

Business Strategies and Competitive Advantage Factors in the Electronics Industry in Malaysia

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ABSTRACT

This paper examines the relationship between business (generic) strategies and the competitive advantage factors of firms in the electronics industry. The paper also investigates the extent of influence of generic strategies on the competitive advantage factors. A structured questionnaire was developed and administered to the chief executive officers (CEO) of the firms in the electronics industry in Malaysia. Based on 85 useable responses, the data were analysed using factor analysis (principal component solution), and subsequently the K-Means cluster analysis. The findings of the study showed that there is a positive relationship between each of the generic strategies and the competitive advantage factors. This implies that firms had a variety of sources in order to gain or sustain their competitive advantage positions in the industry. The results of MANOVA indicate the extent of influence of the generic strategies and competitive advantage factors. The implications of the findings are also discussed.

ABSTRAK

Kertas ini mengkaji perkaitan di antara strategi perniagaan (generik) dengan faktor-faktor kelebihan daya saing bagi syarikat-syarikat dalam industri elektronik di Malaysia. Kertas ini juga meneliti sejauh mana strategi-strategi generik mempengaruhi faktor-faktor kelebihan daya saing. Satu soalselidik telah dibentuk dan dilaksanakan terhadap ketua-ketua eksekutif di dalam industri elektronik di Malaysia. Berdasarkan 85 respon yang boleh dipakai, data ini telah dianalisis menggunakan analisis faktor (kaedah komponen utama) dan analisis gugusan Purata-K. Keputusan kajian ini menunjukkan bahawa terdapat perkaitan positif di antara setiap strategi generik dengan faktor-faktor kelebihan daya saing. Ini menunjukkan firma-firma ini mempunyai pelbagai sumber untuk memperolehi atau menjamin kedudukan lebih daya saing di dalam industri. Keputusan analisis MANOVA juga menunjukkan terdapat pengaruh strategi generik terhadap faktor-faktor kelebihan daya saing. Implikasi kajian juga dibincangkan.

INTRODUCTION

The Malaysian economy had experienced a growth rate of 8% since 1990. One of the major factors contributing to this growth rate is the high export of the electrical and electronics industry. In 1970, the output of the electronics industry was US\$9.4 billion. In 1992, the total output had increased to US\$12.4 billion. The electronics industry also contributed US\$13.3 billion or 48.1% of the total manufacturing exports. This is made up of US\$5.8 billion in electronic components, US\$3.4 billion in consumer electronics, and US\$3.9 billion in industrial electronics. Considering the impressive growth of the electronics industry, one key question raised is whether there is a relationship between the strategies pursued and the competitive advantage positions of the electronics firms in Malaysia.

LITERATURE REVIEW

According to Porter (1980), the competitive situation faced by companies can be understood by examining the five basic forces acting in the industry. These five forces will determine the profitability of the industry. The five forces are bargaining power of buyers, bargaining power of suppliers, rivalry among competitors, threat of entry, and threat of product substitutes. In order to compete effectively in an industry, Porter (1980) has recommended three generic strategies: cost leadership, differentiation and focus. The cost leadership strategy is not based on offering the lowest price, but having the lowest costs, and consequently the greatest profit margin. This strategy also requires cost control, exploitation of any economics of scale and experience, and organisational leanness to some extent. The differentiation strategy refers to offering a unique product, either by design, branding, technology, features or customer service. By increasing the products' uniqueness, the differentiation strategy will enhance brand loyalty, and hence reduces the price sensitivity of demand by buyers. This will also reduce the potential risks of substitution for other products. A focus strategy involves offering a product, which meets the needs of a specific group of customers. A firm that seeks to serve that segment of the market can achieve low cost or differentiation in that niche or target markets. Porter's framework, therefore, suggest that the generic strategies pursued are related with some competitive advantage positions of the firms in that industry. The three generic strategies also represent the three types of strategic groups (namely cost leadership, differentiation and focus) and the choice of which strategy "can be viewed as the choice of which strategic group to compete in" (Porter 1980; Dess & Davis 1982).

