

PERCEIVED COMPETITION AND MANAGEMENT CONTROL SYSTEMS ATTRIBUTES OF COMPANIES IN MALAYSIA

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ABSTRACT

Competition in the market place is increasingly becoming more intense with globalisation. The role of management control system to monitor the effectiveness of competitive strategy and to provide feedback for adjustment to strategy has become more important. This study examines the perceived intensity of five bases of competition and the competitive priorities or orientations of 93 firms located in the Klang Valley. The attributes of management control systems of these organizations in relation to their competitive priorities and perceived competition were also examined. A structured questionnaire was used. The results show that the participating organizations were still stressing on competition based on price, quality and service, with lower emphasis on competition based on product innovation and variety. Organizations with high-index of perceived competition had significantly more extensive and frequent use of accounting-based controls and top-down form of communication than those organizations with low-index of perceived competition. The limitations of the study and implications of the findings are discussed.

INTRODUCTION

The advancements in technology and the imminent trend towards globalization have significantly changed the environment in which businesses operate. Competition has become more severe and business enterprises must find ways to transform themselves to adapt to the rapid changing demands and situations. New forms of strategies for competition are required and organizational structures may have to be changed. Management control system (MCS) is aimed at monitoring strategic progress and ensuring effectiveness of strategy implementation to achieve an organization's goal(s). Successful business enterprises are most likely to have designed and implemented management control systems that are in alignment to their corporate strategies and goals (Govindarajan and Gupta, 1985; Chenhall, 1997). As changes in the business environment become more rapid, as have been experienced in the 1990s, the role of MCS in shaping and implementing strategy has become more important. It is an area of increasing interest to professional managers and academia, especially when there is a current awareness of the importance of integrating the strategic dimension into the research on management accounting systems.

Management control should be viewed from a holistic and organizational perspective, and it is a broad concept encompasses far more than accounting and budgeting systems. The definition of management controls has been broadened to encompass both accounting-based, as well as non-accounting-based, controls that are instituted for the attainment of long-term strategic goals of organizations. For example, Birnberg and Snodgrass (1988) define a management control system as:

“A mechanism designed to limit the decision space of individuals within an organization so as to affect their behavior. Its purpose is to coordinate the decisions that they make so as to increase the probability of achieving the organization’s goals. A control system performs its function by controlling the flow of information, establishing criteria of evaluation and designing appropriate rewards and punishments.”

Most literature on the effects of strategy on management control systems or vice versa has been normative in nature (Miles and Snow, 1978; Porter, 1980; Miller and Friesen, 1982). Relatively few studies examined the empirical relationships between corporate strategies and management control systems, particularly in the lesser-developed economies. Besides, the existing empirical evidence on the relationship between strategy types and control system attributes and environmental characteristics is limited, mixed and inconclusive (Sim and Teoh, 1997; Langfield-Smith, 1997). With the serious threats arising from globalization of the market place, management of business enterprises, especially those in the lesser-developed countries, must appreciate the need for implementing the relevant management control systems to gauge the appropriateness of their corporate strategies, as well as to use the formal control processes to modify and manage emerging strategy to gain competitive advantage in the new environment (Simons, 1990). This study aims to provide some empirical evidence on the compatible or incompatible use of management control measures in relation to the strategic focuses of companies, as well as the relationship between their management control systems attributes and intensity of the perceived competition.

LITERATURE REVIEW

Contingency theory (Otley, 1980) suggests that environment is one of the factors that determine the management control system used by an organization. Traditional management accounting control systems lose their robustness under environment uncertainty. Hoque and Hopper (1994) perceive standard costing systems and variance analysis as ineffective and irrelevant in times of environmental uncertainty. This traditional type of MCS design is used as organizational defensive routines to protect existing practices without considering the need for organizational change as a result of environmental pressures. Accounting control

systems, in these instances, can be “anti-learning”(Argyris, 1990), especially when budgets are made easily achievable to cover up fundamental problems. Accounting systems, alternatively, can be designed to facilitate flow of information needed for organizational change, such as by providing relevant product costing and benchmarking information that can lead to awareness of competitors’ performance and drive the need for change.

