



The Implementation of Management Accounting Practices and its Relationship with Performance in Small and Medium Enterprises

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ABSTRACT

There is scarce research into management accounting practices (MAPs) in small and medium-sized enterprises (SMEs) in the current literature. This study aims to explore the implementation of MAPs in SMEs and the relationship between MAPs and performance. A questionnaire survey was conducted among Malaysian SMEs in the manufacturing sector. The study demonstrates that the level of uptake of MAPs differs from traditional to more sophisticated approach. Costing system and performance measurement system (PMS) appear to be the common MAPs employed by the responding enterprises. Meanwhile, the sophisticated MAPs are frequently utilized by larger enterprises which is in line with the theoretical arguments of the effect of size in the adoption of MAPs. The findings also reveal that certain MAPs are found to have significant relationships with performance and these findings have reinforced the importance of MAPs in today's organization. This study provides additional empirical evidences on MAPs in SMEs and their relationships with performance.

Keywords: Small and Medium-sized Enterprises, Management Accounting, Manufacturing Sector, Malaysia

JEL Classification: M4

1. INTRODUCTION

Current management accounting practices (MAPs) have incorporated financial and non-financial techniques that aim to provide crucial information at both operational and organizational level. The emergence of sophisticated MAPs such as balanced score card (BSC), activity based costing (ABC), target costing and strategic MAPs is the results of growing adaptation on modern management practices by today's organizations such as total quality management, supply chain management, Lean manufacturing and Just In time (JIT) (Ittner and Larcker, 1998; Abdel-Maksoud et al., 2005). A new introduction of MAPs have reinforced the relevance of MAPs to the current needs mainly to increase efficiency and business performance of firms. The question of whether MAPs can possibly enhance enterprises performance particularly in small and medium enterprises (SMEs) remains unclear as the organizational performance itself is a result of interactive effects of several key elements.

The attempts to examine whether MAPs have significant relationship with performance can be seen since a few decades ago (Hoque, 2004; Shields and Shields, 2005; Fullerton and Wempe, 2009; Ahmad and Zabri, 2016). The studies examined the relationships of the individual areas of MAPs with performance that were mostly conducted in larger organizations. Consequently, there are significant gaps in the knowledge base relating to MAPs in SMEs which should be filled on the grounds that the information provided may strengthen the managerial aspects of the SMEs. Mitchell et al. (1998) contended that research into management accounting in SMEs provides possibilities of a different type which are nonetheless of great importance to the fundamental explanation and understanding of the discipline. Even though MAPs implementation is often perceived to be more beneficial for large organizations due to the nature of their complex operations, the usefulness of MAPs in SMEs should not be disregard. Recent literature has highlighted the significance of MAPs in SMEs as MAPs

implementation is crucial to sustain the competitiveness level of the business. Pavlatos and Kostakis (2015) argued that the new economic environment mainly triggered by the global economic crisis imposes the need for adaptation of MAPs to encounter the dynamics of the market. Therefore as a part the business entities that are sensitive to changes in the internal and external environment, the utilization of MAPs by SMEs is essential to improve business. As SMEs performance has been repeatedly claimed to be connected with their incapability to exploit proper MAPs (Hopper et al., 1999; Nandan, 2010; Lucas et al., 2013) as the ability of MAPs to reduce the business failure risk by supplying efficient information that may increase the competitive advantages of the businesses. Hence based on the arguments it is important for SMEs to consider the adaptation of proper MAPs for sustaining their business in the long-term. This paper is established in response to the previous arguments and due to a lack of empirical evidence on MAPs usage in SMEs and their link with performance. Furthermore understanding what happens in reality, rather than what should happen, is vital as small business research to date has been inconclusive about the usefulness of financial information (Argile's and Slof, 2003). This, in combination with the relative importance of SMEs as generators of economic well-being reinforces the significance of this area of research. The structure of this article is as follows. The next section discusses the literature review followed by the research methodology used in this study. The next section provides a discussion of the survey results. The final section presents conclusions and implications for future research.

2. MANAGEMENT ACCOUNTING AND SMEs

SMEs constitute a large number of establishments in most developed and developing economies around the world. On average, this sector comprises more than 98% of the total number of businesses in most countries such as in the U.K, U.S, Japan and ASEAN (Japan Patent Office, 2009; Caruso, 2015; Lucas et al., 2013). Similarly in ASEAN countries such as Malaysia, Thailand and Indonesia, SMEs account for more than 98% of all business entities (DOS¹, 2014; Yoshino et al., 2015, Tambunan, 2008). Given the significant numbers of SMEs in various countries, SMEs make vital contributions to the economy in terms of income generation, entrepreneurship, job creation and employment, and become a vital medium for poverty reduction. In the U.K for example, Lucas et al. (2013) stated that SMEs in the UK generate nearly 60% of the total workforce and contribute around 50% of private sector output. Meanwhile in the U.S around 98% of export activities are triggered by SMEs. In ASEAN countries like Thailand, SMEs comprise of 98.5% of total enterprises and generate 37.0% of gross domestic product (GDP) and 80.4% of the workforce. This sector also contributes to 28.8% of total exports and 31.9% of total imports by value in 2012 (Yoshino et al., 2015). Similarly in Malaysia, SMEs sector generates high number of employment and contributes significantly to the economics. After the Asian Crisis in 1997-1998., this sector was given serious attention by the

government and is created as mechanism to reduce the dependent on foreign direct investment and to enhance the country's resilience to current's global economic crises. Current statistics of SMEs impact on economy indicate that SMEs contributed RM1,606 billion to GDP across all sectors at 7.5% growth per annum from 2011 to 2015 (Economic Planning Unit, 2016). It is reported that the share of economic contribution by SMEs is higher in the developing countries as compared to the developed countries (Javalgi and Todd, 2011). This is due to the rapid growth of SMEs and entrepreneurship activities in the developing countries which create attractive investment destinations.

