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Management accounting practices of SMEs: The impact of organizational DNA, business potential and operational technology

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ABSTRACT

Changes in global business environment have driven transformation in Small and Medium-size Enterprises (SMEs) to move toward sustainability by focusing on cost efficiency. Management accounting literature continues to suggest the benefits of adopting Management Accounting Practices (MAPs) in improving business sustainability. MAPs provide various tools, techniques and valuable internal information including for budgeting, profit planning and performance evaluation. MAPs are also shaped by management accounting information system. Variations in its application among businesses are common since the management accounting practices are not standardized. This study contributes to the existing gap in management accounting literature particularly from the view of a developing economy by examining the current stage of MAPs development and the impact of three factors (i.e., organizational DNA, business potential, and operational technology) on the MAPs in Malaysia. Since MAPs are organizational-specific, contingency theory was used in this study. A total of 310 questionnaires were sent to SMEs in the east coast of Malaysia and 110 were returned. However, 8 of them were incomplete and thus, excluded from the final analyses. The study suggests that these SMEs adopt the first 2 of the 4 stages of MAPs development based on Nishimura (2003) framework. Furthermore, the regression results show that only operational technology has a positive impact on the MAPs (p -value = 0.005). The other two variables (i.e., organizational DNA and business potential) do not significantly influence the MAPs. These findings are inconsistent with the results documented for large companies and thus, future studies are needed to further explore the MAP issues.

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1. Introduction

Over the past few decades, global business management and accounting researchers demonstrate consistent effort in investigating the Small and Medium-sized Enterprises (SMEs). This sector plays a crucial role in the economic growth in both developing and developed countries (Mitchell & Reid, 2000). Globally, SMEs represent 99% of the business population. As for Malaysia, SMEs represent 97.3% of its registered businesses and contributing 36% of the nation's gross domestic product. Similarly, the existence of SMEs plays a significant role in the economic development in most

countries. Thus, this sector has become one of the interesting subjects for business and management accounting research.

Similar to large organization, SMEs also face issues related to business sustainability as a result of among others, globalization, size, technology advancement, intensified market competition, change in management and constraints in capital funding (Davilla, 2005; Davilla & Foster, 2007; Nandan, 2010; Tuan Mat, 2010; Ahmad, 2012; Sleihat, Al-Nimer, & Almahamid, 2012; Fasesin, Salman, & Dunsin, 2015; Messner, 2016). According to Senftlechner and Hiebl (2015), for businesses to survive and remain sustainable, they need to take into account financial information as well as non-financial information. For this particular reason, Management Accounting (MA) can be regarded as value-added accounting knowledge for SMEs in order to assist them in improving their managerial functions since MA incorporates and emphasizes both financial and non-financial information. Thus, management accounting is indeed important to support the business functions (Davilla, 2005; Lavia Lopes & Hiebl, 2015).

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The importance of management accounting knowledge to managers has been reported by many researchers including Reid and Smith (2002). They state that firms can gain access to financial and non-financial information to help improve their current operations through the use of Management Accounting Practices (MAPs). Similarly, Ahmad (2012) also reports that MAPs can enhance business profitability through continuous waste reduction and effective resource utilization.

International Federation of Accountant (1998) defines MA as a specialized field of accounting which focuses on information for managerial planning, evaluating, and controlling in organizations. MAPs, a subset of MA and refer to tools and techniques specifically designed to support the management functions in improving operational efficiency and achieving optimal performance. Thus, innovations in MAPs occur in line with the evolution of MA (Davilla & Foster, 2005). According to Nishimura (2003), MA evolution can be divided into four main stages where every stage has its own objectives and focus. The variations in objectives and focuses also reflect the importance of the different stages in assisting businesses. Table 1 presents the objectives and focus of each stage in the MA evolution based on Nishimura (2003) framework.

