing innovation. They are sales growth rates (mean = 2.86, SD = 0.96), profit (mean = 2.69, SD = 0.94), and ability of the companies to penetrate new market (mean = 2.69, SD = 0.90).

Respondents' Suggestions for Developing Marketing Innovation in Exporting Companies

In an open-ended question of a questionnaire survey, 80 respondents (32.13%) answer this part. All of the answers are analyzed according to the relevant context and is organized into two main parts. The first part is the suggestion from respondents on marketing innovation development. The second part is the summary of the respondents' problems and constraints that are related to marketing innovation development within their companies.

Part I: Marketing Innovation Development

Company Sector

The respondents from 249 exporting companies comment that their companies should develop marketing innovation based on the following issues as described below.

1. New products. To improve the quality of products, the companies should emphasize added value to products, and show determination to reach international standards such as ISO 9000, ISO 14000, and HACCP. The companies should develop new or more interesting packaging with lower cost and ease of transportation.

2. New working process. The existing machines are too old. New technology such as new modern machines should be introduced to the production process to strengthen companies' productivity.

3. New markets. Businesses have to attempt to expand their foreign markets in order to strengthen their companies performance.

Other suggestions included service quality such as customer care, pricing, quality of products, service and honesty, and building relationships between companies and foreign raw material suppliers.

Government Sector

In this part, respondents suggest that the government agencies should extend their supports to the exporters in different areas. The suggestions are as follows:

1. Providing marketing knowledge and information such as setting up marketing information systems in terms of prices, quantities and quality of products which would be useful for developing products and markets.

2. Financing long-term loans to the export industry.

3. Improving service systems in the government's export promotion agencies. The Ministry of Science and Technology, the Foreign Trade Department, the Customs Department and the Revenue Department are some examples of government agencies that must improve their working efficiency in order to serve exporters better.

4. Establishing a copyright and patent center managed by the private organization.

5. Providing training courses and business development techniques to all levels of the export industry's personnels.

6. Amending some laws and regulations in order to provide better supports for exporters.

Part II: Constraints of Marketing Innovation Development

Constraints affecting marketing innovation development as described by executives can be summarized as follows.

1. Lack of financial and technological support from the government.

2. Problems of red tape in service from the government agencies such as the Ministry of Science and Technology, the Customs Department, the Revenue Department and the Foreign Trade Department.

3. High interest rates and low liquidity, causing problems in cash-flow management.

4. Lack of constructive cooperation among the companies in the export industry. For example, price-cutting is highly destructive competition between competitors.

5. Problems affecting new product creativity due to the executives' lack of knowledge of modernised technology.

6. Problems in developing marketing channels in foreign markets. Even though a company can develop new products of better quality with its own brand name, it may be affected by high marketing management costs in those markets.

7. Problems of management systems in some companies, such as the family or "*one-man show*" systems, which always make any change in the management difficult or even impossible. Such systems also discourage management brainstorming that can lead to the difficulty in innovation.

8. Resistance to change. Thai people do not welcome new changes easily; therefore, it is difficult to convince the staff in an organization to understand the need for innovation.

In conclusion, it is suggested that export companies should focus on developing better product quality with an aim to reach international standards. Companies should bring in new technologies to their production process for better product quality at lower cost. Moreover, the executives agree that existing problems and constraints have damaged marketing innovation development. These problems need to be solved by both companies and the government.

Model Analysis

As indicated in Chapter 3, eight significant associations between marketing innovation and export performance and between firm resources, firm characteristics, and environment are hypothesized. The following part explains the model estimation. The hypothesized relationships between variables are tested and demonstrated in the model.

Model Estimation

Measurement models for the x- and y variables

After having identified possible indicator variables underlying each construct and having developed a conceptual model of marketing innovation and full model of export performance which include hypothesized interrelationships among model components, the next issue is the confirmation of the adequacy of the selected indicator variables. The resolution of measurement problem within the sets of observed x- and y- variables is attempted prior to testing the full structural model. The procedure is performed in an attempt to verify that the theoretical constructs contained in the model can be captured by the observed variables. Table 5.19 shows bivariate correlation and means and standard deviations of 40 variables in this study.

