THE IMPACT OF ACCOUNTING INFORMATION MANAGEMENT ON COMPETITIVE ADVANTAGE AND PERFORMANCE OF EXPORT BUSINESSES IN THAILAND

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ABSTRACT

This article is about the effects of accounting information management on performance. The study examines the relationships between accounting information management and firm performance, where competitive advantage is taken as a mediator. The data were collected from 153 chief executive officers (CEOs) who worked in Thai listed companies. The results indicate that accounting information management including value chain data analytic and enterprise resource planning analytic have a direct effect on competitive advantage. Moreover, the strong positive competitive advantage could be given higher economic of scales, as well as it can add value and increase the opportunities for firm performance. Finally, contributions and suggestions are also provided for further research.

Keywords: Accounting information management, value chain data analytic, enterprise resource planning analytic, competitive advantage, firm performance; export business

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ผลกระทบของการบริหารข้อมูลทางการบัญชีที่มีต่อความได้เปรียบทางการแข่งขัน และผลการดำเนินงานสำหรับธุรกิจส่งออกของประเทศไทย

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์ เพื่อทดสอบผลกระทบของการบริหารข้อมูลทางการบัญชีที่มีต่อผลการดำเนินงานของธุรกิจส่งออก ภายใต้เงื่อนไขที่กำหนดให้ความได้เปรียบทางการแข่งขันเป็นตัวแปรคั่นกลางสำหรับบริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทย โดยการเก็บรวบรวมข้อมูลจากผู้บริหารสูงสุด จำนวน 153 คน และใช้แบบสอบถามเป็นเครื่องมือ สถิติที่ใช้ในการวิเคราะห์ข้อมูล ได้แก่ การวิเคราะห์การถดถอยแบบกำลังสองน้อยที่สุด ผลการวิจัย พบว่า การบริหารข้อมูลทางการบัญชีที่ประกอบด้วย การวิเคราะห์ข้อมูลทางการเงินเกี่ยวกับห่วงโซ่คุณค่าและการวิเคราะห์การวางแผนทรัพยากรทางธุรกิจ มีผลกระทบเชิงบวกต่อความได้เปรียบทางการแข่งขัน ยิ่งไปกว่านั้น ความได้เปรียบทางการแข่งขันที่เป็นตัวแปรคั่นกลางระหว่างการบริหารข้อมูลทางการบัญชีที่มีต่อผลการดำเนินงาน อย่างไรก็ตาม การบริหารข้อมูลทางการบัญชี ยังคงมีผลกระทบเชิงบวกต่อผลการดำเนินงานทางธุรกิจโดยตรง ดังนั้น การตัดสินใจของผู้บริหารทุกระดับและทุกหน้าที่ความรับผิดชอบจำเป็นต้องมุ่งเน้นการบริหารข้อมูลทางการบัญชี ที่สามารถปรับปรุงและพัฒนาประสิทธิผลของความได้เปรียบทางการแข่งขัน เพื่อส่งเสริมให้เกิดผลการดำเนินงานที่เพิ่มขึ้น

คำสำคัญ: การบริหารข้อมูลทางการบัญชี, การวิเคราะห์ข้อมูลห่วงโซ่คุณค่า, การวิเคราะห์การวางแผนทรัพยากรทางธุรกิจ, ความได้เปรียบทางการแข่งขัน, ผลการดำเนินงาน, ธุรกิจส่งออก

INTRODUCTION

Big data and data analytics will affect accounting in many ways by influencing how business is conducted and how financial statements are being integrated into accounting information systems Trigo et al., 2014). Accounting information management is focused at internal managers and decision makers. Its intended use is to provide financial data relevant to a manager's operations in an effort to make sound business decisions. Strategic management accounting is a theory and practice of accounting that looks at an organization's cost position, cost advantages and product differentiation in order to make market decisions. The general model of an enterprise resource planning system compared to a value chain system (Roh et al., 2019). The organization as a collection of key functional activities that could be separated and identified as primary activities (inbound logistics, operations, outbound logistics, marketing and sales, and service) or support activities (infrastructure, human resource management, technology development and procurement) (Ruivo et al., 2014). In this research, accounting information management includes value chain data analytic as primary activities and enterprise resource planning analytic as support activities. The primary and support activities will add more value to the product and services than the sum of added cost of these activities. And thus, the organization will gain marginal value for that product or service. If these activities run efficiently the organization gains competitive advantage on the product or service (Ding et al., 2019). However, the customers should transact the product or services willingly and provide return on value to the organization. Moreover, export business is engaged in international trade rely on effective export control processes throughout their value chain data analytic and enterprise resource planning analytic (Govindan et al., 2018).

