

The relationship between the use of management accounting practices and the performance of Malaysian medium-sized enterprises

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Abstract— Research into management accounting practices (MAPs) suggests that MAPs have important roles in ensuring the efficiency in the management of the firm and may also improve performance. Despite the claims; there appears scarce empirical evidence to prove the positive associations of the use of MAPs in small and medium enterprises (SMEs). This research addresses the omission and report the findings derived from a survey of Malaysian firms in SME sector. In particular it aims to demonstrate a positive relationship between the use of MAPs and the performance of firms in SMEs sector. A postal questionnaire was conducted to 500 Malaysian medium-sized enterprises in manufacturing sector which elicited 110 useable responses. The data provide some evidence as to significant relationships between the use of MAPs and firm performance. Therefore it proves that MAPs play important roles in the management of SMEs especially to increase efficiency and effectiveness in their management process.

Keywords— *Management accounting practices, Small and medium-sized enterprises (SMEs), manufacturing sector, firm performance, Malaysia*

I.

INTRODUCTION

Previous research has demonstrated that, relative to larger firms, smaller firms are more associated with the business failure. There are many reasons for the failure rate especially for start-up businesses. [1] stated that lack of adequate working capital, poor market selection, and rapidly changing external market conditions are among contributing factors to small business high failure rate. However, [1] contended that the most significant reason for this high failure rate is the inability of SMEs to make adequate use of essential business and management practices. Many small firms fail to develop

an initial plan, and those that do establish a plan fail to continually adjust and use it as a benchmarking tool. Similarly, [2] argued that one of the reasons for business failure is poor management ability which includes accounting problem-solving. Further, [3] who based on the results from Japanese companies' concluded that a failure to adopt MAPs (i.e. cost management systems) in a similar way to their larger counterparts and, at the margins, to experiment with new forms of control that are more profit oriented may be a factor in the currently high failure rate of SMEs. Research has also shown that MAPs have important roles in ensuring the efficiency in the management of the firm and may also improve performance. MAPs also permit firms to compete in the market place and reduce the likelihood of business failure (see [4] and [5]).

Despite the claims of an association, there is little information on whether or not there is any association between the use or extent of use of MAPs and the performance of firms, especially for Malaysian SMEs. This leaves a significant gap in body of knowledge in understanding the influence of the use of management accounting practices on the performance in SMEs sector particularly in a developing country. Accordingly, this paper represents the results of an effort to contribute additional evidence in this area and adds a new knowledge on the impact of MAPs usage on performance in relatively smaller-sized firms.

II. LITERATURE REVIEW

[6] stated that the performance of an organization/division may be viewed as the extent to which the organization/division has been successful in attaining its planned targets. Examples of performance measures include: productivity, cost, quality, delivery schedule, market share, sales growth rate, operating profit, cash flow from operation, return on investment, new product development, R&D activity, and personnel development. Although many researchers have advanced the view that improved management accounting systems would lead to a better performance by firms ([5]; [6] and [7]), there is limited research supporting this position. Recently, a few studies have attempted to remedy this situation. These extant studies will now be considered.

The studies in this area have either examined a hypothesized direct relationship between the use of MAPs and organizational performance or tested this association with MAPs as just one of a number of explanatory variables. These studies have found mixed results on the impact of MAPs on organizational performance. The following review analyses studies between those yielding positive and negative results.

Positive results

Some positive results have been found on studies related to budgeting, performance measurement, ABC and other MAPs.

Positive evidence for an association between the use of budgeting and performance

[8] was among the early attempts to establish a relationship between the use of budgeting and performance by testing for an association between organizational performance and the approach of the firm to budgeting. Two distinct approaches were defined and termed the formal administrative approach and the interpersonal approach. The findings indicated that the administrative approach to budgeting was more strongly related to good performance in larger firms than in smaller firms, which tended towards a more interpersonal approach to budgeting. Tangentially, [9] who investigated the reasons for budgeting in organizations and their link with performance found that three reasons-to-budget (operational planning, performance evaluation, and strategy formation) were positively associated with organizational unit performance.