In examining Porter's generic strategies, Dess and Davis (1982) used twenty-one variables and found that the two generic strategies, namely

lowest cost and differentiation, were supported in their findings, while the third strategy, focus, was found to be less conclusive. This was due to the differences in the opinion of the panel of experts and managers on the interpretation of a 'focus' strategy.

The model by Porter had also received several criticisms. For Karnani (1984), to attain cost leadership, the firm must compete on price. Mathur (1988) argued that if the cost leadership strategy suggests that firms will charge average prices and offer 'average' quality, then it would not be easy for firms to have above 'average' market share. Consequently, the profitability may not be superior. McNamee and McHugh (1989) referred to 'low price' strategies rather than cost leadership in the clothing industry. These findings suggest that the cost leadership have been interpreted in several ways.

With a variety of conclusions made on Porter's framework, Bowman (1992) explored the managers' perceptions of the generic strategies. Bowman (1992) had used sixteen variables to measure the three generic strategies. By using factor analysis, he found that the generic strategies are grouped into four factors: cost control, uniqueness, competes on price, and product/service development. Two of these factors are associated with competitive behaviour: competing on price, and offering superior or 'unique' products/services. The other two factors were viewed as internal competencies, which may or may not lead through to observable changes in the offerings of the firm: cost control, and product development. The factor interpreted as 'competing on price' has items like offer similar products/services, emphasise competitive price in marketing communications, customers are price sensitive, efforts in improving efficiency, and aim to be the lowest cost producer in industry. The items like aiming to offer superior products/services; offer unique products/services and premium prices; emphasise distinctive product/image, and importance of sales performance information were interpreted as uniqueness. By cost control, Bowman (1992) referred to items like control of operating costs, control of overheads, monitoring operations to control costs, and securing low cost supplies. In the fourth category, items such as regularly develop new products/services, top priority on new product/service development, and product/services seldom change were interpreted as product/service development.

Bowman (1992) also suggested that since the four factors are not correlated with each other, each of the four strategic groups might be pursued independently. However, he also cautioned that particular combinations of these strategic groups could lead to different performance outcomes. For example, a strong cost control is essential if the firm is choosing to compete on price, and this could lead to higher profitability if it is combined with the effort to offer superior products or services. Thus, he argued that in order to sustain competitive advantage, firms need to combine appropriate internal competencies with external competitive positioning.

From the above review, it is clear that the classification of generic strategies had been debated quite widely since the introduction of Porter's model. While some of the arguments put forth has been due to the classification of the items either by qualitative or quantitative approaches, it cannot be denied that the criticisms advanced were also attributed to the variety of samples or industry or environmental setting. Nonetheless, it appears that the generalisability of Porter's generic strategies has relevance in the electronics industry in Malaysia.

While it is important for firms to select appropriate business strategies in order to be successful, it is also critical for firms to assess their competitive position vis-a-vis other competitors. Firms that are able to achieve a superior performance are said to have achieved or sustain their competitive advantage positions in that industry. To create or sustain competitive advantages, firms develop specific resources and skills, known as distinctive competencies (Bamberger, 1989; Stoner, 1987). According to Stoner (1987), the areas of distinctive competence includes skill of workers, low cost position, better customer service, unique product or service, reputation and image. However, it is argued that it would be more useful to distinguish positions of advantages (referred to as competitive advantages) from the sources of advantages (such as distinctive competencies like skilled workers, modern equipment or good management) (Bamberger, 1989).

To determine the bases of the competitive advantages of 1,135 firms in the food, clothing and electronics industries in Europe, Bamberger (1989) asked the managers to rate the importance of each of the twenty-six items in order to achieve or maintain a competitive position in their main market. By using factor analysis, Bamberger (1989) had identified six general factors used by the small and medium enterprises to develop competitive advantages in their markets. The factors are interpreted as 'competence and image', 'marketing capabilities', 'technological competencies and service', 'financial capabilities', 'creativity and product differentiation', and 'low cost and pricing policy'. Bamberger (1989) argued that differentiation can be obtained in several ways particularly by marketing capabilities, technological competence, creativity and product differentiation or their combination. This finding is also supported by Porter (1980). Bamberger's (1989) results also showed differences in the type of competitive advantage factors for the small and medium size firms in the food, clothing and electronics industries. In the electronics industry, the key factors determining the competitive advantage positions are 'technological competence and service'. In this factor, items such as technical assistance before delivery, engineering capacity, and service after delivery are included in this factor. It was also found that electronics firms made less effort to achieve competitive advantages by a low cost and price position, financial capabilities, purchasing and reliability of delivery, than firms in the clothing and food industry.

