

MANAGEMENT ACCOUNTING INFORMATION USAGE AND
CORPORATE SUSTAINABILITY: AN EMPIRICAL ASSESSMENT OF
ELECTRICAL AND ELECTRONICS BUSINESSES IN THAILAND*
การใช้ข้อมูลบัญชีบริหารเพื่อความยั่งยืนขององค์กร: การวิจัยเชิงประจักษ์ของธุรกิจ
ไฟฟ้าและอิเล็กทรอนิกส์ ในประเทศไทย



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Abstract

This research aimed to test the effects and correlation of management accounting information usage (MAI usage) on corporate sustainability by applying the concept of resource advantage theory (R-A theory). The questionnaire was a tool used for data collection from 210 chief accountants of electrical and electronic businesses in Thailand. Data analysis and research hypothesis testing using multiple regression statistics with ordinary least squares method (OLS).

The results were shown that MAI usage has a significant positive effect and correlation on corporate sustainability. The primary purpose of management accounting provides information to the executives for use in planning, controlling, evaluating operations, and effective strategic decision-making. Accordingly, the appropriate management accounting information usage was the executives' most important tool to drive an organization towards the success of long-term operations and to help the firms sustainably survive under the pressure of the rapidly changing business environment.

Keywords: management accounting information usage (MAI usage); corporate sustainability; electrical and electronics businesses

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บทคัดย่อ

งานวิจัยนี้มีวัตถุประสงค์เพื่อทดสอบผลกระทบและความสัมพันธ์ของการใช้ข้อมูลบัญชีบริหารที่มีต่อความยั่งยืนขององค์กร ประยุกต์ใช้มุมมองแนวคิดตามทฤษฎีความได้เปรียบเชิงทรัพยากร โดยใช้แบบสอบถามเป็นเครื่องมือในการเก็บรวบรวมข้อมูลจากหัวหน้างานฝ่ายบัญชีของธุรกิจไฟฟ้าและอิเล็กทรอนิกส์ในประเทศไทย จำนวน 210 คน การวิเคราะห์ข้อมูลและการทดสอบสมมติฐานการวิจัยใช้สถิติการถดถอยพหุคูณ ด้วยวิธีกำลังสองน้อยที่สุดธรรมดา (Ordinary Least Squares: OLS)

ผลการวิจัยพบว่า การใช้ข้อมูลบัญชีบริหารมีผลกระทบและความสัมพันธ์เชิงบวกอย่างมีนัยสำคัญต่อความยั่งยืนขององค์กร วัตถุประสงค์หลักของการบัญชีบริหารคือการให้ข้อมูลแก่ผู้บริหารเพื่อใช้ในการวางแผน การควบคุม การประเมินผลการปฏิบัติงาน และการตัดสินใจเชิงกลยุทธ์ที่มีประสิทธิภาพ ดังนั้น การใช้ข้อมูลบัญชีบริหารที่เหมาะสมจึงเสมือนเป็นเครื่องมือที่สำคัญที่สุดของผู้บริหารในการขับเคลื่อนองค์กรไปสู่ความสำเร็จของการดำเนินงานในระยะยาว และช่วยให้บริษัทสามารถอยู่รอดได้อย่างยั่งยืนภายใต้แรงกดดันจากสภาพแวดล้อมทางธุรกิจที่เปลี่ยนแปลงไปอย่างรวดเร็ว

คำสำคัญ: การใช้ข้อมูลบัญชีบริหาร; ความยั่งยืนขององค์กร; ธุรกิจไฟฟ้าและอิเล็กทรอนิกส์

Introduction

A lately, the global economic situation tends to contract increases from the problem of the VUCA Word (volatility, uncertainty, complexity, and ambiguity) which has severely affected various industries (Hamid, 2019). Thai industry is one of those affected, the Thai economic data in 2020 is likely to shrink by 7.8 percent, and the value of Thai exports is likely to shrink 8.2 percent, with exports to ASEAN and The Middle East is at a lower level than its trading partners (Bank of Thailand, 2020). Many firms are faced with challenging and uncertain situations in areas consist of the exponential growth of technology, the dearth of production resources, customer's purchasing behavior has changed rapidly and varied, increased number of new competitors and existing competitors are stronger, instability in politics and government, strict laws and regulations, and diverse expectations of stakeholders (Phomlaphatrachakom, 2020). These factors are the catalysts important in the transformation of operating models and business

competitiveness. The corporate executives need to improve the management style and formulate operational strategies so that the organization can survive sustainably and have a good foundation for future operations (Kostic, 2018). However, the success of the organization depends on the ability of managers to planning, controlling, directing, and decisions making to solve problems and leading to organization goals. Therefore, corporate executives must design and develop appropriate tools to address new conditions in business organizations, and the context of rapid change. They must leverage management accounting information to deal with these situations (Jaafar & Noordin, 2020).