Table 5.19 Bivariate Correlation and Means and Standard Deviation

Variables	P1	P2	P3	P4	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	E1	E2	E3	E4	E5	E6	E7	E8	E9
P1	1.000																																							
P2	.371**	1.000																																						
P3	.556**	.485**	1.000																																					
P4	.303**	.489**	.460**	1.000																																				
Y1	.078	.131*	.092	.129*	1.000																																			
Y2	.193	.068	.059	.167**	.540**	1.000																																		
Y3	.143*	.193**	.126*	.231**	.458**	.637**	1.000																																	
Y4	.073	.142*	.056	.294**	.350**	.572**	.595**	1.000																																
Y5	.185**	.208**	.173**	.178**	.148*	.194**	.257**	.257**	1.000																															
Y6	.048	.193**	.173**	.118	.113	.156**	.215**	.157**	.294**	1.000																														
Y7	-.038	.078	-.030	-.008	.052	.058	.113	.037	.215**	.342**	1.000																													
Y8	.137**	.185**	.243**	.132**	.235**	.256**	.275**	.196**	.365**	.365**	.432**	1.000																												
Y9	.169**	.221**	.250**	.272**	.317**	.295**	.420**	.348**	.488**	.488**	.288**	.640**	1.000																											
Y10	.058	.224**	.119	.114	.371**	.327**	.305**	.296**	.243**	.275**	.091	.312**	.370**	1.000																										
Y11	-.004	.203**	.094	.167**	.215**	.213**	.286**	.231**	.291**	.518**	.148*	.328**	.375**	.450**	1.000																									
Y12	.008	.231**	.081	.196**	.324**	.258**	.300**	.229**	.324**	.282**	.218**	.396**	.351**	.524**	.602**	1.000																								
Y13	.142*	.201**	.128*	.139**	.182**	.226**	.304**	.276**	.331**	.368**	.252**	.508**	.500**	.372**	.555**	.681**	1.000																							
Y14	.175**	.222**	.164**	.198**	.297**	.217**	.298**	.285**	.351**	.425**	.234**	.553**	.551**	.524**	.588**	.513**	.696**	1.000																						
Y15	-.059	.053	-.018	.114	.253**	.284**	.204**	.052**	.181**	.121	.104	.254**	.265**	.409**	.625**	.249**	.272**	.652**	1.000																					
X1	-.009	.149**	.023	.178**	.214**	.258**	.254**	.308**	.150**	.091	.028	.118	.266**	.222**	.145**	.203**	.100	.183**	.242**	1.000																				
X2	-.022	.095	.056	.158**	.229**	.222**	.217**	.307**	.205**	.155**	-.008	.182**	.243**	.215**	.284**	.212**	.161**	.113	.188**	.403**	1.000																			
X3	.011	.110	.114	.114	.146**	.122	.161**	.234**	.428**	.345**	.097	.229**	.314**	.223**	.157**	.185**	.154**	.239**	.347**	.309**	.283**	1.000																		
X4	.015	.094	.101	.043	.206**	.260**	.324**	.195**	.158**	.132**	.020	.152**	.234**	.290**	.206**	.118	.119	.208**	.134**	.324**	.299**	.351**	1.000																	
X5	.021	.097	.101	.158**	.118	.157**	.229**	.259**	.274**	.246**	.068	.216**	.215**	.237**	.259**	.194**	.194**	.221**	.186**	.394**	.370**	.200**	.403**	1.000																
X6	-.008	-.008	.094	.027	.134**	.222**	.136**	.187**	.085	-.007	-.017	.035	.046	.136**	-.001	.099	.079	.148**	.163**	.311**	.287**	.437**	.165**	.252**	1.000														
X7	.078	.112	.199**	.140**	.227**	.174**	.367**	.306**	.457**	.231**	.151**	.323**	.528**	.145**	.191**	.151**	.243**	.218**	.262**	.293**	.250**	.175**	.182**	.232**	.054**	1.000													
X8	.180**	.157**	.277**	.186**	-.057	-.012	.176**	.025	.228**	.406**	.127**	.199**	.305**	.102	.177**	.117	-.033	-.021	-.053	.035	.109	.161**	.049	.111	.049	.811	1.000												
X9	.058	-.008	-.010	.062	-.025	-.108	.000	-.048	.018	-.058	-.037	.079	-.014	-.078	-.048	-.033	-.021	-.053	.035	-.003	.091	.087	.222**	.204**	.200**	.208**	1.000											
X10	.119	.105	.024	.093	.131**	.158**	.136**	.153**	.104	.086	.075	.218**	.108	.131**	.138**	.153**	.078	.088	.075	.018	.080	.131**	.114	.154**	.008	.053	.081	.016	1.000										
X11	.052	.116	.054	.184**	.028	.040	.082	.038	.133**	.106**	.064	.147**	.234**	.174**	.235**	.202**	-.025	-.131**	-.114	-.026	.214**	.276**	.103**	.280**	.004	.172**	.165**	.203**	.173**	.028	.071	-.015	.154**	.129	.053	.140**	.106**	-.059	1.000		
X12	-.031	.003	.019	.100	.041	.068	.023	.181**	-.001	-.058	-.025	.013	.075	-.047	-.056	-.025	.050	.088	.075	.018	.080	.038	.006	-.135**	.053	.032	.028	-.088	.171**	.197**	-.059	.087	-.063	1.000					
E1	.004	-.004	-.027	-.063	-.022	.156**	.106	.004	.030	.104	.002	.065	-.032	.001	.051	.080	.050	.107	.072	.025	.038	-.057	.053	.032	.028	-.088	.171**	.197**	-.059	.087	-.063	.550**	1.000					
E2	.135**	.015	.092	.013	-.012	.033	.133**	.039	-.008	.051	-.111	.032	-.030	.035	-.004	.018	.018	.038	-.058	.043	.115	.017	.034	-.001	.053	.044	.082	.074	-.009	.017	.031	.179**	.272**	1.000				
E3	.060	.057	.048	.045	-.040	.054	.003	-.034	-.103	.036	-.054	-.007	-.043	.024	-.049	-.041	-.084	.009	.014	-.020	.020	.068	.079	.081	.055	-.023	.157	.070	.130**	.057	.031	.322**	.192**	.199**	1.000			
E4	-.019	.090	.009	.092	-.025	-.050	.037	-.007	-.025	.040	-.045	.100	-.013	.045	.011	.037	-.048	-.036	.058	-.020	.102	.002	-.047	-.100	.055	.003	.008	-.171**	-.078	-.010	-.167**	-.033	-.146**	.708**	.215**	1.000		
E5	.011	.011	-.017	.057	-.014	.014	.060	.010	-.015	.067	-.058	.008	-.008	.052	-.013	.104	.068	.017	-.099	.052	-.080	.068	.079	.081	.055	-.023	.157	.070	.130**	.057	.031	.322**	.192**	.199**	1.000	.215**	1.000		
E6	-.057	-.018	.022	.104	-.010	-.029	-.111	-.018	.028	.067	.037	-.072	.024	-.027	-.061	.013	-.027	.008	.005	-.007	-.012	.019	-.032	.080	.196**	.049	.101	.099	-.005	-.130**	-.009	.219**	.353**	.234**	.206**	.294**	1.000	
E7	.059	-.060	.050	.004	.003	.104	.054	.053	-.031	-.049	-.054	-.058	-.036	.028	-.073	.015	-.011	-.023	-.000	.056	-.027	-.024	-.032	.089	.074	.078	.102	.201**	.175**	.054	-.026	.267**	.420**	.146**	.200**	.178**	-.175**	1.000	
E8	.141**	.118	.139**	.142*	-.028	-.085	-.009	.003	.056	-.035	.018	.092	.030	-.008	-.005	.024	-.014	-.001	-.032	.047	.157**	-.015	.048	.109**	.021	-.031	.003	.077	.059	-.041	-.049	.384**	.530**	.124	.147**	.448**	-.125**	.257**	1.000	
E9	.057	.016	.025	-.050	.014	.024	.072	-.019	.028	-.047	-.082	.021	-.072	.036	-.008	.029	-.072	-.041	-.045	.001	.141**	.057	.048	.109**	.021	-.031	.003	.077	.059	-.041	-.049	.384**	.530**	.124	.147**	.448**	-.125**	.257**	.362**	1.000
Mean	2.69	2.69	2.88	3.08	2.43	3.33	3.44	3.87	4.70	3.85	3.00	3.61	4.16	4.39	3.41	3.27	2.59	2.75	4.39	2.94	3.90	2.67	3.63	2.81	3.50	3.63	2.08	2.61	3.82	1.93	3.65	1.52	3.39	1.13	4.46	3.65	4.12	4.10	4.44	3.36
S.D.	0.84	0.90	0.96	0.93	1.50	1.23	1.17	1.07	1.33	2.06	1.91	1.49	1.43	1.38	1.59	1.43	1.49	1.52	1.39	0.93	0.87	1.04	1.03	1.10	1.04	1.11	1.00	1.13	0.99	1.19	0.72	1.30	1.87	0.92	1.12	1.43	0.82	1.11	1.85	1.52