With accelerating technological change, new organizational models have been developed to focus on roles and relationships within the organization, rather than on bureaucratic structures in which hierarchical and staff-led processes tend to dampen initiatives and innovation (Bartlett and Ghoshal, 1993). Down-sizing, flatter organizational structures, business processes re-engineering and value chain analysis (based on horizontal analysis) are all responses to cope with environmental turbulence. These different structures have implications for control systems. Flatter organizational structures no longer require traditional hierarchical control systems, instead employee empowerment, which requires employees to take more responsibility for decision making and outcomes, is suggested as a replacement for traditional control systems. New management control systems need to focus on horizontal relationships, rather than the vertical relationships of the traditional systems (Otley, 1994). Self-monitoring and self regulating mechanisms, with discipline, guidance and support provided by senior management support groups in the form of coordinating committees may become the focus of control in modern organization. In modern organizations, MCS should not rely solely on traditional vertical-based budgeting systems but should also include non-financial measures such as those suggested in the balanced scorecard concept (Kaplan and Norton, 1992) to improve horizontal control. Traditional management accounting practices are unlikely to provide sufficient base for organizational learning, although budgeting and accounting systems may provide a starting point (Jacobs, 1995).

Much of the empirical research involves a search for systematic relationships between specific attributes of the management control system and a particular corporate strategy. Daniel and Reitsperger (1991) provide empirical evidence of how management control systems of Japanese automotive manufacturers and consumer electronics companies were modified to complement and support their total quality or zero-defect strategy. The most significant finding of their study was that quality goals and feedback about rejects and downtime were more frequently provided to managers adhering to zero defect strategy than to managers adhering to economic conformance level. The finding supports their proposition that the strategy that focuses on continuous improvement and reduction of defective units is complemented by the provision of combined goals and frequent feedback to foster quality improvements. The competitive inroads experienced by Japanese automotive and consumer electronics firms may be a consequence of consistency between the quality strategy and management control systems. This is in accord with claims by Hiromoto (1988) that Japanese management accounting systems are designed to influence employees to behave in accordance with the corporate long-

term strategic goals rather than to keep accurate scores of product cost information. In another study by Ittner and Larcker (1997), it was found that quality-related strategic control practices tended to be used more extensively by the organizations that followed quality-oriented strategy in the automotive and computer industries in Canada, Germany, Japan and the United States. However, only mixed support was obtained for the hypothesis that organizations that have more closely aligned strategic control practices to their competitive strategies achieve higher performance. The performance effects of some strategic control practices varied with industry and several strategic control practices exhibited negative relations with performance. Perera, Harrison and Poole (1997) also found support for a significant association between customer-focus strategy and the use of non-financial performance measures, an attribute of management control system. However, the increasing use of non-financial performance measures was not significantly linked to performance of organizations pursuing customer-focus strategy. The lack of significant relationship between performance and management control attribute might be due to limitation of the organizational performance measure (a point-in-time measure).

Khandwalla (1972) provided the first empirical evidence of the relationship between management control systems and level of competition, a critical determinant of the nature of strategy adopted by an organization. He found a strong positive relationship between intensity of competition and reliance on the formal accounting control systems. Although his study did not explicitly consider the nature of strategy adopted by organizations, it is implicit that organizations facing intense competition are likely to adopt strategies of a prospector (Miles & Snow, 1978) or a differentiator (Porter, 1980). In view of that, Langfield-Smith (1997) considered that the formal accounting controls examined in Khandwalla's study were not those consistent with the prospector type of organizations that emphasize on flexibility and innovation, implying that the study did not consider the compatibility of those controls in supporting a particular strategy or level of competition. The current study is an extension to earlier studies by further examining the nature of relationships between management control system attributes and the competitive orientations that were derived from perceived intensity and importance of different bases of competition considered. The management control measures examined included both accounting-based controls and modern management control practices.

RESEARCH METHODOLOGY

Data Collection

A structured questionnaire was prepared and 250 copies were sent to managers and executives of a sample of randomly selected organizations in the Klang Valley. A total of 93 (37.5%) completed and useable questionnaires were returned and

analyzed. The questionnaire had three sections: Section A gathered background information on the organization and respondent, Section B focused on attributes of the organization's management control system and section C requested ratings on perceived intensity and importance of different bases of competition.

Hypotheses

Based on the literature review, two hypotheses were formulated and empirically tested. The hypotheses are:

H1: The higher the perceived competition, the greater is the extent of usage of management controls.

The implementation of control measures involves costs and these costs have to be justified by the expected benefits derivable from the use of the control measures. As competition intensifies, the costs arising from more intensive use of management controls would be outweighed by the expected benefits from the implementation of these controls. Khandwalla (1972) found a significant positive relationship between perceived competition and extent of usage of controls.

H2: The management control system attributes vary with the level of perceived competition.