The purpose of this study is to test the impact of accounting information management on firm performance via competitive advantage as a mediator. Moreover, this research tests the positive relationship between accounting information management and competitive advantage. This research tests competitive advantage which is the mediating effect of the relationship between accounting information management and firm performance. Lastly, the research offers a validated instrument to measure accounting information management, and provides empirical evidence of the importance of accounting information management on firm performance.

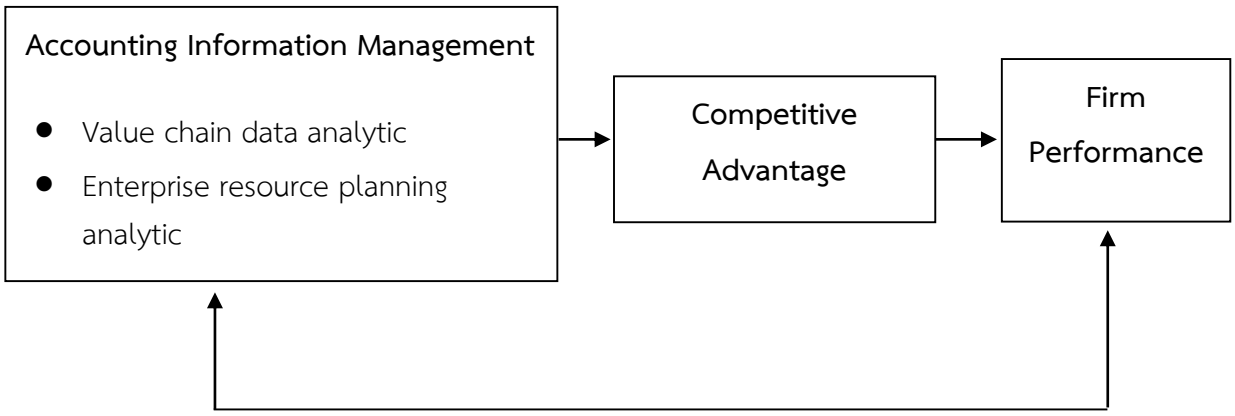
This research extends from previous research that includes value chain data analytic and

enterprise resource planning analytic which will help the researchers better understand the scope and the activities associated with accounting information management and allow them to test the consequences of accounting information management. Additionally, this research will offer useful guidance for measuring and implementing accounting information management and facilitate further research in this area. The research question of this work is how does the accounting information management affect firm performance using competitive advantage as mediator? The specific questions are as follows: 1) to examine the relationship between accounting information management on firm performance. And 2) to investigate the mediating of competitive advantage on accounting information management and firm performance

RELEVANT LITERATURE REVIEW

The framework proposes that accounting information management includes value chain data analytic and enterprise resource planning analytic (Rikhardsson and Yigitbasioglu, 2018). Value chain data analytic and enterprise resource planning analytic have an impact on competitive advantage and firm performance (Poonpool, 2016). Value chain data analytic involve the financial information of primary activity such as inbound logistics, operations, outbound logistics, marketing and sales, and service (Bakar and Jaafar, 2016).

FIGURE 1
THE IMPACT OF ACCOUNTING INFORMATION MANAGEMENT ON COMPETITIVE ADVANTAGE AND FIRM PERFORMANCE OF EXPORT BUSINESSES IN THAILAND



The enterprise resource planning analytic involve the financial information of support activity such as infrastructure, human resource management, technology development and procurement (Poonpool, 2017). Competitive advantage and organizational performance are concepts that have been operationalized in the existing literature (Zaid et al., 2018). Using literature support, the expected relationships among Enterprise resource planning analytic, value chain data analytic, competitive advantage, and firm performance are discussed, and hypotheses relating these variables are developed (Saeidi et al., 2019).

The effect of value chain data analytic

Value chain data analytic is both the financial information measuring and synthesis of primary activities that can be classified into product related and market related activities. Product related activity is the activities that the organization performs to add value to the products and services itself (Kaschig et al., 2016). Product related activity includes inbound logistic, operation, services. Market related activity is the activities that the organization performs to transfer the finished products or services to the customers. Market related activity includes outbound logistic, marketing and sale (Holsapple and Singh, 2001).