A review of past literature has found that management accounting information plays an important role in the operations and success of an organization because it meets the needs of modern corporate executives from both a financial and non-financial perspective. In this aspect, management accounting information in a financial perspective such as costs, revenues, profits, financial ratios, and cash flows of the business, etc. Financial information describes historical performance that reflects the effectiveness of the organization's management and measures of current financial performance, which are a measure of partial performance over a short period of time. On the other hand, management accounting information from a non-financial perspective such as good information system, improvement and development of production processes, personnel knowledge skills, quality of goods and services, and customer satisfaction, etc. Non-financial information helps executives to understand business situations and provide an overview of management that is useful in forecasting to long-term success of the firms (Kaplan & Norton, 1996). Therefore, information that can provide a wide range of perspectives and cover important aspects of management will bring balance to the organization's operations. In addition, executives will receive more useful information in the management of the firms and can reflect the results of operations in a comprehensive and diverse manner. This will lead to the ability to make appropriate decisions and solve problems effectively (Buathong & Bangchokdee, 2015). Therefore, management accounting

information is an important tool for corporate executives in the planning, directing, controlling operations, decision-making, and formulate strategies to create long-term competitive advantages (Hertati et al., 2020).

This article, MAI usage refers to the ability to apply management accounting information to develop and improve work and production processes, and the highest customer satisfaction responsiveness to create a long-term competitive advantage, ability to adaptation, and sustainability of the firms which consists of 3 dimensions as follows: 1) product costing system 2) technical information and 3) customer service system (Hertati et al., 2020; Jaafar & Noordin, 2020). Besides, the researcher tried to explore the use of management accounting information of Electrical and Electronics (E&E) businesses in Thailand. The E&E industry has been selected as the target population due to its plays an important role in the Thai economy as the main driver of growth, generating huge revenues from international exports, and was a major source of employment. In addition, the E&E industry in Thailand is one of the ten industries in which the Thai government aims to develop in the digital age. However, the electricity and electronics business are severely affected by the rapid changes of environment in the economy, society, and technology, due to the products and services of the electrical and electronics businesses have short product life cycles (Electrical and Electronics Institute, 2018). Moreover, resistance from strict independent organizations on the environment, and the impact of intense business competition both domestic and foreign markets. As a result, Thai manufacturers will have to improve their management efficiency and upgrade their products and services to diversity and differentiate themselves from competitors to create more value, competitive advantage, and create new marketing opportunities (Hunt, 2011).

In this study, the researcher applied the R-A Theory to support and link the relationship between variables. According to this theory, MAI usage is a valuable resource for firms. Utilizing resources will help develop the organization's potential to make a difference strategy and competitors cannot even imitate in terms of work processes, production, and quality of products

and services, which will lead to a long-term competitive advantage and create sustainable survival for an organization in the future (Peranginangin, 2015; Hunt & Madhavaram, 2012). Therefore, the inspiration mentioned above in this article aims to test the effects and correlation between MAI usage (MAI usage: product costing system, technical information, and customer service system) and corporate sustainability with firm age and firm size as the control variables. We wanted to select the most suitable variable and develop new dimensions for MAI usage contribute to the extant literature. Moreover, the research contribution was a guideline for appropriate management accounting information usage of corporate executives to operating within the firms. Management accounting information was a valuable resource for planning, controlling, evaluating, and decision-making, such as production planning, product pricing, corporate risk management, and revenue forecasting and profitability measurements, etc. Including innovation development process effective to help organizations achieve competitive advantages of generating economic benefits and lead to sustainability in dynamic business environments.

Research Objectives

This article aims to test the effects and correlation of management accounting information usage (product costing system, technical information, and customer service system) and corporate sustainability.