Earlier literature (Miles and Snow, 1978; Porter, 1980; Miller and Friesen, 1982) suggests that management control attributes vary with the nature of competitive strategy pursued by business enterprises. For example, a defender operates in a product-market domain and typically focuses on cost efficiency requires a sophisticated control system that relies heavily on formal accounting procedures, cost control and trend monitoring. Enterprises pursuing the prospector-like strategy are likely to rely on control through empowerment and coordination rather than on formal traditional accounting-based controls.

Operationalisation of Variables

Based on the concept of a competitive pressure scale as discussed in Khandwalla (1972), a weighted measure of the magnitude of each of the five bases of competition was computed for each organization, by multiplying the rating score for perceived intensity of each of the five bases of competition with the rating score for perceived importance of the corresponding competitive orientation or priority of that organization. Then, all the five weighted measures were added and averaged to obtain an index of the overall perceived competition for each organization. The five bases of competition were price, quality, variety, innovation and service. Similarly, an average score for the extent of usage of management controls was also computed, by adding up and averaging the usage rating scores of ten management control measures or practices of each organization. Five of the management

controls were accounting-related controls, such as use of budgets, standard cost variances and discounted cash flow techniques (see items 1 to 5 in Table V); while the other five were modern management control practices, such as total quality management, business process re-engineering and inter-department work-team (see items 6 to 10 in Table V).

Attributes of the management control system included: (i) direction of flow of communication, (ii) extent of autonomy or empowerment to employee, (iii) frequency of reporting to top management, (iv) extent of usage of accounting-based controls and (v) extent of usage of modern management control practices.

RESULTS AND DISCUSSION

The respondents' and the organizations' profiles are summarized in Table 1. About 88.6% of the participating organizations were incorporated business enterprises or limited companies, which are legally required to comply with stringent record-keeping and corporate disclosure or governance regulations.

Table 1: Profiles of respondents and organizations

<u>Position held:</u>	<u>%</u>
Senior management level	18.2
Middle management level	44.3
Junior management level	37.5
<u>Age:</u>	
< 30 years	37.2
30 – 45 years	56.4
> 45 years	6.4
<u>Qualifications:</u>	
Tertiary	52.7
Professional	37.4
Others	9.9
<u>Industrial Sector:</u>	
Manufacturing	46.2
Services	34.4
Others	19.4
<u>Number of Employees:</u>	
< 100	30.9
100 – 500	45.7
> 500	23.4
<u>Ownership:</u>	
Local	69.8
Foreign	30.2

The mean rating score (and standard deviation) for the perceived intensity of each basis of competition and that for the perceived importance of each competitive orientation or priority, as well as that for the weighted measure or index of each basis of competition, are presented in Table 2. The respondents perceived competition in product quality to be the most intense and had accordingly rated *producing high quality product* to be their most important competitive priority. The correlation between perceived intensity of each basis of competition and perceived importance of the corresponding competitive priority was highly significant.

Table 2: Mean rating scores (and standard deviations) of perceived intensity, importance and weighted measure of each basis of competition or competitive orientation

Bases of Competition/ Competitive Orientations	Intensity of Competition	Importance of Competitive Orientation	Weighted Measure of Competition
Product Quality/ High Product Quality	4.47 (0.68)	4.61 (0.73)	20.89 (5.40)
Product Price/ Low Product Price	4.05 (0.94)	3.87 (1.02)	16.31 (6.67)
Product Promotion & Service/ Fast Delivery & After Sales Service	3.90 (1.10)	4.17 (0.90)	15.94 (6.26)
Product Uniqueness/ High Product Uniqueness	3.83 (1.07)	3.74 (1.17)	14.85 (6.92)
Product Variety/ Wide Product Range	3.70 (1.07)	3.85 (1.17)	14.90 (7.33)
Overall Index of Competition	-	-	16.58 (4.75)

Scale: 1=low; 5=high (applicable to rating scores for perceived intensity and importance of competition or competitive orientation). For weighted measures of perceived competition, minimum = 1, maximum = 25.

The ten control items were categorized as either accounting-based controls or modern management control practices. The mean of the averaged usage rating scores for the accounting-based control category was 3.26 (S.D. 0.80; min=1, max=5), while that for the modern management control practices category was 2.94 (S.D. 0.82; min=1, max=5). The mean overall usage of management controls was 3.11 (S.D.=0.739; min=1; max=5). The correlation coefficient between the index of overall perceived competition and the overall usage of management controls was positive but not significant ($r=0.142$); but that between perceived competition and

the use of accounting-based controls was significant ($r=0.177$; $p=0.045$ (1-tailed)). The correlation coefficient between the overall perceived competition and the usage of modern management control practices was also positive but not significant. Table 3 summarizes the correlation coefficients between the indexes of over all perceived competition and the usage of management control measures. Hypothesis 1 is, therefore, supported only with respect to the use of accounting-based controls but not so with respect to the overall usage of management control measures. The lack of significant relationship might be due to the absence of a significant relationship between perceived competition and usage of modern management practices.

