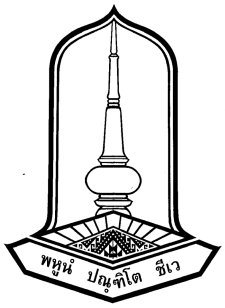

VALUE CHAIN COSTING CAPABILITY AND FIRM PERFORMANCE: AN EMPIRICAL INVESTIGATION OF ELECTRONIC AND ELECTRICAL APPLIANCE BUSINESSES IN THAILAND

BY

SARINYA SUPHATRANON

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Accounting at Mahasarakham University

March 2018

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The examining committee has unanimously approved this dissertation, submitted by Mrs. Sarinya Suphatranon, as a partial fulfillment of the requirements for the degree of the Doctor of Philosophy in Accounting at Mahasarakham University.

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ABSTRACT

Value chain costing capability is one of the important tools that can help manufacturing businesses to improve operational efficiency and effectiveness and achieving high firm performance. The objective of this research was to examine how value chain costing capability including business goal integration, strategic operational linkage, operational activity analysis, cost reduction competency, and expenditure monitoring report had an effect on firm performance, cost competitiveness, strategic achievement, and business progressiveness. In addition, this research tested the impact of five antecedents (survival vision, organizational learning culture, cost management knowledge, modern management information system, and volatile competitive pressure) on value chain costing capability. Furthermore, the moderating role of innovative climate was also investigated. The network theory and contingency theory were applied to explained the relationship between these variables.

The electronic and electrical appliances businesses in Thailand were considered as the appropriate population of this research since this type of industry had the potentials to examine the five dimensions of value chain costing capability. A questionnaire was used as the instrument for data collection, and an accounting executives were the key informants. The data were collected from a sample of 152 companies. The effective response rate was approximately 22. 51%. The ordinary least squares (OLS) regression analysis was a method for testing the hypotheses.

The results revealed that operational activity analysis, cost reduction competency, and expenditure monitoring report positively impacted cost

competitiveness, strategic achievement, business progressiveness and firm performance. Moreover, cost reduction competency was a key element of value chain costing capability which positively impacted business progressiveness and firm performance. According to the results from the antecedents, this research showed that cost management knowledge and modern management information system was found as the important factor to encourage the relationships between cost reduction competency dimension of value chain costing capability. Regarding moderating effect, the innovative climate was the important factor to encourage the relationships between cost management knowledge and operational activity analysis.

These findings are useful for executives to analyze and justify key components that may be more critical in competitive environmental change. Especially, findings on cost reduction competency are helpful for analyzing and planning production cost, reducing non-performing activities, and evaluating the worth of the invested cost accurately, leading to the enhancement of the firm performance.

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CHAPTER I

INTRODUCTION

Overview

In today's world, competitive environmental change causes firms to adapt and find tools for controlling operations in accordance with their goals and objectives. In particular, the manufacturing industry is facing an increasingly competitive pressure (World Economic Forum, 2017). The problem of manufacturing firms is that although the most manufacturing firms have a product's quality certified of the international standard organization, The certified products are not enough for the present highly competition because competitors around the world can develop quality products higher than standard and diversity. As a result, a concept of strategic cost management appears with the practice such as building customer satisfaction, lower cost than competitors, the process of value chain analysis, and continual improvement (Kouvelis, Chambers, and Wang, 2006). Therefore, the administration values the internal and external environment of the organization, especially the use of cost data in various ways such as new technological changes, products and new administrative techniques and services (Nassar et al., 2011). Likewise, managerial accounting is implemented with an organic combination of the supply chain, value chain and activity-based costing. These activities are beneficial to manage modern enterprise's cost and enhance the competitiveness of firms (Li and Zhang, 2012).

Value chain costing has been defined in several ways: an activity-based approach where costs are allocated to activities required to design, procure, produce, distribute to market and service a product or provide a service along the entire industry value chain. It embraces the consideration of the linkages with suppliers and customers to attain higher efficiency (Cadez and Guilding, 2008; Cinquini and Tenucci, 2010). Whereas value chain costing proposes an approach to accounting that considers all the activities performed from the design to the distribution of the product, the strategic implications regard the exploiting of the economies and efficiency deriving from the external linkages between the company and both suppliers and customers (Carmen and Corina, 2009). Moreover, value chain costing is used as a strategic management accounting tool that extension of conventional

cost analysis to design, procure, produce, make, distribute a product or to provide a service (Cullen, 2009; Kirli and Gumus, 2011). Thus, the value chain comprises of entire activities creating a value in all phases from the basic raw material sources to the final goods supplied to consumers, leading to benefits and cost savings.

Several studies in the area of the value chain revealed that value chain costing helps to enhance the competitive advantage. The value chain which consists of a series of activities to create and build value is a systematic approach to examine the development of competitive advantage (Porter, 1985). The chain consists of a series of activities that create and build value. (Aksoylu and Aykan, 2013; Ensign, 2001; Kirli and Gumus, 2011; Li and Zhang, 2012; Mu and Cui, 2012). Value chain analysis has largely focused on economic sustainability and paid inadequate attention to social and environmental consequences of firm behavior and the allocation of resources within and between firms in the chain (Fearne and Martinez, 2012). Likewise, Ussahawanitchakit's (2017) study revealed that value chain costing (value-creating activity, interdependent network, supplier-customer relationship, and continuous improvement) plays a significant role in determining business outcomes. From the prior literature review, the relationships among the results indicated that several researchers have focused on strategic accounting management and value chain which ultimately effect on organizational performance (Cadez and Guilding, 2008; Fearne and Martinez, 2012; Porter, 1985; Ashraf and Uddin, 2013; Trebacz, 2015). In addition, according to prior research, there was not any empirical research which developed or indicated the clear dimensions of value chain costing, especially in the context of Thailand. The empirical research of value chain costing capability in Thailand context seems quite a few, and lack of insight understanding. Hence, to bridge the gap of this research area, the present research aims to examine the effects of value chain costing on firm performance.

The objectives of this research were to provide further insight into value chain costing capability and its antecedents and consequents. In this research, value chain costing capability refers to the ability of firms to record, collect, and analyze information which related to manufacturing activities, internal and external firm operations with lower cost than competitors, informational presentation correctly and timely, value creation to customers, leading to competition advantages as well as higher firm performance consecutively. According to prior research (Ensign, 2001; Fearne and Martinez, 2012; Kirli and Gumus, 2011; Porter, 1985; Ashraf, and Uddin, 2013; Trebacz, 2015), five dimensions

of value chain costing capability are applied; including business goal integration, strategic operational linkage, operational activity analysis, cost reduction competency, and expenditure monitoring report.

A critical element to value chain costing capability is the valuable resource and levels of capability and competency of firms. If firms have adequate capability and competency, they can apply managerial accounting functions effectively, leading to good performance and control. To build an excellent resource and process for enhancing capability and competency, firms need to develop the ability to find effective ways to apply the managerial accounting function for setting up and controlling operational activities. Most businesses aggregate financial performance and non-financial performance, including customer perspective, internal business processes and learning and growth to measure performance effectively in order to compete with others (Wu, Straub, and Liang, 2015). In addition, firm performance is a result of the resource as a capability of firms (Barrick et al., 2015). Prior research finds a keyword in each variable definition to be a variable measurement, because some situations may be difficult to measure by using secondary data (Ayers, 2015). The network theory and contingency theory explain a firm's ability to implement competency capability functions, and as a means of managerial accounting for operational control and description of the structure and systems of the firm in accordance with the environment and the actual condition of the firm. The concept of network theory describes the ability of the firm to use all of the managerial accounting processes by managers to link to operational control for improving competitive advantage and performance of firms. For contingency theory, it describes that firms may achieve operational proficiency, goals, and objectives by responding to appropriate environmental change in a different way. Furthermore, two theories assert that firm size and firm age influence resources, operational management and performance of firms under social and economic environmental changing conditions (Vosselman and Kooistra, 2006). These factors are included in this research to constrain an impact that may interfere results.

The research is conducted with Thai electronic and electrical appliance industry, because this manufacturing industry type likely faces with competitive challenges. Thus, approaches for development are needed for the manufacturing firms in Thailand not only to keep up with the quality standards, but also to shift the quality level of the product higher than standard and customer expectation, leading to a competitive advantage in quality. In

addition, the electronic and electrical manufacturing appliance businesses may respond to change rapidly by value chain costing capability function. In order to increase firm value and good performance, the electronic and electrical appliance industry should be aware of reducing costs in all production activities and increasing the ability to create the efficiency of managerial accounting information (Varnali, 2012; Ussahawanitchakit, 2017). Hence, electronic and electrical manufacturing businesses are an appropriate sample for this research.

The contributions of this research are as follows. First, the finding of this research may ascertain new five dimensions of value chain costing capability. These dimensions are business goal integration, strategic operational linkage, operational activity analysis, cost reduction competency, and expenditure monitoring report. Next, this research expands knowledge of relationships among value chain costing capability, its antecedents and its consequents. The findings of this research may be useful for organizations in term that they may improve operational proficiency and performance of the firm with an emphasis on value chain costing capability. Lastly, this research provides empirical evidence for electronic and electrical appliance businesses in Thailand with deeper information about firms' ability to implement a value chain costing capability for controlling.

Purposes of the Research

The main objective is to examine the effects of value chain costing capability on firm performance; the specific objectives are as follows:

1. To examine the effects of each dimension of value chain costing capability (business goal integration, strategic operational linkage, operational activity analysis, cost reduction competency and expenditure monitoring report) on cost competitiveness, strategic achievement, business progressiveness, and firm performance,
2. To investigate the effects of cost competitiveness on strategic achievement, business progressiveness, and firm performance,
3. To investigate the influences of strategic achievement, business progressiveness on firm performance,

4. To test the effects of each antecedent variable (survival vision, organizational learning culture, cost management knowledge, modern management information system, and volatile competitive pressure) on each dimension of value chain costing capability, and

5. To examine the moderating effects of innovative climate that has an effect on the relationship between each antecedent variable and each dimension of value chain costing capability.

Research Questions

The main research question of this research is framed as: How does the value chain costing capability affect firm performance? In addition, the specific research questions are presented as follows:

1. How does each dimension of value chain costing capability have an influence on cost competitiveness, strategic achievement, business progressiveness, and firm performance?

2. How does cost competitiveness affect strategic achievement, business progressiveness, and firm performance?

3. How do strategic achievement and business progressiveness have an influence on firm performance?

4. How do survival vision, organizational learning culture, cost management knowledge, modern management information system, and volatile competitive pressure have an influence each dimension of value chain costing capability?

5. How does innovative climate moderate the relationship among survival vision, organizational learning culture, cost management knowledge, modern management information system, volatile competitive pressure, and each dimension of value chain costing capability?

Scope of the Research

This research aims to determine the effects of the relationship between value chain costing capability and firm performance. Two theories are utilized to explain the economic phenomena in this research; that is, network theory and contingency theories. Both theories are discussed respectively as follows. According to the former, the ability of firms to use competencies of value chain costing process link to operational control can be explained by network theory in which the resources and process of this theory can increase superiority, effectiveness, proficiency, and performance of the firm (Emerson, 1976; Gonzalez, Claro, and Palmatier, 2014). Hence, network theory is a crucial theory to help explain the ability of a firm and describe the relationship between the firm's capability-base and firm performance (Vurro, Russo, and Perrini, 2010). Regarding the latter, the contingency theory is employed to describe an environment that is currently high risking. This indicates that managerial accounting research is related to situations and environmental change (Scapens and Bromwich, 2010). The contingency theory focuses on explanation about internal and external environments, firm size, firm structure, firm strategy and technology (Chenhall, 2008). The firm manipulates operational processes and decision making in several ways because different antecedents occur in different environments such as in vision, experience, competency, technology growth and environmental change (Grotsch, Blome, and Schleper, 2013).