In Nishimura (2005) the author further explained that the changes in MAPs were due to challenges faced by businesses, both internally and externally. Various studies were conducted to examine the possible internal and external factors which can influence the MAPs changes as well as its usage in organizations. Among them include Davilla (2005), Davilla and Foster (2005; 2007), Tuan Mat (2010), Ahmad (2012), Alsoboa and Aldehayyat (2013), Hiebl, Feldbauer-Durstmüller, and Duller (2013), Lay (2014) and Messner (2016). The study by Davilla (2005) and Davilla and Foster (2005; 2007) which specifically focus on the impact of internal factors (i.e., size and change in top management personnel), reports a positive impact of the selected factors on the use of Management Control Systems (MCS) in growing or small firms in the United States (US). The study concludes that as the size of firms expands (proxied by the number of employees), the need for having formal interactions between higher and lower management personnel increases and thus, it is crucial to install MCS in the firms. Davila's finding is later supported by Hiebl et al. (2013). The research reveals a similar finding where the additional number of headcount (employees) significantly influenced the MA used by the firms. This finding explains the need to have a formal control between the higher and lower level personnel in order to achieve optimal performance.

In terms of external forces, Amat, Carmona, and Roberts (1994) discloses a positive impact of market competition on the use of MA in SMEs in Spain. The result indicates that as competition in the market becomes intense, the usage of MA also increases. This is because the competition indirectly puts pressures on the organizations to acquire more information, not only financial but also non-financial matters to ensure they remain competitive (cited in Lavia López & Hiebl, 2015). Ahmad (2012) who also examines the

impact of external factors (i.e., advanced manufacturing technology) concludes that the implementation of MAPs in Malaysian manufacturing firms is significantly associated with the selected contingent factors. Since all of the studies mentioned was conducted in the different study settings (in terms of geographical region or industry), the results documented might be varied. This is consistent with the notion acknowledged by Messner (2016) who clearly state that the industry plays a crucial role in influencing the outcome of the study.

The contingency theory was adopted as this study aims to determine the impact of organizational DNA (consists of size, competitive strategy and decentralization), business potential (consists of customer's power, technology advancement and market competition) and operational technology (consists of complexity of processing systems, advanced manufacturing technology and total quality management) on the use of MAPs. The theory supports the idea that there is no universally appropriate accounting system that applies equally to all organizations in all circumstances (Otley, 1980).

Despite the managerial benefits provided by MAPs, at present there is still a lack of exposure on MAPs especially among Malaysian SMEs (Ahmad, 2012). This may be due to the lack of specific training in MAPs and the fact that MA is not a mandatory practice. Thus, the present research is designed to achieve the following objectives: (i) to examine the current stage of MAPs among Malaysian SMEs, and (ii) to determine the impact of organizational DNA, business potential and operational technology on MAPs. This study is also expected to add more empirical evidence on MA from developing countries to close the gap which had been highlighted by Lavia López and Hiebl (2015). The research questions for this study are as follows:-

- 1) What is the extent of MAPs practiced by Malaysian SMEs?
- 2) What is the impact of organisational DNA on the MAPs?
- 3) What is the impact of business potential on the MAPs?
- 4) What is the impact of operational technology on the MAPs?

2. Data, methodology and empirical results

2.1. Data and methodology

This study focuses on SMEs on the east coast of Malaysia represented by three states which are: (i) Kelantan; (ii) Terengganu; and (iii) Pahang. The selection of these areas as the sample of the study was due to the fact that they had received several investments incentives under the East Coast Economic Region (ECER) Empowering Program introduced by the Malaysia Government (East Coast Economic Region (ECER), n.d.). A survey questionnaire was used for data gathering. The population of the study comprises of the SMEs in the SME Corp's 2013 Directory where a total of 2104 SMEs were listed. A pilot test was performed on 20 SMEs located in

Table 1
The evolution of MA.