These studies clearly suggest that firms also have competitive advantage positions in order to maintain or sustain their successful business strategies. However, the type and sources of competitive advantage factors or positions may be different, depending on the nature of the industry, type of business activities, and nature of competition in the industry.

Although it is essential to identify the business strategies and the critical factors for the development of competitive advantage positions, it would not provide us much evidence on the relationship between the business strategy and the competitive advantage factors. Consequently, one raises the issue of whether there is a relationship between the business strategy pursued and the competitive advantage factors. From the plethora of literature on business strategy (such as Porter and many others) and competitive advantage factors (Stoner 1987; Bamberger 1989), it appears that there is a relationship between business strategy and competitive advantage factors. As such it is proposed that there is a positive relationship between business strategy and competitive advantage factors.

Therefore, the purpose of this paper is to examine the relationship between business (generic) strategies and the competitive advantage factors of firms in the electronics industry. More specifically, this paper purports to examine the relationship between the business strategies and the competitive advantage factors, and the influence of the generic strategies on the competitive advantage factors (dimensions).

The findings of this research is important as it can provide us new knowledge on the other competitive advantage factors critical so as to sustain or create competitive positions in an industry. The present findings may also be able to provide more insights on the nature of the relationship between business strategies and the competitive advantage factors, thus, providing more understanding on the existing business dynamics in the electronics industry.

METHODOLOGY

A structured questionnaire was developed based on the generic strategies of Porter (1980), Bowman (1992), and the competitive advantage factors as suggested by Bamberger (1989). In the questionnaire, the respondents (the Chief Executive Officer or a senior manager of the firms) were asked to rate each of the sixteen items on generic strategies on a five point scale ranging from (1), which does not apply to current strategy in the company to (5), which describes the current strategy in the company. The respondents were also asked to rate each of the twenty-six items on critical factors to achieve competitive advantage on a five-point scale, ranging from (1) no importance to (5) very high importance. See Appendix 1 and 2 respectively.

A total of 700 questionnaires were distributed to firms (one respondent per firm) in the electrical and electronics industry based on the Malaysian Industrial Development Authority (MIDA) Directory of Electrical and Electronics firms. However, only a total of 85 firms returned the questionnaire and is usable for analysis.

The Cronbach Alpha coefficient for the sixteen items on generic strategies was 0.8289, while the coefficient for the twenty-six competitive advantage factors was 0.9034. These suggest a fair level of reliability (internal consistency) in the response.

To analyse the generic strategies, and competitive advantage factors, the principal component solution was selected. Varimax rotation was used to determine the factors in the factor solution. Only those with eigenvalues greater than 1.0 were selected in the final analysis.

The principal component solution for the twenty-six competitive advantage items resulted to seven factors, accounting for 70% of the variances explained. The seven factors are interpreted as follows: 'marketing capabilities' (30% of the variance), 'organisational capabilities' (an additional 11.2% of the variance), 'product quality and service' (an additional 7.1% of the variance), 'image and financial integrity' (an additional 6.4% of the variance), 'technological competence' (an additional 5.9% of the variance), 'sales management and network' (an additional 5.2% of the variance), 'socio-economic financial capabilities' (an additional 4.2% of the variances explained).

The principal component solution for the generic strategies (sixteen variables) resulted to four interpretable factors, which accounted for 65.2% of the variances explained. The factors are interpreted as 'cost leadership' (31% of the variance), 'differentiation strategy' (an additional 16.6% of the variance), 'cost-price strategy' (an additional 10% of the variance), and 'marketing/ focus strategy' (an additional 7.6% of the variance). Based on the results of the factor solution for the business strategies, cluster analysis (using the case wise selection instead of the variable selection) was then used to determine the number of business strategies pursued by the firms in the industry. The number of factors identified by the principal component solution mentioned earlier determined the number of strategic groups. This method of determining the business strategic groups can be considered appropriate (Ketchen Jr. & Shook, 1996). Hierarchical and non-hierarchical methods were used to determine the number of clusters, and ultimately, the non-hierarchical (K-Means) solution was selected. Pearson correlation was used to analyse the relationship between business strategies and competitive advantage positions of the electronics firms in the industry. To examine this relationship, the MANOVA and univariate tests were conducted for the strategic groups (business strategies) and the competitive advantage factors.

