Asian Journal of Accounting and Governance **1**: 51-78 (2010) ISSN 2180-3838

Contingency Factors of Management Accounting Practices in Thailand: A Selection Approach

SIRINUCH NIMTRAKOON*

University of the Thai Chamber of Commerce, Thailand

MICHAEL E. TAYLES

Hull University Business School, UK

ABSTRACT

This paper aims to investigate the certain types of management accounting practices (MAPs) that are appropriate to the specific characteristics of Thai companies. The study uses survey method to obtain 135 responses from accounting managers of both manufacturing and non-manufacturing industries listed on Stock Exchange of Thailand (SET). Perceived environmental uncertainty (PEU), competitive strategy, and size were found to have impact on MAPs. Firms operating in higher PEU obtain higher benefit from both contemporary and traditional MAPs. In line with expectations, firms pursuing prospector strategies perceive higher benefit from contemporary MAPs than those pursuing defender strategies. No relationship has been found between competitive strategy and traditional MAPs. Larger firms also obtain higher benefit from both contemporary and traditional MAPs than smaller firms. The findings confirm the premise that firms' characteristics reflected in exogenous, strategy, and endogenous variables have influence on the design of management accounting systems in organizations. In particular, prospector firms and those facing high levels of environmental uncertainty should consider increased use of contemporary MAPs. Academics and practitioners should note the continuing benefit perceived from traditional MAPs, a feature confirmed in many pieces of international research.

* Sirinuch Nimtrakoon, School of Accountancy, University of the Thai Chamber of Commerce, 126/1 Vibhavadee-Rangsit Road, Dindaeng, Bangkok 10400, Thailand. e-mail address: sirinuch_nim@utcc.ac.th

Keywords: Management accounting practices (MAPs), perceived environmental uncertainty (PEU), competitive strategy, strategic mission.

INTRODUCTION

There have been significant changes in management accounting over recent decades. This can be seen in the development of various innovative management accounting practices (MAPs) across a range of industries (Abdel-Kader & Luther, 2008). The change in management accounting has been driven by many business changes including the changes in organizational designs, competitive environments, information technologies, and advanced manufacturing techniques (Burns & Vaivio, 2001; Waldron, 2005). Management accounting has gradually developed from the traditional concepts of formal, internal and financial information to the contemporary concepts of informal, external and non-financial information (Chenhall, 2003).

Regarding conventional wisdom, traditional MAPs have been criticized for losing their relevance to the modern business environment, and no longer coping with contemporary business activities and the maintenance of competitive advantage. This has led to the emergence of more recently developed MAPs, which are claimed to provide more relevant, accurate and appropriate information (Johnson & Kaplan, 1987).

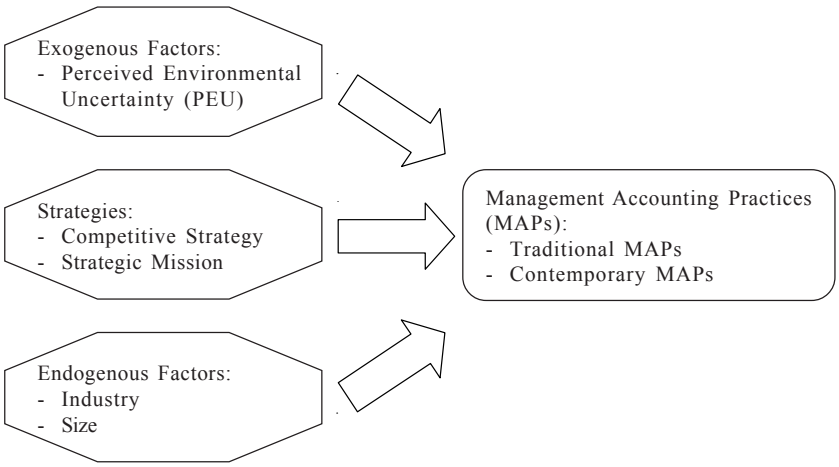
The studies on the adoption of both traditional and contemporary MAPs over the past ten years have revealed some contradiction to the conventional wisdom. The adoption rates of contemporary MAPs are disappointing while those of traditional MAPs remain high across different countries including U.K., U.S., Australia, New Zealand, and Asian countries (Adler, Everett & Waldron, 2000; Bright, Davies, Downes & Sweeting, 1992; Chenhall & Langfield-Smith, 1998; Drury, Braund, Osborne & Tayles, 1993; EI-Ebaishi, Karbhari & Naser, 2003; Guilding, Cravens & Tayles, 2000; Phadoongsitthi, 2003; Sulaiman, Ahmad & Alwi, 2004; Szendi & Elmore, 1993). Hence, it may be too early to conclude that traditional MAPs have completely lost their importance, and the adoption of contemporary MAPs may not guarantee the success of organizations. Indeed, the use of different MAPs may depend on the particular circumstance in which the organization operates.

In this paper, contingency theory, proposing the concept of fit between organizational characteristics and contingency factors, is used to explain the adoption of different MAPs in organizations. The main theme of contingency theory to management accounting is that there is no unique management accounting system for all organizations in all circumstances. Instead, the appropriate management accounting system is dependent on the specific circumstance of the organization, indeed, it is developed responding to a set of contingency factors (Otley, 1980). From the literature, many contingency factors

have been examined such as environment, technology, organizational structure, size, strategy, and culture (Chenhall, 2003).

There have been the recent calls for additional research in order to enhance the understanding of potential contingency factors which explain MAPs (Gerdin, 2005; Tillema, 2005). Accordingly, this paper follows this research stream based on the tradition of a contingency approach claiming that MAPs of an organization evolve overtime depending on firms' characteristics and contingencies reflecting from the particular situation of each organization. It aims to investigate the certain types of MAPs that are appropriate to the specific characteristics of Thai companies. Instead of focusing on a single practice or a limited set of MAPs, the current study considers a broad range of practices (43 items), which can be categorized into traditional and contemporary MAPs. Three categories of contingency factors, which reflect the characteristics of Thai's firms, were examined including exogenous factors (perceived environmental uncertainty: PEU), strategies (competitive strategy and strategic mission), and endogenous firm-specific factors (industry and size). Figure 1 illustrates contingency factors and their relationships with MAPs.

