

# The Relationship between Strategic Management Accounting Information Usage, Environmental Uncertainty and Nationality of Director of Manufacturing Enterprises in Thailand

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## Abstract

Dynamic business environments have caused intensified information in order to make decisions. Advanced management accounting techniques which have the potential for a more strategic role are used as a tool to facilitate successful organizational reforms to survive through rapid changes. This study aims to investigate relationships between strategic management accounting (SMA) information usage, environmental uncertainty (EU) and nationality of director (ND) using contingency theory. Based on Cadez and Guilding's (2008) framework, sixteen strategic management accounting techniques were classified into five categories: costing, planning, control and performance measurement, strategic decision-making, competitor accounting and customer accounting. Questionnaires were employed for data collection from 217 manufacturing enterprises in Thailand selected by purposive sampling. The results show that managers increasingly require SMA information to calculate product and service costs, to plan control and performance measures, to evaluate competitor performance and assess individual customer profitability under environmental uncertainty situations. In addition, Thai chief executive officers trend to use SMA information for strategic decision-making and market competitions less than non-Thai ones. This study contributes to existing knowledge by enhancing our understanding of the relationships between SMA information usage, EU and ND in Thailand. Executives can effectively utilize the advantages of SMA information usage in order to gain sustainable competitive advantage.

## Keywords

Strategic Management Accounting, Environmental Uncertainty, Nationality

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## 1. Introduction

Recently, the global economy and business environment have rapidly changed causing an intensity of resource management within organizations. Successful organizations have emphasized customer requirements. Therefore, business managers have reformed business processes and placed greater demand on innovative management accounting information such as strategic management accounting techniques. By doing so, the organizations are able to minimize cost, plan and control, make strategic decisions, assess competitors, analyze customer profitability and create value added in order to survive (Franco-Santos et al., 2012; Junidi & Warrad, 2019).

Strategic management accounting (SMA) techniques are advanced tools for facilitating innovation and strategic management in organizations (Cadez & Guilding, 2008). The techniques also demonstrate environmental (outward-looking) and long-term orientation. They aim for reducing manufacturing cost, pronouncing customer oriented posture, adding product value through value chain analysis and focusing on continuous improvement. Therefore, SMA information plays a significant role in the procedure of operation plan to increase profit sharing under high competition and business environmental uncertainty (Rowe, Birnberh, & Shields, 2008; Vongjaruandach, 2014; Taechoyotin, Supattarakul, & Phadoongsitthi, 2018).

An SMA framework is diversely defined and has no existing universal acceptance (Roslender & Hart, 2003; Nixon & Burns, 2012). A review of literature suggests SMA techniques can be categorized by purpose of usage and number of management accounting techniques acknowledgement (Guilding et al., 2000; Cravens & Guilding, 2001). Cadez & Guilding (2008)'s framework classifies SMA techniques into five categories—costing, planning, control and performance measurement, strategic decision making, competitor accounting and customer accounting. The framework has focused on strategic management processes and encouraged organizations adding innovative value to their products/services for customer satisfaction under current business environment (Cadez & Guilding, 2012).

Top managers such as Chief Executive Officers (CEOs) or Chief Financial Officers (CFOs) have also influenced SMA information usage because they are among the most important facilitators justifying whether or not organizations have adopted or not adopted SMA techniques (Pavlatos & Kostakis, 2018; Omoro, 2020). Shields (1995) and Liu & Pan (2007) revealed that SMA techniques may diffuse due to influence of the management accounting institute (i.e. Institute of Management Accounting in United State and Chartered Institute of Management Accountant in England). The institutes have established manage-

ment accounting conferences, published academic journals and set up management accounting workshops. These provide a place where top managers can learn modern management accounting techniques and share their management accounting knowledge and skills (Komaratat, 2011). Unfortunately, there was no branch of those institutes in Thailand until 2019.