Methodology

Sample selection and data collection procedure

The population of this research is 850 electrical and electronic businesses in Thailand (Institute of Electrical and Electronics, 2018). In this study, the chief accounting officer was the key informant, the mail survey method through questionnaires usage is a technique of data collection. The sample size of 272 firms used Taro Yamane's formula with a 95% confidence level, and the questionnaires had received a total of 210 firms by the response rate was approximately 77.21%. Consistent with Hair et al. (2010)

indicates that an effective response rate greater than 20% was considered acceptable for multiple regression analysis. The test of non-response bias by using a t-test statistic to find the statistically significant difference used the organizational demographic data includes capital registered, total assets of the firm, period of business operation, number of employees, and the average revenues per year. The results were showed did not have statistically significant at a 95% confidence level. Therefore, the non-response bias is not a problem in this research (Armstrong and Overton, 1977).

Measurements

In this study, the dependent variable was corporate sustainability (CS). For CS, the questions employed were developed by Kantabutra (2014). Measuring by the firm's performance in long-term include increase sales, income, profit, investment growth, satisfaction and good relationship with customers and stakeholders, learning and adaptation, and social responsibility. Furthermore, independent variables management accounting information usage, which were divided into 3 categories as follows; Product costing system (PCS) measured by product costing, selling price, cost of quality, profitability of goods and services, and strategic cost management by adapted from Zainuddin et al. (2015). Technical Information (TI) measured from operational and production techniques to elimination wastage, non-value-adding activities, defects, overproduction, waiting, and production quality improvement by developed from Walker et al. (2018). Customer service system (CSS) measured by sales forecast, forecast revenue and profits from target customers, market share, analyzing and evaluating, customer profitability, tracking, and management to reduce costs of customers warranty claims by developed from Zainuddin et al. (2015). All variables were measured on a five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). Two control variables were firm age and firm size.

Validity and Reliability Tests

In the content validity, the questionnaire was examined for content validity by 3 management accounting experts, the results from the Item Objective Congruence (IOC) measurement of the questions were 0.62, which

was greater than 0.50. Therefore, it indicates that the questions were content validity and cover according to the research objectives (Turner and Carlson, 2003). In aspect of convergent validity, result of factor loadings was between of 0.718 - 0.930, which was greater than 0.4. Hence, the questionnaire represents illustrate acceptable construct validity (Nunnally and Bernstein, 1994). In addition, the reliability of a variable was tested for the item-to-total correlation and Cronbach's alpha coefficients. In the item total correlations shows results between 0.591- 0.898 is greater than 0.30, this result indicates that the reliability of the item was acceptable (Thoumrungroje, 2013). Moreover, the Cronbach's alpha coefficients with resulted in between 0.861- 0.953 are larger than 0.70. The results show the quality of the research instruments, with adequate certainty to an acceptable level. Therefore, the researcher has collected and analyzed the data in the next order (Nunnally and Bernstein, 1994).

Statistical techniques

This study analyzed the data using both descriptive and inferential statistical techniques, consisted of percentage, mean, standard deviation, correlation analysis, and multiple regression analysis with its estimation using ordinary least squares (OLS).

$$\text{Equation: } CS = \alpha_{03} + \beta_{11}PCS + \beta_{12}TI + \beta_{13}CSS + \beta_{14}FA + \beta_{15}FS + \varepsilon_3$$

Results

The results of the questionnaire, most business types were the company limited (91.9 percent) and located in the central region (52.9 percent); 29.0 percent has between the registered capital of 100 to 200 million baht, 66.2 percent has total assets more than 150 billion baht, 73.3 percent has the average revenue per year more than 100 million baht, 33.8 percent has 11 to 15 years of the firms have a period of business operation, and 36.2 percent has a number of employees of less than 250 employees.

Table 1 Descriptive Statistics and Correlation Matrix

Variable	PCS	TI	CSS	CS	FS	FA
Mean	4.37	4.28	4.25	3.98	n/a	n/a
S.D.	0.52	0.53	0.56	0.60	n/a	n/a
PCS	1					
TI	.635**	1				
CSS	.557**	.684**	1			
CS	.444**	.520**	.478**	1		
FS	.176*	.184**	.115*	.177*	1	
FA	.201**	.142*	.199**	.167*	.263**	1

**p < 0.05, *p < 0.10

Table 1 shows the descriptive statistics and correlation matrix among each dimension of management accounting information usage and corporate sustainability. In the first dimension, the result demonstrates the positive correlation between product costing system and corporate sustainability ($r = 0.444$, $p < 0.05$). In the second dimension, illustrates the technical information has a positive correlation to corporate sustainability ($r = 0.520$, $p < 0.05$). The last dimension, the customer service system has a significant and positive correlation with corporate sustainability ($r = 0.478$, $p < 0.05$). Furthermore, the correlation among all variables in the conceptual model was in the range of 0.444 to 0.684 at the $p < 0.05$ level, which was less than 0.8, and the variance inflation factors (VIF's) results for all variables has maximum value at 2.311 (at Table 5), which were less than 10 according to recommendations of Hair et al. (2010). As a result, the independent variables have not correlated with each other and therefore did not cause multicollinearity problems.