The rest of the paper is organized as follows. An overview of the relevant literature and hypotheses development is provided in the next section. The detail of the research design and data collection is then mentioned, followed by the presentation and interpretation of research findings. It concludes with a summary and conclusion.



Source: Adapted from Anderson & Lanen (1999)

Figure 1 Contingency Factors and Their Relationships with MAPs

THEORETICAL FRAMEWORK AND DEVELOPMENT OF HYPOTHESES

Traditional and Contemporary Management Accounting

Regarding management accounting studies, different terms have been used by researchers. Management control systems, management accounting system, and management accounting are used interchangeably. 'Management control system is viewed as a broader term that encompasses management accounting systems and management accounting, and also includes other controls such as personal or clan controls. Management accounting system refers to the systematic use of management accounting to achieve some goal. Management accounting is regarded as a collection of practices such as budgeting or product costing' (Chenhall, 2003, p. 129). Those practices within in the definition of management accounting can be referred to management accounting practices (MAPs).

No matter which terminologies have been used two different but related concepts of management accounting have emerged; traditional and contemporary approaches. In line with business changes, management accounting has gradually evolved over time from narrow scope (traditional approach) to broader scope (contemporary approach) of information. The traditional concept of management accounting involves formal, financial, and historical information mainly derived from a financial accounting system. It provides information focusing on internal events of an organization, and involving a short-term perspective. There is no strategic focus related to this approach. The time period is mainly related to the financial accounting period or calendar time. Typical cost objects are considered such as products or responsibility centres; hence, unit-level drivers are normally used including production volume, labour hour, and machine hour (Bjørnenak & Olson, 1999).

In contrast, the contemporary concept of management accounting refers to informal, non-financial, and future orientated information. Management accounting information provided by this approach focuses on external events to an organization such as information related to customers, suppliers, competitors, and communities. It is based on a longer-term perspective, and a strategic orientation. The time period to provide information is more flexible depending on management needs. A greater variety of cost objects are involved. These can be products, departments, customers, activities, distribution channels, brands and market segments, or even competitors. Thus, both volume and non-volume drivers are used (Bjørnenak & Olson, 1999). In this research, we focus on the benefit obtained from both traditional and contemporary MAPs.

Contingency Theory Framework

Contingency theory appeared in the management accounting literature around the mid 1970s. The premise of the contingency approach to management accounting was proposed as 'there is no universally appropriate accounting system which applies equally to all organizations in all circumstances. Rather, it is suggested that particular features of an appropriate accounting system will depend upon the specific circumstances in which an organization finds itself' (Otley, 1980, p. 413). Even though it has been criticized that its application is unclear and its findings are inconsistent (Fisher, 1995), contingency framework has been widely adopted in management accounting research as the useful conceptual framework for over three decades. Unceasing empirical studies of this research steam confirm the importance and validity of contingency theory framework (Gerdin & Greve, 2004).

The empirical studies based on contingency theory since 1980s have been reviewed by Chenhall (2003). His article indicates many potential contingency factors that may explain the effectiveness of management control systems including environment, technology, size, structure, strategy and national culture. It is claimed that these contingencies still maintain their importance to the present-day context of management control systems. In his review, there are three different forms of theoretical fit used to classify contingency based research; selection, interaction and systems approaches.[†] In the paper by Luft & Shields (2003), theories used in contingency based management control systems research are discussed and refined. A more complicated classificatory framework for mapping different forms of contingency fit is provided by Gerdin & Greve (2004). In this paper, a selection approach is used as theoretical form of contingency fit. The relationships between each contingency and MAPs are investigated without the link to organizational performance.

Development of Hypotheses

Five contingency factors are selected for this research according to their reflection of the characteristics Thai firms possess. They can be separated into three groups, which are exogenous factor (PEU), strategies (competitive strategy

[†] Selection approach aims to investigate the relationship between contextual factors and the aspects of management control systems without being concerned about their relationship with performance. Interaction studies attempt to examine the moderation of contextual factors on the relationship between management control systems and firms' performance. Systems models consider various combinations of multiple aspects of management control systems and contextual factors in order to improve organizational performance (Chenhall, 2003, p. 155).

and strategic mission), and endogenous factors (industry and size). It is believed that the firms' characteristics may influence the design of management accounting system. The hypotheses have been developed related to these contingency factors, which have been used in prior research. They are briefly elaborated below.

Exogenous Factor: Perceived environmental uncertainty (PEU)

Perceived environmental uncertainty (PEU) is perhaps the most widely used as the external environmental variable in contingency based research (Chenhall, 2003). Many researchers examined the effect of PEU on the design of management accounting systems, and found that PEU has been associated with the usefulness of broad scope information. More specifically, additional information should be provided for managers facing high uncertainty in order to improve their decisions and firms' performance (Chenhall & Morris, 1986; Chong & Chong, 1997; Gordon & Narayanon, 1984; Gul & Chia, 1994). In other research, the moderator effect of PEU on the relationship between the use of management accounting system and managerial performance has been explored. It was found that a sophisticated management accounting system had a positive effect on firm performance under high levels of PEU (Agbejule, 2005). Recent research investigated the relationship between PEU, supplier development and the use of broad scope management accounting system information. The findings indicated that the increase in PEU motivates firms to adopt more supply chain strategies, which place more demands on the use of management accounting system (Agbejule & Burrowes, 2007). These research findings lead to the conclusion that PEU is a potential contextual variable in a contingency model. The relationship between PEU and MAPs is proposed in hypothesis 1.

H1: Firms operating in higher PEU obtain higher benefit from contemporary MAPs than those operating in lower PEU.