Positive evidence on performance measurement and performance

In recent years organizations have sought to develop more comprehensive performance measurement systems (PMS) to provide managers and employees with information to assist in managing their firm's operations [10]. The balanced scorecard (BSC) approach to management ([11] has gained prominence in management accounting research as a way of integrating financial and nonfinancial performance measures ([12]. The implementation of BSC and its positive impact on performance were revealed by [12] and [13]. While [14] who tested for complimentary effects between BSC and ABC, found that ABC, when combined with BSC, has a significant positive impact on organizational performance. [13], who investigated the extent of multiple performance measures usage and effects on the performance of Malaysian manufacturers, suggested that the use of non-financial measures particularly, internal business process and innovation and learning perspectives of the BSC, enhanced firm performance.

Positive evidence on non-financial performance measurement and performance

There has been an increased organizational use of non-financial measures for performance evaluations in the last few years [15]. Some previous studies has reported a positive association between this measure and its performance [16] supported the hypothesis that, on average, customer satisfaction was positively related to contemporaneous accounting return on investment, [17] provided evidence that customer satisfaction measures are leading indicators of non-financial performance and accounting. In a subsequent study [18] revealed a positive relationship between customer satisfaction measures and future accounting performance. With a wider range of non-financial measures, [19], examined the current and future performance consequences of incorporating non-financial measures in a set of performance metrics among U.S companies. Based on performance measured as accounting-based measures (ROA) and market-based measures (*RET*), they reported that using non-financial measures in evaluating performance had positively affected market performance. In a later study [20] suggested that when firms implement a performance measurement system that contains both financial and non-financial measures, they will benefit more than the firms that rely solely on financial measures. In particular, they found that there is a positive relation between financial outcomes and both

customer satisfaction and new product introductions which holds only for firms that use both financial and non-financial measures in their performance.

Positive evidence on ABC and performance

[21] found a positive association between the implementation of ABC and the success of the firm reported that 75 percent had received a financial benefit from implementing ABC. [22] adopted an event-study approach by matching 37 firms that adopted ABC between 1988 and 1996 with an equivalent number of non-adopting firms listed on the London Stock Exchange. They suggested that firms in the UK adopting ABC techniques outperform matched non-ABC firms. Further analysis suggests that ABC adds to firm value through better cost controls and asset utilization, coupled with greater use of financial leverage. Further [23] examined the association between activity-based costing and manufacturing performance. Results using a cross-sectional sample of U.S manufacturing plants indicated that extensive ABC use is associated with higher quality levels and greater improvements in cycle time and quality, and is indirectly associated with manufacturing cost reductions through quality and cycle time improvements.

Positive evidence on the combined effect of MAPs and other factors on performance

A number of studies have involved MAPs in conjunction with other variables as determinants of performance. [24] found that a greater reliance on efficiency-based performance measures had a greater positive effect on perceived performance in flexible firms than in non-flexible firms. Similarly, [15] revealed the existence of a significant and positive association between management's strategic choice and performance which was related to management's high use of non-financial measures for performance evaluation. [10] integrated the effect of performance measurement systems (PMS) on managerial performance through the mediating variables of role clarity and psychological empowerment. The results indicate that comprehensive PMS influences managers' cognition and motivation, which, in turn, influence managerial performance. Another study by [25] investigated the relationships between organizational performance and customer-focused strategies, performance measures and information technology. The results indicate that when a firm does not follow a customer-focused strategy, contemporary MAS in combination with advanced information

technology are related to high customer performance.. Finally, the results show that a fit between the customer-focused strategy and financial performance measures improves customer performance.

Beyond performance measurement, a number of studies have explored other mediating variables in understanding the relationship between MAPs and performance. For example, [26] integrated organizational learning in investigating the effects of management accounting information required by advanced manufacturing technology (AMT) for attaining improved production performance. The empirical results demonstrated that facilitators of organizational learning have a moderating impact on the relationship between provision of information and performance improvement. Therefore, it was concluded that when learning facilitators are well arranged and highly utilized, the provision of information is more likely to be linked to effective learning and, consequently, improved performance. [27] examined whether the level of intellectual capital (IC) influences MAPs and performance. Their research suggests that the level of investment in IC is associated with use of MAPs, business performance, and the ability to respond to future events. In a subsequent study, [28] attempted to assess the link between strategic-planning, aspects of the external environment and overall corporate performance in U.K manufacturing SMEs. The results show that strategic-planning in manufacturing SMEs is positively linked to overall corporate performance.