Firm's value chain data analytic can be a useful approach in developing strategy. Value chain analysis can be used to formulate competitive strategies, understand the source of competitive advantage, and identify and/ or develop the linkages and interrelationships between activities that create value. However, there is a distinct interconnectedness of R&D, production, marketing, and information systems. Since there are many linkages and interdependencies among activities, the ability to co- ordinate interrelationships is critical to achieving competitive advantage. Integration can increase a firm's capacity to implement strategies such as respond quickly and effectively to market forces, improve its response to customer needs, and reduce costs. Competitive strategies focus on activities needed to increase the value of a product or service (Annarelli, Battistella et al., 2018).

Therefore, value chain data analytic refer the identification and analysis of internal and external factors, in order to know the internal strengths and weaknesses, opportunities and threats faced by the company. And analyzing company's competitive position and the selection of alternative strategies to formulate strategies that can enhance the competitive advantage of organizations (Annarelli et al., 2018). In summary, adoption of value chain data analytic will result better competitive advantage. Based on the above, it is hypothesized that:

H1: The value chain data analytic have a positive impact on competitive advantage.

The effect of enterprise resource planning analytic

Enterprise resource planning (ERP) analytic involve both the financial information measuring and synthesis of support activity. Support activity is the activities that the organization performs to assist the primary activities to gain the competitive advantage (Appelbaum et al., 2017) . Support activity includes infrastructure, human resource management, technology development and procurement (Adamides and Karacapilidis, 2018).

The central feature of all ERP analytic is a shared database that supports multiple functions used by different business units. In practice, this means that employees in different divisions can rely on the same information for their specific needs such as infrastructure, human resource management, technology development and procurement. At its most basic level, ERP analytic integrates these various functions into one complete system to streamline processes and information across the entire organization. At its core, ERP analytic helps employees do their jobs more efficiently by breaking down barriers between business units. More specifically, an ERP solution: gives a global, real- time view of data that can enable companies to address concerns proactively and drive improvements, improves financial compliance with regulatory standards and reduces risk, automates core business operations such as lead to cash, order to fulfillment, and procure to pay processes, enhances customer service by providing one source for billing and relationship tracking. Therefore, firm has access to accurate information that enables them to make better decisions faster. Moreover, ERP analytic helps to eliminate redundant processes and systems, dramatically lowering the cost of doing business overall (Bhakar et al., 2018).

Therefore, the manufacturing firm' s ERP implementation positively affected competitive advantage (differentiation strategy and low- cost strategy). ERP system and can be used in evaluating, assessment, and the organizations can be able to increase competitive advantage. The goal of implementation for ERP systems are improving performance business process and achieve work more efficiency and productivity. In summary, a positive relationship between Enterprise resource planning analytic and a competitive advantage can be proposed (Bhakar, Digalwar et al., 2018).

H2: Enterprise resource planning analytic has a positive effect on competitive advantage.

Competitive advantage and firm performance

Having a competitive advantage generally suggests that an organization can have one or more of the following capabilities when compared to its

competitors: lower prices, higher quality, higher dependability, and shorter delivery time (Ferreira et al., 2018).

Competitive advantage provides the opportunity to develop their own economic performance and ability to compete with the company's rivals. A firm can increase the profit margin and ROI values, only by improving the products' quality. Innovative companies can increase their market share and sales by having the ability to drive rapid product launches (Singjai et al., 2018).

Firms reach competitive advantage by with maintaining relationships with a limited number of suppliers, fostering communication between the numbers of the logistics chain, and realize mutual gains by developing strategic relationship orientation (Véronneau et al., 2015).

Therefore, a positive relationship between competitive advantage and firm performance can be proposed.

H3: Competitive advantage has positive effect on the firm performance.

Impacts of accounting information management on firm performance

Accounting information management includes value chain data analytic and enterprise resource planning analytic. Firstly, value chain data analytic involve the financial information of primary activity such as inbound logistics, operations, outbound logistics, marketing and sales, and service (Boiko et al., 2019). Growing attention to supply chain data analytic highlights the importance of using efficient supply chain management practices. The belief that supply chain management can lead to continuous improvement of corporate performance has led manager to focus on upgrading the supply chain management process (Tiwari et al., 2018). Lastly, the enterprise resource planning analytic involve the financial information of support activity such as infrastructure, human resource management, technology development and procurement. The ERP systems as basic to consider evaluating performance achievement as a tool for analyzing, evaluating and support decision making. In the reality, the managers have problems using ERP systems to making decisions and ultimately improve the synchronization of business strategy (Chofreh et al., 2018). ERP systems can support making decision using a dashboard systems to achievement the performance of organizations.