Apart from the major contributions of SMEs as stated above, this sector has certain unique characteristics in term of:

- Flexibility to the niche opportunities (Mitchell and Reid, 2000);
- High participation in international production networks through closer-links with MNCs (Hobday, 2004);
- Can be easily established for generating earnings (Ahmad and Zabri, 2015);
- A source of technological innovation and new products (Fan, 2003).

These characteristics have transformed SMEs sector as key factor for a competitive and efficient market that can foster entrepreneurship development in the economy. Given the significant advantages of SMEs, this sector has been given serious attention in most countries for economic expansion, regional development and national resilience to global economic turbulence.

Despite the economic and social importance of SMEs, there is a lack of research efforts studying the provision for management accounting information and use of management accounting techniques by SMEs (Nandan, 2010). The dearth of research into MAPs is contributed by the advantages of large enterprises that provide the best setting for an examination on the innovative and successful current business approach (Kaplan, 1994). This position unavoidably skews research towards larger entities. There is a growing research interests into MAPs in SMEs can be found in the literature after 2000s (Drury et al., 1993; Gunasekaran et al., 1999; Hopper et al., 1999; Marriott and Marriot, 2000; Reid and Smith, 2000; Jarvis et al., 2000; Collis and Jarvis, 2002; McChlery et al., 2004; Sousa et al., 2006; Kraus et al., 2006; Alattar et al., 2009; Lucas et al., 2013; Ahmad and Zabri, 2015).

Prior studies in costing system in SMEs have been provided by a few researches. For example, Demong and Croll (1981) found that usefulness of cost accounting system became rapidly apparent to the owner/managers of small businesses in U.S. The study suggested that firms within the same industry will not require the same things from a cost accounting system. The larger businesses will need a more sophisticated system to permit them to make frequent decisions on the prices and costs of their products. On the other hand, a smaller firm may only need a basic budget and some standard cost figures for their more infrequent pricing and cost decisions mainly for planning and control. This or any

¹ The department of statistics.

system should be easy to use, understand, maintain and it should be flexible and cost effective. Similarly Brierley (2011) concluded that SMEs in manufacturing firms in Britain utilized less complex systems of product costing and were less likely to consider the use of sophisticated costing system; ABC. Drury et al. (1993) and Gunasekaran et al. (1999) concluded that ABC has received little attention from SMEs in spite of the fact that it may have an important role to play in improving the competitiveness of SMEs. Meanwhile Hopper et al. (1999) who conducted a survey of cost accounting in Japanese SMEs revealed that costing systems in Japanese SMEs were similar to those of larger Japanese firms by emphasizing simple routine accounting and the detailed processes of cost management.

In the area of performance measurement system (PMS) in SMEs, the empirical evidences were documented by Jarvis et al. (2000); Garengo et al. (2005); Sousa et al. (2006); Garengo and Bitichi (2007); and Halabi et al. (2010). Despite the importance of using PMS in SMEs, very few companies carry out performance management (Garengo et al., 2005) and the use of accounting reports were not widely used as the primary means of assessing business performance (Halabi et al., 2010). Most SMEs tended to use financial-based measures widely and the use of other performance measures such as innovation and learning measures were perceived less important and were less used (Sousa et al., 2006).

However the findings by Jarvis et al. (2000) concluded that owner-managers of small firms used a variety of indicators to assess business performance for pursuing a range of business goals. Cash flow related measures were considered to be important as opposed to profit measures which were found to be less important than conventional views suggest.

In a more detailed MAPs study, Holmes and Nicholls (1989) indicated that there is limited preparation of financial accounting information among small business owner/managers in Australia except for statutory returns. Business size, number of years the business has been operating under existing management, industrial sector and the education of a business' owner/manager appear to have a significant influence upon the acquisition of accounting information. Similarly Lucas et al. (2013) revealed that SMEs tends to be on control information rather than aiding decision-making; there is a tendency to make decisions without adequate, or indeed any, financial information or analysis. In another study, McClhery et al. (2004) investigated the range of MAPs within small firms and revealed that smaller businesses were most likely to be dissatisfied with their management accounting system (MAS). Meanwhile Marriott and Marriot (2000) explored the management information needs of owner-managers, the type and frequency of information preferred and the capacity of professional accountants to contribute to the small business needs. The study found that the use of computers for the preparation of management accounting information, is not to the full potential of respondents. The study concluded that there is a significant potential for accountants to expand the management accounting services to small firms, especially to the interpretation of information produced by firms' financial statement analysis.

The literature suggests that there is a limited use of MAPs in the SMEs context. The SMEs tend to use the conventional approach of MAPs mainly for a controlling purpose. Overall the research evidences of MAPs in SMEs can be considered limited and fragmented and further examination is required to enrich the information in this area. The following section discusses the evidences of MAPs implementation and their relationship with firm performance.