Table 3: Correlations Between Index of Perceived Competition and Type of Management Control

Type of Control	Index of Overall Perceived Competition
Accounting-based Controls	0.177*
Management Control Practices	0.083
Index of Overall Usage of Controls	0.142

* Significant at 0.05 level (1-tailed)

The correlations between each of the management control variable and each weighted measure of magnitude of perceived competition, as well as that for the overall index of competition suggests some instances of misalignment. The results of the correlations are summarized in Table 4. Items 1 to 5 are accounting-based controls, while items 6 to 10 relate to modern management control practices. Product price competition was negatively related to nine of the ten control measures and three of these, namely *business process re-engineering (BPR)*, *use of non-financial measures* and *use of inter-departmental work-teams*, were significant. *Use of budget vs. actual* was positively associated to price competition, but the correlation was not statistically significant. As expected, product quality competition had a significant positive association with *TQM* practice and also positively associated with *use of internal audit*. Product variety competition had significant positive associations with three of the five accounting-based controls, namely *DCF techniques*, *internal audit* and *budget vs. actual*, and with only one of the five modern management control practices, namely *BPR*. Product innovation competition also had more significant positive associations with accounting-based controls (*DCF techniques* and *internal audit*) than with modern management control practices (*BPR*). Product promotion/service competition also showed significant positive associations with *DCF techniques*, *BPR* and *Economic Order Quantity*, but negatively related with *responsibility reporting*. The correlations of the overall index of perceived competition also show consistently more positive relationships with accounting-based controls (three items: *budget vs. actual*, *DCF*

techniques and internal audit) than with modern management control practices (one item: *BPR*). In spite of the need for use of more non-financial performance measures, especially for enterprises competing on non-financial dimensions (see Kaplan and Norton, 1992), the use of non-financial performance measures was not significantly related to any of the four types of non-price competition. In fact the *use of non-financial measures* was negatively related to product variety competition, product innovation competition and product promotion/service competition. The results suggest that the organizations were still emphasizing on the same traditional financial controls, such as *budget vs. actual, discounted cash flow (DCF) techniques and internal (financial) audit*, despite of having their strategic priority or orientation for competing on the non-financial dimensions.

Table 4: Correlations between the weighted measure or index of each basis of perceived competition and management control measures

Management Controls/Practices	Bases of Competition					
	Product Price Measure	Product Quality Measure	Product Variety Measure	Product Innovation Measure	Product Promotion/Service Measure	Overall Index of competition
1. Budget vs. Actual	0.097	0.141	0.233*	0.14	0.135	0.208*
2. Discounted Cash Flow Techniques	-0.144	0.02	0.25**	0.231*	0.267**	0.179*
3. Internal Audit	-0.011	0.201*	0.243**	0.192*	0.122	0.206*
4. Standard Cost Variances	-0.156	0.139	0.138	0.128	0.074	0.087
5. Responsibility Reporting	-0.063	-0.084	0.081	-0.085	-0.173*	-0.082
6. Total Quality Management (TQM)	-0.152	0.197*	0.12	0.085	0.168	0.109
7. Business Process Re-engineering (BPR)	-0.268**	0.099	0.277**	0.297**	0.206*	0.174*
8. Economic Order Quantity (EOQ)	-0.086	0.144	0.161	0.127	0.194*	0.146
9. Non-Financial Measures	-0.192*	0.03	0.00	-0.071	-0.109	-0.096
10 Inter-departmental Work Team	-0.176*	0.152	-0.024	0.009	-0.073	-0.039

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

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

In order to analyze the factors that distinctly differentiate organizations with high index of perceived competition from those with low index of perceived competition, the organizations were categorized into three groups according to their indices of perceived competition in their product markets¹. Data of organizations belong to the lowest and highest index groups (binary variable) were analyzed

using logistic regression. The binary logistic regression model had the index of competition as the criterion variable and the MCS attributes as the predictive variables. The results of the logistic regression are presented in Table 5.