** Correlation is significant at the 0.01 level (1-tailed)

* Correlation is significant at the 0.05 level (1-tailed)

To measure the ability of the items in the questionnaire whether or not they can capture distinct constructs, the maximum likelihood exploratory factor analysis (using oblique rotation) and the confirmatory factor analysis are performed upon the full set of measurement items.

Marketing Innovation Model

The second order factor analysis in LISREL 8.20 is employed and tested for the marketing innovation construct. Based on the studies, there are 15 y- variables appeared to be indicators of the three latent variables of marketing innovation, new product, new working process, and new market.

The initial examination of the observed variables reveal high multicollinearity, low parameter estimates and correspondingly low squared multiple correlations for totally new product (y_1) variable of new product and the downsizing (y_7) variable of a new working process construct (i.e., estimated parameter value = 0. 45, 0.49 and squared multiple correlation = 0.21, and 0.23 respectively). For a new market construct, new price competitiveness (y_{15}) (estimated parameter value = 0.44 and square multiple correlation = 0.19) and new training to sales force (y_{13}) are dropped (parameter value = 0.49 and squared multiple correlation = .23). The estimated of the error variances (Θ) for these variables are high (0 .75 for downsizing and 0.81 for new price competitiveness in new market). According to these results, small common variance is shared by each of the involved subconstruct and the second order of latent construct, marketing innovation. Consequently, these 4 variables are dropped from the new process and new market constructs. Thus, the results of this exploratory factor analysis indicate that the assignment of 11 of the 15 items of the scales is sufficient.

As mentioned earlier, this study conceptualizes marketing innovation as a higher (second) order construct. Specifically, this study proposes that the intercorrelations among the first-order factors of new product, new working process and new market can be explained in terms of a higher order marketing innovation construct.

To establish the existence of a second-order factor for marketing innovation, the test of the null hypothesis that the first-order factors converge to a single higher order construct. Table 5.20 shows the figure of loadings, *t* statistics in parenthesis, standard errors, factor scores and fit indices resulting from fitting this model to the data. As shown in the model, a unitary second-order factor fits the data well. Figure

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Table 5. 20 Second-Order Measurement Model of Marketing Innovation

Indicator (Parameter)	**New Product**			**New Working Process**			**New Market**		
Standardized first-order loading (λ_i)	Loading (*t-value*)	S. E.	Factor score	Loading (*t-value*)	S. E.	Factor score	Loading (*t-value*)	S. E.	Factor score
Unique feature(λ_{11})	0.80 (12.09)	0.07	0.32						
Customer's need (λ_{21})	0.85 (12.73)	0.07	0.42						
High quality (λ_{31})	0.76 (11.49)	0.07	0.27						
Computer (λ_{42})				0.63 (6.31)	0.10	0.17			
ISO (λ_{52})				0.60 (6.16)	0.10	0.17			
Re-engineering (λ_{62})				0.71 (6.44)	0.11	0.22			
New technology (λ_{72})				0.85 (6.85)	0.12	0.48			
Access new market(λ_{83})							0.69 (7.16)	0.10	0.18
New packaging (λ_{93})							0.73 (7.29)	0.10	0.22
New promotion (λ_{103})							0.85 (7.65)	0.11	0.44
New support to foreign distributor (λ_{113})							0.65 (7.18)	0.09	0.18
Structural equations 'R^2		0.39			0.66			0.62	

	Marketing Innovation	
Standardized Second-order loadings (γ_j)	Loading (t-value)	S. E.
New Product	0.62 (6.40)	0.10
New Working Process	0.81 (4.73)	0.17
New Market	0.79 (5.08)	0.15

Summary statistics: (Overall fit)