Negative results

As well as studies supporting a positive association between the use MAPs and performance, other studies found no or a negative relationship. For example, [29] examined the relationship between the sophistication of capital budgeting techniques used by the firm and performance. No consistent significant association between performance and capital budgeting techniques was found. The study argued that the mere adoption of various analytical tools would not deliver superior performance, and that other factors, such as marketing, product development, executive recruitment and training and labour relations, may have a greater impact on profitability. The finding re-affirms the message that sophisticated capital budgeting methods do not guarantee better performance. [30] found that there is no association between the use of non-financial measures and perceived performance in plants that follow a

customer-focused manufacturing strategy. While, [17] found that the ability of executives to relate customer satisfaction measures to accounting or stock price returns is only about 28 and 27 per cent respectively. In addition, [31] found little evidence that the use of non-financial measures in JIT facilities was associated with differences in manufacturing performance. In the U.S, [32] used an event-study approach to investigate the impact on firm value of an announcement that firms were using ABC. They found that the announcement of ABC use did not affect firm stock values. This result is further supported by [23] who found extensive ABC use has no significant association with return on assets.

Overall it can be concluded that there is a positive relationship between the use of MAPs and firm performance, although there was a minority of studies that provide negative or inconclusive results. The review also found that although the majority of studies had used objective financial measures of performance, there were examples of research relying on perceptual measures of performance in samples where objective measures were not available as is the case for the population of Malaysian SMEs. The decision was therefore taken to measure performance through managers' perceptions in answering research question four. The review also identified a significant gap in the literature related to the evidence on the relationship between the use of MAPs and firm performance among SMEs especially in developing countries.

III. RESEARCH METHOD

A survey was administered to a sample of 500 Malaysian medium-sized enterprises in manufacturing sector. The decision reflects a belief, that business that has a relatively larger size in term of number of employees and annual sales turnover are more likely to employ sophisticated management practices. In addition, companies in the medium category will almost certainly have qualified internal accounting capability and will also have larger the resources to employ these systems. The firms were selected from the Federation of Malaysian Manufacturers (FMM). The sample was mailed with the survey comprising a cover letter, questionnaire and a reply paid envelope. To encourage completion of the questionnaire, participants were promised a summary of the results and informed that their responses were anonymous. At the end of the process a total of 115 questionnaires were received giving a response rate of 23% (115/500). Of these 5

were unusable for the following reasons like the firm did not want to participate in the survey; the firm had ceased operation, or was from another sector and the questionnaire had not been completed.

Hence, 110 usable questionnaires were received which equal to the net usable response rate of 22.2% (110/495)¹. The usable response rate received in this survey is s marginally better than the expected response rate of between 12% and 15% (the average previous rate for the survey among Malaysian SMEs).

The non-response bias was examined by comparing the differences of responses from the first 30% of returns and those from the last 30% were compared. No differences were identified, providing some support for the absence of a non-response bias.

Prior empirical studies provide inconsistent evidence on a possible relationship between the extent of use of MAPs, either individually or collectively, and performance. However on balance positive evidence exceeds negative or equivocal results. Given this balance of evidence and since the objective of MAPs is to assist the managerial activities in firms, firms will expect a positive outcome from the implementation of MAPs. A hypothesis based on a positive and significant association between MAPs and performance appears sustainable. The literature review therefore supports the intended hypothesis which is as follows:

H1: There is a significant and positive relationship between the use of management accounting practices and organizational performance.

Variables used in the study

Previous literature shows that performance can be either based on financial data or on a perceptual measure of performance. For the purpose of this research, perceptual data will be adopted due to unavailability of financial data from SMEs due to the problems highlighted by [33] and [34]. Respondents were asked to indicate the changes in the performance in the last three years using a self-rating scale. The data collected act as a proxy for recent improvements in actual firm performance and will give

¹ The usable response rate is calculated as follows: response rate = (number of completed and returned questionnaires) divided by (Number of respondents in sample – (non-eligible and non-reachable respondents))

information for empirical testing of the research hypothesis.