To enrich current literature, this research aims to investigate the relationship between SMA information usages, environmental uncertainty and nationality of directors. This is the first effort to explore the relationship between sixteen SMA techniques divided into five categories and nationality of CEOs/CFOs across manufacturing enterprises in Thailand.

## 2. Literature Review and Hypothesis Development

A single standard of management accounting techniques cannot fit all organizations. The organizations have to find their own features of appropriate techniques at specific circumstances (Otley, 1980: p. 413). Previous literature suggested business environment uncertainty involves changes or unpredictable situations outside organizations which affect business operations and internal management such as economic recession, customers' demands, competitors and the political situation (Gordon & Narayanan, 1984; Lewis & Harvey, 2001). Due to rapid business environmental changes, executive managers require helpful information for decision making, predicting events more accurately and reducing uncontrollable situations that may occur in the future. Employing innovative management accounting such as SMA techniques is an alternative for the executive managers to gain competitive advantages by improving customer satisfaction, developing value chain analysis, making products at a lower cost than competitors and encouraging continuous improvement in organizations (Guilding, Cravens, & Tayles, 2000; Cadez & Guilding, 2008).

Nixon & Burns (2012) suggested that SMA techniques are strategic management tools—analyzing management accounting data to develop organizational strategies. For example, if an organization is to compete on price, it must emphasize low cost management. Differentiation strategy, however, is focused on research and development investment to invent products/services innovation. The use of SMA information indicates an emphasis on external factors such as customers, competitors, marketing strategies and variety of forecasting both financial and non-financial dimensions (Cadez & Guilding, 2008). Guilding, Cravens, & Tayles (2000) reviewed and collected SMA techniques—attribute costing, brand value budgeting and monitoring, competitor cost assessment, competitive position monitoring, competitor appraisal based on published financial statement, life cycle costing, quality costing, strategic costing, strategic pricing, target costing, and value chain costing. In 2008, Cadez & Guilding studied contingency factors affecting dimensions of SMA techniques in large Slovenian companies by adding more investigating SMA techniques and classifying them into five categories (see Appendix). Although different organizational size af-

fects SMA techniques usage, they indicated no universally appropriate use of SMA.

SMA information usage encourages organizational ability by facilitating adaptation to business environmental uncertainty. A case study of [Tillmann & Goddard \(2008\)](#) in Germany indicated that SMA information is used for strategic decision making to understand environmental uncertainty in the past, present and forecast future situations. [AlMaryani & Sadik \(2012\)](#) supported that Romania companies widely used SMA information to achieve their goals and survive in the changing business environment. [Erserim \(2012\)](#) argued there is no association between SMA information and environmental uncertainty in Turkey.

[Nakmai & Avakiat \(2015\)](#) studied manufacturing enterprises located in central Thailand. They found a positive relationship between SMA information usage and both internal and external business environments. [Shoommuangpak \(2014\)](#) indicated that executive managers in industrial companies listed on the Stock Exchange of Thailand heavily rely on SMA information in order for strategic planning, control and strategic decision making. Those managers believed that the information obtained will help them to succeed and gain sustainable competitiveness under environmental uncertainty. In contrast, [Kiattikulwattana \(2012\)](#) investigated the use of SMA information in Thailand listed companies. The survey indicated that SMA techniques in a customer accounting category are not widely implemented. Hence, the use of SMA information does not differ from the business environmental changes.

In addition, a study of [Darawong \(2013\)](#) indicated that multinational companies, whether they are self-investment or joint-venture companies, recruited an executive director in a branch office from a headquarter company in order to represent senior management positions in the host country. Apart from communication between branches and the headquarter company, the directors have to be policy makers, significant decision makers, and problem resolution managers. It can be seen that the directors have a significant influence on business operations of the host companies including introducing SMA knowledge and skills in line with cost management and business strategy.