$\chi^2 = 36.25$, df =34 , p =0.36

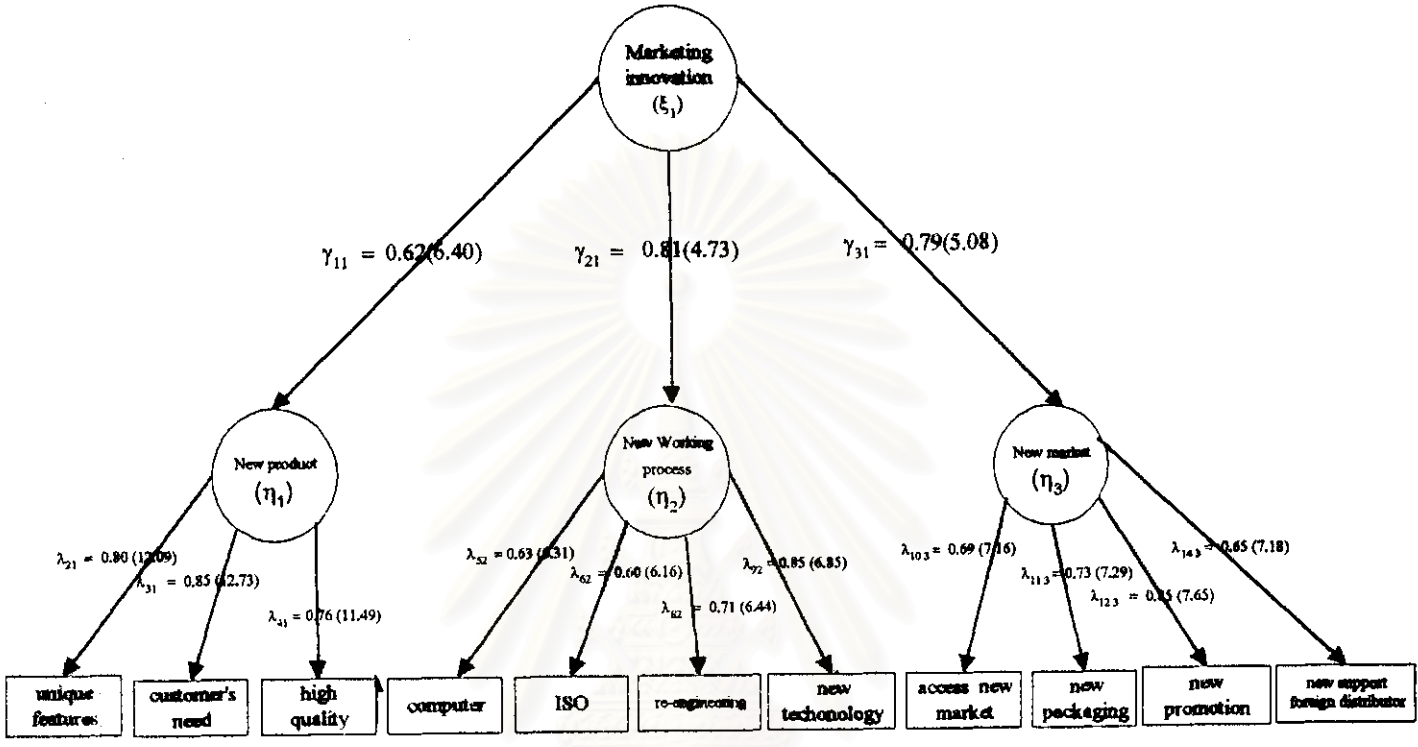
GFI = 0.98, Adjusted GFI = 0.95

NFI = 0.97 , NNFI = 1.00

CFI = 1.00 , IFI = 1.00

RMSEA = 0.0093

Figure 5.1 The Marketing Innovation Model



LISREL goodness-of-fit measures

Overall fit: $\chi^2 = 36.25$, df = 34, $p = 0.36$ GFI = 0.98 RMSEA = 0.0093

Note: 1. Coefficients γ_{11} γ_{21} γ_{31} represent causal linkages.
2. t-value is in parenthesis.
3. λ = relationship between an unobservable variable and its measure.

Estimation of the Full Model of the Export Performance

After the establishment of measurement models of 5 constructs (export performance, marketing innovation, firm characteristic, firm resources, and environment) for the observed independent and dependent variables, the full model of export performance is tested by using LISREL 8.20. The immediate results indicate that the original proposed full model of the export performance does not fit to the data. Variance of the error terms for the structural equations are not positive definite. When

examining the statistical indices (e.g. parameter estimates, standard errors, t-values, etc.) provided by LISREL 8.20, the results indicate that the model does not fit to the data. Examples of unreasonable values are many such as correlations greater than 1.0, negative variances, matrices which are not positive definite, negative squared multiple correlations, and extremely large standard errors. Joreskog and Sorbom (1981) discussed this issue as follows:

> *"When a model has been judged not to fit the data adequately by any grounds previously considered, the question arises how the model should be modified to fit the data better. What the model should be cannot be decided on a purely statistical basis, however. The best situation is if there is a substantive theory that can be used to decide how the model should be changed."*

Thus, the next procedure is to modify the model so as to improve its fit to the data, while maintaining its theoretical integrity.

To measure the ability of the items in each construct, the maximum likelihood exploratory factor analysis (using oblique rotation) and confirmatory factory analysis are performed for each construct and on the full set of measurement items. The items must meet the following criteria: (a) each item is based on the factor with an eigenvalue greater than 1.00, (b) each individual item is correlated with the factor concerned at the .05 level or above, (c) each item to be included has no significant correlation with another factor. Table 5.21 lists these constructs as well as their descriptive statistics and correlation matrices, reliability of each construct is indicated in bold figures along the diagonal.

