

COMPETITIVE STRATEGY, PRODUCT LIFE-CYCLE AND THE USE OF MAS INFORMATION: EVIDENCE FROM THAILAND

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ABSTRACT

In the increasingly competitive global market, organisations apply various strategies and manage product life cycle (PLC) to create and sustain competitive advantage. Although the relevant literature suggests that use of MAS information (information generated by management accounting system) becomes more important for business decision-making in competitive environment, there is a dearth of empirical evidence on use of broad scope MAS information in organisations that pursue a specific or a combination of strategies and manage PLC to create and sustain competitive advantage. This study provides evidence of the impact of competitive strategy and product Life-cycle on the use of MAS information. This is done by investigating the associations between managerial use of broad scope MAS information and (a) competitive strategy, and (b) PLC. Data collected from 108 general managers in large companies in Thailand reveal that both competitive strategy and PLC are positively related to the use of broad scope MAS information. Implications of the results are discussed later in the paper.

Keywords: *Competitive strategy; product life cycle; broad scope MAS information*

1. INTRODUCTION

Today's business environment is more uncertain than ever before, due to rapid change in product and process technologies, customer needs and preferences, and increased global competition (Banker et al., 2004; Bhimani and Langfield-Smith, 2007; Lipe and Salterio, 2000). Traditional MAS information (that is internal, financial and historical) that worked well for the previously stable business environment may not be adequate for managers to make successful decisions in response to today's uncertain environment (Kaplan and Norton, 1992). Researchers have suggested that to cope with the uncertain environment, managers may require broad scope MAS information (Chenhall and Morris, 1986). Broad scope MAS information that includes external, non-financial and future-oriented information as well as internal, financial and historical information, can help managers to control uncertain situations, as it focuses on information relating to the sources of the uncertainty (Chenhall and Morris, 1986). By using more of the MAS information, managers are able to gain better understanding of the uncertain situations and make more appropriate decisions in response to the uncertainty. However, research on the impact of strategy and stages of PLC on managerial use of the broad scope MAS information in Thailand has been lacking.

Researchers have pointed out the importance of understanding the relationship between strategy and MAS information (Banker et al., 2004; Bhimani and Langfield-Smith, 2007; Lipe and Salterio, 2000). Appropriate MAS information can support strategic actions; companies are thus able to achieve competitive advantage and superior performance. Many studies focused on the extent to which MAS information is strategically linked and how it affects organizational performance (e.g. Banker et al., 2004). However, research on the relationship between the competitive strategy and the use of broad scope MAS information has been limited in general and lacking in Thailand. Thus, the first objective of this study is to investigate the association between competitive strategy and the use of broad scope MAS information. This may help organisations to appropriately design MAS to provide broad scope MAS information to support their strategy and attain competitive advantage. Competitive strategy for this study is a mixture of Porter's (1980) differentiation and cost leadership strategies.

The importance of product life cycle (PLC) has been widely accepted for successful management of marketing and other functions in organisations (Rink and Fox, 1999). The concept of PLC explains that during the life, a product normally passes through four stages: introduction, growth, maturity and decline (Birou et al., 1998). At the different stages of PLC of a product, companies face different market characteristics (Kotler, 2003). These PLC stages potentially affect managerial use of the broad scope MAS information: managers may be required to use a differential extent of the information to respond to different market characteristics prevailing in different stages of PLC. Thus, the second

objective of this study is to investigate the association between PLC and the use of the MAS information. The results will improve managers' understanding of the benefits of using broad scope MAS information to successfully cope with the market characteristics in each stage of PLC. The stages of PLC in this study is defined in terms of percentage of an organization's total number of products in each of the four stages - introduction, growth, maturity and decline