2.1. MAPs and Performance

The effectiveness of MAPs in assisting firms achieving their goal has become important research topic. As MAPs are presumed to provide relevant information for today's organization, the investigation of the empirical evidences on MAPs effectiveness in enhancing business performance should be carried out. There are substantive efforts have been done in measuring the effects or the relationship of MAPs and performance. The prior studies examined individual MAPs area (such as PMS, BSC and ABC) and performance based on financial or subjective criteria. An earlier study can be seen in Merchant (1981) who explored a connection between budgeting practices and the relationship with performance. Specifically this study focused on the method of the firm to budgeting based on formal administrative approach and the interpersonal approach and their relationships with organizational performance. The results demonstrated that the administrative approach to budgeting has a strong relationship with a better performance in large firms. Within smaller firms, a more interpersonal approach to budgeting is more associated with organizational performance. Next, Reid and Smith (2000) in a study of UK SMEs found that the impact of the MAS was greatest in those firms which are struggling to survive, where it can be used to monitor finances daily and can help to identify trends in key variables. The respondents tend to place less importance on the provision of management accounting information when their financial performance is adequate. Argile's and Slof (2003) provided empirical evidence on the relationship between the use of financial reports and financial performance based on a sample of Catalan farmers. The study found that the financial performance of respondents using the reports for decision-making purposes was significantly better than those who did not use the reports Kraus et al. (2006), who examined strategic planning and performance in Austrian smaller enterprises, found that planning formalization has a positive and highly significant impact on the probability of belonging to a group of growth firms, whereas other aspects of strategic planning (time horizon, strategic instruments, and control) did not contribute to performance. Next, Hansen and Van Der Stede (2003) examined the reasons for budgeting in organizations and the link with performance. The study concluded that three reasons-to-budget (operational planning, performance evaluation, and strategy formation) have positive associations with organizational unit performance. Chand and Dahiya (2010) who explored MAPs in Indian small and medium hospitality enterprises suggested that management accounting techniques have a great impact on different firm's aspects especially on cost reduction and quality improvement.

The relationship between BSC usage and performance were investigated by a few studies such as Hoque and James (2000)

and Davis and Albright (2004). Hoque and James (2000) who conducted a survey on Australian manufacturing firms on the nonfinancial measures usage and performance revealed that the use of typical BSC measures has a significant and positive relationship with superior performance. While Maiga and Jacobs (2003), who tested for complimentary effects between BSC and ABC, found that ABC, when combined with BSC, has a significant positive impact on organizational performance. In a later study, Davis and Albright (2004) found evidence of superior financial performance for bank branches adopting the BSC when compared to non-BSC branches.

More studies reporting a positive association between non-financial performance measure and its performance include Anderson et al. (1994); Abernethy and Lilis (1995); Ittner and Larcker (1998); Banker et al. (2000); Said et al. (2003); and Bryant et al. (2004). Anderson et al. (1994) revealed that one of the non-financial performance indicators; customer satisfaction was positively associated with contemporaneous accounting return on investment. Similarly Ittner and Larcker (1998) demonstrated that customer satisfaction measures are leading indicators of non-financial performance and accounting. This is supported by a finding in a subsequent study by Banker et al. (2000) who revealed a positive relationship between customer satisfaction measures and future accounting performance. With a wider range of non-financial measures, Said et al. (2003) 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 (return on assets) and market-based measures (RET), they reported that using non-financial measures in evaluating performance had positively affected market performance. In a later study Bryant et al. (2004) suggested that when firms implement a PMS 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. A study by Fullerton and Wempe (2009) who examined the impact of non-financial manufacturing performance (NFMP) on the relationship between lean manufacturing and financial performance concluded that the results indicate there is substantial evidence that NFMP mediates the relationship between lean manufacturing and financial performance.

In exploring the relationship between ABC and performance, Shields (1995) found a positive association between the implementation of ABC and the success of the firm. The study reported that 75% had received a financial benefit from implementing ABC. Meanwhile Kennedy and Affleck-Graves (2001) 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

Ittner et al. (2002) examined the association between ABC and manufacturing performance using a cross-sectional sample of U.S manufacturing companies. The results indicated that there is significant association between extensive ABC use with higher quality level and cycle time. The study also found that ABC is indirectly related to manufacturing cost reductions through quality and cycle time improvements.

Other studies related to MAPs have incorporated MAPs in conjunction with other variables as contributing factor to firm performance. For example Abernethy and Lilis (1995) 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. Next, Hoque (2004) provides evidence of a significant and positive relationship between strategic choice of management and performance which particularly was related to the high use of non-financial measures for performance appraisal. Meanwhile Hyvonen (2007) explored the relationships between organizational performance and a number of contextual variables. Using three selected contextual components; performance measures, customer-focused strategies and information technology, the results show that a fit between the customer-focused strategy and financial performance measures increases customer performance. Next, Hall (2008) investigated the effect of PMS on managerial performance using role clarity and psychological empowerment as the mediating variables. The results indicate that the adoption of comprehensive PMS has a significant influence on cognition and motivation level of manager, which leads to a better managerial performance.

Beyond performance measurement, a number of studies have explored mediating effects of another variables in exploring the relationship between MAPs and performance. For example, Choe (2004) incorporated organizational learning in understanding the effects of management accounting information for advanced manufacturing technology for accomplishing better production performance. The empirical results demonstrated that organizational learning have a moderating effects 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. In a subsequent study, O'Regan and Sims (2008) 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.