FINDINGS AND DISCUSSION

The results of the Pearson correlation between business strategies and competitive advantage factors showed that the 'marketing strategy' was correlated positively with all the seven competitive advantage factors ($p < 0.01$) (Table 1). This means that each of the seven of competitive advantage factors is related with the 'marketing strategy' of the electronics firms. For example, for a successful marketing strategy, firms need to have sound marketing capabilities, sales management and network, image and financial integrity, organisational capabilities, and product/service quality, technological competence and socio-financial capabilities ($p < 0.01$). This suggests the importance of the marketing strategy in relation to the competitive advantage factors of firms in the electronics industry.

TABLE 1. Pearson correlation between business strategy and competitive advantage factors

Competitive Advantage Factors	Cost Strategy	Differentiation Strategy	Cost-Price Strategy	Marketing Strategy
Marketing capabilities	-0.036 (0.758)	0.5280 ($p=0.01$)	0.2343 ($p=0.05$)	0.4526 ($p=0.01$)
Organisational capabilities	0.203 ($p=0.071$)	0.3016 ($p=0.01$)	0.2760 ($p=0.01$)	0.3872 ($p=0.01$)
Product / service quality	0.2594 ($p=0.05$)	0.159 ($p=0.163$)	0.209 ($p=0.057$)	0.3268 ($p=0.01$)
Image & financial integrity	0.059 (0.607)	0.3932 ($p=0.01$)	0.3838 ($p=0.01$)	0.3975 ($p=0.01$)
Technological competence	0.2946 ($p=0.01$)	0.4478 ($p=0.01$)	0.4502 ($p=0.01$)	0.2638 ($p=0.05$)
Sales management & network	-0.107 ($p=0.357$)	0.120 ($p=0.302$)	0.069 ($p=0.551$)	0.4424 ($p=0.01$)
Socio-financial capabilities	0.065 ($p=0.568$)	0.4161 ($p=0.01$)	0.198 ($p=0.07$)	0.3709 ($p=0.01$)

The 'cost-price strategy' and 'differentiation strategy' are positively correlated with marketing capability ($p < 0.05$), organisational capability ($p < 0.01$), image and 'financial integrity' ($p < 0.01$), and technological

competence ($p < 0.01$). The emphasis of cost-price strategy appears to be a blend of the cost and differentiation strategies. In other words, for an electronic firm to pursue the cost-price strategy, the orientation should not only be on cost-price factor, but some emphasis on differentiation, perhaps through brand name or company image. For example, while it is clear that the brand names for Sanyo and Hitachi consumer electronic products are differentiated, these firms also compete on effective cost-price strategies.

For the differentiation strategy, it is also correlated with the socio-financial capability ($p < 0.01$). Thus, the differentiation strategy also required social climate, financial capability and purchasing power as competitive advantage factors, which was not required for the cost-price strategy.

As for the cost strategy, there were two competitive advantage factors that were correlated: product/service quality ($p < 0.05$), and technological competence ($p < 0.01$). For the cost strategy to be effective, it is important that electronics firms maintain high reliability of delivery, quality of management, and product quality. The items such as modern techniques of production and creativity were also important coupled with a low cost position, so those firms can be leaders in the cost strategy.

The findings suggest that for each type of business strategy, there are competitive advantage factors contributing to the success of the firms in the electronics industry. This means that firms could obtain a variety of competitive advantage sources in order to be successful in their business strategies. For example, technological competence appeared to be most important, and are strongly correlated with each of the business strategies. This is not unreasonable as the electronics industry require strong capabilities in the field of research and development, and technology capability.