The contingency theory considers different environments for adaptation that is suitable for managing turbulent situations they are facing (Fiedler, 1976; Gong and Tse, 2009). The unexpected environment and technology growth drive the firm's efforts to develop itself rapidly; it causes the needs to make decisions and maintain the operational control of the firm (Delaney and Guilding, 2011). Thus, this model can explain several variables with respect to the environment, strategy, situation, technology and the systems of the firm. These are factors leading to the ability of the firm to implement worthwhile existing resources for enhancing value chain costing capability outcomes. In summary, the two theories mentioned above are combined to explain value chain costing capability in electronic and electrical manufacturing businesses in Thailand and its consequences, including firm performance.

Value chain costing capability, in this research, is an independent variable. It refers to the ability of the firms to record, collect, and analyze information relating to production activities including internal and external firm operations with lower cost than competitors; to present information correctly and timely; and to create value for customers, leading to obtaining competitive advantages as well as better firm performance consecutively. According to the theory and literature review for creating a new model of value chain costing capability, this research reviews each literature for analytical dimensions, which help understanding to aggregate as to value chain costing capability dimensions. Value chain costing capability is comprised of five dimensions addressed as follows (Ensign, 2001; Fearne and Martinez, 2012; Kirli and Gumus, 2011; Porter, 1985; Trebacz, 2015): 1) business goal integration, 2) strategic operational linkage, 3) operational activity analysis, 4) cost reduction competency and 5) expenditure monitoring report. Business goal integration refers to the ability of the firm to combine policies, information, and guidelines for management in various sections; to transfer information; to share operation guidelines, and to set the production cost suitably. Strategic operational linkage refers to the ability of the firm to link the internal operations, cost management, cost allocation, including the control and evaluation in the same direction. Operational activity analysis refers to the ability of the firm to specify good operation guidelines, to analyze the benefits of each operational activity, and to set direction and plan systematically and concretely. Cost reduction competency refers to the ability of the firm to analyze and plan production cost in the past and at present, to reduce non-performing activities, and to evaluate the worth of the invested cost accurately and beneficially for decision-making. Expenditure monitoring report refers to the ability of the firm to identify, analyze, check, and present the expense information in each step of the working procedure accurately, timely and conformingly to the real situations.

In addition, the outcomes of value chain costing capability, as consequences, are comprised of cost competitiveness, strategic achievement, business progressiveness, and firm performance. Cost competitiveness is the possession of an effective operation line with short production time, quick and correct delivery, distinctive and creative products, and continuously lower operation cost. Strategic achievement is the possession of professional management with abilities to maintain a competitive level

in the present and future and to achieve organizational goals with the good quality operation. Business progressiveness is the possession of an operating system with new technology and production techniques to produce quality productions, and the ability to serve the market demand continuously in uncertain situations. Firm performance is the ability in financial and non-financial performance over the previous years, such as revenue, market share, market growth, and return on investment.

Moreover, five antecedents are determinants causing value chain costing capability, including survival vision, organizational learning culture, cost management knowledge, modern management information system and volatile competitive pressure. Survival vision is the foresight of the firm that focuses on the future target, development of good management system, continuous staff self-development, and the application of technology for systematic management. An organizational learning culture is the firm's belief, value, and perception of collaborative learning, knowledge sharing in the organization, and continuous presentation of new operation models. Cost management knowledge is the determination of the organization to learn and search for guidelines, to reduce non-performing activities and to evaluate the performance accurately and suitably. Modern management information system is the determination of the organization on the system to collect and store the internal and external information of the organization in the past, present and future by using information technology to support the operation and decision making in different ways. Volatile competitive pressure is firm's perception relating to the uncertainty such as customers' demands, changes in the politics, economy, society, and technology which affect the operation and strategies of the organization. This research includes interaction with the moderator, namely, innovative climate. Innovative climate relates to the determination of the firm to enhance the creative working environment, to develop the modern management, to use new technology in the production process, and to encourage the staff to present new ideas freely.

The concept of the research model is explicitly illustrated. The research model shows the relationships among value chain costing capability (business goal integration, strategic operational linkage, operational activity analysis, cost reduction competency and expenditure monitoring report), cost competitiveness, strategic achievement, business progressiveness, and firm performance. It hypothesizes a positive relationship

based on network theory. This theory explains the ability of a firm to use valuable resource and process from link relationships using competencies, capabilities, functions and means of managerial accounting for operational control that can enhance the competitive advantage and performance of the firm (Emerson, 1987; Kim, 2014). Likewise, the research model illustrates correlations among five dimensions of value chain costing capability, survival vision, organizational learning culture, cost management knowledge, modern management information system and volatile competitive pressure as antecedents. Also, based on contingency theory, innovative climate are hypothesized as a moderator. It helps understand the situation of resources leading to the ability of the firm.

This research emphasizes firms' ability to use information, function and the approach of value chain costing, including the ability to continue adapting to change; and, it can increase firm performance. This research focuses on the effects of value chain costing capability on firm performance in the context of accounting executives of the electronic and electrical appliances businesses in Thailand. Electronic and electrical appliances businesses are selected because they are an important contribution in being aware of reducing costs in all production activities and increasing the ability to create ways, means, and applications of managerial accounting information which generates competitive advantage and good performance (Ussahawanitchakit, 2017; Yilmaz, 2012). This research utilizes a database from the Department of Business Development of the Thai Ministry of Commerce in March 2017. The sample size is 703 of electronic and electrical appliances of Thailand, and the key informants are the accounting executives of each electronic and electrical firm. Regression analysis is used to test and examine the hypothesized relationships.

Organization of the Dissertation

This research is organized into five chapters. Firstly, chapter one provides the overview and the motivation of this research, purposes of the research, research questions, scope of the research and organization of the research. Chapter two reviews the relevant literature concerning the theoretical framework to describe the conceptual model, and develops the related hypotheses for testing. Next, chapter three outlines the

research methods, including the population selection and data collection procedure, the variable measurement of each construct, the instrumental verification, the statistics and equations to test the hypotheses, and the summary table of definitions and operational variables of constructs. Then, chapter four presents the empirical results and discussion. Finally, chapter five gives details on the conclusion, theoretical and managerial contributions, limitations, and suggestions for future research directions.

CHAPTER II

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

The previous chapter provides the overview and motivation of this research, research objectives, research questions, and scope of the study. The purpose of this chapter is to review the relevant literature concerning value chain costing capability. The description elaborates on theoretical foundation, relevant literature review and hypotheses development, consequences of value chain costing capability, effects of antecedent variables on each dimension, role of moderating effect, and summary.

Theoretical Foundation

This section explains the theoretical foundation which supports the links between conceptual relationship models. Many theories can be used to explain the value chain costing capability. For example, Resource-Based View (RBV) is the theory which focuses on internal organization factors. According to RBV, the internal resources and the capability of the organization are regarded as the main foundation of the business operation because these factors are important for making competitive advantages, so the firm performance is determined by the internal resources of the organization (Barney, 1991; Akio, 2005). Knowledge-Based View (KBV) which was developed from RBV determines knowledge as a very important strategic resource because knowledge crucially enables an organization to obtain firm performance (Wang and Liang, 2014).

The knowledge creation process directly concerns with humans to produce resources as important factors of production and results in differences of assets or performances among the organizations. This depends on knowledge and ability to use and develop knowledge inside the organization for transferring knowledge and make competitive advantages in the rapidly changing environment (Curado and Bontis, 2006). Social Exchange Theory explains various processes and behaviors in the organization. Exchange depends on the trust that the exchange is worth and acceptable. The encouragement for the staff to participate in various activities enhances the staff's positive attitudes to the organization which leads to productive organization

performance (Wayne et al., 2002; Kilduff and Brass, 2010). Organizational Theory is the theory to explain organization structure management and provides administrative options for the organization to obtain efficiency and effectiveness (Henri, 1975; Dekker, 2003). Network Theory explains the capability of the firm to increase the ability to compete with better effectiveness (Emerson, 1976). Contingency Theory explains the model of management flexibility and adaptability with the success of the firm performance by determining the administrative models suitable both inside and outside the firm (Fiedler, 1967).

In this research, two theories – Network Theory and Contingency Theory - were selected for explaining the links of conceptual relationship models in order to understand all relationship among the organization structure clearly. Both theories were used to explain why different firms used value chain costing capability. This section explains the theoretical foundation that supports the relationship linkage of the conceptual model. The two theories, which the present research is based on, are the network theory and contingency theories. To clearly understand the relationships among all constructs, both the network theory and the contingency theory are applied to explain why firms adopt value chain costing capability. The network theory explains the ability of firm that can increase competitive advantage and superior firm performance (Emerson, 1976). On the other hand, the contingency theory explains the success of firm performance based on determining suitable management strategic fit with both the internal and external environment factors (Fiedler, 1967).

Thus, the network theory is highlighted to introduce the likelihood of the relationship between value chain costing capability and the consequence variables. The contingency theory is employed to describe the relationships between antecedent variables and value chain costing capability and is applied to explain innovative climate as the moderating effect between each antecedent and each dimension of value chain costing capability. To conclude, each theoretical framework is described as follows:

Network theory

According to the notion of network theory which has an important mastermind, Richard Emerson stated that exchange network structure is the center of linkage between macro and micro changes into bigger group development such as organizations

and political parties. An assumption in the network includes actor which has correlation by an individual role, function or every couple exist relationship. The individual doesn't have only one role depending on the base of recognition and decision making in exchange for each other (Emerson, 1976). At present, this concept has been used in research about social network analysis, integrated exchange forming along with the study of dependence power and dependence within the network as well. The forming network is considered an essential strategy in operation accepted in both profit and non-profit sectors together with international organization because there are no organizations which will be ready for resource and funding. Thus, gathering the good parts of an individual, group or organization together can reduce the limitation of operation (Ritzer, 2003).

Forming network for operation is the famous way in both business and social development and the notion of business theory began in the 1970s. The beginning of business recruitment and recruitment for social networking is a form of social relationship which is different from the group. Moreover, the group has a clear scope to know members who have concrete points of view. Furthermore, there are some social structures which a network is a form of unbounded social relations. Correlation among members within the network can be visible or invisible in concrete view. The correlation network includes 3 characters: exchange network, communication network, and the network of relationships in coexistence. Besides, the network has no definite structure. Its structure can be designed for making relationship among people in the organization continually. On the other hand, in the network of people within an organization, no one forces anyone to do anything. Individual or a corporate group is the center of the network. Therefore, a form of relationship in social network is more complex than group or organization (Boissevain and Mitchell, 1973).

Network analysis can be used to describe relationships among surroundings from family to global levels. What are in the relationship network is called node and the link between the various points of the relationship are a network. The good relationship can make individual within the organization has a better link to each other. Moreover, the resources of each organization can be linked to each other in order to increase the effectiveness of working. At present, many organizations realize that networking is a

valuable tool for sharing information between organizations which have similar or related objectives to get maximum benefits under limited resources.

In addition, network operating system can solve the problem of communication between multiple agencies (Agranoff and Mcguire, 2001). Besides, network operating system cooperate work within various organizations in both government and private organizations to solve the problem in order to achieve mutual purposes (Toole and Meier, 2004). Hence, the network is where an individual, group or organization is willing to exchange knowledge and experience to each other. They do activities by forming management to provide a mechanism for linking activities together to achieve the mutual goal. The network theory is used for describing the capability of firms to gain competitive advantage and superior performance of the firm. The objective of this theory is to create characteristics of knowledge interrelating to the firm. Moreover, the resulting performance in the formal and informal social capital structure essentially escalates mutual high degree of managers' network interlacing between their formal and informal network. Hence, there is a competitive advantage in many of networks (Gonzalez et al., 2014). Nowadays, business environment increasingly relies on producers' abilities, the structure position of a supplier in a network is pinned as one of the essential viewpoints to be regarded on the improvement of performance of a purchasing firm (Kim, 2014). The network theory emphasizes on structural characters of a network which strategic resources stay beyond scopes of suppliers in triadic or varied tiers (Cousins and Menguc, 2006). The network can be sorted into a supplier network, a buyer network, a focal-organization supply network, and a supply network department (Bi and Lin, 2009).