Stage	Focus and Techniques or Tools
Stage 1 (Drifting MA)	Focus: Management and control decision through the use of actual costing and past financial data. Techniques or Tools: Financial ratios and comparative business analysis.
Stage 2 (Traditional MA)	Focus: Efficient MA through the utilization of scientific management. Techniques or Tools: Cost-Volume-Profit (CVP) and responsibility accounting.
Stage 3 (Quantitative MA)	Focus: Controlling the planning process and forecasting the business future. Techniques or Tools: Economic Order Quantity (EOQ) and inventory management.
Stage 4 (Integrated MA)	Focus: Integration of management accounting and organizational management. Techniques or Tools: Target costing and lean production.

Table 2
Population and sample size.

No.	Region	Population	Sample
1	Terengganu	812	38.60%
2	Kelantan	734	34.88%
3	Pahang	558	26.52%
Total		2104	100%

Note: The total number of sample size is taken from the table suggested by Sekaran and Bougie (2010).

the state of Terengganu. Using the sample size table suggested by Sekaran and Bougie (2003, p.294), 327 SMES with addresses in the east coast were systematically chosen. A set of questionnaire was mailed to the owners of the sampled SMEs. Two versions of the questionnaires were available (English and Malay) and sent to the respondents together with self-addressed, stamp-paid envelope. The collected data was analysed using Statistical Package for Social Sciences (SPSS) and Structural Equation Modelling (SEM). Table 2 presents the population and sample size of the study.

2.2. Empirical results

A total of 110 responses were returned but 8 of them had to be excluded due to incomplete information. Thus, only 102 sets of the surveyed data were used in the final analyses.

2.2.1. Demographic data of respondents

Table 3 indicates that the majority of the respondents (36.3%) were employed as accounts clerks while 26.5% were accountants or finance managers. Owners and directors represent 16.7% and 11.8% of the respondents, respectively. The last two categories of the participants were administrative clerks (6.9%) and production managers (2%). The majority of the respondents (78.4%) completed their tertiary education with 35.3% holds either a diploma or the national high school certificates and 41.1% completed the bachelor's degree. A very small percentage (2%) of them equally holds the master's degree and the doctoral degree. The remaining 3.9% of the respondents reports having other types of education. Thus, these SMEs are generally managed by educated individuals.

2.2.2. Demography data of SMEs

Table 4 reveals that 46 firms (45.1%) have been in the SME business for more than 10 years, and 42 firms (41.2%) between 4

and 10 years. Only 14 of the SMEs report having between 1 and 3 years of operations. The majority of the respondents (64.7%) are in the service sector, 16.7% involves in the manufacturing sector while 18.6% falls under 'others industry' sector. Therefore, SMEs in Malaysia are dominated by service oriented businesses.

Table 4 also shows that 83.3% of the firms employ between 5 and 29 staff, 12.7% of them have between 30 and 74 employees while 3.9% keep between 75 and 200 employees. As for annual revenues, 30.4% report sales below RM300,000, 41.2% experience revenues in the range between RM300,000 to RM3 million, 16.7% in the RM3.1million to RM15million bracket while the remaining 7.8% and 3.9% were in the RM15million to RM20million, and more than RM20 million, respectively. Thus, the SMEs are relatively very small with only 4% having annual sales exceeding RM20 million.

2.2.3. MAPs currently practiced by SMEs

In order to assess the current MAPs, the questionnaire listed 16 MAPs from four stages of the MA evolution based on the Nishimura (2003) framework. The respondents were asked to rank the practices that are currently used by their organizations. A 5-point Likert scale of 1 (Never) to 5 (Very Often) was used. Table 5 presents the descriptive statistics for the current MAPs among the respondents. Generally, the basic techniques from the first and second stages still dominate among the SMEs. The highest mean value of 3.4118 was obtained for stage 1(Drifting MA) and a mean value of 3.3480 for stage 2 (Traditional MA). However, contrary to expectation that the adoption of the MAPs should be in sequence, this study shows otherwise. The mean value for stage 3(Quantitative MA; mean = 2.703) was lower than that for stage 4 (Integrated MA; mean = 2.9069). Thus, the flexibility of MAPs allows SMEs to skip the third stage and moved on to the more recent, integrated stage of management accounting.