Table 2 Results of the relationships among MAI usage and corporate sustainability

Independent Variables	Hypothesis	Dependent Variables
		Corporate sustainability (CS)
Product costing system (PCS)	(H1)	.136* (.077)
Technical information (TI)	(H2)	.285*** (.088)
Customer service system (CSS)	(H3)	.192** (.082)
Firm Age (FA)		.090 (.126)
Firm Size (FS)		.135 (.123)
Adjusted R		.319
Adjusted R ²		.302
Maximum VIF		2.311

***p < 0.01, **p < 0.05, *p < 0.10

Table 5 the result of the multiple regression analysis shows that there were the relationships among management accounting information usage consisting of product costing system (PCS), technical information (TI), and customer service system (CSS), with corporate sustainability (CS), to test hypotheses of these variables as shown in H1, H2, and H3. Hypothesis 1 illustrates that the result of OLS regression analysis demonstrated hypothesis tests. Firstly, MAI usage in dimension of product costing system (H1), was significantly and positively related to corporate sustainability (H1: $\beta_{11} = 0.136$, $p < 0.10$). Therefore, Hypothesis 1 was supported. Hypothesis 2 demonstrates that MAI usage in dimension of technical information (H2) was significantly and positively related to corporate sustainability (H2: $\beta_{12} = 0.285$, $p < 0.01$). Consequently, Hypothesis 2 was supported. And Hypothesis 3 results show that MAI usage in dimension of customer service system (H3) has a significant and positive influence on corporate sustainability (H3: $\beta_{13} = 0.192$, $p < 0.05$). Hence, Hypothesis 3 was supported.

Discussion

This study aimed to examine the effects and relationships between the variables of each dimension of MAI usage (product costing system, technical information, and customer service system) and corporate sustainability.

The results of the research demonstrated a strong relationship between MAI usage (product costing system, technical information, and customer service system) and corporate sustainability able to discussion the results as follows:

Firstly, MAI usage in dimension of product costing system (H1), was significantly and positively related to corporate sustainability. Consistent with the Hertati et al. (2020) states that the application of cost management information was useful for planning and allocating firms' budgets, including increasing efficiency and effectiveness in controlling production costs and quality of products and services to achieve cost differentiation and cost advantage. Similarly, Wangcharoendate (2014) indicating that the cost accounting information was used to support the decision-making of corporate executives for the efficient allocation of resources to production, pricing and profitability analysis of products and services, as well as helping to distinguish between value-added and non-value-added production activities, which enables accurate cost management. In addition, the application of information to formulate cost strategies to raise the standard of higher production and service while costs are controlled to be lower will create customer satisfaction and increase the chances of making long-term profits. Moreover, cost information is linked to both financial and non-financial perspectives as a tool to measure work efficiency and effectiveness, which leads to achieving sustainable growth goals in a fierce competitive environment (Kaplan & Norton, 1996). Likewise, Jaafar & Noordin (2020) found that the use of management accounting data is the key to increasing productivity to achieve continued success of both financial and non-financial operations. Meanwhile Peranginangin (2015) explains that management accounting information is valuable resource according to R-A theory, which

can create a superior competitive advantage and increase sustainable business growth. Thus, hypothesis 1 is supported.

Secondly, demonstrates that MAI usage in dimension of technical information (H2) was significantly and positively related to corporate sustainability. Most firms have adopted new management techniques to reduce losses during production to improve work processes and maintain product and service quality. The TI was used as an analysis tool and deal with the loss caused by uncertainty in business events. Likewise, De Jesus Pacheco (2015) explains that the use of technical information can help increases ability to apply information to improve production quality and reducing losses in all forms because of work and production processes, the eliminating defects, and non-value-added activities. Similarly, Walker et al. (2018) stresses that production management techniques will optimize resource utilization throughout the system, productivity and raising the standard of products and services, and creation technologies and solution to solve social and environmental problems. These factors will lead to a balance and sustainability of mutual benefits between the firms and all stakeholders. Therefore, hypothesis 2 was supported.