The network theory provides in-depth on how the degree of the structural implant can describe the different performance of a buying firm. Even though some studies informed negative effects of an implant on execution, a general view is that the liability of the positional viewpoint depends on good embedded supplier network (Zaheer and Bell, 2005). The properties of disseminating effects generated by these network structures define the realization, boldness, and impacts of stakeholders. Therefore, the analysis approach of stakeholder is relied on the network theory to diagnose both stakeholders and their interests from a network viewpoint (Li et al., 2016). It can improve the exactitude, absoluteness, and effectiveness of practice in

stakeholder management in an establishment. Consequently, this research is based on the social network theory to clearly examine a conceptual framework to assess the relationship between the efforts of a buying firm to understand supplier structural elements and operational and financial performance. The present study applies the network theory to explain existing value chain costing capability (business goal integration, strategic operational linkage, operational activity analysis, cost reduction competency, and expenditure monitoring report), the linkage among value chain costing capability, and its consequences (cost competitiveness, strategic achievement, business progressiveness and firm performance) for special capability and linkage implementation, and making many networked organizations have a competitive advantage.

Contingency theory

The notion of a contingency theory of managerial accounting started to develop in the 1970s in an endeavor to clarify the diversity of managerial accounting practice at present (Otley, 2016). It drew heavily on the contingency theory of organizational structure which had been developed over the previous twenty years to codify which forms of organizational structure were the most appropriate to specific circumstances. Likewise, there is no best way to manage the organization, and it depends on situations which should be analyzed by the executives (Fiedler, 1967).

Contingency theory aims that the framework of an organization is the foundation on both internal and external determinants. The internal factors which may affect the predicament within the firm are size, system, vision, competency and experience of the firm. There is no better way to manage a company, to lead a company, or to make the decisions. Thus an organization that is effective in some situations may not be successful in others, depending on the internal and external situations (Ayman et al., 1995; Robles, 2011). On the other hand, the external factors are connected with economic uncertainty, competition, technology and environmental changes (Gong and Tse, 2009). The contingency theory advised four qualifications: firstly, there are different directions to manipulate operation in different contexts to achieve the objectives; secondly, it is concerned with an organizational style and right surrounding; thirdly, effective organizations deal with environment and minor systems; and finally, a

suitable design of organizations should be concerned with surrounding, technology and control systems (Grotsch, Blome, and Schleper, 2013).

In addition, contingency theory is organizational management depending on the environment regarding an organization setting, structured process, and management controlling system according to the internal and external environments of all predicaments and situations (Elgharbawy and Abdel-Kader, 2013). The good contingency theory is concerned with the relationship between endogenous and exogenous contextual factors, which influence competitive strategy, and eventually lead the organization through the interfered structure variables (Luther and Longden, 2001). However, previous research suggested that the radical change and competitive conditions bring about getting out knowledge, experience, and capability in both internal and external contextual factors in order to choose the best ways to manage and monitor problems as well as set the structure in the organization (Chen, 2008).

The contingency theory is considered as essential regardless of relationship factors, whether it is internal or external factors. The contingency theory takes time to consider the major purpose or organizational productivity. Therefore, dispensation defining the surrounding depends on the decision to increase the advantages of the organization (Simon, 2007). Furthermore, the contingency theory describes how organization management is planned suitably to conduct business successfully (Cadez and Guilding, 2008). To modify the organization conforming to the environment, economic and social changes are important steps to help organizations to be more effective. Generating the sustainable competitive advantage speculates the best strategy of management and contributes to best practices and firm success. This theory is particularly popular on research about accounting management. In this research, contingency theory is applied to explain the antecedent effects of the exogenous factor (volatile competitive pressure) and the endogenous factors (survival vision, organizational learning culture, cost management knowledge, and modern managerial information system) on value chain costing capability. Furthermore, value chain costing capability is defined in term of the effective organizational structure and convincing performance. Therefore, value chain costing capability is influenced by the suitable internal and external factors.

According to previous research, the reference to management relies on the situation. The concept is demonstrated to choose the ways that lead to a solution, by the good administration (Qian, Cao, and Takeuchi, 2013). Some situations need cooperation in making decision. Sometimes, one has to consider the primary human motivation whereas one has to consider the productivity of the organization's major purpose (Teasley and Robinson, 2005). The situation showed the determination to choose the suitable administration. Administrators should try to consider the situation for the best (Meznar and Johnson, 2005). Moreover, one should determine what should be done according to the circumstances by using the principle of management to consider what is good or bad (Simon, 2007). On the other hand, circumstances should be decisively executed for the resolution. Management needs to define situations and factors for considering the surrounding situation, including the needs of people generally in the institute rather than to search for the way of excellent use in the firm (Otley, 1980).

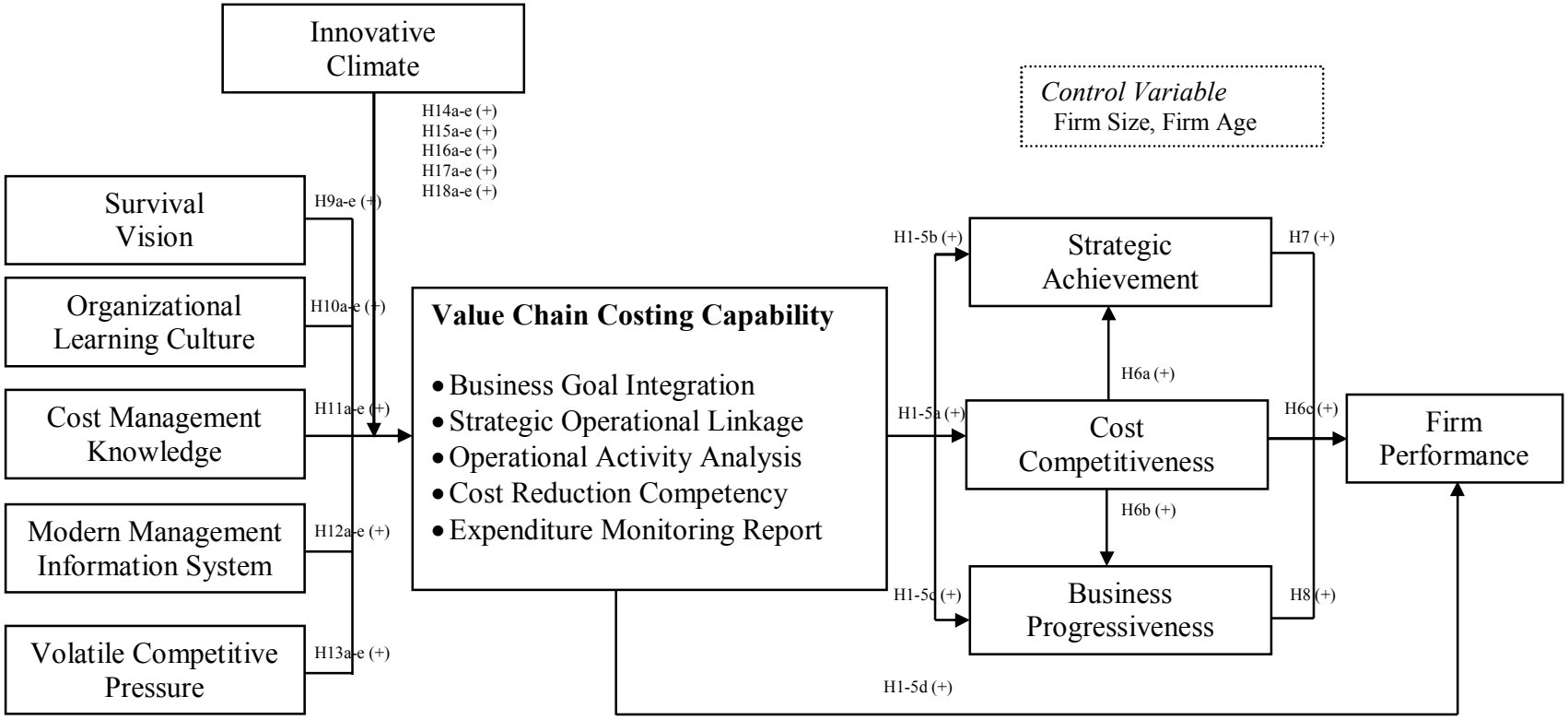
In conclusion, there are two theories that are elaborated on relationship in this research; namely, network theory and contingency theory. The network theory employed an explanation of the relationship between each dimension of value chain costing capability (business goal integration, strategic operational linkage, operational activity analysis, cost reduction competency and expenditure monitoring report), its consequences (cost competitiveness, strategic achievement, business progressiveness and firm performance). On the other hand, contingency theory is used to describe the antecedents of value chain costing capability (survival vision, organizational learning culture, cost management knowledge, modern management information system and volatile competitive pressure), and innovative climate which encourage the business to enhance strategies suitable with value chain costing capability. The relationship of value chain costing capability and its antecedents and consequences is illustrate in Figure 1. The next section elaborates on the literature review and the hypotheses of value chain costing capability.

Relevant Literature Review and Research Hypotheses Development

This section reviews the literature in relevant to the conceptual framework, and the linkage of the relationship among antecedents and consequences of value chain costing capability. In order to comprehend all relationships, the literature review is divided into three sections.

Firstly, this research has approached the test of the main effect of value chain costing capability on firm performance. In the study, value chain costing capability comprises five dimensions: business goal integration, strategic operational linkage, operational activity analysis, cost reduction competency, and expenditure monitoring report. These relationship dimensions have positive effects on the consequences. The consequences are four constructs: cost competitiveness, strategic achievement, business progressiveness and firm performance. Secondly, the antecedents of value chain costing capability are composed of survival vision, organizational learning culture, cost management knowledge, modern managerial information system and volatile competitive pressure. These factors are investigated to find whether there is a positive relationship with five dimensions of value chain costing capability. Finally, it elaborates how the moderating effect of innovative climate has impacts on the relationship between the elements of antecedents and dimensions of value chain costing capability. The full conceptual model is illustrated in Figure 1 as follows.

Figure 1 Conceptual Model of Value Chain Costing Capability, Antecedents, and Consequences



Value Chain Costing Capability

Due to fierce competition in the international market, the uncertainty of economics and users' needs, rapid technological innovation and other factors, the concept of supply chain management was rapidly developed within a short period. Furthermore, with the development of manufacturing, supply chain management sector has been widely used in the manufacturing and as a new management model. The concept of the value chain is advanced for the competitive advantage (Li and Zang, 2012). Likewise, the benefit of the activity-based costing is the cost control in the internal enterprise, but the advantage of the value chain management and the supply chain management lies on the enhancement for the enterprise value and the training for the core competitiveness. The organic integration of the three cannot only reduce the costs, but also improve the product value, so as to form the core competitiveness of enterprises (Bin and Shijuan, 2005).

The key concept of the value chain business processes for an organization is not a new idea (Porter, 1985). Therefore, the use of the word chain is a word that makes it interesting, and it is used by Porter and others is a way to be creative in descriptive concepts. It is an analogy that is very valuable as it identifies a process within companies that are or should be linked. The value chain is a set of activities that are performed to design, produce, market, deliver, and support its product to create value for its customers. These activities are the physically and technologically distinct activities a firm performs. The value chain of firms is composed of nine generic categories of activities that are linked together in characteristic ways. Porter said a business's activities could be split into two categories: primary activities and support activities include the following. Firstly, the primary activities comprise the following: (1) inbound logistics: everything involved in receiving, storing and distributing the raw materials used in the production process, (2) operations: the stage where raw products are turned into the final product, (3) outbound logistics: the distribution of the final product to consumers, (4) marketing and sales: activities associated with providing a means by which buyers can purchase the product, such as advertising, promotion, sales force, quoting, channel relations, and pricing and (5) service: activities associated with providing service to enhance or maintain the value of the product, such as installation, repair, training, parts supply, and product adjustment. Secondly, the support activities

comprise the following: (1) procurement: the function of purchasing inputs such as raw materials, supplies, machinery and office equipment used in the firm's value chain, (2) technological development: a range of activities that can be broadly grouped into efforts to improve the product and the process, (3) human resource management: activities consist of activities involved in the recruiting, hiring, training, development, and compensation of all types of personnel, (4) firm infrastructure: a number of activities, including general management, planning, finance, accounting, legal, government affairs, and quality management. According to the survey, one can make a comparison and expand further to identify the weaknesses and strengths. Links in the chain are used for describing or identifying the company's competitive advantage or weakness (Armistead, Pritchard, and Machin, 1999). The terminology of the value chain has often been used in a manner that is inconsistent, overlapping, and confusing. However, value chain has been used to explain the links in the industry, and the analysis and explanation of the value of this macro level (Butler et al., 2001).