Table 5.21 Descriptive Information and Reliability of the Scales Used

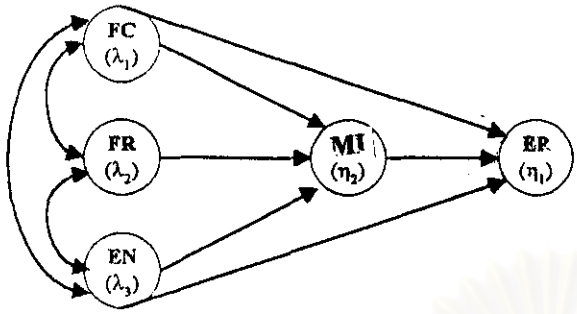
Construct	Original Number of Items	Retained Number of Items	Correlation				
1. Performance	4	4	**0.24**				
2. Marketing Innovation	15	11	0.44	**0.28**			
3. Firm Resources	7	4	0.22	0.53	**0.12**		
4. Firm Characteristics	4	1	0.31	0.24	0.35	**0.99**	
5. Envionment	9	9	0.05	0.18	0.21	0.17	**0.27**

The Best Fitted Model of Export Performance

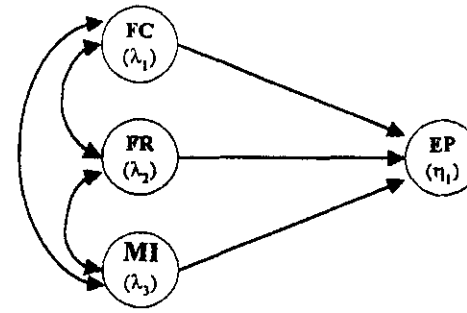
In this section, the search process is performed to modify the initial proposed full model of the export performance so as to improve the parsimony and the fit of the model. According to the procedure described by Jöreskog and Sörbom (1989), the search process is supposed to detect and to correct for any specification error indicating a lack of correspondence between the hypothesized model and the "true" model characterizing the phenomena. The objective is to find the best fitted and the most parsimonious model in which all parameters are sound and meaningful. The search process starts with modifying the initial hypothesized model by eliminating the unsound parameters, adding parameters with a large modification index and justification. Next, the competing models or the equivalent models, are tested and the results are compared in order to obtain the best fitted model.

From the hypothesized full model of the export performance, six competing models are modified based on the theoretical integrity. Those modified modes, shown in Figure 5.2 display only the main constructs. Model A, B and C consist of 5 constructs. They are export performance, firm characteristics, firm resources, marketing innovation, and environment. Model D, E, F consist of 4 constructs, the environment construct is neglected. After several runs of the LISREL model, the comparison of the analysis results indicates that model F is the best fitted model.

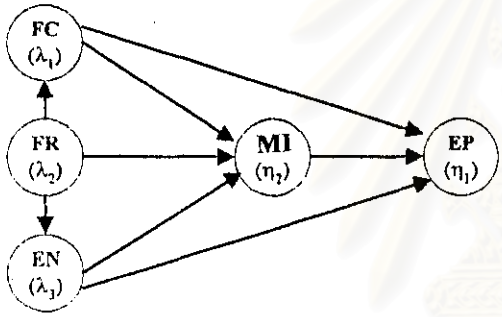
Figure 5.2 Modified Competing Models



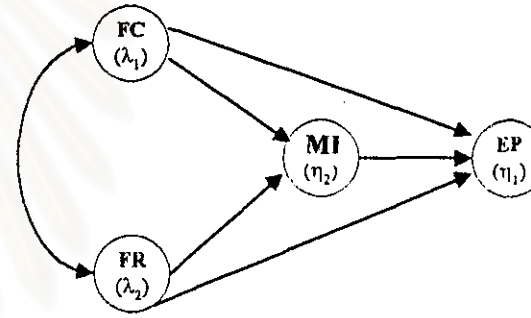
(A)



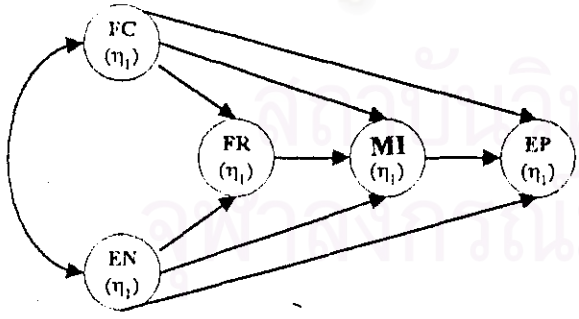
(D)



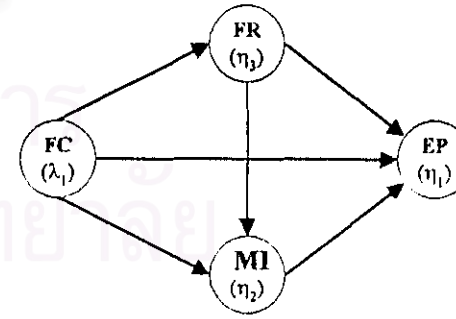
(B)



(E)



(C)



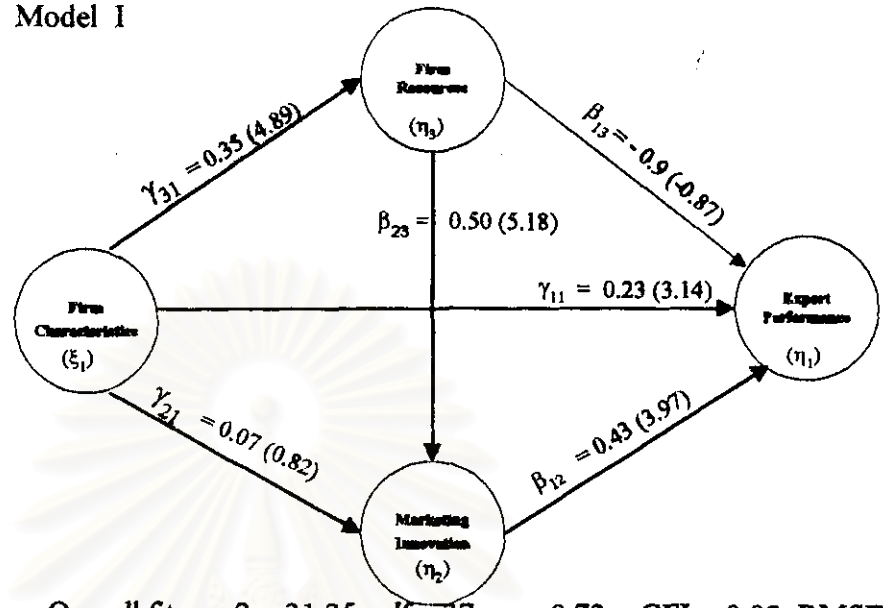
(F)