Strategies

It has been argued that strategy is distinct from other contingency factors. 'It is not an element of context, rather it is the means whereby managers can influence the nature of the external environment, the technologies of the organization, the structural arrangements and the control culture and the management control system' (Chenhall, 2003, p. 150). A summary of research into management control systems and strategy was provided by Langfield-Smith (1997). Regarding several generic taxonomies, two strategic variables are considered due to their different dimensions of strategy. These are the competitive strategy of Miles & Snow (1978) and strategic mission of Gupta & Govindarajan (1984; 1984). Competitive strategy (Miles & Snow, 1978) involves prospector, defender, analyzer where

prospectors value being first in and respond to early signals; defenders, by contrast, are more inwardly focused trying to protect their domain. Strategic mission (Gupta & Govindarajan, 1984; 1984) is designed to determine where a business lies on the spectrum range from pursuit of high market share (build) to the pursuit of short-term profit (harvest). A contingency theory framework proposes that there should be the certain types of management control system, which are more appropriate to particular strategies.

Competitive Strategy of Miles & Snow (1978)

A study by Abernethy & Brownell (1999) examined the relationship between strategic change (moving along the defender / prospector continuum), style of budget use, and performance. It was found that firms with strategic change (more prospector type) used budgets interactively, a more organic style of control. Guilding (1999) found evidence indicating that prospector firms use and perceive helpfulness from competitor-focused accounting more than other firms. Recently, Jusoh, Ibrahim, & Zainuddin (2006) explored the alignment between business strategy and the use of multiple performance measures, particularly balanced scorecard. The findings indicate that prospector firms using customer and learning and growth measures have higher performance while defender firms using financial measures have higher performance. These research findings lead us to conclude that strategic typology is a potential contextual variable. The relationship between strategic typology and MAPs is proposed in hypothesis 2.

H2.1: Firms with prospector type of strategy obtain higher benefit from contemporary MAPs than those with defender type of strategy.

H2.2: Firms with defender type strategy obtain higher benefit from traditional MAPs than those with prospector type of strategy.

Strategic Mission of Gupta & Govindarajan (1984; 1984)

It was found that firms which adopt a build strategy are more likely to place greater reliance on long-run performance than firms which adopt a harvest strategy (Govindarajan & Gupta, 1985). Guilding (1999) reported that firms pursuing a build strategic mission have greater tendency to adopt strategic pricing and strategic costing as well as perceiving greater helpfulness from these practices. Such research findings lead us to conclude that strategic mission is a potential contextual variable. The relationship between strategic mission and MAPs is proposed in hypothesis 3.

H3.1: Firms with build strategic mission obtain higher benefit from contemporary MAPs than those with harvest strategic mission.

H3.2: Firms with harvest strategic mission obtain higher benefit from traditional MAPs than those with build strategic mission.

Endogenous Factors

Industry

Most of the management accounting research based on contingency theory has been predominantly involved with manufacturing organizations. Little research has investigated the MAPs of firms in service and other sectors. This together with the increasing importance of service industries provides research opportunities. It is interesting to identify the particular kind of MAPs that are appropriate to firms in different industries. Jones (1988) reported a greater role for competitor-focused accounting in high technology and highly competitive industries. Foster & Gupta (1994) found that industry factors have significant impacts on the use of accounting information in marketing decision-making. These findings make industry a potential contingency factor, and motivate hypothesis 4 as below.

H4: There is a significant variation in benefit obtained from MAPs across different industries.

Size

Although few studies of management control systems have explicitly used size as a contingency variable, firms' size is regarded as a vital factor. It is claimed to have influence on the adoption of MAPs (Abdel-Kader & Luther, 2008). The increase in size provides firms more opportunities for specialization, more power in controlling their operating environment, and more resources to expand their business at a global level. From previous studies, there was evidence supporting a positive relationship between size and greater use of, and greater perceived helpfulness in, competitor-focused accounting (Guilding, 1999). Larger organizations were found to adopt more sophisticated MAPs than smaller organizations (Abdel-Kader & Luther, 2008). Larger firms with greater quantities of information may require more emphasis on formal management control systems such as participation in budgets as well as more sophisticated control (Chenhall, 2003). These research findings lead to the conclusion that size is a potential contextual variable in a contingency model. The relationship between size and MAPs is proposed in Hypothesis 5.

H5: Larger firms obtain higher benefit from contemporary MAPs than smaller firms.

RESEARCH DESIGN AND DATA COLLECTION

Research Method and Research Instrument

The survey was conducted based on the postal questionnaire. To increase the accuracy of the replies, the questionnaire needed to be administered to the appropriate respondents. The Senior Accounting Executive of each company was the targeted respondent. Therefore, phone calls were undertaken to all the companies before the survey was conducted to obtain permission to send the questionnaire and to obtain an agreement to complete it as well as to verify the names and addresses of the appropriate business units. The most suitable person to respond to the questionnaire was also sought via these phone calls; these were mainly accounting managers, accountants, financial controllers, and chief executives.

The questionnaire was designed to acquire the information about MAPs, competitive strategy, strategic mission, PEU and organizational attributes from the companies in Thailand. It consists of five sections. The first section was related to the adoption and benefits of MAPs. The second section was about strategy which was divided into competitive strategy (defender and prospector) and strategic mission (build and harvest). Section three focused on environmental uncertainty whereas section four was related to general characteristics of the companies.

The questionnaire was initially prepared in the English language, and subsequently translated into Thai language suitable for the potential respondents. From the phone calls, it was found that most of the likely respondents were Thai, and they may feel more comfortable to respond to the questionnaire in Thai language. There were only two companies requesting English versions of the questionnaire because the potential respondents were foreigners. The questionnaire was validated using reverse translation. It was concluded that the English and Thai version questionnaires had the same contents and meanings. The translation was also applied to the cover letter and the glossary which were included in the survey package. The cover letter was developed by careful consideration, and used to explain the purposes and the detail of the survey. To decrease any confusion, the important terminologies in MAPs were provided in the glossary in order to assist the respondents in interpretation.

The pilot tests were conducted for both English and Thai versions in order to refine the questionnaire. Both academics and practitioners in UK and Thailand were involved in the pilot study. For the English version, the questionnaire was pilot tested with two academics and one practitioner. The Thai version questionnaire was pilot tested with five academics and eleven practitioners. The comments from the pilot study were taken into account and used to adjust

the questionnaire in order to improve the clarity and relevance of the research instrument.