[Johanson & Madsen Dag \(2019\)](#) supported that executive managers have a significant impact on resource management such as financial investment, set-up time management, labor, planning, ordering, controlling and deciding about achievement goals. They are policy makers to promote and support employees at all levels in the organizations to use SMA information to achieve business objectives. The executive managers also decide whether or not the organization will adopt or not adopt SMA techniques ([Dattakumar & Jagadeesh, 2003](#)). The characteristics of executive managers are related to decision making patterns. For instance, a survey in Canadian companies of [Henri \(2006\)](#) indicated that executive managers who like control power making a decision rely on reasons and facts, stick with rules and regulations, anti-changes and hierarchical respect will use and perceive benefits from SMA information less than executive managers

who have flexible characteristics and like challenging themselves with fresh problems and solutions. [Limchaicharoen \(2017\)](#) supported that there are highly adopted SMA information in food and beverage Thai companies which are managed by flexible and accepting inspection executive managers. Nevertheless, there is no relationship between characteristics of executive managers and SMA information usage in companies listed on the Stock Exchange of Thailand ([Chongruksut, 2009](#)).

[Hall \(1977, 1989: p. 16\)](#) indicated that differentiations of culture, regions, religions and language reflect individual culture, behavior, thinking logic and problem solutions methods. National culture differs across countries. Developing countries mostly accept power distances, top managers have more right than lower positions. Characteristics of people from developing countries are also stressfulness, fear of changes and lack of motivation to learn new things. Unlike developed countries, most populations have a culture that shows acceptance of change, flexible, freedom and creativity ([Hofstede, Hofstede, & Minkov, 2010](#)).

Regarding the literature review above, hypothesis is developed as follows:

H1: environmental uncertainty is associated with SMA information usage.

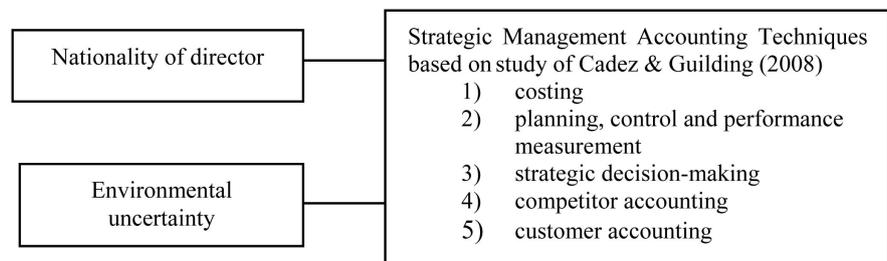
H2: nationality of director is associated with SMA information usage.

The following is a conceptual framework that explains the relationship between three variables and justifies the SMA categories used in this study ([Figure 1](#)).

### 3. Research Methodology

#### 3.1. Data Collection

Data has been drawn from 44,199 manufacturing companies listed on Department of Business Development, Thailand as of July 2018. Manufacturing companies have a complex production system and an intense competitive market in terms of price competition. Thus, the companies have been likely to adopt strategic management accounting techniques ([Pavlatos & Kostakis, 2015, 2018](#)). Employing Yamane's concept, a sample size of 397 companies was obtained. To address objectives of this study, a questionnaire was sent to either the Chief Executive Officer (CEO) or Chief Financial Officer (CFO) with a cover letter describing the study's objectives and promising anonymity. Content and sources of the questionnaire include three sections. Firstly, organizational and personal backgrounds such as gender, job position, educational background, years of experiences in current companies, and nationality of director/CEO were gathered.



**Figure 1.** A conceptual framework.

This section was adapted from Pavlatos & Kostakis (2018) and Pavlatos & Kostakis (2015). Second section was designed to measure the use of SMA information usages. The list of sixteen SMA techniques (see **Appendix**) was adapted from Guilding, Cravens, & Tayles (2000) and Cadez & Guilding (2008). Last section was designed to collect perceptions of business uncertainty that influence decisions making. The questions in this section were developed from studies of Gordon & Narayanan (1984) and Lewis & Harvey (2001) including to what extent how your organization is caused by the following uncertain issues; price competition, marketing and distribution, market share, disruptive technology, customers/suppliers behavior, product/service research and development, and political surround.