Note: FC = Firm Characteristics FR = Firm Resources EN = Environments
MI = Marketing Innovation EP = Export Performance

The next step in specification search is to find the most parsimonious model for export performance from the best fitted model F. In this step, 3 other competing models, shown in Figure 5.3 – 5.5 are tested. The first one (model I) is similar to model F, the second one (Model II), is model I after eliminating firm resource construct and the third one (Model III) is the one eliminating both constructs of firm resources and firm characteristics. The analysis results are shown in Table 5.22.

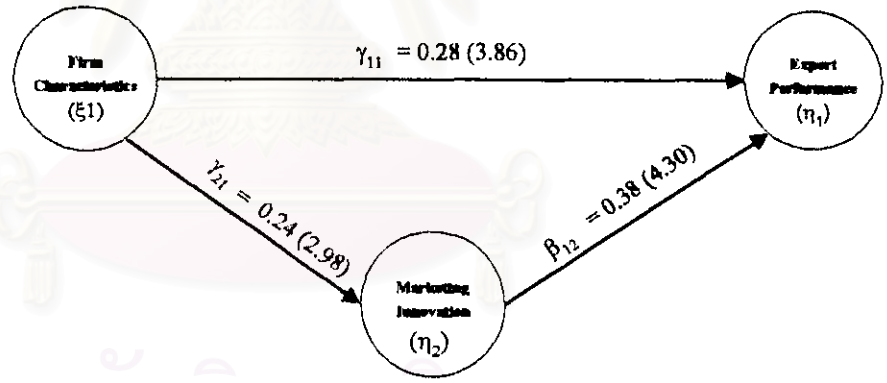
Three Competing Models in Searching for the Best Fitted Model

Figure 5.3 Model I



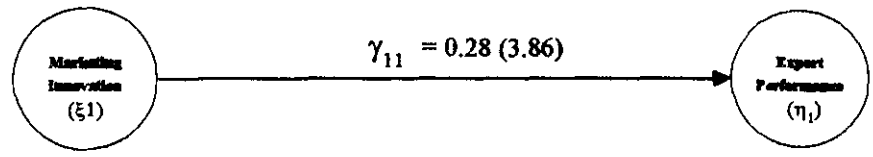
Overall fit: $\chi 2 = 31.35$, $df = 37$, $p = 0.73$ GFI = 0.98 RMSE = 0.00

Figure 5.4 Model II



Overall fit: $\chi 2 = 4.01$, $df = 11$, $p = 0.97$ GFI = 1.00 RMSE = 0.00

Figure 5.5 Model III



Overall fit: $\chi^2 = 1.61$, $df = 12$, $p = 0.99$ GFI = 1.00 RMSE = 0.00

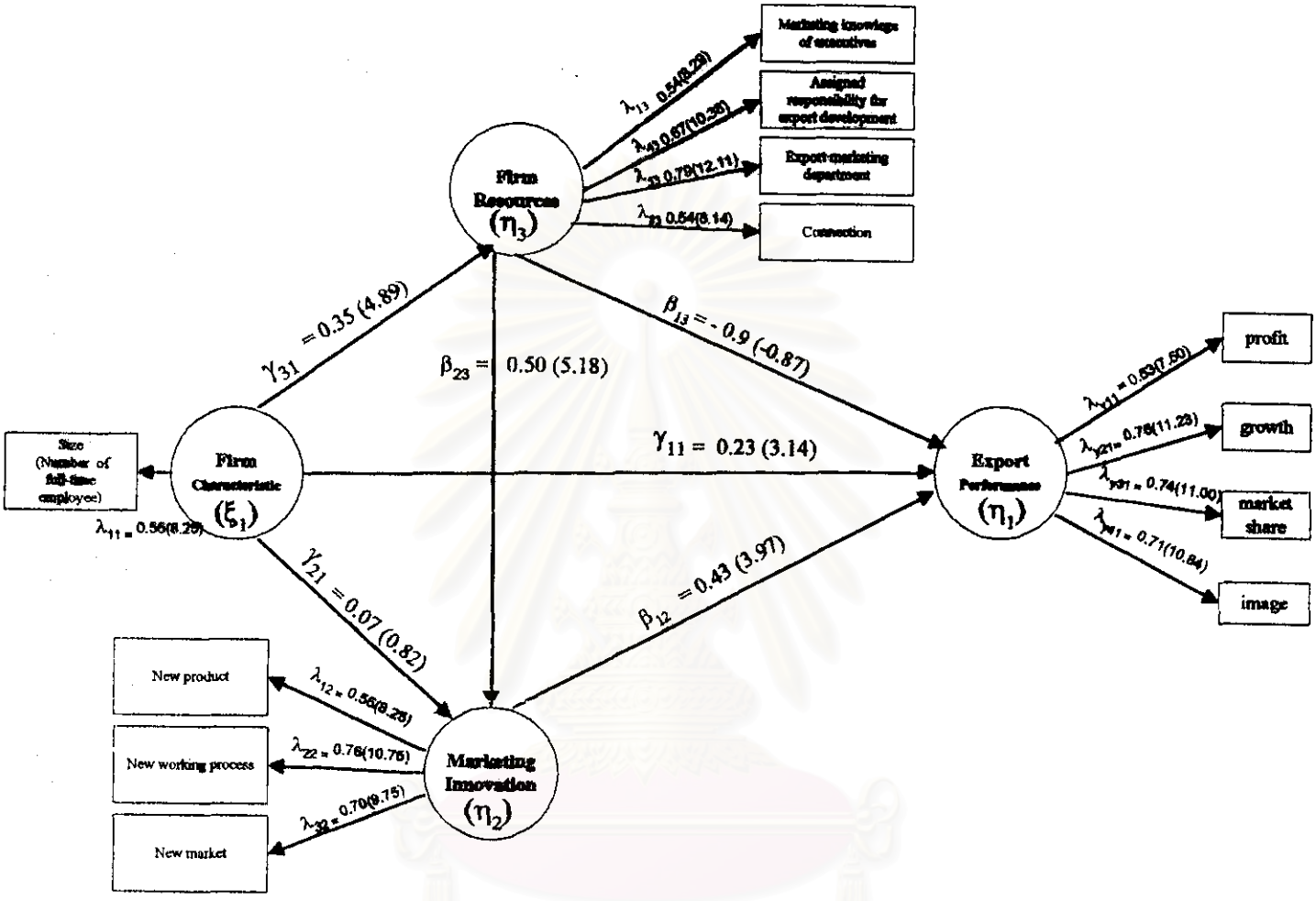
Note 1. Coefficients λ_{11} , λ_{21}, λ_{31} represent causal linkages.
2. *t*-value is in parenthesis.