Population and Sample

The companies listed on Thai Stock Exchange (SET) were considered as the population and sample frame of this research. There are 471 companies across different industries both manufacturing and non-manufacturing companies. However, five companies from two industries; mining and professional services were discarded from the survey due to their inappropriateness. Regarding phone calls to the companies, 12 companies refused to answer to the questionnaire; hence, they were excluded from the sample. The survey packages were delivered to 454 companies by post during 2008. However, one blank questionnaire due to invalid address was returned. Two incomplete questionnaires were returned due to ineligibility to respond because the respondents recognised that they had insufficient knowledge to answer to some particular questions. This makes possible responses 451 companies.

There were 43 returned questionnaires from the first mail. Three weeks later the second survey packages were administered to those who had not yet returned the questionnaires. We received 45 returned questionnaires from the follow-up mailing. Phone call reminders were carried out to those respondents who had not yet replied after three weeks of the second mail. There were 47 replies from the phone call reminders. This yielded to 135 returned questionnaires; nevertheless, some of these contained missing or unclear information. To minimize the problem from missing data, the respondents where missing data applied were telephoned to clarify the answers. Subsequently, 135 completed and usable responses or 30 percent response rate (135/451) was achieved, which is favourable for this kind of research.

Response and non-response bias analysis was examined by comparing the responses from the first mail (43 replies) and those from phone call reminders (47 replies). Independent sample *t*-test was conducted to test the significant differences in the mean scores of key variables. Most of the key variables were chosen and tested including MAPs, competitive strategy, strategic mission, and PEU. The results showed that there are no statistically significant differences in the mean scores between the former and latter responses. This provides evidence to support the case of the absence of a non-response bias.

The Measurement of Variables

The data were collected to measure the adoption and benefit of a broad set of MAPs and contingency factors including PEU, competitive strategy, strategic mission, industry and size.

The Measurement of MAPs

A comprehensive list of MAPs was developed by adapting previous studies of Chenhall & Langfield-Smith (1998; 1998), Adler et al. (2000), Joshi (2001), Luther & Longden (2001), and Phadoongsitthi (2003), resulting in 43 items (shown in Appendix A). This related to the adoption of each practice and the benefit gained from those practices adopted by Thai companies. The respondents were asked to indicate the extent of benefit obtained from each practice, which is placed on a seven-point Likert-scale ranging from no benefit (scored one) to high benefit (scored seven).

Factor analysis was conducted to reveal the underlying constructs among MAP items. Principal axis factoring was applied as the factor extraction due to the violation of the normality assumption of the data (Fabrigar, Wegener, MacCallum, & Strahan, 1999). Direct oblimin was used as factor rotation according to expected correlations among derived factors. This method allows the factors to be related rather than remaining independent (Field, 2005). The factor loadings ± 0.50 or above are regarded as significant due to the sample size of 135 responses (Hair, Black, Babin, Anderson & Tatham, 2006).

Four factors of contemporary MAPs and three factors of traditional MAPs were generated. Cronbach's alpha of each factor is greater than the minimum limit of 0.70, indicating acceptable reliability (Hair et al., 2006). The details of items loaded onto each factor and Cronbach alphas are shown in Appendix B. Factors were given the name based on the nature of the constituent items. A composite measure for each factor was simply calculated by taking the average score of variables which have high loadings on a factor.

The Measurement of Contingency Factors

The measurement of perceived environmental uncertainty (PEU) was adapted based on the instrument used in the prior study of Miller & Friesen (1983). There are five items related to business environment including products and services, marketing practices, customers' tastes and preferences, actions of competitors, and innovation. The respondents were asked to indicate the rate of change, from slow to rapid, in each item. A seven-point Likert-scale was ranged from very slow (scored one) to very rapid (scored seven). The score of PEU was calculated by averaging these five items.

The companies in SET were classified into three groups; firms operating in low, moderate, and high PEU. The companies with low PEU are defined as the firms whose averaged score was less than or equal to 3.5; the companies with moderate PEU are identified as the firms whose averaged score was greater than 3.5, but less than 4.5; the companies with high PEU are defined as the firms whose averaged score was greater than or equal to 4.5. It was shown that the number of the respondents who operate in high PEU were 53 firms or 39.2

percent and those who operate in low PEU were 46 firms or 34.1 percent. There were 36 companies or 26.7 percent with moderate PEU.

For competitive strategy, the concept of defender/prospector of Miles & Snow (1978) was measured by adapting from the previous instrument of Guilding (1999). The respondents were presented with a brief description of a defender, analyzer, and prospector firms which were placed on a continuum of 1-7. The respondents then were asked to select one of the 7 numbers which best represented their organization. The firms who chose number 1 and 2 were categorized as defender, the firms who chose number 3 to 5 were categorized as analyzer, and the firms who chose number 6 and 7 were categorized as prospector. It was found that half of the companies in SET (69 firms or 51.1 percent) are analyzers, 52 companies or 38.5 percent are prospector, and only 14 companies or 10.4 percent are the defender category.

The measurement of this strategic mission was based on previous research of Gupta & Govindarajan (1984; 1984), and Gupta (1987). The respondents were asked to indicate the percentage of firms' current total sales accounted for by activities in pursuit of each of these missions: build, hold, harvest, and divest. The scores of +1, 0, -1, and -2 were attached to build, hold, harvest, and divest respectively. The percentage breakdown provided by respondents for each item was used to calculate a weighted average measure of strategic mission.

After calculation of the weighted average measure of strategic mission, the values varied from -1 to 1, which demonstrate that no company in SET is pursuing a divest strategic mission. It was found that most of the companies in SET (79 firms or 58.6 percent) pursue build as their main strategic mission. There are 33 companies or 24.4 percent pursue harvest strategic mission while 23 companies or 17.0 percent pursue a hold strategic mission.