The results of the above analysis suggest that the business strategies are related with the competitive advantage factors. Based on the results of the factor analysis, K-means cluster analysis was done with the four dimensions of business strategy to determine the classification of the firms in the electronics industry. The K-means solution showed that there are 25 firms classified as 'cost strategy' group, 17 firms in the 'differentiation strategy' group, 28 firms in the 'cost-price strategy' group, and 6 firms in the 'marketing strategy' group. (A total of nine firms were not mentioned in the classification or categorisation of strategic groups as the cluster analysis solution did not select those firms or cases for analysis. This can be attributed to the number of missing variables or values in those cases or firms responses). Multiple analysis of variance (MANOVA) was then applied to test for differences in competitive advantage factors of firms across strategic groups. The strategic group membership served as the independent variable in the MANOVA and the seven competitive advantage factors acted as dependent variables.

The MANOVA results indicate that the manner in which firms obtained competitive advantage positions are statistically significant among the groups

(Pillais value = 0.71470; Wilks = 0.40626; Hotelling = 1.18; $p < 0.0001$). The results of univariate analysis of business strategies and competitive advantage factors are shown in Table 2.

TABLE 2. Univariate analysis of business strategies and competitive advantage factors

Variable	F Value	Significance of F
Marketing capabilities	9.073	0.0001
Organisational capabilities	3.349	0.05
Product quality & service	2.818	0.05
Image & financial integrity	10.519	0.0001
Technological competence	9.663	0.0001
Sales management & network	0.631	n.s.
Socio-financial capabilities	5.797	0.001

F-Tests with (3, 66) d.f.

The univariate analysis in Table 2 showed that six of the seven competitive advantage factors have significant relationships with the strategic groups. These factors are marketing capabilities ($p < 0.0001$), organisational capabilities ($p < 0.05$), product quality and service ($p < 0.05$), image and financial integrity ($p < 0.0001$), technological competence ($p < 0.0001$), and socio-financial capabilities ($p < 0.001$). This suggests that the competitive advantage factors of firms are more similar within a strategic group than between groups. The one-way analysis of variance (ANOVA) was then applied to examine the specific univariate differences. The results are shown in Table 3.

Table 3 showed that there are significant differences between the strategic groups and the competitive advantage factors. For the 'cost' strategic group, six of the seven competitive factors are significantly different (excluding 'sales management and network') ($p < 0.05$), while for the 'differentiation' strategic group, four of the six competitive advantage factors are significantly different (excluding 'sales management and network', 'product quality and service', and 'organisational capabilities') ($p < 0.05$). For the 'cost-price' strategic group, there are significant differences in four of the six competitive advantage factors (excluding 'sales management and network', 'socio-financial capabilities', and 'organisational capabilities') ($p < 0.05$). In the 'marketing' strategic group, five of the seven competitive advantage factors are significant ($p < 0.05$), 'sales management and network' and 'product quality and service' were not significant. This reinforces the relationship between business strategies and the competitive advantage factors in the electronics industry.

TABLE 3. One-way Anova of cluster groups and competitive advantage factors

Competitive Advantage Factors	Scheffe Multiple Comparisons						F-Value
	Grp1-2	Grp1-3	Grp1-4	Grp2-3	Grp2-4	Grp3-4	
Marketing Capabilities	*	n.s	*	n.s	**	*	13.23*
Organisational Capabilities	n.s	n.s	**	n.s	n.s	n.s	4.13*
Product quality & service	n.s	**	n.s	n.s	n.s	n.s	3.35**
Image & Financial integrity	n.s	n.s	*	n.s	*	*	10.68*
Technological Competence	n.s	*	*	n.s	*	*	12.48*
Sales Management & Network	n.s	n.s	n.s	n.s	n.s	n.s	1.44
Socio-financial capabilities	*	n.s	*	n.s	n.s	n.s	6.23*

Grp 1=Cost strategy; Grp 2=Differentiation strategy; Grp 3=Cost-price strategy; Grp 4=Marketing/focus strategy.
* $p < 0.01$, ** $p < 0.05$, n.s. indicates not significant at $p < 0.05$.