Table 5.22 LISREL Analysis Results of Three Competing Models in Searching for the Best Fitted and the Most Parsimonious Model of Export Performance

Parameter Path	Model I		Model II		Model III	
	Parameter	SE	Parameter	SE	Parameter	SE
FC → EP	γ_{11} = 0.23	3.14	γ_{11} = 0.28	3.86		
FC → MI	γ_{21} = 0.07	0.82	γ_{21} = 0.24	2.98		
FC → FR	γ_{31} = 0.35	4.89				
MI → EP	β_{12} = 0.43	3.97	β_{12} = 0.38	4.30	γ_{11} = 0.28	3.86
FR → MI	β_{23} = 0.50	5.18				
FR → EP	β_{13} = -0.09	-0.87				
χ^2	31.35		4.01		1.61	
df	37		11		12	
p	0.73		0.97		0.99	
χ^2 /df	0.847		0.364		0.134	
GFI	0.98		1.00		1.00	
RMSE	0.00		0.00		0.00	
R- square for the overall model	0.24		0.14		0.08	

In order to obtain the best fitted model, the criteria suggested by Jöreskog and Sörbom (1989) and Bollen (1989) are applied here. Considering from the three goodness of fit measures (χ^2 /df , GFI and RMSE), the three models are competitive. However, the GFI for Model I is lower than GFIs for Model II and III, but the high value of χ^2 /df for Model I (χ^2 /df = 0.847) indicates that Model I has a very good fit more than Model II and III. Since the differences in χ^2s and dfs between Model I and II and between II and III show that there are a large drop in χ^2 as compared to the differences in dfs (a drop of 33.34 as compared to 26 and a drop of 29.74 as compared to 25). It signifies that Model I is better than Models II and III. The value of square multiple correlation also supports the results. Thus, the best fitted and the most parsimonious model is Model I.

Figure 5.6 The Best Fitted Model of Export Performance



LISREL goodness-of-fit measures

Overall fit: $\chi^2 = 31.35$, df = 37, $p = 0.73$ GFI = 0.98 RMSEA = 0.00

Note: 1. Coefficients γ_{11}, γ_{21}, γ_{31} represent causal linkages.
2. t-value is in parenthesis.
3. λ = relationship between unobservable variable and its measure.
GFI = Goodness-of-fit index.
RMSEA = Root mean square error of approximation.

Figure 5.6 shows the best fitted model of export performance. The examination of the overall fit of the proposed model is very encouraging by using traditional measures (χ^2= 31.35, *df* = 37, *p* = 0.73, GFI = .98, AGFI = .96, NFI = .96, NNFI = 1.00, RMSEA = .034). Not only are the overall fit measures indicate a fit, the point estimate of RMSEA is below the .05 level recommended by Browne and Cudeck (1993). The other indicator is that the expected cross-validation index (ECVI) for the model (0.52) is less than the ECVI for the saturated model (0.63). All of these measures suggest that model fits to the data reasonably well.

Hypotheses Testing

Given evidence of correspondence between the hypothesized constructs and their respective indicators, as well as the evidence that the constructs are distinct (Bagozzi and Phillips, 1982), the full model is tested. The environment construct was excluded from the model because of the low significant relationship with export performance. Four of the eight hypothesized causal paths are statistically supported at the .05 level of significance. Table 5.23 summarizes the results of hypotheses testing. Consequently, it is determined from the analysis that the best fitted model of marketing innovation on export performance with firm resources and firm characteristics, as originally estimated, is the best fitted model to the data.