Each respondent's company was identified with one of the 8 industries based on the information from SET. These are agricultural and food (16 firms or 11.9 percent), consumption (8 firms or 5.9 percent), financial (15 firms or 11.1 percent), material and manufacturing (21 firms or 15.5 percent), property and construction (32 firms or 23.7 percent), resources (7 firms or 5.2 percent), services (24 firms or 17.8 percent), and technology (12 firms or 8.9 percent).

The firms' size was measured by turnover of the companies. The respondents were asked to indicate their annual turnover. It was found that firms were ranged from under 1,000 million Baht (£20 million) to over 35,000 million Baht (£700 million). The respondents were classified into three groups; small, medium, and large firms based on their turnover. 81 firms with turnover under 5,000 million Baht (£100 million) are identified as small organizations, 34 firms with turnover greater than 5,000 million Baht (£100 million) but less than 35,000 million Baht (£700 million) are medium-size organizations, and 20 firms with turnover over 35,000 million Baht (£700 million) are large organizations.

RESEARCH FINDINGS

To test the hypotheses, the non-parametric Kruskal-Wallis one-way ANOVA test was used to accommodate the non-normality of the data.‡ MAPs, which were derived from factor analysis, were used as dependent variables while contingency factors acted as independent variables. Descriptive statistics of MAPs and contingency factors are shown in Table 1 and Table 2 respectively.

Table 1 Descriptive Statistics of MAPs

Variables (N = 135)	Mean	S.D.
Contemporary MAPs:		
Strategic management accounting	5.0895	1.10191
Benchmarking	5.2712	1.11283
Activity based practices	5.5431	1.07075
Contemporary performance measure	4.9312	1.23857
Traditional MAPs:		
Traditional budgeting	5.4932	0.90692
Traditional costing	5.4682	0.94133
Traditional performance measure	5.2627	1.19224

The results from Kruskal-Wallis one-way ANOVA are considered for each contingency factor below.

Perceived Environmental Uncertainty (PEU)

There is much research involving the investigation of the relationship between PEU and some specific characteristics of management accounting. From H1, it is expected that firms operating in higher PEU obtain higher benefit from contemporary MAPs than those operating in lower PEU. Kruskal-Wallis one-way ANOVA was used to test these hypotheses. The results are shown in Table 3. There is a significant difference among firms operating in different levels of uncertainty in relation to both contemporary and traditional MAPs (particularly strategic management accounting, contemporary performance measures, and traditional costing).

‡ In the computation of the Kruskal-Wallis test, each of the observations is replaced by ranks. That is, all observations from all groups are ranked in a single series. The smallest score is replaced by rank 1, the next smallest score is replaced by rank 2, and the largest score is replaced by rank N (the total number of observations in all groups). The average rank for each group is calculated by dividing the sum of the ranks in each group by the total number of observations in each group. The Kruskal-Wallis test assesses the differences among the average ranks to determine whether the groups are significantly different or not (Siegel & Castellan, 1988, p. 207).

Table 2 Descriptive Statistics of Contingency Factors

Contingency factors		Descriptive statistics	
		N	Percentage
Perceived environmental uncertainty (PEU)	High PEU	53	39.2
	Moderate PEU	36	26.7
	Low PEU	46	34.1
Competitive Strategy	Prospector	52	38.5
	Analyzer	69	51.1
	Defender	14	10.4
Strategic mission	Build	79	58.6
	Hold	23	17.0
	Harvest	33	24.4
Industry	Agricultural and food	16	11.9
	Consumption	8	5.9
	Financial	15	11.1
	Material and manufacturing	21	15.5
	Property and construction	32	23.7
	Resources	7	5.2
	Services	24	17.8
	Technology	12	8.9
Size	Large	20	14.8
	Medium	34	25.2
	Small	81	60.0

However, the comparison between each pair of these groups is not provided by the Kruskal-Wallis test. To determine which pairs of groups are significantly different, the critical differences for all pairs were calculated and compared to absolute actual differences.[§] Regarding strategic management accounting and contemporary performance measures, the significant differences are between firms operating in high PEU and those operating in low PEU. According to the mean rank, firms operating in higher PEU obtain higher benefit from contemporary MAPs than those operating in lower PEU. The findings support H1. Nevertheless, there is an unexpected difference in traditional costing between firms operating in high PEU and those operating in moderate PEU. This leads us to conclude that firms operating in higher PEU also obtain higher benefit from traditional MAPs than those operating in lower PEU and that environments of high PEU generally encourage firms to place greater reliance upon and gain benefit from management accounting data.

[§] The significant difference between each pair is identified when the actual absolute difference is greater than the critical value of that pair. The calculation of critical difference is provided in (Siegel & Castellan, 1988, p. 213-214).

Table 3 Results of Kruskal-Wallis One-way ANOVA (PEU)

	Group 1 (n = 53) (High PEU)	Group 2 (n = 36) (Moderate PEU)	Group 3 (n = 46) (Low PEU)	K-W statistics (d.f. = 2)
Contemporary MAPs:				
1. Strategic management accounting				
Mean rank	78.43	64.53	58.70	6.667**
Pairwise comparisons				
Group 1: High PEU		13.90	19.73**	
		(17.98)	(18.88)	
Group 2: Moderate PEU			5.83	
			(18.51)	
2. Benchmarking				
Mean rank	75.92	64.81	61.38	3.748
3. Activity based practices				
Mean rank	74.65	61.97	65.05	2.655
4. Contemporary performance measures				
Mean rank	76.18	70.01	57.00	6.058**
Pairwise comparisons				
Group 1: High PEU		6.17	19.18**	
		(17.98)	(18.88)	
Group 2: Moderate PEU			13.01	
			(18.51)	
Traditional MAPs:				
1. Traditional budgeting				
Mean rank	74.89	61.19	65.39	2.943
2. Traditional costing				
Mean rank	76.97	55.86	67.16	6.303**
Pairwise comparisons				
Group 1: High PEU		21.11**	9.81	
		(20.23)	(16.79)	
Group 2: Moderate PEU			11.30	
			(18.51)	
3. Traditional performance measures				
Mean rank	76.62	62.64	62.26	4.259

Values in cells of pairwise comparisons are absolute actual differences while the values in parenthesis are critical differences.
*P < 0.10; **P < 0.05.