The choice of variables for measuring performance is based on the instruments used by [13]. The choice is based on the similarity of the context of study which should facilitate comparison of the results. [1] was conducted among Malaysian firms in the manufacturing sector which is similar with this study. However their study only focused on Malaysian medium and large firms. Hence careful judgment will be needed to choose variables suitable for the SME context from the organizational performance variables used in the study. The performance of the firm based on various measures is determined using a five-point Likert scale. The scale is indicated by 1 = Decreased significantly, 2 = Decreased, 3 = No change, 4 = Increased, and 5 = Increased significantly.

The following subset of six variables is selected for this study due to their relevance in the context of small business organizations.

Business level

- Sales growth
- Operating profit
- Cash flow growth rate

Operational level

- Product quality
- Number of on-time deliveries
- Level of productivity

The choice of six variables provides three variables that represent performance at a business level and another three variables that represent performance at an operational level. These six performance measures should provide a broad insight into areas of performance in SMEs. The reduction to six variables also reflects a desire not to overwhelm potential respondents with detail in order to improve the response rate.

Meanwhile the dependent variables, management accounting practices were grouped into five major parts; costing system; budgeting system; performance evaluation system; decision support system; and strategic management accounting. The questionnaire ascertained whether or not the respondents used each

particular practice in their firms using the binary measurement 'yes' or 'no' choice of answer.

Given the mix of binary and ordinal data, one of the basic assumptions for parametric testing is not met as data must be on a ratio or interval scale. Non-parametric tests will therefore be employed. The two most widely used non-parametric correlation analysis tests in business and management research are Spearman's rank correlation coefficient (Spearman's Rho) and Kendall's rank correlation coefficient (Kendall's tau). With regards to which of these non-parametric correlation measures should be reported, [35] argue that Spearman's rho is more commonly used. On the other hand, [35] add that tau deals with tied ranks (i. e. two or more respondents are at the same rank) better than rho. In almost all situations the values of Spearman's rank correlation and Kendall's tau are very close and would invariably lead to the same conclusions. Drawing on this discussion, since there is existence of tied ranks in data of this study, Kendall's tau is chosen to be the statistical method for hypothesis testing. Besides that this method has been commonly used in previous studies in management accounting.

IV. RESULTS

Costing system and perceptions of firm performance

The following general hypotheses (H_{1-1} to H_{1-7}) were developed for the relationship between costing system and perceptions of firm performance within SMEs.

H_{1-1} : There is a significant and positive relationship between the use of costing systems and perceptions of performance in the level of productivity

H_{1-2} : There a significant and positive relationship between the use of costing systems and perceptions of performance in product quality

H_{1-3} : There is a significant and positive relationship between the use of costing systems and perceptions of performance in the number of deliveries on time

H_{1-4} : There is a significant and positive relationship between the use of costing systems and perceptions of performance in sales growth rate

H_{1-5} : There is a significant and positive relationship between the use of costing systems and perceptions of performance in operating profit growth rate

H₁₋₆ : There is a significant and positive relationship between the use of costing systems and perceptions of performance in cash flow growth rate

H₁₋₇ : There is a significant and positive relationship between the use of costing systems and perceptions of performance in average of performance

Table 2: Kendall's tau correlation coefficient test results for a relationship between the use of a costing system and the perceptions of firm performance.

	Hypothesis	Correlation coefficient	Sig. value
Level of productivity	H₁₋₁	0.319	0.008
Product quality	H ₁₋₂	0.155	0.276
Number of deliveries on time	H ₁₋₃	0.227	0.082
Sales growth rate	H₁₋₄	0.277	0.023
Operating profit growth rate	H ₁₋₅	0.247	0.051
Cash flow growth rate	H₁₋₆	0.425	0.006
Average of performance	H₁₋₇	0.317	0.004

Significant correlation in bold

The results in Table 2 show a moderate, positive and significant relationship between the use of costing system and perceptions of performance relating to level of productivity, sales growth rate, cash flow growth rate and average of performance. However there appears to be no support for any statistically significant relationship between the use of a costing system and the other three performance indicators. Therefore both sub-hypotheses number H₁₋₁, H₁₋₄, H₁₋₆ and H₁₋₇ are accepted. Sub-hypotheses H₁₋₁, H₁₋₂ and H₁₋₃, although they have positive correlation coefficients in line with the hypothesis, are rejected.