To achieve content validity test, a pilot testing of the questionnaire was reviewed and completed by three academics and three directors (CEOs, CFOs). The pilot questionnaire was adjusted regardless feedbacks from experts to improve consistency between questionnaires' content and research objectives. Pre-testing questionnaires were distributed to 30 pilot companies which were not representative of the target sample population in order to test accuracy of the questionnaires.

The questionnaires were pre-coded to enable identification of non-respondents in order to support a follow-up later. Three hundred and ninety seven companies were randomly selected and distributed a questionnaire to each company. Ninety-nine were returned questionnaires within the first four weeks. To increase the number of returned questionnaire feedbacks, a second mailing and phone calls were employed. A total of 217 questionnaires were returned and comprised the final valid sample size, resulting in a 55% final response rate. Each SMA technique was provided glossary terms in order to avoid misunderstanding and bias by the respondents. Independent-samples t-test was used to examine response bias in the mean scores of SMA information usages and environmental uncertainty. The results show no statistically significant differences between early and late respondents.

## **3.2. Measurement of Variables**

The relationships between environmental uncertainty, nationality of director and SMA information usage are examined in this study. Regarding reliability test, a minimum accepted alpha should be greater than 0.6 according to Nunnally (1994) and Hair et al. (2009). In this study, reliability using cronbach's alpha is above 0.7 which is an acceptable level.

### **3.2.1. Environmental Uncertainty**

Following Gordon & Narayanan (1984) and Lewis & Harvey (2001), we measure environmental uncertainty on a five-point Likert scale (1 = disagreed, 5 = agreed). Respondents were asked to indicate the level of perceived environmental uncertainty in the past five years using the aforementioned scale. Factor analysis extracted one component with an Eigen value of 59.513% of variation.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity were 0.844. The reliability's constructs were identified by a Cronbach (1951) alpha of 0.9.

### 3.2.2. Nationality of Director

The respondents were asked to determine the nationality of the chief executive officer of their organization. The answers were categorized into two groups, 1 = Thai and 0 = non-Thai, which was then used as an independent variable.

### 3.2.3. Strategic Management Accounting Techniques

Following [Guilding, Cravens, & Tayles \(2000\)](#) and [Cadez & Guilding \(2008\)](#), the respondents were asked to score their level of sixteen SMA information usage from one to seven points (1 = not used, 2 = considering using, 3 = using but extremely dissatisfied, 4 = using but dissatisfied, 5 = using and moderately satisfied, 6 = using and satisfied and 7 = using and extremely satisfied). For the purpose of this study, we focused on five categories of strategic management accounting. The categories are given in an [Appendix](#). Each category was calculated using average level of information usage.

## 4. Findings and Discussion

As shown in [Table 1](#), 217 respondents reveal demographic data indicating a majority of respondents are female 69.6%, occupy a CFO position at 55.3% and hold a master degree at 79.7%. They have been working at the responding companies for six to ten years (47.9%). Directors of Thai nationality for responding companies are 92.6%.

### 4.1. Descriptive Statistics

[Table 2](#) shows mean scores and standard deviation of degree of SMA information usage including costing, planning, control and performance measurement, strategic decision-making, competitor accounting and customer accounting. On average, the respondents indicate that they are not satisfied of using SMA information in term of costing, strategic decision-making, and planning, control and performance measurement at mean scores of 3.197, 3.198 and 3.774, respectively. Most of the respondents have not used SMA information in term of customer accounting at mean scores of 1.716. They have considered to use SMA information regarding competitor accounting perspective, at mean scores of 2.200. For environmental uncertainty, the respondents perceive high business environmental uncertainty in the last five years at high mean scores of 3.464. Thai directors dominate the respondents companies as shown below.