2. LITERATURE REVIEW AND RESEARCH HYPOTHESIS

2.1 Competitive strategy and managerial use of broad scope MAS information

Two main sources for an organisation's competitive advantage within industries are: a differentiation strategy and a cost leadership strategy (Porter, 1980). Companies with a differentiation strategy (differentiators) attempt to compete by offering products with unique attributes that customers perceive superior, and differ from competitors' products. In contrast, companies with a cost leadership strategy (cost leaders) focus on being low cost producer (Porter, 1980). Researchers argue that companies require a combination of both strategies to be able to achieve higher performance (Sands, 2006). Therefore, instead of categorising strategy into cost leadership or differentiation, the present study views it as competitive strategy and defines it in terms of a mix of both differentiation as well as cost leadership strategy. Companies employing more of a differentiation (i.e., less of a cost leadership) strategy focus on offering superior (higher quality) products, innovative products, and superior after-sales services to customers. Companies employing less of a differentiation (i.e., more of a cost leadership) strategy tend to provide more standardised products and services to customers and to focus mainly on cost control.

According to Pelham and Wilson (1996), to sustain competitive advantage, differentiators focus on continuously improving their products (i.e. improving product quality and product features) and or come up with new products to meet customer needs and expectations, as well as offering products that are superior to or differentiated from competitors' products. They therefore require a good understanding of the customer needs/expectations and competitors' actions (Slater and Narver, 1996). Broad scope MAS information, including external information (such as customer preferences, customer expectations and customer satisfaction) becomes critical for differentiators as this information can be used to identify/understand customer needs and expectations (Sands, 2006; Mia and Clarke, 1999). The companies are able to offer products with greater value that can fulfil such needs and expectations (Narver and Slater, 1990; Pelham and Wilson, 1996). They are thus likely to create and sustain their competitive advantage.

Broad scope MAS information including competitors' product features, quality, technology, marketing strategies and promotion packages is also useful for differentiators. They have to compare themselves (benchmark) against the leading competitors to identify their strengths and weaknesses against the competitors (Chenhall and Langfield-Smith, 1998; Narver and Slater, 1990) and attempt to eliminate the weaknesses and enhance strengths to sustain superiority of their products over the competitors (Narver and Slater, 1990; Slater and Narver, 1996). Today's business environment is highly competitive, and customer needs and expectations change rapidly (Sands, 2006; Mia and Clarke, 1999). Broad scope MAS information relating to competitors and customers becomes more useful than ever before for managers in companies with the competitive strategy.

In summary, we argued that the use of broad scope MAS information can assist companies with a greater focus on differentiation aspects of the strategy to provide high-value products that meet customer needs and expectations and are better than competitors' products; this in turn assists them to enhance their competitive advantage. Therefore, those companies focusing more on differentiation aspects of their competitive strategy are likely to use more broad scope MAS information. Following the discussion, hypothesis one is proposed.

Hypothesis 1: The more a company focuses on differentiation aspects of its competitive strategy, the greater is its use of broad scope MAS information.

2.2 Product life cycle and the use of broad scope MAS information

Product life cycle (PLC) refers to the life of a product from its introduction into the market, until its removal (Birou et al., 1998). Normally, a product passes through four stages: introduction, growth, maturity and decline. Consistent with previous studies (Hoque and James, 2000), this study

categorises stages of PLC into two groups: (a) the early stages of introduction and growth and (b) the later stages of maturity and decline.

For products in the early stages of PLC, market reactions towards new products are unpredictable (Eng and Wong, 2006; Kohli, 2001). A product is new to customers; whether they accept it or not is uncertain, resulting in unpredictable product demand. To cope with such unpredictable market reactions in the early stages of a product, managers' use of only traditional MAS information may not be adequate (Gul and Chia, 1994; Mia, 1993). Hoque and James (2000) argue that financial information in the early stages of a product is not reliable for examining whether appropriate decisions have been made. Sales and profit figures of new products cannot accurately indicate whether customers accept the new products. These figures may be low (small) as the market size is small and customers have not become aware of the new products, not because they dislike the new products (Kotler, 2003).