2.2.4. The impact of organizational DNA, business potential and operational technology

In this part, the respondents were asked to rank the level of influence of selected independent variables (i.e., organizational DNA, Business Potential and Operational Technology) on MAPs in their organizations. In examining the impact, 3 questions were addressed for each variable.

Table 6 presents the path analysis of the results for the independent and dependent constructs generated using Structural Equation Modelling (SEM). The path coefficient between

Table 3
Demography of the respondents.

No.	Profile	Description	Respondents	Percentage (%)
1.	Positions in the organization	Accountant/Finance Manager	27	26.5
		Production Manager	2	2.0
		Owner	17	16.7
		Director	12	11.8
		Accounts Clerk	37	36.3
		Administrative Clerk	7	6.9
2.	Gender	Male	29	28.4
		Female	73	71.6
3.	Academic Qualification	SPM/Malaysian Certificate of Education	16	15.7
		Diploma/STPM/Malaysian Higher School Certificate	36	35.3
		Degree	42	41.1
		Master	2	2.0
		Ph.D	2	2.0
		Others	4	3.9
4.	Working Experience	Less than 1 year	17	16.7
		2 to 4 years	27	26.5
		4 to 5 years	17	16.7
		6 to 10 years	36	35.3
		More than 10 years	5	4.9

Table 4
Profile of SMEs.

No.	Profile	Description	Respondents	Percentage (%)
1.	Years of operation	1-3 years	27	13.7
		4-10 years	2	41.2
		More than 10 years	17	45.1
2.	Sector/Industry	Manufacturing	17	16.7
		Services	66	64.7
		Others	19	18.6
3.	Full Time Employees	5–29	85	83.3
		30–74	13	12.7
		75–200	4	3.9
4.	Annual Sales Turnover	Less than RM300,000 (USD68119.89)	31	30.4
		RM300,000 to RM3 million (USD68119.89 to USD681198.91)	42	41.2
		RM3.1 million to RM15 million (USD703905.54 to USD3405994.55)	17	16.7
		RM15.1 million to RM20 million (USD3428701.18 to USD4541326.07)	8	7.8
		RM20.1million to RM50 million (USD4564032.7 to USD 11353315.18)	4	3.9

Note: RM (Ringgit Malaysia); USD (US Dollar).

Table 5
The current usage of MAPs statistics.

		Stage 1 Drifting MA	Stage 2 Traditional MA	Stage 3 Quantitative MA	Stage 4 Integrated MA
N	Valid	102	102	102	102
	Missing	0	0	0	0
Mean		3.4118	3.3480	2.7034	2.9069
Median		3.6250	3.5000	2.5000	3.0000
Mode		4.00	4.00	2.00	3.00
Std. Deviation		1.07264	1.04961	0.98612	1.04237

Table 6
Causal effect test between exogenous and endogenous constructs.

Construct	Path	Construct	Estimate	S.E	C.R	P	Result
MAPs	←	Organizational DNA	0.035	0.108	0.321	0.748	Not Significant
MAPs	←	Business Potential	0.010	0.090	0.110	0.913	Not Significant
MAPs	←	Operational Technology	0.232	0.072	3.203	0.001	Significant

organizational DNA and MAPs is 0.035, followed by the business potential (0.010), and 0.232 for operational technology. Each value of the coefficients represents the resulting effect on MAPs for every unit increase in organizational DNA, business potential and operational technology. The results indicate that only operational technology has a significant positive impact on the MAPs (p -value = 0.001). On the other hand, both organizational DNA (p -value = 0.748) and business potential (p -value = 0.913) show a negative impact on the MAPs.