The industry value chain becomes a production model, because it is dynamic (Hanna and Walsh, 2008). The new economy is likely to be the first step to increase the company's individual business model. The best companies should include the value chain of the industry by positioning themselves in the chain that is based on resources and capabilities (Dankbaar, 2007). The first stage of any business or engineering process should be conducted with a clear understanding of the context of the industry where value chain is operated. Cost within the value chain is an important concept in the field of strategic management for explorers (March and Gunasekaran, 1999). The external cost in the value chain consists of upstream and downstream processes or major supply distributors. However, although these processes occur outside business and strategic opportunities, they reveal possible risk, and they emphasize on a study that warrants caution. A consideration of external factors related to the manufacturing process may contribute to a more efficient value chain. It involves vertical integration to take control of the process in one or more steps to enhance the value chain and takes place both outside and inside. The expansion of the landscape is associated with new production lines or expanding distribution channels, including geographic expansion. A strategic alliance with equipment is associated with managing the external supply closely as if they were parts of the value chain within the business. For instance,

Toyota's kaizen system has suppliers that are located near the factory who receive all kinds of help and training from Toyota to ensure efficient production. Likewise, value chain cost focuses on the awareness of analyzing the cost management to the system, reducing activities that do not cause revenues, and integrating in accordance with the circumstances, to cause continuously increasing value (Taylor, 2005; Namnai, Ussahawanitchakit, and Janjasjit, 2016).

Although this research replicates the framework as described in the literature review of value chain costing capability, the distinguished definitions are proposed. Initially, the various managerial accounting scholars provide the meaning in terms of the value chain and value chain costing as shown in Table 1 and 2, respectively. In order to be successful, value chain costing must focus on creating value for internal and external information by following the assumption. Cost and other information are needed for the support of strategic and operational decisions made from the internal processes and environmental changes. Managing costs by utilizing resources effectively is regarded as fundamental to success in today's competitive environment (Anderson et al., 2012). Thus, the ability of the firm to use value chain costing information for both financial and nonfinancial purposes is important to the success of the company and to achieve an organization's strategic objective.

Based on the integrative prior literature review, this research defines value chain costing capability as the scope of one source of firms' capability which is valuable, rare, non-imitate, and non-substitute and it is a key to encourage customer response, customer acceptance, customer satisfaction, competitive advantage, and firm success (Ussahawanitchakit, 2017). One study indicated that value chain costing (value-creating activity, interdependent network, supplier-customer relationship, and continuous improvement) plays a significant role in determining business outcomes. Likewise, the value chain costing is an accounting management in operation of value chain analysis (Cadez and Guilding, 2008). It is defined as an accounting approach of cost allocation to activities required to design, procure, produce, distribute to market, and service a product or provide a service.

Value chain costing capability is important to improve performance and it is a key element of this research. In this research, the capability refers to the ability of the firm to perform tasks utilizing firm resources for achieving the goals (Helfat and

Peteraf, 2003). Value chain costing capability is an independent variable that is interesting for the investigation of this research. Thus, in this research, value chain cost capability refers to the ability of firms to record, collect, and analyze information which relates to manufacturing activities, internal and external of firm operations with lower cost than competitors, correct and timely informational presentation, and value creation to customers, leading to competition advantages as well as higher firm performance consecutively. Value chain costing is used as a technique for planning, controlling and decision-making to achieve the goals of the firm. The construct of value chain costing capability is developed in this research and its measurement and efforts are defined as how value chain costing capability affects cost competitiveness, strategic achievement, business progressiveness, and firm performance.

In summary, "value chain costing capability" in this research refers to the firm's ability to record, collect, and information analysis which related to manufacturing activities, internal and external firm operations with lower cost than competitors, informational presentation correctly and timely, and value creation to customers, leading to competitive advantages as well as higher firm performance consecutively (Ensign, 2001; Fearne and Martinez, 2012; Kirli and Gumus, 2011; Porter, 1985; Trebacz, 2015). Particularly, the five dimensions of value chain costing capability have been adapted from Porter, 1985, because the concept of the value chain is advanced in the competitive advantage. It is a combination of three perspectives on linkage, integration and operation, and the perspectives of a tool for identifying the way how to create more value for the customer, and thus for the enterprise. (Ensign, 2001; Fearne and Martinez, 2012; Kirli and Gumus, 2011; Trebacz, 2015).

In addition, it also explains how the antecedents and moderators influence value chain costing capability. Network theory and the contingency theory are used to explain the five dimensions of value chain costing capability. The five dimensions comprise business goal integration, strategic operational linkage, operational activity analysis, cost reduction competency and expenditure monitoring report. The summary of the key literature reviews on value chain costing capability, both quantitative and qualitative, is demonstrated in Table 3.

Table 1 Summary of the Definitions of Value Chain

Authors	Definitions of Value Chain
Porter (1985)	The value chain approach views an organization's activities into two categories: primary activities (inbound logistics, operations, sales, marketing, customer service, and outbound logistics) and support activities (administration, human resources, technology, and procurement).
Ensign (2001)	A value chain is a way of conceptualizing the activities that are needed in order to provide a product or service to a customer. It depicts the way a product gains value (and costs) as it moves along the path of design, production, marketing, delivery, and service to the customer.
Schary and Larsen (2002)	It consists of one integral system, in which processes leading to the formation of the product are realized, and each process is assessed from the point of view of its contribution to the total value added generated by the chain.
Rokita (2005)	This is a sequence of interrelated activities carried out within the manufacturing process of the final product or service, giving the possibility to achieve value added.
Stabryla (2007)	It is a sequence of interrelated (serial or parallel) phases of the management process and executive process referred to the particular sector of the enterprise’s activity.
Li and Zhang (2012)	The relation among the internal core of enterprises, businesses and suppliers, distributors, service providers and clients, as well as the relationship between the industries of the competition between enterprises.
Trebacz (2015)	The value chain is a tool for identifying the way how to create more value for the customer, and thus for the enterprise. It is an essential tool for identifying and assessing each link (process) that influences on the creating value process.

Table 2 Summary of the Definitions of Value Chain Costing

Authors	Definitions of Value Chain Costing
Cadez and Guilding (2008)	An accounting approach of cost allocation to activities required to design, procure, produce, market, distribute, and service a product or to provide a service.
Carmen and Corina (2009)	Value chain costing proposes an accounting approach to consider all the activities performed from the design to the distribution of the product; the strategic implications regard the exploiting of the economies and efficiency deriving from the external linkages between the company and both suppliers and customers.
Cullen (2009)	Value chain costing acts as a useful extension of conventional cost analysis, taking into account benefits and cost savings embedded in the firm's links with suppliers and customers.
Cinquini and Tenucci (2010)	The strategic implications regard the exploiting of the economies and efficiency deriving from the external linkages between the company as well as suppliers and customers.
Kirli and Gumus (2011)	Value chain costing has been used as a strategic material accounting tool, where costs are allocated to activities required to design, procure, produce, make, distribute, and service a product or to provide a service.
Aksoylu and Aykan (2013)	The value herein corresponds to the monetary equivalent of the technical, economic and social benefits and services provided to a customer in exchange for the price paid by the customer. Therefore, value has a monetary expression and implies the net benefit of a customer corresponding to price paid.
Ussahawanitchakit (2017)	Value chain costing is defined as one source of firms' capability which is valuable, rare, non-imitate, and non-substitute and it is a key in driving customer response, customer acceptance, customer satisfaction, competitive advantage, and firm success.

Table 3 Summary of the Key Literature Reviews on Value Chain Costing Capability

Authors	Type of Research	Key Issue Examined	Main Findings
Ensign (2001)	Qualitative	To provide a more comprehensive way to define and categories the various kinds of linkages and interrelationships between activities of the value chain.	The linkages in value chains can be finely tuned to gain a competitive edge. Value chain analysis can be used to formulate competitive strategies, understand the source of competitive advantage, and identify and develop the linkages and interrelationships between activities that create value.
Cadez and Guilding (2008)	Qualitative	To examine the effect of strategic choices, market orientation, and company size on two distinct dimensions of strategic managerial accounting and in turn, the mediating effect of strategic managerial accounting on company performance.	The study's findings support contingency theory's tenet of no universally appropriate strategic managerial accounting system (value chain costing), with factors such as company size and strategy, having a significant bearing on the successful application of strategic managerial accounting.

Table 3 Summary of the Key Literature Reviews on Value Chain Costing Capability (Continued)

Authors	Type of Research	Key Issue Examined	Main Findings
Cinquini and Tenucci (2007)	Qualitative	The study focuses on the characteristics at the heart of strategic managerial accounting techniques (value chain costing) that may help in classifying and grouping them and on the investigation of variables that may influence the use of strategic managerial accounting	The findings reveal that strategic managerial accounting techniques appear to be extensively used. Attribute costing, customer accounting, strategic pricing and competitive position monitoring represent the most widely used strategic management accounting techniques. Four features of the pattern of strategic management accounting practice emerge clearly from the factor analysis: competitor, long run, process, and customer orientation.
Kirli and Gumus (2011)	Qualitative	This study proposes a managerial accounting framework based on value chain analysis called value chain accounting.	The value chain is a systematic approach to examine the development of competitive advantage. The chain consists of a series of activities that create and build value. With the growing division of labor and the global dispersion of the production of components, systemic competitiveness and value chain analysis have become increasingly important.

Table 3 Summary of the Key Literature Reviews on Value Chain Costing Capability (Continued)

Authors	Type of Research	Key Issue Examined	Main Findings
Fearne and Martinez (2012)	Qualitative	The paper proposes three dimensions of value chain analysis, which illustrate the flaws in narrow tools, and the need to broaden the boundaries of value chain analysis, the interpretation of value and relationships along the chain in order to highlight opportunities for creating sustainable value chains.	To date value chain analysis has largely focused on economic sustainability and paid inadequate attention to social and environment consequences of firm behavior and the allocation of resources within and between firms in the chain.
Mu and Cui (2012)	Qualitative	To discuss the governance mechanism of overcoming or solving three problems: cooperation problem, coordination problem and appropriation problem. Also to raise the value chain cost efficiency and to elevate the value chain competitive advantage.	It is found that the high level of trust between firms and the incentive based on the joint interests of value chain can effectively mitigate or avoid the cooperation, coordination and appropriation problems, and thus have significant governance effects on the cost of value chain.

Table 3 Summary of the Key Literature Reviews on Value Chain Costing Capability (Continued)

Authors	Type of Research	Key Issue Examined	Main Findings
Li and Zhang (2012)	Qualitative	This paper introduced the supply chain, value chain and activity-based costing. The intrinsic relation among them, and put forward the effective measures of the organic combination made for the three.	The study's findings can carry out cost control for specific activity to achieve the purpose of reducing costs. Therefore, the accurate application of the value chain and supply chain analysis can improve the level of cost management and seek more space for developing in the competitive market. In conclusion, findings obtained the new approaches to manage modern enterprise's cost and enhance the competitiveness of enterprises.
Aksoylu and Aykan (2013)	Quantitative	To determine the effects of strategic management accounting techniques (such as attribute costing, life-cycle costing, quality costing, target costing and value chain costing) on the perceived performance of businesses.	The results show strategic management accounting techniques and cost, customer and competitor-oriented sub-dimensions had significantly weak impacts on perceived performance, the positive relationships and effects were found to be sufficient to accept the hypotheses.