Therefore, a positive relationship between accounting information management and firm performance can be proposed.

H4: Accounting information management has a positive effect on firm performance.

Research methods

1. Sample

For this research, the sample was selected from the firms within Thai listed

companies. A mailed survey was used for data collection. The questionnaire was sent to 302 firms within Thai listed companies. The key participants in this study were Chief Executive Officers (CEOs). Of the surveys completed and returned, only 153 were usable. The effective response rate and usable was approximately 50.66% follows Asker, Kumar and Day (2001). However, the non-response bias did not appear to be a problem in the study on an overall basis.

2. Measure

All the variables were obtained from the survey. The independent variables include value chain data analytic and enterprise resource planning analytic as accounting information management. (Cipriano et al., 2017). Value chain data analytic and enterprise resource planning analytic have an impact on competitive advantage and firm performance. Value chain data analytic involve the financial information of primary activity includes inbound logistic, operation, services. Inbound logistic, the production and development activities, organizations need inputs as goods which are received from the suppliers. Inbound logistics refer to all the activities related to receive goods from the suppliers, decision about the transportation scheduling, storing the goods as inventory, managing the inventory, and make the inputs ready to use for the production of end products. Operation, these include the production process, development activities, testing, packaging, maintenance, and all other activities that transform the inputs into finished product. Services, organization offers the services after the products and/or services have been sold. These service activities enhance the product's value in the form of after sales guarantees, warranties, spare parts management, repair services, installation, updating, and trainings. Market related activity is the activities that the organization performs to transfer the finished products or services to the customers. Market related activity includes outbound logistic, marketing and sale. Outbound logistic, the finished products are developed using the product related activities. Now activities are required to transfer the finished products to the customers via warehousing, order fulfillment, transportation, and distribution management. Marketing and sale, these activities include the advertising, channel selection, product promotion, selling, product pricing, retail management, etc. The activities are performed to make sure that the products are transferred to the targeted customer groups. Marketing mix can be an instrument to take the competitive advantage to the target customers. Support activity includes infrastructure, human resource management, technology development and procurement. Infrastructure, this includes the planning management, legal framework, financing,

accounting, public affairs, quality management, general management, etc. These are required to perform the value added activities efficiently to drive the organization forward to meet the strategic plan and the objectives. Human resource management, the key roles of HR are to support the attainment of the overall strategic business plan and the objectives. As a strategic business partner HR designs the work positions by hiring, recognition, reward, appraisal systems, carrier planning, and employee development. They act as an advocate of the employees to motivate them and create a happy working environment. For the organizational changing situation, HR executes the strategic needs of the organization with minimum employee dissatisfaction and resistance to change. Technology development, this is very important in today's technological driven environment. Technology can be used in production to reduce cost, to develop new products, increase customer service facility, build up cost effective process, etc. It supports the value chain activities such as research and development, process automation, process design. And procurement, this is the purchasing activity of the inputs to transform these into finished products or services. Procurement adds value by the acquisition of appropriate goods or services at the best price, at the right time, and in the desired place with the desired quality and quantity.

Therefore, accounting information management was measured on 5-point Likert scales (i.e., 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree). Most of the scales employed have been adopted from the existing and validated scales used in the extant literature to fit the current situation. Competitive advantage is about minimizing the cost to the organization of delivering products and services. Competitive advantage was measured on 5-point Likert scales (i.e., 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree). It is measured by the mediator variable that deals with accounting information management and firm performance. The dependent variables include firm performance encompasses three specific areas of firm outcomes, Firstly, financial performance (e.g. profits, return on assets, and return on investment). Secondly, product market performance (e.g. sales and market share); and finally, shareholder return (e.g. total shareholder return and economic value added). Firm performance was measured on 5-point Likert scales (i.e., 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree).

In addition, the control variables are firm age and size. Firm age was measured by the number of years a firm has been in existence with a dummy variable (e.g., number of years since 1 – 10 = 1, other = 0) (Zahra, Ireland and Hitt, 2000). The firm's size was measured with

the number of employees in a firm with a dummy variable (e.g., number of employees from 1 to 500 = 1, others = 0) (Arora and Fosfuri, 2003).