Despite a significant and positive results for the relationship between the use of MAPs and performance, there are a few studies failed to obtain the similar outcome. For example, Klammer (1973) examined the relationship between the sophistication of capital budgeting techniques used by the firm and performance and there is no significant relationship between performance and capital budgeting techniques. Klammer (1973) 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. Perera et al. (1997) 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, Ittner and Larcker (1998) revealed that the capability of companies' executives to relate measures related to customer satisfaction to accounting or stock price returns is only around 28%. In addition, Young and Selto (1993) found little evidence that the use of non-financial measures in JIT facilities was associated with differences in manufacturing performance. In the U.S, Gordon and Silvester (1999) 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 Ittner et al. (2002) who found extensive ABC use has no significant association with return on assets.

Overall the above literature suggest that the contribution of MAPs for enhancing firm performance is possible as a few studies suggest significant empirical results that support this claim. However there is little evidence on the relationships between the implementation of MAPs and performance within the SMEs context. The following section discusses the research method of this study.

3. RESEARCH METHOD

3.1. The Survey

Manufacturing sector involves the most complex production and operations environment compared to services and trading sectors. This sector plays a major role in the economy especially to boost a substantial number in export activities. In Malaysia the manufacturing sector contribution to GDP in 2012 is 24.2% (DOS, 2014). In 2016, the manufacturing output is reported to be increased as compared to the previous performance. Therefore this study sets SMEs from manufacturing sector as a target population in order to fully understand the application of MAPs in this setting and to avoid inappropriate distractions rising from dissimilarities between sectors. SMEs Corp Malaysia (2014) defined SMEs as an enterprise that employs between 5 to 200 employees for manufacturing sector. This study excludes micro-sized firms as they have either a turnover of less than RM 300,000 (equivalent to approximately USD 75,000) or fewer than five employees and are therefore likely to be too small to have management systems that rely on MAPs. This is argued by Hoque (2004) who contended that a very small enterprise is less likely to have a real need for complex management systems. Furthermore companies from this category unquestionably have lack of resources to employ these systems and are not able to employ qualified internal accounting staff. The research therefore will only focus on the small and medium-sized enterprises within the Malaysian SME definition. In order to ensure every sub-sample gets an appropriate representation, a stratified random sampling procedure is performed. About 500 hundreds questionnaires were distributed to both groups in order to retrieve the possible responses from both groups. The survey questionnaires accompanied by a cover letter was sent by mail to

the accountant or financial executives of each firm. The database of each enterprise was retrieved from The Federation of Malaysian Manufacturers. The distributed questionnaire requested details relating to size, business sector; the frequency of the use of MAPs and the level of financial and non-financial performance of the enterprise. Replies to the initial questionnaire were received from 87 respondents. After two follow-ups the total replies gathered increased to 160 usable questionnaires giving a response rate of 16.0%. The unusable responses were received for the a few reasons such as the businesses had ceased operations, the size was too small, and the respondents were not from manufacturing sector, refused to take part and uncompleted questionnaires.

3.2. Measurement of Variables

This study develops two main variables for exploring the relationship between MAPs and performance. The details of these variables are discussed in the following sections.

3.2.1. MAPs usage

This study divides MAPs into five broad categories of MAPs; costing system, budgeting system, PMS, decision support system (DSS) and strategic management accounting (SMA) in investigating MAPs utilization in SMEs. The questionnaire first ascertained whether or not the respondents utilize each particular practice in their firms using the "yes" or "no" choice of answer and followed by the details frequency of use of each measures of MAPs using using 5-point Likert scale from 1: Never to 5: Very frequently.

3.2.2. MAPs performance measures

Measuring firm performance is quite challenging due to the unavailability of the published financial data among SMEs. In this case, a perceptual measure of performance need to be used in order to gauge data on performance. There are a number of studies utilized managers perceptions approach in measuring performance in samples where objective measures were not available as is the case for the Malaysian SMEs. The decision was therefore taken to measure performance through managers' perceptions in achieving the research aim. Respondents were required to indicate the level of their performance in the last 3 years based on a self-rating scale from 1: Decreased significantly to 5: Increased significantly. The data collected act as a proxy for current variations in firm performance and were used as information for data analysis. Six selected items that represent financial-based performance and non-financial-based performance measures were chosen as performance indicators in this study. Financial performance indicators include sales growth; operating profit and cash flow growth rate. Meanwhile non-financial performance indicators were represented by product quality; number of on-time deliveries; and level of firm productivity. The selected six performance measures are able to provide information into area of performance within the SMEs context. The selection of six items also reflects a desire not to overwhelm targeted respondents with detail in order to increase the number of reply.

The Mann-Whitney and Chi-square non-parametric tests were used to compare early and late responses and there was no evidence of non-response bias found. A reliability test for the main variables

used in this study indicates that all measurements are good and reliable where the Cronbach's alpha values for 46 items of MAPs and 6 items under performance are 0.896 and 0.861 respectively. The following section discusses the findings of this study.

4. RESULTS

This section presents results of general adoption of five broad areas of MAPs as mentioned in the previous section and comparison is made between small and medium-sized category. The results on the details type of MAPs under each categories are provided in the subsequent section.

4.1. The Implementation of MAPs in SMEs

This section provides the overall results on the implementation of MAPs based on small-sized firms and medium-sized firms. Table 1 shows the implementation rate of five broad areas of MAPs.