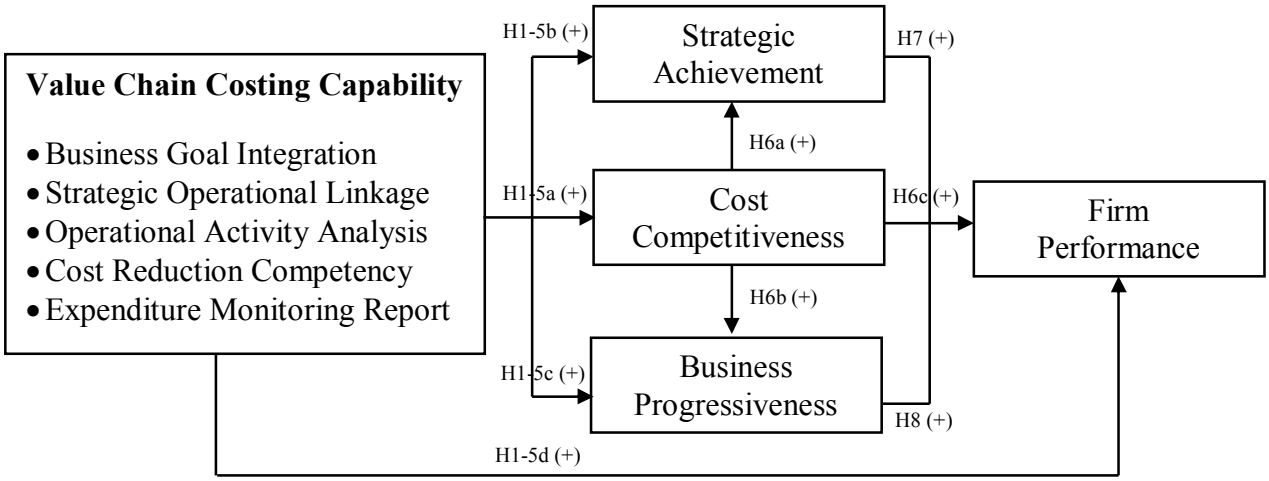
Table 3 Summary of the Key Literature Reviews on Value Chain Costing Capability (Continued)

Authors	Type of Research	Key Issue Examined	Main Findings
Trebacz (2015)	Qualitative	To present stages realized in the process of improvement of the enterprise value chain and the characteristics of basic instruments used for searching directions to improve the efficiency of the enterprise value chain in order to increase its competitiveness in the market.	The purpose of the proper selection of structures and methods of process management and resource management in the value chain is the focus on value. Development and improvement of the value chain management model allow to better link the adopted assumptions of enterprise strategy with various processes occurring in the enterprise and give the possibility of more effective management, reducing costs and improving the efficiency of particular participants of the value chain and also of the entire value chain.
Ussahawanitchakit (2017)	Quantitative	To investigate the influences of value chain costing on competitive advantage and firm success.	The results reveal that value chain costing (value creating activity, interdependent network, supplier-customer relationship, and continuous improvement) plays a significant role in determining business outcomes.

The Effects of Each Dimension of Value Chain Costing Capability on Its Consequences

This section proposes the dimensions of value chain costing capability, including business goal integration, strategic operational linkage, operational activity analysis, operational activity analysis, cost reduction competency, and expenditure monitoring report. The relationship between value chain costing capability and its consequences are examined. The consequences of this research are composed of cost competitiveness, strategic achievement, business progressiveness, and firm performance, which are demonstrated in Figure 2.

Figure 2 the Effects of Each Dimension of Value Chain Costing Capability on Its Consequences



Business Goal Integration

The key requirement for business goal integration is that two or more functional process areas must be involved with higher performance (O'Connell, 1980). Non-financial benefits can help firm business goal as a tool for monitoring operational activities conforming to policy-setting (Wotruba, 1989). Corporate executives and planning managers use business goal integration to operate the firm processes and activities, including to provide added value for all integrated activities (Sundaramoorthy, Mathur, and Jha, 2014). In addition, business goal is clear

and optimal for working in the organization and can result in better job performance (O'connell, 1980). In addition, the firm has established goal achievement with business goal integration, because it can use these goals to be a standard of performance and the operational control of the firm (Erez and Kanfer, 1983). The ability of business goal integration appropriately plays a crucial role to build more information usefulness for operational processes, managerial decisions and cost competitiveness (Kozlowski and Bell, 2006). Also, the firm should consider value chain costing as a guideline to build suitable goal achievement setting for improving cost competitiveness and the firm performance (Wongjinda, Ussahawanitchakit, and Janjasjit, 2016).

Prior research indicated that business goal integration has a positive relationship to competitive capabilities and firm performance (Lii and Kuo, 2016). Likewise, goals integration related to manufacturing have a stronger relationship that support business progressiveness, and to which revenue, growth, or financial performance has exceeded their competitors (Tegarden et al., 2005). Moreover, an ability of business goal integration is function of managerial accounting by using past information to predict performance and the economic situation in the future (Wadsworth et al., 2009). Goal achievement integration can be used as a real-time performance control tool. It can improve performance, including best cost management and business progressiveness (Ludwig and Goomas, 2009). Researchers in network theory found that business goal integration can reduce the limitation of organizational operation by collection or integration of good practices in each department or division to contribute to their goal quickly. It is important to be aware of the fact that no department or agency is ready to use resources and funds to operate on all fronts (Bi and Lin, 2009; Ritzer, 2003).

In the above literature review, business goal integration is defined as the ability of the firm to combine policies, information, and guidelines for management in various sections; to transfer information; to share operation guidelines; and to set the production cost suitably (Duh, Xiao, and Chow, 2009; Ensign, 2001). This result can be used for improving an operation's efficiency and effectiveness. In addition, business goal integration is the road to success for the firm and a powerful process for business progressiveness (Smith, 2013; Stein, 2012). Business goal integration is the framework for all worker compliance, with a policy that the firm needs, including more information

to managerial for business goal (Buciuniene and Kazlauskaite, 2012). Information from business goal integration can improve cost reduction and increase information for a work review, including offer more information to managerial decision-making for predicting manufacturing in the future (Valanciene and Gimzauskiene, 2007).

Furthermore, when the firm clearly identifies and defines its goals, it will enhance performance (Sharma, 2008). The above points are useful for having a capability to utilize managerial accounting processes for business goal integration and to be a financial performance indicator (Tegarden et al., 2005). In contrast, supply chain firm integration (using environmentally-friendly packing, reducing wastes during production, replacing non-recyclable and so on) has a negative association with financial performance (Mao, Zhang, and Li, 2017). In contrast, this will be for naught if the business goal integration is not well executed. However, many researchers have found that the business goal integration affects the firm performance (Lii and Kuo, 2016; Smith, 2013; Stein, 2012).

From the discussion above, this research expects that the business goal integration is a distinctive dimension of value chain costing capability and it seems to be highly important to uncover the capability of value chain costing. The effectiveness of cost competitiveness, strategic achievement, business progressiveness and firm performance and its consequences as presented in Figure 2. Taking all the aforementioned into account, this research formulates the following hypotheses:

Hypothesis 1a: Business goal integration is positively related to cost competitiveness.

Hypothesis 1b: Business goal integration is positively related to strategic achievement.

Hypothesis 1c: Business goal integration is positively related to business progressiveness.

Hypothesis 1d: Business goal integration is positively related to firm performance.

Strategic Operational Linkage

Strategic operational linkage also enables firms to reduce uncertainty and the association with internal development (Nohria and Garcia, 1991). Business strategies are based on linkage activities in the value chain; for instance, within Michelin there is a distinct interconnectedness of research and development, production, marketing, and information systems. The link between activities within the agency is critical for achieving competitive advantages (Chitmun and Ussahawanitchakit, 2012). In addition, the operational linkage can increase the ability of the firm to implement strategies, such as responding quickly and effectively to market forces, improving responses to customer needs, and reducing costs (Ensign, 2001). Competitive strategies focus on activities that increase the product value. Thus, the linkages in value chains can be applied to gain a competitive edge (Porter, 1985). Firm's success nowadays should stem from the firm that links their strategies to quality improvement, reducing leading times, inventories and production cost, including having best managerial accounting practice (Cinquini and Tenucci, 2010).

Strategic operational linkage is a key element in the business operations, especially when the firm has prepared a strategic linkage model. The strategic linkage model present information of purpose and is a good guideline for all employees in the organization including an incentive for employees to work at full capacity to strategic achievement (Valmohammadi and Servati, 2011). In strategic operational linking, the important role of accounting, besides the preparation and presentation of accounting information, is the support formulation and communication strategy of organization (Buhovac and Slapnicar, 2007). This indicates that strategic operational linkage is related to managerial accounting. The role of managerial accounting practice is to prepare managerial accounting information for correct decisions of executives that are applied to improve organizational performance (Mia and Clarke, 1999). Moreover, under more intense competitive environments, this is also a method for organizations to promote and support the operations of the organization efficiently and effectively.

The responsibilities of managerial accountants are to provide accurate and timely information to chief executives for using in decision-making conforming to the objectives, strategies, and goals of the organization. The strategic linkage can increase the collaboration of people in the organization by facilitating the sharing of critical

resources and operation know-how which lead to increased investment in the future (Lin and Lee, 2011). The participation of employees in the strategic process leads to the higher achievement of strategic goals and financial performance (Tegarden et al., 2005). The primary aim of strategic operational linkage is to help the organization to have a maximum profit. Therefore, the organization should focus on strategic linkage that leads to the success of the strategic goals. Especially, in linking strategies, accounting has an important role to support the formulation and communication of strategies (Buhovac and Slapnicar, 2007) and that operational control way must be clearly linked to strategy. It provides operational and higher management with the information that helps them do their job and achieve the quality, cost, market, and time (Cinquini and Tenucci, 2007).

In this research, the strategic operational linkage is the ability of the firm to link the internal operations, cost management, cost allocation, including the control and evaluation in the same direction (Charoenroop, Ussahawanitchakit, and janjarasjit, 2015; Ensign, 2001). The previous research found that the ability to link the strategy of an organization is positively related to firm performance, including decision-making, profitability, market share and competitive advantage in long-term (Buciuniene and Kazlausakaite, 2012; Cadez and Guilding, 2007; Tallon, 2012; Laonamtha and Ussahawanitchakit, 2013). Despite, the literature review revealed no relationship exists between strategic operational linkage and firm performance as shown in the study (Parnell, 2011). However, many researchers have found that the strategic operational linkage affects the firm performance. From the discussion above, this research expects that the strategic operational linkage is a distinctive dimension of value chain costing capability likely to be highly important to uncover the capability of value chain costing. The effectiveness of cost competitiveness, strategic achievement, business progressiveness and firm performance and its consequences are presented in Figure 2.Taking all the aforementioned into account, this research formulates the following hypotheses:

Hypothesis 2a: Strategic operational linkage is positively related to cost competitiveness.

Hypothesis 2b: Strategic operational linkage is positively related to strategic achievement.

Hypothesis 2c: Strategic operational linkage is positively related to business progressiveness.

Hypothesis 2d: Strategic operational linkage is positively related to firm performance.

Operational Activity Analysis

Operational activity analysis to planning can provide a rich description as well as numerical analyses of strategically important activities. A number of studies that take a resource-based view of the firm implicitly provide concepts that are important in understanding value chain analysis and its use in strategy formulation and planning (Teece, Pisano, and Shuen, 1997). Value chain analysis provides a perspective on how all the activities contribute to the process of adding value to a product and impact the business unit. It emphasizes the importance of all activities, the primary as well as supporting activities (Chang and Hwang, 2002). It emphasizes the importance of coordination of the linkages and interrelationships among activities (Ensign, 2001). If the economic activities of a node are based on the supply chain as a series of operations, these operations can consist of the associated organic chain operations, and the production of the operations can form a certain value. Thus, the formation of the chain operations is also presented as the formation of the value chain. These can be combined together to service for the creative enterprise's core competitiveness (Kahkonen, Lintukangas and Hallikas, 2015).