To deal with unpredictable market reactions in the early stages of PLC, managers may require more broad scope MAS information as in an unpredictable market environment, this information can provide better understanding of competitors, customers and markets, which in turn can help managers to make an appropriate decision to respond (Gul and Chia, 1994; Mia, 1993; Chenhall and Morris, 1986). By using the information such as details of competitors' product attributes and competitors' services, for example, managers can identify their new product's strength and weakness against competitors' products, and then use the strength in marketing promotions which in turn may increase market share (Perrott and Gudergan, 2004). Managers can also take necessary steps to eliminate their product weakness through adjusting the product and or improving production process, thereby making the product more competitive. For products in the later stages of PLC, managers have more experience in offering the same products for a longer time. The market in these stages also becomes more stable as customer preferences and needs are relatively more stabilised (Wong and Ellis, 2007). Thus, managers may not need to change their mature products. By using only traditional accounting information, managers can make appropriate decisions to respond to the relatively predictable market. Therefore, for products in the later stages of PLC, managers may use less broad scope accounting information. Hypothesis two summarises the discussion.

Hypothesis 2: The more products an organisation has in the early stages of its PLC, the greater is managerial use of broad scope MAS information.

3. METHOD

Data were collected using a survey questionnaire administered to general managers in medium to large manufacturing companies in Thailand. A list of the companies was obtained from the database of Ministry of Commerce. Companies with assets of 20 million Baht or more were considered large in Thailand context. From a total of 920 large companies, 464 companies were selected at random for the study. The general manager of each of the companies in the sample was contacted with an individually addressed letter to participate in the study by completing the questionnaire sent to them. Out of 115 questionnaires received (a 24.78% response rate), 108 were usable.

Measurement of Variables: Pre-established instruments were adapted from previous studies to measure the variables.

The six-item instrument for assessing competitive strategy was adapted from Govindarajan (1988). Respondents were asked to identify (on a five-point Likert scale, ranging from 1 "significantly lower" to 5 "significantly higher") the perceived position of their organisation's products relative to those of leading competitors under each of the six items. A high score indicates a more application of the differentiation facet or less of the cost leadership facet of the competitive strategy. On the other hand, a low score indicates more application of the cost leadership facet or less of the differentiation facet of the strategy. The results of an analysis using the data for the study revealed a Cronbach alpha of 0.779, indicating a satisfactory reliability level for the competitive strategy measures (Nunnally and Bernstein, 1994). The factor analysis extracted a single factor with an eigenvalue greater than one and it explained 48.08% of the variance in competitive strategy.

PLC is viewed in terms of early stages (introduction and growth) and later stages (maturity and decline) of product life. The instrument for assessing PLC of a product was adapted from Hoque and

James (2000). The respondents were asked to indicate the percentage of their company's all products for each of the four stages of PLC. The total score of all four stages of PLC for a particular company is 100 per cent (Hoque and James, 2000). The percentages of all products in each stage of PLC of a company were converted into one score for the variable using the equation: Stages of PLC = [(% of products in the introduction stage + % of products in the growth stage) - (% of products in the maturity stage + % of products in the decline stage)] / 40. Scores for the stages of PLC ranged from minus (-) 2.5 to plus (+) 2.5.

The instrument measuring the use of broad scope MAS information was adapted from Chenhall and Morris (1986). Using a 5-point Likert-type scale ranging from 1 "not use at all" to 5 "use to a great extent", the respondents were asked to indicate (under each of the six items in the instrument) the extent to which they use the information for their decision-making. The results of an analysis using the data for the study revealed Cronbach alpha of 0.669, indicating a satisfactory (although relatively low), reliability level for the instrument, (Nunnally and Bernstein, 1994). The factor analysis extracted a single factor with an eigenvalue greater than one and explained 38.17% of the variance.

4. RESULTS

Hypotheses 1 and 2 were tested using the equation: $X_3 = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + e$, where X_1 = The competitive strategy, X_2 = Stages of product life cycle (PLC), X_3 = The use of broad scope MAS information, and e = Residual error.