The result shows that most responding firms indicated the adoption of five areas of MAPs. Overall costing system, budgeting system and PMS are significantly utilized by respondents. Costing system has the highest rate with 83% of total respondents followed by PMS (79%) and budgeting system (76%). In contrast SMA is only implemented by half of total respondents. The uptake of DSS is moderate with 63% respondents followed by SMA with approximately half of the total respondents. The findings imply that the adoption of traditional MAPs is more prevalent than the sophisticated MAPs. As a results, traditional MAPs remain dominant in small firms.

The results also demonstrated that medium firms have a higher use of the overall MAPs as opposed to small firms. The most significant variances can be seen to the use of DSS and SMA. Further analysis on test of differences for the use of MAPs between SMEs using a chi-square test of independence indicates that there are significance differences between small and medium group for the use of budgeting; $X^2(1, N = 160) = 5.30, P = 0.021$; DSS; $X^2(1, N = 160) = 9.10, P = 0.002$; and SMA; $X^2(1, N = 160) = 6.30, P = 0.013$. On the other hand, there is no significant differences found for the adoption of costing system and PMS between both SMEs groups. The results suggest that larger SMEs have significant adoption of MAPs that help to develop strategic planning to the organizations. Additionally this result is consistent with the contingency theory the variances of advanced MAPs adoption are attributable to the importance of MAPs to the different size of the firms.

4.2. The Frequency of use of MAPs

This section reports the frequency of use of 46 specific MAPs under five main areas of MAPs. The respondents were required to specify the frequency of practice of a listed MAPs using a 5-point scale (where S1 indicates "never" and S5 is "very frequently"). Since each of five areas of MAPs has a different adoption rates (Table 1), total percentage for each scale (From S1 to S5) were calculated based on the total number of adopters to represents a more accurate results. Table 2 presents the results for the frequency distributions for each type of MAPs.

4.2.1. Costing techniques

Table 2 provides the results on the frequency of adoption of costing systems techniques by costing adopters. The result indicates that process costing is "frequent" and "very frequently" used by 58% of the costing users. The result proposes that responding firms are most likely involved in processing-based industries. Next, both job costing and variable absorption costing are highly applied by approximately 38% of the costing users followed by absorption costing and batch costing (34% and 28% respectively). In contrast, the frequency of use of ABC is only regularly implemented by a quarter of costing adopters.

4.2.2. Budgeting techniques

In term of budgeting systems, the results indicate that financial budgeting received high attention by respondents. Among the highest type of budgets that are "frequent" and "very frequently" applied by the responding firms are sales budget, production budget, cash flow budget, and financial position budget with the adoption rates ranging from 66% to 87%. The sales budget is the highest type of budgeting used by respondents where 87% of total respondents indicated the use of this technique. This show that SMEs place greater emphasis on planning for revenue targets in their businesses. Likewise, production, cash flow and financial position budgets are significantly implemented by around 75% budgeting users. In terms of timing, most respondents indicated the widely use of annual budget (73%) compared to monthly and continuous rolling budgets by around below half the total users. The zero-based budgeting is the lowest budget approach applied by respondents with 12.3% indicated 'frequent' and 'very frequently' use of this technique. This is in contrast with the usage of flexible budgeting which is moderately utilized by just over half respondents.

4.2.3. PMS techniques

The questionnaire survey on PMS comprises of financial and non-financial performance measures. The non-financial measures

Table 1: The result of the use of management accounting practices and its rank

	Small firms		Medium firms		Total firms	
	%	Rank	%	Rank	%	Rank
Basic MAPs						
Costing system	76	2	86	1	83	1
Performance measurement system	78	1	80	3	79	2
Budgeting system	64	3	81	2	76	3
Sophisticated MAPs						
Decision support system	46	4	72	4	63	4
Strategic management accounting	35	5	58	5	51	5

Total N: Small category=50 firms, and medium category=110 firms. Total=160 firms. MAP: Management accounting practices