Table 5: Results of logistic regression on index of competition (Binary variable)

Variable	Coefficient	Wald Statistics	p- value (sig.)
Top down communication	0.526	2.844	0.092*
Freq. of reporting to top mgt	0.046	0.029	0.864
Employee empowerment	0.316	1.023	0.312
Accounting-based controls	1.048	4.377	0.036**
Management control/practices	-0.506	1.101	0.281
Constant	-5.507	5.624	0.018
Omnibus Tests of Model Coefficients			
	Chi-Square	df	Sig.
1 Step	10.149	5	0.071
Block	10.149	5	0.071
Model	10.149	5	0.071
Model Summary			
Step	-2 log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	75.801	0.151	0.201
Classification Table			
	Predicted		
	Low	High	Percentage Correct
Low-Index	18	13	58.1***
High Index	9	22	71.0
Overall percentage			64.5

* Significant at the 0.10 level

** Significant at the 0.05 level

***The relative low prediction accuracy might be due to the absence of a distinctive shift in emphasis of management control practices from low index group to high index group.

Results of the logistic regression on the categorical (binary) index of competition variable indicate that organizations with high index of perceived competition tended to be significantly associated with frequent and extensive use of accounting-based controls and top-down form of communication flow. Contrary to expectation, the use of modern management control practices was negatively associated with perceived competition. Hypothesis 2 is supported only to certain extent, but the relationships are contrary to those anticipated based on earlier literature (for example, Miles and Snow, 1978; Porter, 1980; Otley, 1990). The results of the logistic regression are, therefore, rather disturbing.

The results seem to suggest that as perceived competition increases, these organizations merely increase or intensify their emphasis on the use of traditional accounting-based controls and have more frequent top-down communications, without realizing that changes in competitive environment demand changes in strategy and changes in competitive strategy require corresponding modifications to their control systems to allow empowerment, enhanced flexibility and flow of relevant information to monitoring and gauge performance of their critical success factors. These findings are consistent with the earlier suggestions of misalignments between usage of management control measures and extent of perceived competition.

CONCLUSIONS

With the impending threats from globalization of the market place, business enterprises have to become more agile and responsive to the rapid changes in customers' needs. Competition on non-price dimension is increasing and product life cycle is becoming much shorter. Hence, increasing emphasis has to be placed on flexibility of organization to satisfy the changing needs of the market place and on innovations to replace the rapid demise of their existing products and services. This study examines the perceptions of organizations of the intensity of five bases of competition and their competitive orientations or priorities in response to their perceived intensity of the different bases of competition. The results of this study suggest that the organizations are still competing on the traditional product attributes, such as price, quality and service, as reflected in their relative higher weighted measure of magnitude of product quality, price and service competition. Product uniqueness or innovation competition was rated the lowest in their competitive priorities with product variety competition as the second lowest.

The correlations between the management control measures and weighted measure of each competitive orientation show a relatively higher incidence of significant positive relationships between accounting-based controls and non-price dimension competition, as compared to those positive relationships between modern management practices and non-price dimension competition. Organizations with high index of perceived competition, contrary to expectation, were associated with more frequent and extensive use of accounting-based controls and top-down communications than those organizations with low index of perceived competition. Use of non-financial measures to monitor performance of critical success factors, existence of inter-departmental work teams and incidence of horizontal communication flow were low, even though these management practices are becoming the essential characteristics of modern organizations competing in the new era.

Due to the limitations in the sample size and location of the participating organizations, the findings of this study can only be tentative. Another limitation of

the study is the omission of organizational performance data to examine the relationship of management control system attributes and performance, as well as perceived competition and performance. Earlier studies by Ittner and Lacker (1997) and Perera, Harrison and Poole (1997) have found no significant link between management control attributes and organizational performance. Future study may further investigate the relationship between management control attributes and performance, even though the operationalisation of the performance variable is problematic not only from the measurability perspective, but also the timing perspective due to the possible lag between implementation of modern management control practices and improved economic performance.

Earlier literature has suggested that management of firms have to be aware of the need for strategic fit in designing their MCSs. When environment changes, modifications to strategy will have to follow to stay competitive. Often, management control system attributes remain, as suggested by evidence from this study, even though new competitive strategy might have already been formulated. In order for the new strategy to be effective, there must be effective communication between the formulators of the new strategy and the designers of MCS to avoid any strategic misalignment.

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ENDNOTES

¹ Rutledge and Karim (1999) categorised their subjects into high level and low level moral reasoning based on: (i) selection of a suitable cut-off range of Sociomoral Reflection Objective Measure (SROM) scores (ii) simply divide the subjects into three groups based on their relative SROM scores and used the top one third of the SROM scores as high level and the bottom one third as the low level. The analyses yielded essentially the same results.