The activity-based costing makes the cost object of calculation have more precise details due to the introduction of operations as an intermediary link (Hao and Shijuan, 2005). Its emphasis is to find every operation’s cost driver and adopt measurements to reduce the cost, but it doesn’t consider the inter-association among the operations and the mutual relativity between the activity-based costing and the value caused by this (Chen, 2006). If we simply reduce the activity-based costing, it may possibly cause the decline of the product value; and finally, it will lead to the decline

of the enterprise's competitiveness. But the value chain management is the customer-demand driver, and its goal is to implement the value enhancement and strengthen the competitiveness (Lijie, 2007). It uses the modern enterprise management for thinking method and technology to achieve an effective program and controller for the information flow, logistics, and capital flow in the whole supply chain (Li and Zhang, 2012).

Under the guidance of the value chain theory, only making full use of the supply chain's integrated technology management to develop the collaboration ability of the whole supply chain is the effective way to obtain the enterprises' competitive advantages (MA Xiaofeng, 2006). From the above, we can see that the benefit of the activity-based costing is the cost control to the internal enterprise, but the advantage of the value chain management and the supply chain management lies in the value enhancement for the enterprise value and the training for the core competitiveness (Li and Zhang, 2012). The organic integration of the three cannot only reduce the costs, but also improve the product value, so as to form the core competitiveness of enterprises (Bin and Shijuan, 2005).

According to the above literature review, operational activity analysis refers to the ability of the firm to specify good operation guidelines, to analyze the benefits of each operational activities, and to set direction and plan systematically and concretely (Trebacz, 2015; Wongjinda, Ussahawanitichakit, and Janjarasjit, 2015). In addition, incorporating an integration of value chain analysis and life cycle analysis to determine activities at each stage in the supply chain can create value in the eyes of the consumers (Soosay et al., 2012). Moreover, value chain costing (value creating activity, interdependent network, supplier-customer relationship, and continuous improvement) plays a significant role in determining business outcomes (Ussahawanitchakit, 2017). Thus, this value chain focus can improve manufacturing firm operation and influence customers with effective information and communication (Kess et al., 2010). Value chain analysis creates opportunities to improve supply chain performance, make a competitive advantages, make profitability and relationships, develop product quality and innovation, and move superiority over the competition (Hutaibat, 2011; Prajogo et al., 2008; Taylor, 2005). A successful firm encourages management accountants to collaborate with engineering, production, marketing, distribution and service

professionals to focus on the strengths, weaknesses, opportunities, and threats to identify the value chain analysis results. When developing a value chain analysis, firm needs to concern about the barrier of value chain analysis from inappropriate user involvement or participation supported by a study of the prior research (Attaran, 2012; Hutaibat, 2011; Tegarden et al., 2005).

From the discussion above, this research expects that the operational activity analysis is a distinctive dimension of value chain costing capability likely to be highly important to uncover the capability of value chain. The effectiveness of cost competitiveness, strategic achievement, business progressiveness and firm performance and its consequences are presented in Figure 2.Taking all the aforementioned into account, this research formulates the following hypotheses:

Hypothesis 3a: Operational activity analysis is positively related to cost competitiveness.

Hypothesis 3b: Operational activity analysis is positively related to strategic achievement.

Hypothesis 3c: Operational activity analysis is positively related to business progressiveness.

Hypothesis 3d: Operational activity analysis is positively related to firm performance.

Cost Reduction Competency

The characteristics of value chain application are continuous value chain analysis; it focuses upon a set of value activities, production cost integration of all stages and cutting activities that do not add value to the firm (Mc Larty, 2005). The firm intricate to seek capability to save costs in all activities by managing the cost linkage between key production activities and production support activities. This is the value chain in managerial accounting techniques for performance measure indicators to control operations that lead to goals achievement and its objectives (Aksoylu and

Aykan, 2013). This is in as much as activities that build added value for the firm for driving it to superior performance. Most of the industries emphasize the value chain for cost reduction and improvement of competitive advantages (Bachev, 2014). These can enhance competitive advantages and performance of the firm. Thus, the value chain application is involved to aggregate and analyze the cost cycle in each service and production activity utilized for operational control. Important value chains are comprehensive information on all active involvement that has main characteristics. These are the activities and actors involved in delivering products or services, which provide consumer value and added value for the firm (Montgomery and Oladapo, 2014). Thus, for the manufacturing firm that needs sustainability, the value chain is the key strategy. It can provide more information useful for decision-making and resource management (Garrigos et al., 2014). Furthermore, a value chain is a linkage from the start of activities until the end of the activities in the operational processes of the firm. Likewise, it adds value to each activity, including providing added value for all integrated activities (Sundaramoorthy et al., 2014).

The application of value chain for the managerial accounting process and function is the governance of the firm. It is an instrument for controlling all operational involvement for cutting costs and enabling effective resource management (Timmer et al., 2014). Additionally, the value chain involves the firm in applying information to each combined activity to analyze cost and using this information for planning, forecasting, operational managing. This creates capabilities from knowledge which is useful for monitoring and evaluating policies and goals that they need (Norell, 2014). The value chain is necessary technical experience through collaboration with incumbent firms to improve the weakness of industries and give more information for decision making (McGuire, 2014).

Value chain costing needs higher skills to encourage a higher value of the firm. Therefore, the process of all product activities depends on linking information during operations with knowledge and capability and enhancing the competitive advantage of the firm. Hence, value chain in all activities occurring in the firm has greater skills to apply the managerial process and to enhance the greater added value of the firm (Sass and Szalavetz, 2014). In this research, cost reduction competency refers to the ability of the firm to analyze and plan production cost in the past and at present, to reduce non-

performing activities, and to evaluate the worth of the invested cost accurately and beneficially for decision-making (Fearne and Martinez, 2012; Wongjinda, Ussahawanitchakit, and Janjarasjit, 2015). Besides, cost reduction competency has effects on cost management and firm growth (Grigore, 2013). Moreover, cost reduction competency relates to operational management of which all stages in the value chain: technology commercialization, commitment, organization and growth that must take place (Joglekar and Levesque, 2013). Furthermore, a value chain can develop product branding, new products and an improved version of existing products in the market, faster than rivals. These occur from a firm's capabilities to apply the information usefulness of managerial accounting techniques (Reji, 2013). Therefore, this value chain application can improve economic, environmental and social sustainability in producing-countries. It affects by effective information and communication in all production activities (Wahl and Bull, 2014). Important cost reduction competency encourages the performance of the firm. As well, the local producer must learn and acquire knowledge about cost reduction competency to build new capabilities and upgrade to improve its competitiveness (Kadarusman and Nadvi, 2013). It is the capabilities and resources of the firm managerial processes that lead to better performance (Das and Salwan, 2013).

From the discussion above, this research expected that the cost reduction competency is a distinctive dimension of value chain costing capability likely to be highly important to uncover the capability of value chain costing. The effectiveness of cost competitiveness, strategic achievement, business progressiveness and firm performance and its consequences are presented in Figure 2. Taking all the aforementioned into account, this research formulates the following hypotheses:

Hypothesis 4a: Cost reduction competency is positively related to cost competitiveness.

Hypothesis 4b: Cost reduction competency is positively related to strategic achievement.

Hypothesis 4c: Cost reduction competency is positively related to business progressiveness.

Hypothesis 4d: Cost reduction competency is positively related to firm performance.

Expenditure Monitoring Report

An important function of managerial accounting is an expenditure report because it is an important area of information in management accounting (Emmanuel et al., 1990; Hartmann, 2000).The monitoring report objectives are to show the responsibilities of managerial accounting within an organization which reflects the analysis' results comparable to managerial accounting in different organizations (Costantin and Gornea, 2012). Furthermore, the expenditure monitoring report measure also aims to measure the success of the operation and as an incentive to influence employees' behavior change to increase the operational efficiency of the business (Jiambalvo, 2001).

Monitoring report is an operating system monitoring process which helps to manage the limited resources efficiently and to accomplish organizational goals (Wu and Hung, 2008). Operational evaluation procedures should be designed to cause positive behavior and attitudes (Merchant and Van der stede, 2003; Sholihin and Pile, 2009).

Besides, expenditure monitoring report and accountability are related in enhancing the disclosure and auditing standards of a firm and developing the regulatory capacity to monitor and discipline the firm's governance practices (Haque, Arun, and Kirkpatrick, 2008; Elmagrhi, 2016). Therefore, it is necessary for a firm to make expenditure information available and easily accessible to insiders for being able to make informed decisions. Thus, the benefits of expenditure reporting transparency reflect the firm's basic economics or enhance the understandability of information in financial reports (Fischer and Marsh, (2013). This expenditure monitoring report is presented to the management on the basis of accuracy, timeliness, completeness, and transparency which indicates the clear source including careful and neutral information presentation benefiting for management decision-making. Regarding accounting

practice, expenditure monitoring report with the accuracy, completeness and timeliness disclosure of information transparent to all users should systematically be presented through the processes of an organization that has evidence to monitor the operations of the organization (Gramling and Hemanson, 2007). This leads to increase the investment opportunities for the organization (Bushman and Smith, 2003). The prior research defined the transparency of expenditure monitoring as the accuracy and reliability of performance measures, which are used as guidelines to improve the operational efficiency of the organization in the future (Joshi, 2001). It suggests that the expenditure monitoring affects performance (Van der Stede, Chow, and Lin, 2006).

Under the literature mentioned earlier in this research, expenditure monitoring report is defined as the ability of the firm to identify, analyze, check, and present the expense information in each step of the working procedure accurately, timely and conformingly to the real situations. The organization must have a correct and timely evaluation process and have evidence that can be verified, which leads to the reliability of information, and the reputation of the firm. The expenditure monitoring report and performance measurement system strategy help the manager to develop a competitive strategy and increase organizational competitiveness which includes competitive success (Pitkanen and Lukka, 2011). Indeed, the primary purpose when monitoring expenditure against income is to ensure that expenditure does not exceed the available income. Thus, the easiest way for departmental administrators to spot significant variances is to regularly review the expenditure summary report.

From the discussion above, this research expects that the expenditure monitoring report is a distinctive dimension of value chain costing capability likely to be highly important to uncover the capability of value chain costing. The effectiveness of cost competitiveness, strategic achievement, business progressiveness and firm performance and its consequences are presented in Figure 2.

Taking all the aforementioned into account, this research formulates the following hypotheses:

Hypothesis 5a: Expenditure monitoring report is positively related to cost competitiveness.

Hypothesis 5b: Expenditure monitoring report is positively related to strategic achievement.

Hypothesis 5c: Expenditure monitoring report is positively related to business progressiveness.

Hypothesis 5d: Expenditure monitoring report is positively related to firm performance.

Consequences of Value Chain Costing Capability

This section considers the effects on consequences of value chain costing capability, including cost competitiveness, strategic achievement, and business progressiveness on firm performance as shown in Figure 2.

Cost Competitiveness

In the competition of the globalization in both local and international countries, manufacturing business encourages the firm to focus on using the managerial accounting function as a tool for cutting costs, cost management and improving firm performance. Excellent cost competitiveness also enables firms to reduce errors in cost allocation. It can help the firm allocate raw materials, labor, appropriate time for each production activity and superior performance (Custer, 2014; Elliott et al., 2014). Furthermore, generates acceptance by stakeholders and shareholders based on suitable cost per unit, leading to higher performance. This is because it has special characteristics of cost accuracy allocation and appropriate resources using evaluation of all activities about the manufacturing process, including value creation for the firm (Ceccagnoli Jiang, 2013; and Fayard, 2014). In addition, cost competitiveness plays a crucial role to adjust strategy such as in marketing strategy, management strategy and resource management strategy (Guni, 2014). It can enhance superior cost reduction and objective achievement. Managerial accounting function implementation is a tool for operational control, especially target costing utilization related to important techniques in managing the costs of both a product and the overall production process (Zengin and

Ada, 2010). This is excellent cost competitiveness that is useful for creating value in decision-making and effective resource management for improving performance and enhancing firm survival (Peng, Li, and Wan, 2012). Furthermore, efficiency cost competitiveness affects private equity performance (Beath, Flynn, and MacIntosh, 2014). This means that the cost competitiveness is an instrument for enhancing firm growth from lower cost applications and for creating competitive advantage.