Table 2: Results for the frequency of MAPs usage in SMEs

	N	Percentage						
		Total	S1	S2	S3	S4	S5	(S4 and S5)
Overall costing system adoption rate	133	83.1						
Job costing	107	80.5	9.8	12.0	21.1	27.1	10.5	37.6
Batch costing	107	80.5	18.0	11.3	23.3	15.8	12.0	27.8
Contract costing	105	78.9	18.8	12.8	27.1	9.8	10.5	20.3
Process costing	123	92.5	5.3	6.8	22.6	30.8	27.1	57.9
Absorption costing	93	69.9	12.0	9.0	15.0	18.8	15.0	33.8
Variable costing	92	69.2	6.8	9.0	27.1	17.3	9.0	26.3
Variable absorption costing	102	76.7	9.0	3.8	26.3	21.1	16.5	37.6
Activity-based costing	94	70.7	18.0	9.0	18.8	12.8	12.0	24.8
Overall budgeting system adoption rate	122	76.3						
Sales budget	118	96.7	0.8	0.8	8.2	36.9	50.0	86.9
Purchasing budget	115	94.3	2.5	10.7	14.8	31.1	35.2	66.4
Production budget	117	95.9	2.5	6.6	13.9	32.8	40.2	73.0
Cash flow budget	115	94.3	0.8	1.6	13.9	30.3	47.5	77.9
Financial position budget	117	95.9	1.6	0.8	14.8	36.9	41.8	78.7
Monthly budget	98	80.3	12.3	10.7	12.3	23.8	21.3	45.1
Annual budget	119	97.5	1.6	2.5	13.9	31.1	48.4	79.5
Continuous/rolling budget	95	77.9	13.1	5.7	23.0	23.8	12.3	36.1
Flexible budget	101	82.8	5.7	6.6	18.9	29.5	22.1	51.6
Incremental budgeting	98	80.3	10.7	13.1	18.0	23.0	15.6	38.5
Zero-based budgeting	81	66.4	19.7	18.0	16.4	7.4	4.9	12.3
Overall PMS adoption rate	127	79.4						
Operating income	124	97.6	0.0	4.7	10.2	36.2	46.5	82.7
Return on investment	119	93.7	4.7	18.1	26.0	26.8	18.1	44.9
Variance analysis	121	95.3	4.7	7.9	24.4	31.5	26.8	58.3
Sales growth	125	98.4	0.0	2.4	12.6	38.6	44.9	83.5
Cash flows	122	96.1	0.8	3.9	16.5	34.6	40.2	74.8
Number of customer complaints	127	100.0	3.1	9.4	26.0	29.9	31.5	61.4
Survey of customer satisfaction	127	100.0	5.5	15.7	36.2	24.4	18.1	42.5
Number of warranty claims	120	94.5	19.7	22.8	25.2	13.4	13.4	26.8
On-time delivery	127	100.0	1.6	8.7	19.7	37.8	32.3	70.1
Manufacturing lead time	121	95.3	5.5	10.2	18.9	33.1	27.6	60.6
Defect rate	123	96.9	5.5	13.4	18.9	29.9	29.1	59.1
Employee turnover	124	97.6	6.3	16.5	29.1	28.3	17.3	45.7
Absentee rates	122	96.1	7.1	15.0	32.3	25.2	16.5	41.7
Overall DSS adoption rate	101	63.1						
Break-even analysis	94	93.1	5.0	5.9	33.7	26.7	21.8	48.5
Stock control model	95	94.1	2.0	12.9	28.7	33.7	16.8	50.5
Product profitability analysis	98	97.0	1.0	3.0	14.9	53.5	24.8	78.2
Customer profitability analysis	93	92.1	3.0	15.8	30.7	28.7	13.9	42.6
Payback	94	93.1	5.9	16.8	26.7	25.7	17.8	43.6
Accounting rate of return	91	90.1	10.9	14.9	27.7	22.8	13.9	36.6
Net present value	92	91.1	12.9	12.9	28.7	24.8	11.9	36.6
Internal rate of return	92	91.1	12.9	16.8	25.7	25.7	9.9	35.6
Overall SMA adoption rate	82	51.3						
Target costing	80	97.6	2.4	7.3	30.5	31.7	25.6	57.3
Strategic costing	79	96.3	4.9	9.8	34.1	32.9	14.6	47.6
Value chain	79	96.3	3.7	11.0	26.8	36.6	18.3	54.9
Life cycle cost	80	97.6	2.4	9.8	28.0	36.6	20.7	57.3
Strategic pricing	80	97.6	0.0	6.1	26.8	37.8	26.8	64.6
Competitor position monitoring	80	97.6	1.2	14.6	31.7	30.5	19.5	50.0

MAPs: Management accounting practices, DSS: Decision support system, PMS: Performance measurement system, SMA: Strategic management accounting, SMEs: Small and medium-sized enterprises

were based on three main elements; customer perspective; internal processes; and employees'-based components. Table 2 indicates that most PMS adopters make considerable use of a range of performance measures with the adoption rate across categories ranging from a minimum of 27% up to 84%. SMEs make significant uptake on financial-based performance measures such as operating system and sales growth with approximately 83% of total PMS users indicated high use of these measures followed by cash flows by 75% of total adopters. For non-financial performance

measures, on-time delivery is commonly used by 70% of total users followed by number of customer complaints, manufacturing lead time and defect rate with average 60% of total PMS users. The results also show that less than half of the total PMS users make frequent use of employees-based measures as well as return on investment and survey of customers' satisfaction. The lowest performance measure is "frequently" and "very frequently" adopted by PMS users is number of warranty claim with only 27% adopters.

Overall the results suggest that there is high adoption of financial performance measures and greater use on non-financial performance measures based on internal process. The wide use of financial performance measures is similar with previous studies (Joshi, 2001; Abdel-Kader and Luther, 2006; Albu and Albu, 2012). Meanwhile measures related to internal processes and customers which indicate the non-financial performance measures, are found have a high adoption rate among the majority of respondents and consistent with the prior studies (Chenhall and Langfield-Smith, 1998; Abdel-Kader and Luther, 2006; Abdel-Maksoud et al., 2008; Ahmad and Zabri, 2016). Abdel-Maksoud et al. (2008) indicated that most UK manufacturing companies measure performance in terms of delivery timeliness and number of complaints from customers and customer satisfaction. The findings suggest that respondents from the SME sector have a high frequency of use of financial performance measures and are more internal-process and customer focused in measuring non-financial performance.

4.2.4. DSS techniques

The extent of use of DSS was approached through dividing the area between short-run and long run decisions. Table 2 indicates that the overall frequency of use of DSS is moderate with total average of “frequent” and “very frequent” adoption is below than 50% except for product profitability analysis. Product profitability analysis is the most applied DSS technique by 78% of the DSS adopters. This implies that SMEs focus on profitability of their products for making decision. Next stock control is ‘frequently’ and adopted by just over half of responding users followed by break-even analysis with just below 50% of the DSS adopters. Payback period is the most used capital investment techniques with around 44% users as opposed to accounting rate of return, net present value and internal rate of return with around 36% frequent users. Overall the frequency use of DSS is moderate with relatively greater emphasis on the short-run analysis and infrequent use of long-run techniques.