Table 5.23 Summary of the Results in Hypotheses Testing

	Hypotheses	Results	Statistics*
H_1	Marketing innovation have positive effect on export performance.	Supported	0.43 (3.97)
H_2	Firm characteristics have positive relationship with firm resources.	Supported	0.35 (4.89)
H_3	Firm resources have positive relationship with marketing innovation.	Supported	0.50 (5.18)
H_4	Firm resources have positive relationship with export performance.	Not supported	-0.09 (-0.87)
H_5	Firm characteristics have positive relationship with export performance.	Supported	0.23 (3.14)
H_6	Firm characteristics have positive relationship with marketing innovation.	Not supported	0.07 (0.82)
H_7	The attitudes of executives toward the environments have an effect on export performance.	Not supported	0.05 (0.05)
H_8	The environments have positive relationship with marketing innovation.	Not supported	0.10 (0.91)

Note: *Standardized structural coefficient is shown and *t*-value is in parentheses.

Structural Paths

The standardized structural coefficients with *t*-values for the measurement relations and structural paths of the model are presented in Table 5.24. Based on the nonsignificant chi-square, $\chi^2 = 31.35$, $df = 37$, $p = 0.73$, and the indicators of model adequacy such as GFI = 0.98, adjusted GFI = 0.96, NFI = 0.96, NNFI = 1.00, and RMSEA = 0.00, the fit of the model to the data appears to be good. The full model explains 0.24 the variance in the export performance.

The parameter estimates for the structural paths γ_{11}, γ_{31}, β_{12}, β_{23} are all positive and statistically significant, which is consistent with the direct and indirect effects predicted in the hypotheses. Only γ_{21} and β_{13} are statistically non significant.

Table 5.24 Estimated Parameters from the Structural Model "The Best Fitted Model of Export Performance"

Parameter and Relationship (from → to)		Standardized Structural Coefficient	t-value
Exogenous → endogenous			
γ_{11}	Firm characteristics (size) → export performance (H_5+)	0.23	3.14
γ_{21}	Firm characteristics (size) → marketing innovation (H_6+)*	0.07	0.82
γ_{31}	Firm characteristics (size) → firm resources (H_2+)	0.35	4.89
Endogenous → endogenous			
β_{12}	Marketing innovation → export performance (H_1+)	0.43	3.97
β_{23}	Firm resources → marketing innovation (H_3+)	0.50	5.18
β_{13}	Firm resources → export performance (H_4+)*	-0.09	-0.87
Structural equations R^2			
Constructs			
Export performance		0.24	
Marketing Innovation		0.28	
Firm Resources		0.12	
Summary statistics: $\chi^2 = 31.35$, $df = 37$, $p = 0.73$			
GFI = 0.98, Adjusted GFI = 0.96			
NFI = 0.96, NNFI = 1.00			
RMSEA = 0.00			

Note: Standardized solution is from LISREL 8.20.

* Rejected hypotheses.

To clearly understand the cause and effect of each construct in the model, a key feature of LISREL 8.20 also reports the total effects, which are obtained by summing the direct and indirect effects (i.e., estimated for direct paths plus estimated for indirect paths, retaining positive or negative signs). The reporting of results here includes both direct and indirect effects. The direct and indirect effects (from the LISREL output) are depicted in Table 5.25. Total effects are simply the sum of direct and indirect effects.

Table 5.25 Direct, Indirect, and Total Effects of Independent Variables on Export Performance

Independent Variables	(1) Direct Effects (*t*-value)	S.E.	(2) Indirect Effects (*t*-value)	S.E.	(1) +(2) Total Standardized Effects (*t*-value)	S.E.
Marketing Innovation	0.43 (3.97)	0.11	-	-	0.43 (3.97)	0.11
Firm Characteristics	0.23 (3.14)	0.07	0.08 (0.08)	0.08	0.31 (4.18)	0.04
Firm Resources	-0.09 (-0.87)	0.11	0.22 (3.13)	0.07	0.13 (1.47)	0.09

Interpretations

Firstly, firm characteristics which is represented in this study by the size of the company (number of full-time employees) influences the firm export performance and firm resources directly. Furthermore, both paths appear to be strong, as judged by their parameter estimates, standard errors, and *t*-values. The positive relationship between firm characteristics to firm resource and to export performance are consistent with the hypotheses H_2 and H_5 in Chapter 3. It should be noted, however, that the parameter estimated for the firm size to marketing innovation path is not extremely strong since the *t*-value is lower than 2.0 in magnitude (γ_{21} =0.07 and *t*-value = 0.82). This result, therefore, makes H_6 to be rejected which means that marketing innovation

strategy of an exporting company might not be influenced by a company's size (number of full-time employees). Thus, this path can be viewed somewhat tentatively.

Secondly, a firm's resources exert some relationship with export performance and marketing innovation. The coefficient of $\beta_{23} = 0.50$ with t-value = 5.18, shows the positive relationship between a firm's resources and marketing innovation. However, there is a negative relationship between a firm's resource and export performance ($\beta_{13} = -0.09$ with t-value = -0.87). This finding could be interpreted that resources of the exporting firm which include marketing knowledge of executives, assigned responsibility for export development, establishing export marketing department and the relationships of executives with other related departments or outside businesses have some effects on export performance. But a firm's resources alone is not necessarily yielding positive effect to export performance. There could be some other factors incoming from various sources to influence the export performance. Therefore, the result indicates negative relationship between a firm resources and export performance. However, this negative effect is not statistically significant ($\beta_{13} = -0.09$ and t-value = -0.87).

Thirdly, the marketing innovation is found to exert a direct positive influence on export performance. The positive influence of marketing innovation on export performance is as hypothesized , ($\beta_{12} = 0.43$ with t-value = 3.97), and is stated with the hypothesis expressed in H_1.

Summary

Through an iterative process involving the modification and testing of numerous models, the marketing innovation model and the best fitted model of export performance are found. Both models appear to fit the data well. The hypothesized relationships between model components are tested and accepted, although one hypothesis cannot be accepted. The results obtained from the estimation of this model are explained in details with data analysis in the first part of Chapter 6, with attention given to the theoretical and empirical implications.