Budgeting system and perceptions of firm performance

The following seven sub-hypotheses (H₁₋₈ to H₁₋₁₄) were developed for the relationship between budgeting system and perceptions of firm performance within SMEs.

H₁₋₈ : There is a significant and positive relationship between the use of budgeting systems and perceptions of performance in the level of productivity

H₁₋₉ : There is a significant and positive relationship between the use of budgeting systems and perceptions of performance in the product quality

H₁₋₁₀ : There is a significant and positive relationship between the use of budgeting systems and perceptions of performance in the number of deliveries on time

H₁₋₁₁ : There is a significant and positive relationship between the use of budgeting systems and perceptions of performance in sales growth rate

H₁₋₁₂ : There is a significant and positive relationship between the use of budgeting systems and perceptions of performance in operating profit growth rate

H₁₋₁₃ : There is a significant and positive relationship between the use of budgeting systems and perceptions of performance in cash flow growth rate

H₁₋₁₄ : There is a significant and positive relationship between the use of budgeting systems and perceptions of the average of performance

Table 3: Kendall's tau correlation coefficient test results for a relationship between the use of a budgeting system and the perceptions of firm performance.

	Hypothesis	Correlation coefficient	Sig. value
Level of productivity	H ₁₋₈	0.206	0.120
Product quality	H ₁₋₉	-0.151	0.287
Number of deliveries on time	H ₁₋₁₀	0.206	0.122
Sales growth rate	H ₁₋₁₁	0.241	0.056
Operating profit growth rate	H₁₋₁₂	0.421	0.007
Cash flow growth rate	H₁₋₁₃	0.249	0.048
Average of performance	H₁₋₁₄	0.267	0.021

Significant correlation in bold

Table 3 shows a moderate, positive and significant relationship between the use of budgeting system and perceptions of performance relating to operating growth rate, cash flow growth rate and average of performance. However there appears to be no support for any statistically significant relationship between the use of a budgeting system and the other five performance

indicators. Therefore both sub-hypotheses number H_{1-12} , H_{1-13} and H_{1-14} are accepted. The rest of the sub-hypotheses except sub-hypothesis H_{1-9} have positive correlation coefficients in line with the hypothesis. However all of these sub-hypotheses are rejected.

Performance evaluation system and perceptions of firm performance

The following seven sub-hypotheses (H_{1-15} to H_{1-21}) were developed for the relationship between the use of a performance evaluation system and perceptions of firm performance within SMEs.

H_{1-15} : There is a significant and positive relationship between the use of performance evaluation systems and perceptions of performance in the level of productivity

H_{1-16} : There is a significant and positive relationship between the use of performance evaluation systems and perceptions of performance in the product quality

H_{1-17} : There is a significant and positive relationship between the use of performance evaluation systems and perceptions of performance in the number of deliveries on time

H_{1-18} : There is a significant and positive relationship between the use of performance evaluation systems and perceptions of performance in sales growth rate

H_{1-19} : There is a significant and positive relationship between the use of performance evaluation systems and perceptions of performance in operating profit growth rate

H_{1-20} : There is a significant and positive relationship between the use of performance evaluation systems and perceptions of performance in cash flow growth rate

H_{1-21} : There is a significant and positive relationship between the use of performance evaluation systems and perceptions of average of performance

Table 4: Kendall's tau correlation coefficient test results for a relationship between the use of a performance evaluation system and the perceptions of firm performance.

	Hypothesis	Correlation coefficient	Sig. value
Level of	H_{1-15}	0.252	0.045

productivity			
Product quality	H_{1-16}	-0.184	0.179
Number of deliveries on time	H_{1-17}	0.141	0.327
Sales growth rate	H_{1-18}	0.194	0.144
Operating profit growth rate	H_{1-19}	0.236	0.066
Cash flow growth rate	H_{1-20}	0.243	0.055
Average of performance	H_{1-21}	0.211	0.089

 Significant correlation in bold

Table 4 indicates that there is a small, positive and significant relationship between the use of performance evaluation systems and perceptions of performance relating to level of productivity. Therefore only sub-hypothesis H_{1-15} is accepted. The remaining sub-hypotheses although all except one have positive correlation coefficients in line with the sub-hypotheses, are rejected.