The results presented in Table below reveal that the relationship between competitive strategy and use of broad scope MAS information was positive and significant ($\beta_1 = 0.238$, $p < 0.011$), providing support for the first hypothesis (H_1). The results reveal that competitive strategy positively impacts managerial use of the broad scope MAS information in medium to large companies in Thailand. Specifically, managerial use of the broad scope MAS information in medium to large Thai manufacturing companies increases with increasing application of the differentiation facet of competitive strategy. The results also reveal that the relationship between stages of PLC and the use of the information was positive and significant ($\beta_2 = 0.230$, $p < 0.014$), therefore, providing support for the second hypothesis (H_2). That is, stages of product life cycle are an important factor influencing managerial use of the broad scope MAS information in organisations. An interpretation of the results is that increases in a company's proportion (percentage) of its products in early stages of PLC create need for greater managerial use of the broad scope MAS information. The model explained 10.2% of variation in the use of broad scope MAS information (X_3) (adjusted $R^2 = 0.102$, $F = 7.071$, $p < 0.001$).

Table 3: Results of regressing the use of broad scope MAS Information against competitive strategy and stages of PLC

| Variables | Hypothesis | β (Beta) | t | Sig. |
|--|------------|----------------|-------|------|
| The competitive strategy (β_1) | H1 | .238 | 2.585 | .011 |
| Stages of PLC (β_2) | H2 | .230 | 2.506 | .014 |
| R square = .119; Adjusted R square = .102; F (2,105) = 7.071; Sig. < .001; N = 108 Dependent variable: The use of broad scope MAS information | | | | |

5. DISCUSSION, CONCLUSIONS AND LIMITATIONS

The objectives of this study were to examine the association between (a) competitive strategy and the use of broad scope MAS information; and (b) stages of PLC and the use of the information. As both hypotheses one and two testing the above associations respectively were supported, the objectives of the study were fulfilled. The results reveal that increasing focus on the differentiation aspect of the competitive strategy positively influences managers' use of the broad scope MAS information. Managers in companies focusing more on the differentiation aspect of the strategy find the information more useful therefore they use. Managers in the companies require external information relating to customers and competitors to gain a better understanding of the customers' needs and expectations as well as of competitors' product features (Narver and Slater, 1990; Pelham and Wilson, 1996). Use of the information therefore helps the managers identify the right product characteristics that meet customer needs and expectations and that are superior to those of competitors to sustain their (companies') competitive advantage (Mia and Clarke, 1999).

The results revealed that stages of PLC were positively associated with the extent of use of broad scope MAS information. Broad scope MAS information is more useful for a product in the early stages of PLC (new product) than in the later stages. The reactions of customers and competitors towards new products are more unpredictable (Eng and Wong, 2006; Kohli, 2001). Whether customers are satisfied with new products or how competitors respond to companies' new product launches is unlikely to be certain. Therefore, the use of broad scope MAS information is important for companies to gain more understanding of the market, customers and competitors in order to deal with such reactions more appropriately (Chenhall and Morris, 1986; Mia, 1993). The results are consistent with Wong and Ellis's (2007) arguments that the understanding of competitors' and customers' behaviour is more important during the early stages of PLC, when the market is more turbulent.

Following the above discussion of the results, it can be argued that a company's competitive strategy and product life-cycle act as antecedents of the managers' use of the broad scope MAS information. We consider that the results of the current study contribute towards managers' understanding of how broad scope MAS information could assist them making suitable product/service related decisions consistent with their companies' strategy and PLC.

The results of this study however should be viewed with caution due to the limitation that the present study has not considered the various dimensions of the differentiation strategy. The extant literature suggests that the differentiation strategy consists of many dimensions including innovation, quality, support services and image. Future studies should examine the effect of various dimensions of the differentiation strategy on the use of broad scope MAS information.