3. Method

Confirmatory factor analysis (CFA) was employed to investigate the validity of constructs. Furthermore, factor scores were used to estimate for regression analysis. This research demonstrates the results of factor loading and Cronbach's alpha coefficiencies. All factor loadings are greater than 0.6 (Hair et al., 2006) and are statistically significant. Cronbach's alpha of all variables are greater than 0.7 (Nunnally and Berstein, 1994. Overall, the results indicate the reliability and validity of these constructs.

The ordinary least squares (OLS) regression analysis was employed to estimate parameters in hypotheses testing. Three equation models are shown as follows:

Equation 1: $CA = \beta 01 + \beta 1\ VCDA + \beta 2\ ERPA + \beta 3\ FA + \beta 4\ FS + \varepsilon$

Equation 2: $FP = \beta 02 + \beta 5\ CA + \beta 6\ FA + \beta 7\ FS + \varepsilon$

Equation 3: $FP = \beta 03 + \beta 8\ AIM + \beta 9\ FA + \beta 10\ FS + \varepsilon$

AIM is accounting information management; VCDA is value chain data analytic; ERPA is enterprise resource planning analytic; CA is competitive advantage; FP is firm performance; FA is firm age and FS is firm size as measured by dummy variable; ε is error term.

TABLE1 DESCRIPTIVE STATISTICS AND CORRELATION MATRIX

Constructs	FP	VCDA	ERPA	CA	FA	FS
Mean	3.85	3.43	3.84	3.82	-	-
Standard Deviation	0.84	0.78	0.91	0.87	-	-
Firm performance (FP)						
Value chain data analytic (VCDA)	0.70*					
Enterprise resource planning analytic (ERPA)	0.83**	0.64				
Competitive advantage (CA)	0.71*	0.94**	0.55			
Firm Age (FA)	0.50	0.51	0.48	0.51		
Firm Size (FS)	0.39	0.39	0.34	0.35	0.49	

RESULTS AND DISCUSSION

Table 1 shows the descriptive statistics and correlation matrix analyzed by Pearson correlation coefficiencies. Although it indicates a high correlation between independent variables, it does not have severe multicollinearity problems according to the VIFs range from 1.00 to 7.42 (Hair et al., 2006).

Impacts of accounting information management on its consequence

Table 2 presents the results of OLS regression analysis of the relationships between accounting information management and competitive advantage. To test hypotheses 1 – 2, this study examined the relationships between accounting information management (i.e., value chain data analytic and enterprise resource planning analytic) and competitive advantage. The results show that all independent variables consisting of value chain data analytic and enterprise resource planning analytic have a significant positive effect on competitive advantage (b1 in the narrative and the coefficient in the table 2 = .075, $p < 0.05$; b2 in the narrative and the coefficient in the table 3 = .069, $p < 0.05$).

TABLE 2

RESULTS OF OLS REGRESSION ANALYSIS

Independent Variables	Dependent variable
	CA
Value chain data analytic (VCDA)	0.075**
	(0.024)
Enterprise resource planning analytic (ERPA)	0.069**
	(0.054)
Firm Age (FA)	0.044*
	(0.027)
Firm Size (FS)	0.042*
	(0.017)
Adjusted R-square	0.855

Note: Standard error is in parentheses.

** p< .05

* p< .10

Hypothesis 1 is supported. Firm's value chain data analytic can be a useful approach in developing strategy. Value chain analysis can be used to formulate competitive strategies, understand the source of competitive advantage, and identify and/or develop the linkages and interrelationships between activities that create value. However, there is a distinct interconnectedness of R&D, production, marketing, and information systems. Since there are many linkages and interdependencies among activities, the ability to co- ordinate interrelationships is critical to achieving competitive advantage. Integration can increase a firm's capacity to implement strategies such as respond quickly and effectively to market forces, improve its response to customer needs, and reduce costs. Competitive strategies focus on activities needed to increase the value of a product or service (Annarelli, Battistella et al., 2018).