From the note above, in this research, cost competitiveness refers to the possess of an effective operation line with short production time, quick and correct delivery, distinctive and creative products, and continuously lower operation cost (Elliott et al., 2014). It can improve management effectiveness and firm performance. It makes the firm adapt to the actual situation for cost-saving by efficiency improvements, as well as enhancing administrators' best decisions about resource management planning and policy-setting. Thus, it leads the firm to success and superior performance (Kren, 2014; Lari and Asllani, 2013).

As already stated, the firm with higher cost competitiveness leads to meet strategic achievement, business progressiveness, and firm performance. Therefore, the research relationship is hypothesized as presented in Figure 2. Taking all the aforementioned into account, this research formulates the following hypotheses:

Hypothesis 6a: Cost competitiveness is positively related to strategic achievement.

Hypothesis 6b: Cost competitiveness is positively related to business progressiveness.

Hypothesis 6c: Cost competitiveness is positively related to firm performance.

Strategic Achievement

There are associations between operational cost effectiveness and customer responsiveness efficiency that are important to support strategic process and monitor the achievement of strategic goals. Strategic goal achievement refers to the representation of the final process in operation or in obtaining results which enable the firm to achieve

the objectives set by linking to the missions, visions, and strategies (Deepen et al., 2008). The role of management accounting systems is to support the implementation of organizational strategies (Naranjo-Gill and Hartmann, 2006).

Value chain costing capability provision of cost information has fostered the application in building information to enhance a competitive advantage as an increasingly dynamic company advantage. This is because cost information can have a strategic external orientation if it is able to contribute to creating a sustainable competitive advantage (Cinquini and Tenucci, 2008) in terms of a comparator between a firm and rivals in a competitive market that leads a firm to continuously maintain quality, delivery liability, product innovation, and time to rivals. Therefore, cost information and knowledge are seen as the principal drivers for improving the effectiveness and efficiency (Silvi and Cuganesan, 2006) and impact the strategic goal achievement creation.

According to the above literature, in this research, strategic achievement refers to the possession of professional management with abilities to maintain a competitive level in the present and future and to achieve organizational goals with the good quality operation. Prior research indicated that strategic achievement has a positive relationship to survive in business operations (Ninlaphay and Ussahawanitchakit, 2012). Similarly, strategic goals related to quality have a strong relationship that supports achievement of quality and innovation, and subsequently reflect the extent to which revenue, growth, or financial performance has exceeded their competitors (Tegarden et al., 2005). Likewise, valuable cost information has a significant positive effect on strategic achievement (Chaikambang and Ussahawanitchakit, 2012). Then, strategic achievement is supported by the marketing performance and the accounting performance (Bunnoon and Ussahawanitchakit, 2012).

Thus, this research proposes that strategic achievement should relate to firm performance as presented in Figure 2. Taking all the aforementioned into account, this research formulates the following hypotheses:

Hypothesis 7: Strategic achievement is positively related to firm performance.

Business Progressiveness

Business progressiveness can be the key to global business competitiveness. However, firms must best operate and commit to improving faster than the competition (Bigelow, 2002). Therefore, it is set as a process and is based on core capability inside an organization that leads to continuous business progressiveness. As a consequence, an organization is able to use better resources through eliminating unnecessary activities, and appropriate operations of strategic management to achieve the goals. Business progressiveness is derived from strategic cost management, which improves ability in planning, cost estimating, and inventory control. It also can reduce informal systems for material management and production control (Nah, Islam, and Tan, 2009). Many firms are aggressively seeking better ways to operate because of the increase of competition in the marketplace. Certainly, business progressiveness helps firms achieve their business goals, and increases firms' performances (Gordon, Loeb, and Tseng, 2009). Moreover, the effective organization helps reduce the economy's resources, and complete the process to achieve the objectives and goals, including value-added, maintenance, and safeguards. The idea of a business being able to reduce costs incurred from operations through this causes the profitability and success of the company (Boonmunewai and Ussahawanitchakit, 2010).

Business progressiveness is the ability of a firm to manage that which provides goal achievement more prominently than competitors. In addition, the respondent for change through operations is accepted by internal and external organizations (Rabinovich, Dresner, and Evers, 2003). Therefore, the company seeks the ability to adjust the process, effectively increasing environmental change as a tool to solve problems, improve quality, develop an operation design, generate ideas that influence aggressive practice, and to gain increased benefit. Furthermore, it makes the firm achieve the original organizational objective. It achieves objectives and goals, including added-value in use, maintenance, and protection. It enables organizations to reduce costs of operations through the profitability and success of the firm (Boonmunewai and Ussahawanitchakit, 2010). Consistent with strategic cost management, it can improve the ability to plan, estimate and control costs, reduce inventory in the system, support inventory management and control production (Nah, Islam, and Tan, 2009). Therefore, organizations seek ways for good implementation in order to support timely competitive

markets. Organizations can achieve business goals and enhance the performance of the firm with a focus on excellence in the organization (Gordon, Loeb, and Tseng, 2009).

In this research, business progressiveness refers to the possession of an operating system with new technology and production techniques to produce quality productions, and the ability to serve the market demand continuously in uncertain situations (Gordon, Loeb, and Tseng, 2009; Namnai, Ussahawanitchakit, and Janijarasjit, 2016). Also, it is the potential and ability to perform all aspects that are excellent, recognized both internally and externally in the organization; and outperforms their competitors in the same industry (Rabinovich, Dresner, and Evers, 2003). All operations are systematic, concrete, accurate, clear and reliable (Chaikambang and Ussahawanitchakit, 2012). The ability of the excellent aspects of the management of each organization and efficiency standards have been set. Also, management organizations with excellence in operations are committed to move organizational development faster than competitors, and can set guidelines for implementation processes based on core capabilities within the organization, and it may lead towards continuously excellent operations. The consequences of business operations with regard to good governance and transparency in operations use the available resources in the organization more effectively. They lead to successful operational goals and have been accepted by stakeholders. They also create competitive advantages for organizations (Bigelow, 2002).

Thus, this research proposes that business progressiveness should relate to creating firm performance as presented in Figure 2. Taking all the aforementioned into account, this research formulates the following hypotheses:

Hypothesis 8: Business progressiveness positively related to firm performance.

Firm Performance

Firm performance is an operational outcome that shows the efficiency of corporate management both financial and non-financial, as well as short term and long term performance (Orhangazi, 2008; Prieto and Revilla, 2006; Illing and Liu, 2006). In addition, firm performance is also a measure of an organization that is able to survive in

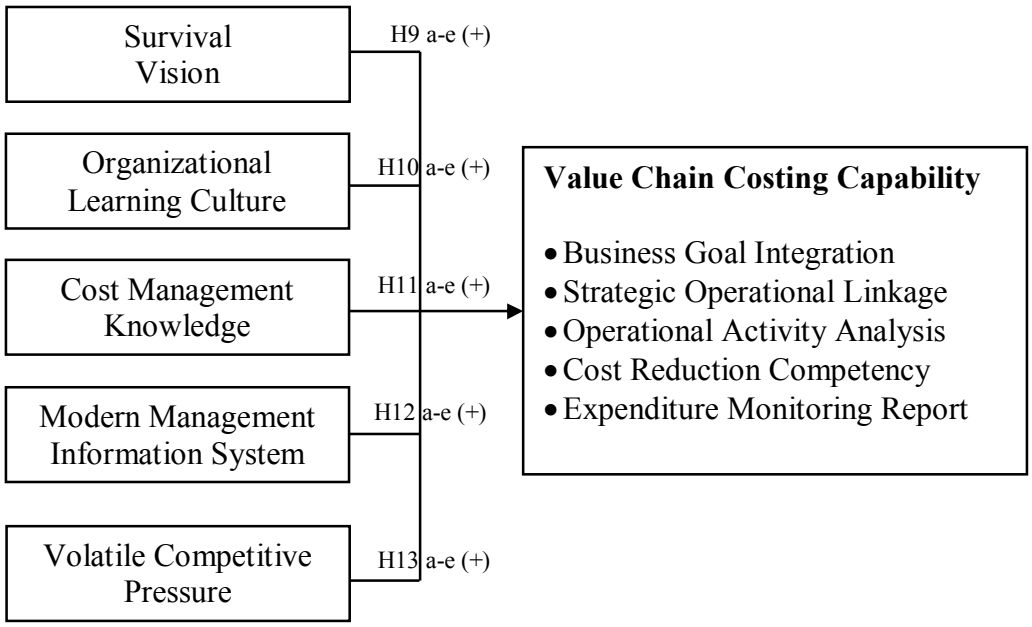
the future. In prior research, both financial and non-financial measures were used to assess the value of the business (Ho, Ahmad, and Ramayah, 2016; Liu and Saleh, 2009; Silverman, M. (2004). The prior research stated that firm value is to evaluate the ability of organizations to focus their full capacity on operations of the business and responsibility by which the firm performance is generated through reputation, good image, decision-making, the credibility of stakeholders and profitability, including competitive advantage for the long-term (Laonamtha, Ussahawanitchakit, and Boonlua, 2013; Wongjinda, Ussahawanitchakit, and Janjarasjit, 2016; Namnai, Ussahawanitchakit, and Janjarasjit, 2016).

In this research, firm performance refers to the ability in financial and non-financial performance over the previous years, such as revenue, market share, market growth, and return on investment (Liu and Saleh, 2009; Darweesh, 2015). The results show that activity-based approach increases firm value through better cost controls and utilization of assets, coupled with the increasing use of financial leverage. The organization can be successful by continuous firm performance in the long-term by using strategic linkage which found that the value chain analysis creates opportunities to improve supply chain performance and creates a competitive advantage (Hutaibat, 2011; McNair, Polutnik, and Silvi, 2001; Prajogo et al., 2008). Therefore, this research proposes that value chain costing capability should relate to creating firm performance.

The Effects of Antecedents Variables on Each Dimension of Value Chain Costing Capability

This research identifies antecedents that may affect value chain costing capability. It is composed of five antecedents: 1) survival vision, 2) organization learning culture, 3) cost management knowledge, 4) modern management information system, and 5) volatile competitive pressure. These factors are required to test what and how the antecedent variable has a significant influence on value chain costing capability.

Figure 3 Effects of Antecedent Variables on Each Dimension of Value Chain Costing Capability



Survival Vision

Survival vision refers to the ability of the firm to set operating direction because vision is caused by knowledge and skills essential to competent practice for responding to business complexity (Holder and Thomas, 2005). Effective planning happens from real vision development, goals and budgets. It helps organizations to complete their resource allocation and monitoring operational activities in accordance with policy-setting (Carlozzi, 1998). In addition, vision helps clarify the direction in product development (Revilla and Rodriguez, 2011). Top management survival vision has positively influences on value chain costing (Bhat, 2013; Komala, 2012). Thus, survival vision can be implicit as the anticipated or planned future state of an organization in terms of its important objectives and strategic direction. Moreover, survival vision relates to strategic management such as strategic cost management (Foster and Akdere, 2007).

Thus, survival vision refers to the foresight of the focuses on the future target, development of good management system, continuous staff self-development, and the application of technology for systematic management (Holder and Thomas, 2005; Komala, 2012; Foster and Akdere, 2007). Survival vision requires a commitment from

the top management of the company: the involvement of its workers at all levels, and the improvement of value-added activities and decrease non-value added activities (Agrawal et al., 1998). Survival vision is the variable for successful implementation of cost reduction competency and operational activity analysis on multiple layers of distinctive knowledge and firm capabilities which reflect that survival vision is the critical factor for the value chain costing (Huh et al., 2008).