Competitive Strategy

Two different extremes of strategic typologies by Miles & Snow (1978) are prospector and defender. Firms adopting a prospector strategy aim to search for market opportunities and maintain their leadership in product innovation. Those adopting a defender strategy are specialists in their narrow product range, and focus on resource efficiency and process improvement. From the

H2, it is expected that firms adopting a prospector strategy obtain higher benefit from contemporary MAPs than those adopting a defender strategy while firms adopting a defender strategy obtain higher benefit from traditional MAPs than those adopting a prospector strategy.

The results from Kruskal-Wallis test shown in Table 4 indicate that there is a significant difference among three groups of the firms pursuing different strategies in relation to contemporary MAPs (particularly benchmarking, and contemporary performance measures), but not to traditional MAPs. The results show that there are significant differences between prospector and defender

Table 4 Results of Kruskal-Wallis One-way ANOVA (Competitive Strategy)

	Group 1 (n = 52) (Prospector)	Group 2 (n = 69) (Analyzer)	Group 3 (n = 14) (Defender)	K-W statistics (d.f. = 2)
Contemporary MAPs:				
1. Strategic management accounting				
Mean rank	71.74	68.17	53.25	2.471
2. Benchmarking				
Mean rank	79.75	62.12	53.36	8.261**
Pairwise comparisons				
Group 1: Prospector		17.63** (17.19)	26.39* (25.05)	
Group 2: Analyzer			8.76 (24.39)	
3. Activity based practices				
Mean rank	69.18	68.39	61.68	.421
4. Contemporary performance measures				
Mean rank	76.89	65.60	46.79	7.074**
Pairwise comparisons				
Group 1: Prospector		11.29 (17.19)	30.10** (28.19)	
Group 2: Analyzer			18.81 (24.39)	
Traditional MAPs:				
1. Traditional budgeting				
Mean rank	73.39	66.46	55.57	2.514
2. Traditional costing				
Mean rank	67.54	69.63	61.68	.495
3. Traditional performance measures				
Mean rank	70.59	67.60	60.36	.772

Values in cells of pairwise comparisons are actual absolute differences while the values in parenthesis are critical differences.
*P < 0.10; **P < 0.05.

regarding the benefit from benchmarking and contemporary performance measures. Accordingly, the findings support H2.1 and lead to the conclusion that firms pursuing prospector strategy perceive higher benefit from contemporary MAPs. However, no evidence supports the proposed relationship in H2.2. There is no significant difference in benefit from traditional MAPs given the different competitive strategies.

Strategic Mission

Strategic mission of Gupta & Govindarajan (1984; 1984) involves the trade-offs between market share growth and short-term earnings. Firms pursuing a build strategy tend to focus on building market share growth while firms pursuing a harvest strategy attempt to maximize short-term profit and cash flow. From the H3, it is expected that firms pursuing a build strategy obtain higher benefit from contemporary MAPs than those pursuing a harvest strategy while firms pursuing a harvest strategy obtain higher benefit from traditional MAPs than those pursuing a build strategy. Nevertheless, the Kruskal-Wallis test shown in Table 5 indicates no significant difference among strategic missions. The result therefore does not support H3.

Table 5 Results of Kruskal-Wallis One-way ANOVA (Strategic Mission)

	Group 1 (n = 79) (Build)	Group 2 (n = 23) (Hold)	Group 3 (n = 33) (Harvest)	K-W statistics (d.f. = 2)
Contemporary MAPs:				
1. Strategic management accounting				
Mean rank	65.18	66.37	75.89	1.798
2. Benchmarking				
Mean rank	69.14	70.37	63.62	0.568
3. Activity based practices				
Mean rank	66.97	76.70	64.41	1.474
4. Contemporary performance measures				
Mean rank	64.27	80.72	68.08	3.155
Traditional MAPs:				
1. Traditional budgeting				
Mean rank	65.66	82.26	63.67	3.752
2. Traditional costing				
Mean rank	66.48	66.61	72.61	0.608
3. Traditional performance measures				
Mean rank	64.38	85.80	64.26	5.767

Values in cells of pairwise comparisons are absolute actual differences while the values in parenthesis are critical differences.
*P < 0.10; **P < 0.05.

Industry

From the H4, it is expected that the benefits obtained from MAPs both contemporary and traditional practices vary across industries. However, the Kruskal-Wallis test shown in Table 6 indicates no significant difference among different industries. The result therefore does not support H4. This is perhaps not surprising given the wide range of SET industries covered in the survey and the overall sample size even allowing for the respectable response rate achieved.

Size

Regarding the H5, larger firms are expected to obtain higher benefit from contemporary MAPs compared to smaller firms. The results of the Kruskal-Wallis test shown in Table 7 indicate that there is a significant difference among different sizes of firms in relation to both contemporary and traditional MAPs (particularly benchmarking, activity based practices, traditional budgeting, and traditional costing). For contemporary MAPs, the significant difference is between medium and small firms in relation to benchmarking while the significant difference exists between large and small firms in relation to activity based practices. According to the mean rank, the findings lead to the conclusion that larger firms perceive higher benefit from contemporary MAPs compared to smaller firms. The findings support the relationship proposed in H5. For traditional MAPs, the significant difference is between large and small firms and between medium and small firm in relation to traditional budgeting while the significant difference exists between large and small firms in relation to traditional costing. The results lead us to conclude that larger firms also obtain higher benefit from traditional MAPs than small firms.

DISCUSSION OF THE FINDINGS

The findings confirm the premise that firms' characteristics reflected in exogenous, strategy, and endogenous variables have influence on the design of management accounting systems in organizations. Specifically, three contingency factors, which are PEU, competitive strategy and size, were found to have statistically significant impact on the benefits obtained from various MAPs.