Decision support system and the perceptions of firm performance

The following seven sub-hypotheses (H_{1-22} to H_{1-28}) were developed with respect to the relationship between decision support system and perceptions of firm performance within SMEs.

H_{1-22} : There is a significant and positive relationship between the use of decision support systems and perceptions of performance in the level of productivity

H_{1-23} : There is a significant and positive relationship between the use of decision support systems and perceptions of performance in the product quality

H_{1-24} : There is a significant and positive relationship between the use of decision support systems and perceptions of performance in the number of deliveries on time

H_{1-25} : There is a significant and positive relationship between the use of decision support systems and perceptions of performance in sales growth rate

H_{1-26} : There is a significant and positive relationship between the use of decision support systems and perceptions of performance in operating profit growth rate

H₁₋₂₇ : There is a significant and positive relationship between the use of decision support systems and perceptions of performance in cash flow growth rate

H₁₋₂₈ : There is a significant and positive relationship between the use of decision support systems and perceptions of the average of performance

Table 5: Kendall's tau correlation coefficient test results for a relationship between the use of a decision support system and the perceptions of firm performance.

	Hypothesis	Correlation coefficient	Sig. value
Level of productivity	H ₁₋₂₂	0.187	0.166
Product quality	H ₁₋₂₃	0.117	0.424
Number of deliveries on time	H ₁₋₂₄	0.199	0.137
Sales growth rate	H ₁₋₂₅	0.157	0.268
Operating profit growth rate	H₁₋₂₆	0.275	0.026
Cash flow growth rate	H₁₋₂₇	0.312	0.009
Average of performance	H ₁₋₂₈	0.226	0.063

Significant correlation in bold

Table 5 shows a moderate, positive and significant relationship between the use of decision support system and perceptions of performance relating to operating profit growth rate and cash flow growth rate. Therefore only sub-hypothesis H₁₋₂₆ and H₁₋₂₇ are accepted. The remaining sub-hypotheses despite having a consistently positive correlation coefficient in line with the hypothesis are rejected.

Strategic management accounting and the perceptions of firm performance

The following seven sub-hypotheses (H₁₋₂₉ to H₁₋₃₅) were developed for the relationship between SMA and perceptions of firm performance within SMEs.

H₁₋₂₉ : There is a significant and positive relationship between the use of strategic management accounting and perceptions of performance in the level of productivity

H₁₋₃₀ : There is a significant and positive relationship between the use of a strategic management accounting and perceptions of performance in the product quality

H₁₋₃₁ : There is a significant and positive relationship between the use of a strategic management accounting and perceptions of performance in the number of deliveries on time

H₁₋₃₂ : There is a significant and positive relationship between the use of a strategic management accounting and perceptions of performance in sales growth rate

H₁₋₃₃ : There is a significant and positive relationship between the use of a strategic management accounting and perceptions of performance in operating profit growth rate

H₁₋₃₄ : There is a significant and positive relationship between the use of a strategic management accounting and perceptions of performance in cash flow growth rate

H₁₋₃₅ : There is a significant and positive relationship between the use of a strategic management accounting and perceptions of the average of performance

Table 6: Kendall's tau correlation coefficient test results for a relationship between the use of strategic management accounting and the perceptions of firm performance.

	Hypothesis	Correlation coefficient	Sig. value
Level of productivity	H₂₋₂₉	0.257	0.040
Product quality	H ₂₋₃₀	0.170	0.221
Number of deliveries on time	H₂₋₃₁	0.261	0.039
Sales growth rate	H ₂₋₃₂	0.221	0.169
Operating profit growth rate	H₂₋₃₃	0.280	0.036
Cash flow growth rate	H₁₋₃₄	0.315	0.011
Average of performance	H₁₋₃₅	0.293	0.013

Significant correlation in bold

Table 6 shows that the use of SMA has moderate, positive and significant relationship with perceptions of performance relating to operating profit growth rate, cash flow growth rate and average of performance. This indicates that the use of SMA is associated with perceptions of improved performance of operating profit growth rate, cash flow growth rate and overall

performance. Therefore, H_{1-33} , H_{1-34} and H_{1-35} are accepted. The remaining sub-hypotheses, despite having positive correlation coefficients in line with the sub-hypothesis are rejected.