The percentage uptake of product profitability analysis is not consistent with previous studies where Chenhall and Langfield-Smith (1998), Joshi (2001) and Drury and Tayles (2006) found that the product profitability technique was utilized by around 80% of respondents in their studies. This is reasonable as the sample is taken from relatively small-size firms, whereas previous findings mostly included large companies. For break-even analysis, the usage found in this study is in line with the results from the previous studies. For example in Ireland, Szychta (2002) and Abdel-Kader and Luther (2006) found that this technique was utilized by <50% respondents. Capital investment analyses which have been widely explored in many studies suggest a low use of all types of long-run analyses tools especially discounted analyses and this is consistent with the result of this study. Payback is the most popular technique found in the previous studies where Shields et al. (1991) and Yoshikawa (1994) reported usage rates well above 50% among respondents.

4.2.5. SMA techniques

Table 2 shows that there is a low uptake and the level of frequency of use for SMA. The result is expected given the size of the responding firms and the relevancy of SMA for SMEs. Strategic

pricing has the highest frequency rate by 65% of SMA users. Meanwhile both target costing and life cycle cost are frequent and high frequently used by 57% of total SMA adopters. Competitor position monitoring and strategic costing are commonly used by around half of the total SMA users.

The findings are in line with the previous studies where Guilding et al. (2000) who conducted a comparative studies of SMA among large firms in New Zealand, the United Kingdom and the United States found that strategic pricing is the most used technique. Meanwhile target costing is employed by nearly 60% of total SMA users which is consistent with previous studies. Chenhall and Langfield-Smith (1998) revealed that target costing was used by less than 50% of responding firms. Next, Joshi (2001) documented that around 33% of Indian firms utilized this technique. Studies by Cinquini et al. (1999) and Abdel-Kader and Luther (2006) similarly concluded that under a quarter of respondents adopted target costing which is quite low. Overall this study reports general low uptakes of SMA which is consistent with findings from the previous studies (Chenhall and Langfield-Smith, 1998; Guilding et al., 2000; Abdel-Kader and Luther, 2006).

4.3. Test of Differences for MAPs Adopters and Non-adopters on Performance

A normality tests were conducted to test whether financial performance and non-financial performance are normally distributed. The Shapiro-Wilk indicates that both financial performance and non-financial performance have $P < 0.05$ which suggests that the data are not normally distributed. Therefore the non-parametric approach was selected for further analysis. The following subsections presents the results of correlation analysis between MAPs and performance. Mann–Whitney U-test was employed to test the significance difference on performance between MAPs adopters and non-adopters.

The Spearman tests result for the relationship between MAPs and performance in Table 3 reveals that there are positive and significant relationships between costing system, budgeting system, and PMS with financial performance. The results suggest that the higher use of cost information, budgeting and performance measurement are significantly associated with a higher level of financial performance. In term on non-financial performance, the results show that costing system and SMA are positively and significantly associated with this operational performance. The results imply the significance of these MAPs areas towards enhancing the efficiency of operational performance. Lastly there is no significant association found between the use of DSS and performance.

Additional test of differences between MAPs adopters and non-adopters based on five broad area of MAPs is presented in Table 4.

Table 4 presents the Mann–Whitney U-test in examining the differences on performance by MAPs users and non-MAPs users. The result indicates that costing system has significant influence on both financial performance and non-financial performance of the firms. Meanwhile, budgeting system and PMS have statistically higher financial performance than the non-users which indicated

Table 3: Spearman correlation results for MAPs and performance

	Cost	Budget	PMS	DSS	SMA	FP	NFP
Cost							
Correlation coefficient	1.000	0.505**	0.456**	0.398**	0.399**	0.200*	0.162*
Significant (two-tailed)	.	0.000	0.000	0.000	0.000	0.011	0.041
N		160	160	160	159	160	160
Budget							
Correlation coefficient		1.000	0.502**	0.501**	0.369**	0.269**	0.129
Significant (two-tailed)			0.000	0.000	0.000	0.001	0.103
N			160	160	159	160	160
PMS							
Correlation coefficient			1.000	0.475**	0.360**	0.201*	0.055
Significant (two-tailed)				0.000	0.000	0.011	0.493
N				160	159	160	160
DSS							
Correlation coefficient				1.000	0.539**	0.131	0.086
Significant (two-tailed)					0.000	0.098	0.281
N					159	160	160
SMA							
Correlation coefficient					1.000	0.153	0.216**
Significant (two-tailed)						0.055	0.006
N						159	159
FP							
Correlation coefficient						1.000	0.554**
Significant (two-tailed)							0.000
N							160
NFP							
Correlation coefficient							1.000
Significant (two-tailed)							
N							

***: Correlation is significant at the level 0.01 level (2-tailed),*.Correlation is significant at the level of 0.05 level (2-tailed), MAPs: Management accounting practices, DSS: Decision support system, PMS: Performance measurement system, SMA: Strategic management accounting

Table 4: Test of differences for MAPs adopters and non-adopters on performance

MAPs	Financial performance		Non-financial performance	
	Mann–Whitney U	Asymp. significant (two-tailed)	Mann–Whitney U	Asymp. significant (two-tailed)
Cost	1303	0.012	1410	0.041
Budget	1531	0.001	1964	0.103
PMS	1511.5	0.011	1938	0.491
DSS	2524	0.97	2628	0.279
SMA	2619	0.055	2399	0.007