Environmental uncertainty is identified as a widely used exogenous variable. In line with expectations, firms operating in higher PEU obtain higher benefit from contemporary MAPs (strategic management accounting and contemporary performance measures) than those operating in lower PEU. This is in line with the findings from previous research of Chenhall & Morris (1986), Gul & Chia (1994), Chong & Chong (1997), Agbejule (2005), and Abdel-Kader & Luther

Table 6 Results of Kruskal-Wallis One-way ANOVA (Industry)

	Group 1 (n = 16) Agricultu-al/food	Group 2 (n = 8) Consum-ption	Group 3 (n = 15) Financial	Group 4 (n = 21) Material/ manufac-turing	Group 5 (n = 32) Property/ construction	Group 6 (n = 7) Resource	Group 7 (n = 24) Services	Group 8 (n = 12) Technology	K-W statistics (d.f. = 7)
Contemporary MAPs:									
1. Strategic management accounting									
Mean rank	67.84	85.44	77.93	66.57	74.50	70.14	50.15	64.79	8.642
2. Benchmarking									
Mean rank	69.47	73.13	65.67	59.12	73.58	68.50	61.48	78.96	3.576
3. Activity based practices									
Mean rank	63.63	85.13	72.37	64.95	63.50	83.21	65.06	71.29	3.761
4. Contemporary performance measures									
Mean rank	70.59	70.13	77.90	68.24	60.91	79.50	62.06	74.42	3.593
Traditional MAPs:									
1. Traditional budgeting									
Mean rank	64.94	82.75	64.53	70.55	69.34	79.07	59.25	69.58	3.268
2. Traditional costing									
Mean rank	65.53	98.06	72.77	74.31	70.22	65.57	52.06	61.63	10.034
3. Traditional performance measures									
Mean rank	67.94	84.31	92.13	66.52	57.81	64.50	63.83	67.17	9.674

Values in cells of pairwise comparisons are absolute actual differences while the values in parenthesis are critical differences.
*P < 0.10; **P < 0.05.

Table 7 Results of Kruskal-Wallis One-way ANOVA (Size)

	Group 1 (n = 20) (Large firms)	Group 2 (n = 34) (Medium firms)	Group 3 (n = 81) (Small firms)	K-W statistics (d.f. = 2)
Contemporary MAPs:				
1. Strategic management accounting				
Mean rank	78.90	69.37	64.73	2.162
2. Benchmarking				
Mean rank	81.15	78.24	60.46	7.643**
Pairwise comparisons				
Group 1: Large firms		2.91	20.69	
		(23.45)	(20.79)	
Group 2: Medium firms			17.78*	
			(17.00)	
3. Activity based practices				
Mean rank	88.63	73.94	60.41	9.418**
Pairwise comparisons				
Group 1: Large firms		14.69	28.22**	
		(23.45)	(23.38)	
Group 2: Medium firms			13.53	
			(17.00)	
4. Contemporary performance measures				
Mean rank	80.80	69.90	64.04	3.054
Traditional MAPs:				
1. Traditional budgeting				
Mean rank	88.58	76.87	59.20	11.404**
Pairwise comparisons				
Group 1: Large firms		11.71	29.38**	
		(23.45)	(23.38)	
Group 2: Medium firms			17.67*	
			(17.00)	
2. Traditional costing				
Mean rank	87.38	68.41	63.04	6.238**
Pairwise comparisons				
Group 1: Large firms		18.97	24.34**	
		(23.45)	(23.38)	
Group 2: Medium firms			5.37	
			(17.00)	
3. Traditional performance measures				
Mean rank	82.50	68.60	64.17	3.548

Values in cells of pairwise comparisons are actual absolute differences while the values in parenthesis are critical differences.
*P < 0.10; **P < 0.05.

(2008), indicating that firms operating in high environmental uncertainty may require more open, externally oriented, nonfinancial and sophisticated

information to support their operations. However, the companies operating in higher PEU surprisingly perceive higher benefit from traditional practices (traditional costing) than those operating in lower PEU. Findings from prior research in relation to accounting information in dealing with uncertainty are mixed; it would appear that respondent companies from SET place greater reliance on accounting information when faced with uncertainty. There is therefore a greater orientation towards MAPs and accounting information generally by firms in a high PEU environment, they appear to value accounting numbers when faced with higher levels of risk and uncertainty.

Regarding competitive strategy, in line with expectations firms pursuing prospector strategies perceive higher benefit from contemporary practices (benchmarking and contemporary performance measures) than those pursuing defender strategies. This result supports the findings from prior research of Guilding (1999), suggesting higher use of and greater helpfulness from more broad scope management accounting information, particularly competitor-focused accounting, in prospector entities. It seems that in seeking out and evaluating new business opportunities Thai firms place reliance on benchmarking and non-financial performance measures. However all firms place value on traditional MAPs no matter what their competitive strategy. No significant relationship has been found between competitive strategy and traditional MAPs. Where contemporary MAPs support those companies of a pioneering and prospector approach to the acquisition of new business, all firms indicate they require the traditional MAPs.

Concerning size, larger firms also obtain higher benefit from both contemporary practices (benchmarking and activity-based practices) and traditional practices (traditional budgeting and traditional costing) than smaller firms. This is in line with various other research which points to the greater adoption of modern management accounting techniques or sophisticated costing systems in larger companies (Abdel-Kader & Luther, 2008; Drury & Tayles, 2005). This is perhaps also reflective of an environment in Thailand where an evolution in the awareness of management accounting information is still taking place and smaller firms are still in the process of becoming familiar with the potential of management accounting information whether in its traditional or contemporary form.

However, expected relationships between the benefit obtained from MAPs and two contingencies, particularly strategic mission and industry were not supported by the data. This may be because of the measurement of constructs. The concerns related to the measurement of strategic variables have been raised in the papers of Langfield-Smith (1997) and Chenhall (2003; 2007). For example, it was suggested that respondents may have trouble regarding descriptions employed to measure strategies such as build, hold, and harvest. Whilst the strategic mission has been the subject of prior survey research producing significant findings the use of a single question to measure this

variable may be limiting and greater attention should be given to developing a more robust construct.