Finally, the research demonstrates that MAI usage in dimension of customer service system (H3) has a significant and positive influence on corporate sustainability. Utilizing a customer database is part of the use of management accounting information to benefit for planning, decision-making, and customer analysis. The customer information is important business foundation for deep perception of customer needs and behavior, as well as assessing risks from rapidly changing and diverse customer behaviors leading to the creation of an efficient customer service system. Consistent with the Zainuddin et al. (2015) indicating that database of customer service system is important to help firms understand customer needs and learn market behavior. This result is beneficial on improving the quality of products and services to create the highest satisfaction for customers. Likewise, Alsulmani et al. (2021) explains that the effective customer service system will help build satisfaction and good relationship with customers in the long term to

become customer loyalty to the company which will reduce the cost of losing old customers, the higher income from increased market share, and maintaining competitive advantage of the firms and long-term growth of the firms. Hence, hypothesis 3 was supported.

Body of knowledge

This research investigates the relationships among management accounting information usage, value-based risk management, value creation, and corporate sustainability in the Electrical and Electronics businesses in Thailand able to build a body of research knowledge model as follows:

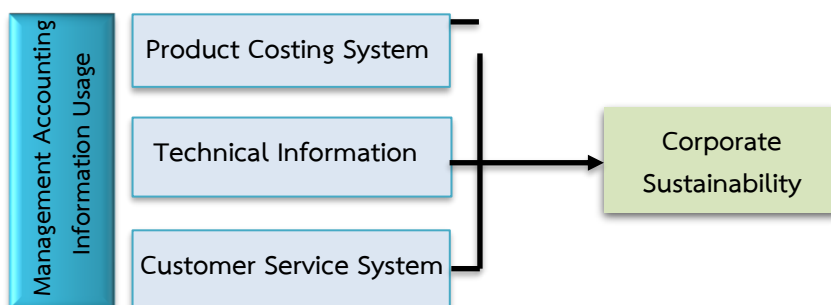


Figure 1 Body of knowledge model

This research creates new knowledge about MAI usage model development of the electrical and electronic business in Thailand for application in the planning of work, control and evaluation, coordination, and effective strategic decision-making. MAI usage consists of 3 dimensions as follows; 1) product costing system, 2) technical information, and 3) customer service system. The results obtained from the study confirm that MAI usage enhances the organization's ability to survive, steadily growth, and sustainability. As a result of continuity in the development production processes and the quality improvement of goods and services. The building satisfaction and good relationships with customers, maintaining a balance in sharing the benefits of all stakeholders, and build the ability to adapt to the rapidly changing business environment.

Recommendations

Policy recommendations

The results of this research can confirm that the R-A theory can explain the relationship between MAI usage and corporate sustainability. The management accounting information that is properly designed for utilization is a valuable resource based on R-A theory. MAI usage will increase the knowledge of the executives, which helping to potential the planning and decision-making that will lead to new innovations, differences, and competitors cannot imitate such as implementation method, production techniques, quality of goods and services, and customer satisfaction, etc. These conditions are the ability of corporate executives to achieve long-term competitive advantage and sustainable success of the firms.

Operational recommendations

The executives should be aware of the need to design and develop information to suit the operation and organization management for maximum efficiency in strategic planning, control, performance measurement, and decision-making. In addition, the administration must consider the benefits of management accounting information used to streamline and develop business processes, which helps to create a higher competitive advantage and build the ability to adapt to uncertain and dynamic business situations. Moreover, the commitment of corporate executives to innovation and development of production processes to reduce social and environmental damage was value creation and long-term sustainable success of firms.

Suggestions and future research

Although this study has received substantial theoretical and literary support, there were a few limitations research must have accepted. Firstly, this research was especially being conducted to explore and test the E&E business. Therefore, future research should be cautious about applying the conceptual framework and overview of these findings to other companies with different business characteristics and environments. And finally, the limitations of research methods that use cross-sectional data by collecting data over time. The resulting outcome may cause long-term concerns about

the MAI usage on corporate sustainability. Especially the E&E business group, which is a company with rapid electronic technology change and intense competition. Consequently, future studies should shape other research methods, such as qualitative research and mixed methods research, etc.

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