3. Discussions and conclusions

The results presented in Table 5 provide evidence that the majority of SMEs in Malaysia are still practicing the traditional MAPs. The findings thus, support the study by Sumkaew, Liu, and McLaren (2012) which was also conducted in a developing country which is Thailand. The present study concludes that the use of advanced MAPs in the developing countries are still very low, probably due to the lack of knowledge on the benefits of MAPs in businesses. The finding also supports the notion proposed by Davilla and Foster (2005; 2007) which states that forward looking MAPs (which

basically looks at the financial information only; i.e., Stage 1 and 2) is adopted more than the financial monitoring practices (which looks at both the financial and non-financial aspect; i.e., Stage 3 and Stage 4). In terms of more SMEs practicing the latest stage than the third stage of MAPs, this study reports similar findings as Mahfar and Omar (2004) and Ahmad (2012). The results thus, suggest the flexibility of MAPs implementation where in using the MAPs, it is not necessary for organizations to follow the MAPs sequence of development. Rather, SMEs could choose any stage of the MAPs to match with their business operation needs.

This study also assesses the impact of selected contingency fits (i.e., organizational DNA, business potential and operational technology) on the MAPs and reveals that only operational technology (consists of complexity of processing systems, advanced manufacturing technology and total quality management) has a significant positive impact on MAPs (p -value = 0.001). The result aligns with the findings of Isa and Thye (2006) in Malaysia. Al-Omiri (2003) also reports that Just-In-Time system (an operational technology) positively affects the MAPs. However, this result is inconsistent with the study by Abdel-Kader and Luther (2006) in the UK. They report a lack of relationship between processing

system complexity and the MAPs. One explanation for the current research outcome is that as the SMEs increase the use of operational technology in their operation, the need to have sophisticated costing practices also increases. In other words, implementing improved operational technology produced increased efficiency through improved costing system and thus, MAPs.

This research also shows that there is no significant relationship between business potential (consists of customer's power, technology advancement and market competition) and the MAPs. The predicted positive relationship between business potential and MAPs is rejected and thus, supports Leftesi (2008) who reports no effect of market conditions on the use of MAPs in Libya. Similarly, Isa and Thye (2006) also documents a negative relationship between the advanced usage of MAPs and the market conditions. However, the results of the present study is inconsistent with Nimtrakoon and Tayles (2010), Tuan Mat (2010), Ahmad (2012), Alleyne and Weekes-Marshall, 2011 and Lavia López and Hiebl (2015) among others, who conclude significant effect between MAPs and market competition. Furthermore, Abdel-Kader and Luther (2006) also shows a significant impact of customer power on the MAPs adoption.

The variation in the results could be due to the study setting. The present research was conducted in the East Coast of Malaysia where the competition is still relatively low and the technology used by the SMEs is not as advanced as those in other settings. Also, the organizational DNA (consists of size, competitive strategy and decentralization) has no impact on MAPs among the SMEs. Thus, the findings support the studies by Abdel-Kader and Luther (2008) and Leftesi (2008) but inconsistent with Nimtrakoon and Tayles (2010), Ahmad (2012) and Hiebl et al. (2013). However, these two variables have been shown to influence MAPs in large Malaysian companies. The different findings could be attributable to the regional factor since SMEs in the east coast are less advanced than SMEs on the west coast. Furthermore, the former may also be at a disadvantage in terms of having less exposure to the MAPs and MA knowledge. The variance of the reported findings may also be due to the items tested.

In conclusion, future research may be performed to further explore the MAPs issues within the Nishimura (2003) framework among SMEs in the Asian region. The research will be expected to close the gap in the MA literature especially from the views of developing countries in Asia. In the future, a longitudinal study could be performed to examine the impact of the age of SMEs and the MAPs. This age comparison will provide information on how sophisticated MA had been practiced in order to move towards ensuring business sustainability in this rapidly growing business of SMEs.

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