Regarding industry, future research may attempt to use alternative variables measuring any underlying constructs reflecting the effect from an anticipated industry such as type or degree of competition, or technology of production. This approach may overcome the generic and under-defined nature of industrial classification, a problem when a firm possesses uncommon characteristics compared to the other firms in the same industry, see also (Guilding, 1999). It may also be that an overall comparison between manufacturing and service businesses may provide significant results but this analysis may be so broad as to be unhelpful.

SUMMARY AND CONCLUSION

This study used a comprehensive overview of the benefits obtained from the use of various management accounting practices to develop a picture of MAPs in Thailand, an economy in which limited prior management accounting research has occurred. Using factor analysis the MAPs are structured into meaningful groups of MAP items, both traditional and contemporary, these are in line with the findings reported in the development of MAPs from various other international researches. Various contingency factors were used to help place the adoption of the MAPs into some context. The results indicate that the extent of benefits obtained from different MAPs of Thai companies are significantly explained by PEU, competitive strategy, and size.

Some limitations should be acknowledged in relation to this research and in the interpretation of the findings. The results represent the interpretations of one individual in the company, though steps were taken to ensure that the respondent was suitably qualified to answer the questionnaire. Furthermore telephone enquiries were undertaken where any responses where unclear. The material relied upon translation between English and Thai though this was carefully managed and a multilingual glossary was provided. In this paper, a selection approach was adopted; thus, the findings were shown in a reductionist view, and no relationship with performance was investigated. Future research could pay more attention to alternative theoretical forms of fit such as systems approach, which provides a more holistic view by examining the relationships among all contingencies, management control systems and organizational performance simultaneously. This could also provide a research opportunity for the use of more advanced statistical techniques such as structural equation modeling (SEM). Using alternate theories together with this traditional approach may provide more insight into the organization context which may be required for future research. Nevertheless, the work represents a most comprehensive survey and explanation of MAPs in Thailand and in this sense it is a contribution to our awareness of management accounting in this emerging economy.

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APPENDIX A

A comprehensive list of management accounting practices (MAPs)

1. Absorption costing
2. Activity-based costing (ABC)
3. Activity-based budgeting (ABB)
4. Activity-based management (ABM)
5. Backflush costing
6. Benchmarking of product characteristics
7. Benchmarking of operational processes
8. Benchmarking of management processes
9. Benchmarking of strategic priorities
10. Budgeting systems for compensating managers
11. Budgeting systems for controlling costs
12. Budgeting systems for coordinating activities across the business units
13. Budgeting systems for planning day to day operations
14. Budgeting systems for planning cash flows
15. Capital budgeting techniques (e.g. NPV, IRR, Payback)
16. Cost-volume-profit analysis (CVP)
17. Cost modelling
18. Cost of quality
19. Customer profitability analysis (CPA)
20. Economic (shareholder) value added (EVA/SVA)
21. Formal strategic planning
22. Kaizen costing
23. Long range forecasting
24. Operations research techniques
25. Performance evaluation based on budget variance analysis
26. Performance evaluation based on controllable profit
27. Performance evaluation based on divisional profit
28. Performance evaluation based on residual income (e.g. interest adjusted profit)
29. Performance evaluation based on return (profit) on investment
30. Performance evaluation based on cash flow return on investment (CFROI)
31. Performance evaluation based on team performance
32. Performance evaluation based on employee attitudes
33. Performance evaluation based on balanced scorecard
34. Performance evaluation based on customer satisfaction surveys
35. Performance evaluation based on ongoing supplier evaluations
36. Product life cycle analysis
37. Product profitability analysis
38. Standard costing
39. Target costing

40. Throughput accounting
41. Value chain analysis
42. Variable costing
43. Zero-based budgeting

APPENDIX B

Factor Analysis for contemporary MAPs

	Factor			
	1	**2**	**3**	**4**
Throughput accounting	0.800			
Target costing	0.729			
Value chain analysis	0.545			
Product life cycle analysis	0.511			
Performance evaluation based on residual income				
Cost modelling				
EVA/SVA				
Benchmarking of management processes		-0.930		
Benchmarking of operational processes		-0.886		
Benchmarking of strategic priorities		-0.847		
Benchmarking of product/service characteristics		-0.739		
Cost of quality				
Kaizen costing				
Activity based costing (ABC)			0.835	
Activity based management (ABM)			0.740	
Product profitability analysis			0.525	
Performance evaluation based on employee attitudes				-0.857
Performance evaluation based on customer satisfaction surveys				-0.810
Performance evaluation based on balanced scorecard				-0.689
Performance evaluation based on supplier evaluations				-0.643
Performance evaluation based on team performance				
Percentage of variance	48.943	7.469	5.034	4.009
Cumulative percentage	48.943	56.412	61.446	65.455
Cronbach's Alpha	0.864	0.939	0.838	0.876

Notes: The extraction method used was Principal Axis Factoring; the rotation method was Oblimin with Kaiser Normalization.

Factor Analysis for Traditional MAPs

	Factor			
	1	**2**	**3**	**4**
Budgeting systems for compensating managers	0.733			
Budgeting systems for planning cash flows	0.692			
CVP analysis	0.662			
Capital budgeting techniques	0.610			
Performance evaluation based on budget variance analysis	0.586			
Budgeting systems for controlling costs	0.580			
Budgeting systems for coordinating activities across BUs	0.523			
Operation research techniques				
Long range forecasting				
Standard costing		0.869		
Absorption costing		0.500		
Variable costing		0.500		
Performance evaluation based on return (profit) on investment			-0.771	
Performance evaluation based on CFROI			-0.746	
Performance evaluation based on divisional profit			-0.547	
Performance evaluation based on controllable profit				
Formal strategic planning				
Budgeting systems for planning day to day operation				0.621
Percentage of variance	44.794	5.110	4.438	3.386
Cumulative percentage	44.794	49.903	54.342	57.727
Cronbach's Alpha	0.867	0.744	0.848	n.a.

Notes: The extraction method used was Principal Axis Factoring; the rotation method was Oblimin with Kaiser Normalization.