### 4.2. Inferential Statistics: Correlations

[Table 3](#) presents Spearman's rho Correlation describing correlation coefficients and significance values of 217 respondents. The coefficient scores can be from +1 to -1 indicating a perfect positive relationship between two variables or a

**Table 1.** Demographic data.

	No.	%
Gender:		
Male	66	30.4
Female	151	69.6
Positions:		
Chief Executive Officer (CEO)	97	44.7
Chief Financial Officer (CFO)	120	55.3
Educational Background:		
Doctor of Philosophy degree	44	20.3
Master degree	173	79.7
Years of Experiences in current companies:		
Less than five years	54	24.9
Six to ten years	104	47.9
More than ten years	59	27.2
Nationality of director/CEO:		
Thai	201	92.6
Non-Thai	16	7.4

**Table 2.** Descriptive statistics of variables.

Variables	N	Mean	Std. Deviation
Degree of Strategic Management Accounting Information Usages:			
Costing	217	3.197	1.030
Planning, Control and Performance Measurement	217	3.774	1.682
Strategic decision-making	217	3.198	1.318
Competitor Accounting	217	2.200	1.399
Customer Accounting	217	1.716	1.013
Environmental Uncertainty	217	3.464	0.808
Nationality of Director	217	0.926	0.262

perfect negative ones (Hair et al., 2009). A strong relationship between two variables is defined by a correlation coefficient value of 0.7 or above, a moderate relationship as correlation coefficient value between 0.3 - 0.7 and a weak relationship as correlation coefficient value below 0.3 (Dancy and Reidy, 2007). As shown in Table 3, there is a moderate positive relationship between environmental uncertainty and SMA information usage in term of costing perspective ( $r = 0.452$ ,  $p < 0.01$ ) whereas the environmental uncertainty variable has a weak positive association with SMA information usage in term of planning, control and performance measurement perspective ( $r = 0.141$ ,  $p < 0.05$ ). Moreover, SMA information usage in term of strategic decision-making perspective ( $r = -0.331$ ,

**Table 3.** Spearman's rho correlation matrix.

		1	2	3	4	5	6	7
	Correlation Coefficient	1.000						
Environmental Uncertainty [1]	Sig. (2-tailed)							
	N	217						
	Correlation Coefficient	0.017	1.000					
Nationality of Director [2]	Sig. (2-tailed)	0.803						
	N	217	217					
	Correlation Coefficient	0.452**	-0.040	1.000				
Costing [3]	Sig. (2-tailed)	0.000	0.559					
	N	217	217	217				
	Correlation Coefficient	0.141*	-0.062	-0.060	1.000			
Planning, Control and Performance Measurement [4]	Sig. (2-tailed)	0.038	0.360	0.381				
	N	217	217	217	217			
	Correlation Coefficient	0.097	-0.331**	0.067	0.400**	1.000		
Strategic decision-making [5]	Sig. (2-tailed)	0.155	0.000	0.326	0.000			
	N	217	217	217	217	217		
	Correlation Coefficient	0.109	-0.264**	-0.044	0.412**	0.558**	1.000	
Competitor Accounting [6]	Sig. (2-tailed)	0.108	0.000	0.520	0.000	0.000		
	N	217	217	217	217	217	217	
	Correlation Coefficient	0.064	-0.170*	-0.073	0.360**	0.601**	0.583**	1.000
Customer Accounting [7]	Sig. (2-tailed)	0.345	0.012	0.286	0.000	0.000	0.000	
	N	217	217	217	217	217	217	217

\*\*Correlation is significant at the 0.01 level (2-tailed), \*Correlation is significant at the 0.05 level (2-tailed). Where: 1. Environmental uncertainty, 2. Nationality of director, 3. Costing, 4. Planning, control and performance measurement, 5. Strategic decision-making, 6. Competitor Accounting and 7. Customer Accounting.

$p < 0.01$ ) has a moderate negative association with nationality of director whereas competitor accounting ( $r = -0.264$ ,  $p < 0.01$ ) and customer accounting ( $r = -0.107$ ,  $p < 0.05$ ) perspectives have negative weak associations with nationality of director.