Hypothesis 2 is supported. The central feature of all ERP analytic is a shared database that supports multiple functions used by different business units. In practice, this means that employees in different divisions can rely on the same information for their specific needs such as infrastructure, human resource management, technology development and procurement. At its most basic level, ERP analytic integrates these various functions into one complete system to streamline processes and information across the entire organization. At its core, ERP analytic helps employees do their jobs more efficiently by breaking down barriers between business units. More specifically, an ERP solution: gives a global, real-time view of data that can enable companies to address concerns proactively and drive improvements, improves financial compliance with regulatory standards and reduces risk, automates core business operations such as lead to cash, order to fulfillment, and procure to pay processes, enhances customer service by providing one source for billing and relationship tracking. Therefore, firm has access to accurate information that enables them to make better decisions faster. Moreover, ERP analytic helps to eliminate redundant processes and systems, dramatically lowering the cost of doing business overall (Bhakar, Digalwar et al., 2018).

Impacts of competitive advantage on its consequence

Table 3 presents the results of the relationships between competitive advantage and entering into firm performance. To test hypothesis 3, this study examined the relationship between competitive advantage and firm performance. The result shows that competitive advantage has a significant positive effect on firm performance (b5 in the narrative and the coefficient in the table 3 = .065, $p < 0.1$). That is, hypothesis 3 is supported. Competitive advantage provides

the opportunity to develop their own economic performance and ability to compete with the company's rivals. A firm can increase the profit margin and ROI values, only by improving the products' quality. Innovative companies can increase their market share and sales by having the ability to drive rapid product launches (Singjai, Winata et al., 2018).

TABLE 3

RESULTS OF OLS REGRESSION ANALYSIS

Independent Variables	Dependent variable
	FP
Competitive advantage (CA)	0.065*
	(0.032)
AIM	0.217**
	(0.257)
Firm Age (FA)	0.045
	(0.011)
Firm Size (FS)	0.024
	(0.034)
Adjusted R-square	0.651

Note: Standard error is in parentheses.

** p< .05

* p< .10

Impacts of accounting information management on firm performance

Table 3 presents the results of OLS regression analysis of the relationships between accounting information management and firm performance. To test hypothesis 4, this study examined the relationship between accounting information management and firm performance. The results show that an accounting information management has a significant positive effect on firm performance (b8 in the narrative and the coefficient in the table 3 = .217, $p < 0.05$). That is, hypothesis 4 is supported. Firstly, growing attention to supply chain data analytic highlights the importance of using efficient supply chain management practices. The belief that supply chain management can lead to continuous improvement of corporate performance has led manager to focus on upgrading the supply chain management process (Tiwari, Wee et al., 2018). Lastly, the enterprise resource planning analytic involve the financial information of support activity such as infrastructure, human resource management, technology development and procurement. The ERP systems as basic to consider evaluating performance achievement as a tool for analyzing, evaluating and support decision making. In the reality, the managers have problems using both supply chain data analytic and ERP analytic to making decisions and ultimately improve the synchronization of

business strategy (Chofreh, Goni et al., 2018). However, accounting information management has coordinate between supply chain data analytic as primary activity and ERP analytic as support activity can support making decision using a dashboard systems to achievement the performance of organizations (Poonpool, N.,2019).

management is the term used to describe new information management and accounting methods that attempt to create and provide a wide range of value chain data analytic and enterprise resource planning analytic. Consequently the information leads to the identification of ways in which value chain management and enterprise resource planning may be made more profitable, information claimed to enable businesses pursue the quest for superior performance.

CONTRIBUTIONS AND FUTURE RESEARCH

1.Theoretical contributions and future directions for research

This study provides important theoretical contributions extending on prior studies by incorporating both perspectives of accounting information management including value chain data analytic and enterprise resource planning analytic in the same model and links this accounting information management to firm performance via competitive advantage as a mediator. Especially, there is significant direct positive relationship between competitive advantage and firm performance. Finally, further research should reexamine this research model in other group for more generalization.

2. Practical contributions

For executive managers and firms' owners, this study helps them to understand and know that accounting information management is an important factor that motivates the firms within Thai listed companies. Especially, competitive advantage is the mediator of the relationship between accounting information management and firm performance. Therefore, accounting information

3. Conclusion

This study investigates the effects of value chain data analytic and enterprise resource planning analytic on firm performance via competitive advantage as a mediator. The data were collected from 1 5 3 Chief Executive Officers (CEOs) who worked in Thai listed companies. The findings show that value chain data analytic and enterprise resource planning analytic have the most powerful effects on competitive advantage. Furthermore, the relationship between accounting information management and firm performance is mediated by competitive advantage in this empirical research. Interestingly, there is a direct positive relationship between accounting information management and firm performance

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