MAPs: Management accounting practices, DSS: Decision support system, PMS: Performance measurement system, SMA: Strategic management accounting

by the $P < 0.05$. The results of is consistent with the findings by Ahmad and Zabri (2016) who found significant associations between NFPMSs and performance. Further, the SMA adopters have significantly better non-financial performance than the non-adopters which indicated by $P = 0.007$. There are no significant differences in performance by the DSS adopters and non-DSS adopters. The results suggest that the traditional MAPs indicated by costing systems, budgeting systems and PMS have significant link with financial performance of SMEs. Additionally, the results suggest that the use of costing and SMA lead to an increase in the business operational performance. In conclusion this study provides support for a claim that there are significant associations of MAPs and firm performance.

5. SUMMARY AND CONCLUSION

This study was designed for exploring the extent of use of MAPs among SMEs in developing country and to find if there are any significant relationships between MAPs and performance. The

results indicate that the uptake for basic MAPs was higher (costing, budgeting, and PMS) than for more sophisticated practices (DSS and SMA). This result has reflected the simple approach of basic MAPs that is suitable and convenience to be adopted in small enterprises environment. In term of firm size, it is clearly that the general uptake of MAPs for medium-sized firms was higher than for small-sized firms. The difference was particularly remarkable for the sophisticated MAPs; budgeting, DSS and SMA where the additional tests indicated that the MAPs usage by medium-sized enterprises was significantly higher compared to the small-sized enterprises. In term of the specific frequency of use of a range of specific MAPs techniques, process costing is the most extensively applied by the responding firms as their cost collection method. The most frequently applied costing techniques are absorption and variable costing among respondents. Responding firms also indicated that full financial budgeting and annual budgeting have been highly used among respondents. With regards of PMS, most respondents showed a great emphasis on financial performance measures. For the non-financial performance measures, measures

related to internal processes and customers are the most common measures. On the other hand measures related to employees are the least used. Next, MAPs techniques listed under DSS and SMA have rather a limited extent of use. For the DSS category, the result suggests that product profitability analysis is used the most. Lastly the results show that the implementation rate for SMA was the lowest among all five broad areas of MAPs.

Despite the revolution in MAPs, research has shown that basic or traditional MAPs are still dominant in most today's firms. It is argued that continuous acceptance of traditional techniques may be attributed to the fact that information and expertise relating to these measures is the most readily available as opposed to that relating to modern management accounting techniques. Consequently sophisticated systems are not widely adopted in practice possibly due to the uncertainties, practicalities and costs involved in obtaining the information.

The findings produce some original results on the use of MAPs by Malaysian SMEs. The results suggest that in general, Malaysian SMEs and especially medium-sized enterprises have wide adoption on basic techniques of management accounting, such as costing system; full budgeting system and PMS. This prioritisation of basic techniques of accounting and management accounting is reasonable and somewhat expected in a smaller business context. Furthermore since the respondents are based in a developing country, the employment of new management accounting skills, such as ABC, SMA and other modern techniques, would expect to be lower than for basic techniques as it is in developed countries. This view is in line with Joshi (2001) who argued that the reasons of a low adoption of newly developed practices are the conservative attitude of management, autocratic leadership, the lack of training, expertise and long term orientation. Furthermore her results show that most respondents believe that the adoption of the new management accounting techniques is expensive. Research in developed countries (Chenhall and Lang-field Smith, 1998; Pierce and O'Dea, 1998; Abdel-Kader and Luther, 2006), although reporting an increasing usage of modern MAPs, agreed that basic or traditional MAPs are still dominant in most firms.

There are significant differences between the implementation rate for sophisticated MAPs techniques between small and medium enterprises. The results suggest that the frequency of use of certain MAPs especially sophisticated MAPs in small firms is significantly lower than for medium firms. The increased uptake of sophisticated MAPs by larger firms is in line with size being a contingent variable for explaining the adoption of such practices. This finding is consistent with prior literature such as Collis and Jarvis, 2002; Al-Omiri and Drury, 2007; Ismail and King 2007; Cadez and Guilding, 2008 and Abdel-Kader; Luther, 2008) even though the population from which the target sample is drawn is unusual in terms of country size and the developing country context. Lastly there are some supports for the hypothesized proposition that there are significance associations between on MAPs adopters (costing system, budgeting system, PMS and SMA) and performance. Thus this study provides support for a claim that MAPs plays significant roles in enhancing firm performance.

Overall this study suggests that within Malaysian SMEs, the use of traditional MAPs is common. Medium-sized enterprises make greater use of MAPs than small firms which consistent with contingency theory of the effect of size on MAPs adoption. Medium-sized enterprises also make a greater use of sophisticated MAPs than small enterprises. MAPs also have significant roles for increasing the level of efficiency and performance of SMEs. This study suggests the need for further research on MAPs and performance in SMEs. To improve an understanding of the effect of MAPs and performance, future research should consider additional variables that could have moderating and mediating roles on the relationship between MAPs and performance. This can be developed through contingency theory that can initiate the development of such theoretical framework. It is important to note that this research was carried out in small number of SMEs from small and medium groups due to the difficulty to obtain fast and valid responses. Higher sample size can increase the validity and generalization of the results.

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