V. SUMMARY

The above results show some significant relationships between the use of management accounting practices and perception on the level of performance. The results of the bivariate analysis of the relationships between the use of MAPs and the perception of firm performance show that 15 sub-hypotheses were accepted and the other 20 were rejected. Table 7 below presents the summary of accepted sub-hypotheses.

Table 7: Positive results of a test for a statistically significant relationship between the use of management accounting practices and the perceptions of firm performance

	Hypotheses
Costing system	
• Level of productivity	H_{1-1}
• Operating profit growth rate	H_{1-5}
• Cash flow growth rate	H_{1-6}
• Average of performance	H_{1-7}
Budgeting system	
• Operating profit growth rate	H_{1-12}
• Cash flow growth rate	H_{1-13}
• Average of performance	H_{1-14}
Performance evaluation system	
• Level of productivity	H_{1-15}
Decision support system	
• Operating profit growth rate	H_{1-26}
• Cash flow growth rate	H_{1-27}
Strategic management accounting	
• Level of productivity	H_{1-29}
• Number of deliveries on time	H_{1-31}
• Operating profit growth rate	H_{1-33}
• Cash flow growth rate	H_{1-34}
• Average of performance	H_{1-35}

The results indicate that all five MAPs are significantly associated with 43% (15 out of 35) indicators of performance. The costing system is positive and significantly related to four indicators of performance (level of productivity, operating profit growth rate, cash flow growth rate and average of performance). These results imply that the greater use of costing information will result in a higher level of perceived performance in a number of areas.

Secondly the use of budgeting system is positive and significantly related to operating profit growth rate, cash flow growth rate and overall performance. These results suggest that the increased use of planning and controlling activity is related with a higher level of perceived performance at business level and overall firm performance. Next, the use of decision support system has a positive and significant relationship with operating profit growth rate and cash flow growth rate which suggest that the improved use of decision support analysis will result in a higher level of perceived performance mostly at business level.

Lastly SMA is positively and significantly related to perceptions about five indicators of performance (level of productivity, number of deliveries on time, operating profit growth rate, cash flow growth rate and average of performance). This result possibly could suggest that those firms who have a greater use of SMA might perceive an increase in the number of areas of firm performance. However the results only provide a limited evidence for a significant relationship between the use of performance evaluation systems and performance.

Overall there is only moderate support for the hypothesized relationship to the effect that the use of MAPs is associated with in statistically significant increases in perceptions of performance. A higher use of SMA appears to be associated with wide area of performance thus suggesting that this practice is one of the crucial practices that can possibly help to increase the performance of the medium-sized enterprises. The results also suggest that the use of MAPs alone will not improve the performance of firms but nevertheless there may be other complementary or synergistic factors inside or outside of the firms that might affect performance.

This research has highlighted the importance of management accounting in the management as well as the relationship of their use to organisational performance. This research has increased knowledge of MAPs in a SMEs context. Malaysia as a developing country has strived to move to parity with more developed economies, and find the research useful to provide relevant knowledge that can support efforts to enhance the performance of Malaysian SMEs. The findings will be informative for policy makers intent on developing management accounting skills among

Malaysian SMEs. More broadly this research will promote interest among Malaysian researchers as well as researchers of other countries to take the SMEs sector as a focus of interest for their research. This study can be also a starting point for further investigations and analysis of MAPs among SMEs in Malaysia.

In conclusion, the work presents the importance of the use of MAPs in SMEs and therefore makes a contribution to the awareness of management accounting in relatively small-sized firms particularly in a developing economy.

The study has the following limitations. First, the performance of firms across different dimensions was measured using qualitative perceptions rather than quantitative results. Although a self-rating scale has been criticised on grounds of a lack of objectivity, it is the only source available given that SMEs are unwilling to divulge quantitative results.

Second this research only focused on one sector (manufacturing sector) because it contained the largest concentration of medium-sized firms and had the greatest economic significance of any sector. The sampling design therefore restricts the generalisability of the research findings to all SMEs.

ACKNOWLEDGMENTS

This research is supported by Ministry of Higher Education of Malaysia (MOHE), under Exploratory Research Grant Scheme (ERGS) to the Office of Research, Innovation, Commercialization and Consultancy (ORRIC), Universiti Tun Hussein Onn Malaysia.

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