## 5. Conclusion, Discussion and Limitations

This study assesses the relationships between environmental uncertainty, director's nationality and the use of SMA information based on [Cadez & Guilding \(2008\)](#)'s study. The results of the study supported all hypotheses.

Firstly, environmental uncertainty is associated with SMA information usage. Findings show that environmental uncertainty is positively related to SMA information usage in term of costing, and planning control and performance measurement. It implies that under business environmental uncertainty, top managers (CEOs/CFOs) trend to apply SMA information for managing cost re-

lated to improved quality of products/services and add long-term value to their products/services. Moreover, SMA information has been applied by top managers to setting manufacturing standard, planning and establishing a performance appraisal. In line with [Limchaicharoen's \(2017\)](#) study, top managers need timeless SMA information for planning and calculating cost of products/services through their life cycle under conditions of increased environmental uncertainty. Target costing which is classified in SMA costing perspective is growing interest in the examination of all cost-reducing strategies at the planning stage and adoption of value engineering to incorporate customer requirements ([Yazdifar & Askarany, 2012](#)).

However, findings reveal that there is no significant association between environmental uncertainty and SMA information usage in three categories—strategic decision-making, competitor accounting and customer accounting. These are inconsistent with [Chongruksut's \(2013\)](#) study; the more competitive intensity and business environmental uncertainty increase, the more SMA information is used as part of strategic decision-making, and competitor and customer assessments. Likewise, [Thapayom's \(2019\)](#) study, information of SMA techniques namely customer profitability analysis, valuations of customer as assets, competitive position monitoring and competitive performance appraisal have a significant positive influence on goal achievement in the highly competitive environments. Thus, top managers should aware of benefits from those techniques through the valuable of resources allocation and strategies to customer accounting and competitor accounting.

Secondly, nationality of director is associated with SMA information usage. Findings reveal that nationality-of-director is negative and significantly associated with SMA information usage in terms of strategic decision-making, competitor accounting and customer accounting. It suggests that non-Thai CEOs/CFOs perceived benefits from SMA techniques and rely on SMA information to measuring value of products/services, setting up sale price, managing organizational strategies and doing supplier/customer cost and customer profitability analyses more than Thai ones. These findings are consistent with [Pavlatos & Kostakis \(2018\)](#)'s study. Non-Thai CEOs/CFOs tend to adopt and use more SMA information for making decision related to organizational strategy and competitor management and customer orientation. [Tuwey & Ngeno \(2019\)](#) argue that grounded and humble CEOs are a key factor of SMA information usage in organizations. Those characteristics of CEOs which are similar with Thai ([Hofstede, Hofstede, & Minkov, 2010](#)) reinforce a recognition of competencies and expertise of other organizations, therefore, the CEOs will rely heavily on strategic information related to decision-making (*ibid.*).

This study has contributed to the SMA studies. It provides additional knowledge about environmental uncertainty, nationality of director and SMA information usage. For the first time, it examines the relationships between those two variables and degree of SMA classified into five dimensions—costing, planning,

control and performance measurement, strategic decision-making, competitor accounting and customer accounting.

Like other studies, however, this study has specific limitations. The population of this study represents only organizations listed on Department of Business Development, Thailand. Majority of directors are Thai nationality. Future research may extend this study to small and medium size organizations in other countries. Furthermore, other characteristics of directors such as educational background and tenure may be investigated.

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### Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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## **Appendix. Strategic Management Accounting Techniques Listed on This study**

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1. Costing:

- Attribute costing
- Life-cycle costing
- Quality costing
- Target costing
- Value-chain costing

2. Planning, Control and Performance Measurement:

- Benchmarking
- Integrated performance measurement

3. Strategic decision-making:

- Brand valuation
- Strategic pricing
- Strategic costing

4. Competitor Accounting:

- Competitor cost assessment
- Competitor performance appraisal
- Competitor position monitoring

5. Customer Accounting:

- Customer profitability analysis
  - Lifetime customer profitability analysis
  - Valuation of customers
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