CONCLUSION

The findings showed that the Malaysian firms in the electronics industry pursued four major types of business strategies, two of which (cost leadership and differentiation) corresponds with Porter's generic strategies, while the other two (cost-price and marketing/focus) appears to be different. These firms can achieve to sustain their competitive advantage positions in at least one of the seven key dimensions. The results of the analysis also indicate that there is a relationship between the business strategies and the competitive advantage factors. This study suggests that certain business strategies pursued by the firms in the electronics industry are consistent with their competitive advantage positions in the industry. One of the three common factors important for the firms in the electronics industry is the technological competence; that is with modern production technique, creativity, and a low cost production. This is not unusual as the findings by Bamberger (1989) also support the importance of the technological competence and service in the electronics industry. For firms adopting the marketing/ focus strategy, all the seven competitive advantage factors can be considered important (or a source of competitive advantage).

While the findings of this research suggests that there is a relationship between strategic groups and the competitive advantage factors, it is also important to consider the extent of generalisability of this findings in other sectors of the business. Nonetheless, the present findings lend support to the resource-based approach of competitive strategy, that firms resources and

capabilities are heterogeneous (Barney 1991). As such, although the firms may pursue similar strategies (in the strategic group), their capabilities and resource availability may result firms to have a different level of competence, and consequently lead to have different sources/approaches to achieve competitive advantage positions. Similarly, firms may have similar competitive advantage factors but by pursuing different strategies can actually be in the leading edge as the firm's capabilities and resources are different.

APPENDIX 1. Items on Business Strategy

Cost Strategy

1. Maximum utilisation of resources
2. Control of operating costs
3. Cut overhead costs
4. Keep costs under control
5. Lowest costs of supplies
6. Emphasize competitive prices

Differentiation Strategy

7. Develop new products
8. Offer unique products/service
9. Priority on product development

Cost-Price Strategy

10. Maintain competitive prices
11. Lowest cost producer
12. Devote time and effort to improve efficiency

Marketing/Focus Strategy

13. Offer superior products/services
14. Information on sales important
15. Emphasize product image
16. Product line seldom change
16. Product line seldom changes

APPENDIX 2. Items on Competitive Advantage Factors

Marketing Capabilities

1. Advertising/sales promotion
2. Distribution centre
3. Variety product group
4. Technical assistance before delivery
5. Service after delivery
6. Sales for size
7. Product design
8. Market share

Organisational Capabilities

9. Competence of workers
10. Flexibility of company
11. Reputation of Company
12. Engineering capacity

Product Quality and Service

13. Reliability of delivery
14. Quality of management
15. Product quality

Image and financial integrity

16. Pricing policy
17. Payment condition
18. Brand image

Technological Competence

19. Low cost position
20. Creativity
21. Modern production technique

Sales Management & Network

22. Send local image & personal contacts
23. Personal selling

Socio-economic financial capabilitie

24. Social climate
25. Financial capability
26. Purchasing

REFERENCES

- Bamberger, I. 1989. Developing competitive advantage in small and medium-size firms, *Long Range Planning* 22(5): 80-88
- Barney, J.B. 1991. Firms resources and sustained competitive advantage, *Journal of Management* 17: 99-120
- Bowman, C. 1992. Interpreting competitive strategy. In *The challenge of strategic management*, eds. D. Faulkner & G. Johnson, London: Kogan Page.
- Dess, G. G., & Davis, P.S. 1982. An empirical examination of Porter's (1980) generic strategies. *Academy of Management Proceedings* 7-11
- Karnani, A. 1984. Generic competitive strategies – An analytical approach. *Strategic Management Journal* 5: 367-380
- Ketchen Jr., D. J. & Shook C. L. 1996. The application of cluster analysis in strategic management research: An analysis and critique. 17: 441-458
- Mathur, S.S. 1988. How firms compete: A new classification of generic strategies. *Journal of General Management* 14 (1): 30-60

McNamee, P. & McHugh, M. 1989. Competitive strategies in clothing industry. *Long Range Planning* 22 (4): 63-71

Porter, M. E. 1980. *Competitive strategy*. New York/ London: Macmillan Press.

Stoner, C. R. 1987. Distinctive competence and competitive advantage. *Journal of Small Business Management* (April): 33-39

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