REFERENCES:

- Banker, R.D., Chang, H. and Pizzini, M. J. (2004), "The balanced scorecard: judgemental effects of performance measures linked to strategy", *The Accounting Review*, Vol. 71, No. 1, pp. 1-24.
- Bhimani, A. and Langfield-Smith, K. (2007), "Structure, formality and the importance of financial and nonfinancial information in strategy development and implementation", *Management Accounting Research*, Vol. 18, pp. 3-31.
- Birou, L.M., Fawcett, S.E. and Magnan, G.M. (1998), "The product life cycle: A tool for functional strategic alignment", *International Journal of Purchasing and Materials Management*, Vol. 34, No. 2, pp. 37.
- Chenhall, R.H. and Morris, D. (1986), "The impact of structure, environment, and interdependence on the perceived usefulness of management accounting systems", *The Accounting Review*, Vol. LXI, No. 1, pp. 16-35.
- Eng, T.-Y. and Wong, V. (2006), "Governance mechanisms and relationship productivity in vertical coordination for new product development", *Technovation*, Vol. 26, No. 7, pp. 761.
- Govindarajan, V. (1988), "A contingency approach to strategy implementation at the business-unit level: integrating administrative mechanisms with strategy", *Academy of Management Journal*, Vol. 31, No. 4, pp. 828-853.
- Gul, F.A. and Chia, Y.M. (1994), "The effects of management accounting systems, perceived environmental uncertainty and decentralization on managerial performance: A test of three-way interaction", *Accounting Organizations and Society*, Vol. 19, pp. 413-426.
- Hoque, Z. and James, W. (2000), "Linking balanced scorecard measures to size and market factors: impact on organizational performance", *Journal of Management Accounting Research*, Vol. 12, pp. 1-17.
- Kaplan, R.S. and Norton, D.P. (1992), "The balanced scorecard-measures that drive performance", *Harvard Business Review*, Vol. 70, No. 1, pp. 71-79.
- Kohli, P. (2001), "Channel structure and firm performance: Theory and empirical evidence", Thesis, The State University of New Jersey, New Jersey, United States.
- Kotler, P. (2003), *Marketing management*, (11th edn), Prentice Hall, Upper Saddle River, N.J.
- Lipe, M.G. and Salterio, S. (2000), "The balanced scorecard: judgemental effects of common and unique performance measures", *The Accounting Review*, Vol. 75, No. 3, pp. 283-298.
- Mia, L. and Clarke, B. (1999), "Market competition, management accounting systems and business unit performance", *Management Accounting Research*, Vol. 10, pp. 137-158.
- Mia, L. (1993), "The role of MAS information in organisations: an empirical study", *British Accounting Review*, Vol. 25, pp. 269-285.
- Narver, J.C. and Slater, S.F. (1990), "The effect of a market orientation on business profitability", *Journal of Marketing*, Vol. 54, No. 4, pp. 20-35.

- Nunnally, J.C. and Bernstein, I.H. (1994), *Psychometric Theory*, (3 edn), McGraw-Hill, New York.
- Pelham, A.M. and Wilson, D.T. (1996), "A longitudinal study of the impact of market structure, firm structure, strategy, and market orientation culture on dimensions of small-firm performance", *Academy of Marketing Science. Journal*, Vol. 24, No. 1, pp. 27.
- Perrott, B.E. and Gudergan, S.P. (2004), *Contemporary marketing management*, (2nd edn), Pearson Education Australia, French Forest, N.S.W.
- Porter, M.E. (1980), *Competitive strategy*, The Free Press, New York.
- Rink, D.R. and Fox, H.W. (1999), "Strategic procurement planning across the product's sales cycle: A conceptualization", *Journal of Marketing Theory and Practice*, Vol. 7, No. 2, pp. 28.
- Sands, J. (2006). Strategic priorities, management control systems, and managerial performance: an empirical study. Unpublished PhD thesis, Griffith University.
- Slater, S.F. and Narver, J.C. (1996), "Competitive strategy in the market-focused business", *Journal of market focused management*, Vol. 1, No. 1, pp. 159-74.
- Wong, H. and Ellis, P. (2007), "Is market orientation affected by the product life cycle?", *Journal of World Business*, Vol. 42, pp. 145-156.

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