However, the support of survival vision on value chain costing capability depends on the level of usable information to support decision making and action (Collins and Clark, 2003). Individual decision maker and organizational characteristics are the important role of the firm's ability to effectively implement strategies (Harmancioglu et al., 2010). Moreover, executive can support intraorganizational communication strategy (Tontiset, and Ussahawanitchakit, 2010). Thus, survival vision is a prerequisite for the successful implementation of any strategy or innovation (Agrawal et al., 1998; Johne, 1999; Rodriguez et al., 2008). Value chain costing capability requires a survival vision to support the company in meeting operational cost effectiveness and customer responsiveness efficiency in order to create strategic achievement, and competitive advantage.

Thus, this research expects that survival vision may influence the controlling ability of a firm by using capability, function, means of managerial accounting and each dimension of business goal integration, strategic operational linkage, operational activity analysis, cost reduction competency and expenditure monitoring report. Hence, this research proposes the following hypotheses as presented in Figure3. Taking all previously mentioned into account, this research formulates the following hypotheses:

Hypothesis 9a: Survival vision is positively related to business goal integration.

Hypothesis 9b: Survival vision is positively related to strategic operational linkage.

Hypothesis 9c: Survival vision is positively related to operational activity analysis.

Hypothesis 9d: Survival vision is positively related to cost reduction competency.

Hypothesis 9e: Survival vision is positively related to expenditure monitoring report.

Organizational Learning Culture

In this research, organizational learning culture is used to develop a conceptual model acting as a moderator. In this research, organizational learning culture is defined as the firm's belief, value, and perception on collaborative learning, knowledge sharing in the organization, and continuous presentation of new operation models (Gomez et al., 2005). Organizational learning consists of four components: information acquisition, information dissemination, shared interpretation, and development of organizational memory (Tipins and Sohi, 2003). Therefore, learning is the process of linking, expanding, and improving cost information, knowledge, and wisdom. Organizational learning becomes the descriptive stream and deals mostly with the learning processes in the organization. Most definitions deal with the learning processes and are rooted in social and cognitive psychology (Bingham and Davis, 2012). Organizational learning is concerned more with how to change the behavior of the organization that is important for organizations operation in a rapidly changing environment. Another way to conceptualize the relationship between organizational learning culture and knowledge management is to view organization learning culture as the goal of knowledge management (King, 2009).

Organizational learning culture becomes a key factor affecting acceptance and involving strategic cost management. Learning and skill mean what accountants need to know in order to undertake their role competently (Kenner, 2008; Paiva, Roth, and Fensterseifer, 2008). Prior research indicate that organizational learning culture has a significant impact on successful cost accounting implementation (Chenhall,2003). For instance, management accounting learning has a significantly positive influence on cost accounting success (Chenhall,2008). Managerial accounting learning is associated with successful cost accounting implementation (Tontiset and Ussahawanitchakit, 2010). Previous studies have supported that organizational learning culture enables firms to

create capabilities, and in turn, form the basis for competitive strategies (Whitaker et al., 2011). In learning, organizations continuously learn better ways to deliver a product or service into making a better operation and performance (Bingham and Davis, 2012).

In contrast, from the prior study , the results show that organizational learning does not significantly moderate the business operation, a competitive advantage, and firm survival in a business environment among the competitors, the government, the environment, and society which all affect firm survival and firm sustainability not only the organization's ability (Chitmun and Ussahawanitchakit, 2012). Additionally, organizational learning acts as a moderator and has no significant effect on the relationship between outstanding operational excellence, decision-making advantage, and goal achievement (Chaikambang and Ussahawanitchakit, 2012). This is because organizational learning may not fit with environmental changes.

Thus, this research expects that organizational learning culture may influence the controlling ability of a firm by using capability, function, means of managerial accounting and each dimension of business goal integration, strategic operational linkage, operational activity analysis, cost reduction competency and expenditure monitoring report. Hence, this research proposes the following hypotheses as presented in Figure3. Taking all the aforementioned into account, this research formulates the following hypotheses:

Hypothesis 10a: Organizational learning culture is positively related to business goal integration.

Hypothesis 10b: Organizational learning culture is positively related to strategic operational linkage.

Hypothesis 10c: Organizational learning culture is positively related to operational activity analysis.

Hypothesis 10d: Organizational learning culture is positively related to cost reduction competency.

Hypothesis 10e: Organizational learning culture is positively related to expenditure monitoring report.

Cost Management Knowledge

Cost management knowledge is an ability of accountants with professional knowledge and skills, including experience in cost management. Accountant competency is an accountant's existing capacities to help predict competent performance in a certain job that encompasses knowledge, skill, abilities, experience and continuous learning (Kennedy and Dresser, 2005). In addition, knowledge and skill mean what accountants need to know in order to undertake their role competently (Gregory, 2008). Accounting knowledge becomes a key factor affecting acceptance, and involving strategic cost management. As for the nature of practice, accountant competency readiness is very necessary in an organization to ensure that accountants can do their task in their responsibility completely so as to achieve goals (Ley and Albert, 2003). Prior research indicate that accounting knowledge richness has a significant impact on successful cost accounting implementation. Specifically, training for accounting competency has a significantly positive influence on accounting success (Chenhall, 2003). Accounting competency is associated with successful cost accounting implementation (Tontiset and Ussahawanitchakit, 2010). Moreover, higher cost accountant competency is related to cost reporting usefulness (Rattanaphaptham and Ussahawanitchakit, 2010).

Management accounting knowledge is defined as firm recognition, knowledge, and skills associated with cost accounting, and a business employs their knowledge and skills to improve cost accounting practices to create a guideline, integration and development through appropriate knowledge management (Magro and Nutter, 2011). Besides, management accounting knowledge refers to accounting knowledge and skills that can create added value for the firms in terms of strategic management supported from value chain costing (Namnai and Ussahawanitchakit, 2016). In the accounting aspect, many researchers found that accounting knowledge is fundamental to the attainment of the knowledge that enhances performance. More accounting experience was successful using strategies like strategic cost management (Pretz, 2008). Previous research notes that accounting knowledge affects the accounting performance, namely,

voluntary accounting proactiveness but does not support transparency accounting mindset and expenditure reporting (Tontiset and Ussahawanitchakit, 2010). Cost management knowledge refers to the determination of the organization to learn and search for guidelines, to reduce non-performing activities and to evaluate the performance accurately and suitably (Gregory, 2008). Hence, cost management knowledge of accountants with high competency readiness brings about the performance of strategic cost management in an organization and can create value for accounting work. Thus, cost management knowledge readiness has the potential possibility to affect strategic cost management.

Thus, this research expects that cost management knowledge may influence the controlling ability of a firm by using capability, function, means of managerial accounting and each dimension of business goal integration, strategic operational linkage, operational activity analysis, cost reduction competency and expenditure monitoring report. Hence, this research proposes the following hypotheses as presented in Figure3. Taking all the aforementioned into account, this research formulates the following hypotheses:

Hypothesis 11a: Cost management knowledge is positively related to business goal integration.

Hypothesis 11b: Cost management knowledge is positively related to strategic operational linkage.

Hypothesis 11c: Cost management knowledge is positively related to operational activity analysis.

Hypothesis 11d: Cost management knowledge is positively related to cost reduction competency.

Hypothesis 11e: Cost management knowledge is positively related to expenditure monitoring report.

Modern Management Information System

Modern management information system plays a role in the competition of business by integrating managerial accounting information for decision-making (Ramos and Caudeli, 2013). Stable management information systems can encourage firms to better decision-making by changing these systems. These are integrated management information systems and technology depending on environmental change (Angonese and Lavarda, 2014). Hence, modern management information system is a valuable resource for a firm to create an ability of the firm by considering technology coupled with the environment to develop these systems. In this research, modern management information system defines the determination of the organization on the system to collect and store the internal and external information of the organization in the past, present, and future by using information technology to support the operation and decision making in different ways (Ilic et al., 2010).

Previous research indicates that managerial information system installation is related to planning, implementation, and training of managers; and it has relevance, usefulness, and techniques to fulfill expectations in the future (Watts, Yapa, and Dellaportas, 2014). In addition, a successful process for strategic operational linkage and the business goal is reflected from using an efficient management accounting system in combination with modern technology, the changing environment, and accounting capability, which adapt the firm to survive (Kastberg and Siverbo, 2013; Kloviene and Gimzauskiene, 2014). Moreover, the ability of operational activity analysis from managerial accounting systems enhances firm management operation in accordance with a business goal and management strategic (Bai and Krishnan, 2012).

As to several important aspects of modern management information systems in prior research, it enables firms to rapidly respond and be flexible when faced with environmental change. Managerial accounting system information usage contributes to better decision-making and enhances the performance of manufacturing firms (Mawali, 2013). It can also reduce cost and develop new processes for using operational control. Likewise, the capabilities of a firm to the business goal and cost management are supported by the best system of managerial accounting because, as a tool, it provides useful information for managers' planning and efficient predictions of operations in the future (Namnai, Ussahawanitchakit, and Janjarasjit, 2016). Furthermore, the use of

modern management information system is an essential for the successful monitoring of managerial accounting information applications (Strumickas and Valanciene, 2010). Besides, technology infrastructures support the transaction, processing, and application process in the strategy, customer, and cost management approaches (Leong and Jarmoszko, 2010).

In a rapidly changing environment and new technology growth of operations, the firm uses management accounting systems to lead to the establishment of the capacity of management accounting systems. It includes business intelligence used for controlling and is comprised of resources, knowledge, and good vision (Elbashir, Collier, and Sutton, 2011). The firm establishes creativity by management information system, enabling it to control all activities and expenditure report timely, useful and suitable for the situation (Massaro, Bardy, and Pitts, 2012). Conversely, the instability of the modern management information system occurs in the firm that does not promote employee continuous learning and training (O'Donnell and David, 2000).

Thus, this research expects that modern management information system may influence the controlling ability of a firm by using capability, function, means of managerial accounting and each dimension of business goal integration, strategic operational linkage, operational activity analysis, cost reduction competency and expenditure monitoring report. Hence, this research proposes the following hypotheses as presented in Figure 3.

Hypothesis 12a: Modern management information system is positively related to business goal integration.

Hypothesis 12b: Modern management information system is positively related to strategic operational linkage.

Hypothesis 12c: Modern management information system is positively related to operational activity analysis.

Hypothesis 12d: Modern management information system is positively related to cost reduction competency.

Hypothesis 12e: Modern management information system is positively related to expenditure monitoring report.

Volatile Competitive Pressure

According to the contingency theory, competitive intensity is the external factor that significantly influences business structure, organizational systems, business operations and performance. Competitive intensity refers to the degree of competition that firm faces in its industry or a specific market (Zhou, 2006).The uncertainty of the current environment affects the technology infrastructures support the operational, activity, and cost management strategic (Leong and Jarmoszko, 2010). When changes in the manufacturing and technological environment contribute to the broader use of a cost management strategy to support management decision needs to be created by the adoption of the just in time production technique (Nicolaou, 2002). Intense competition makes an organization attempt to seek the best strategic and operational methods and is effective to deploy the operations of the organization, which allows the organization to remain in the competition (Hammood et al., 2011). Nowadays, the competitive environment includes competitive price, quality competitive, a variety of products, competitive sales, and distribution and competitive innovation (Hoque, 2011).

In this research volatile competitive pressure is defined as the firm's perception relating to the uncertainty such as customers' demands, changes in the politics, economy, society, and technology which affect the operation and strategies of the organization (Hammood et al., 2011; Jarmoszko et al., 2011; Nicolaou, 2002;). The business must focus additional investment on manufacturing and development activities for maintaining market share, short product life cycles, and complex manufacturing processes, especially when competitors bring new innovations into the market (Hammood et al., 2011). In addition, the marketing activities of competitors always change and the organization needs to develop the knowledge and operational skills to immediately respond to the needs of customers. This includes maintaining existing customers and acquiring new customers. Competitive intensity associated with a high level of competition (Jermias, 2008).

The contingency theory suggests that a firm must be consistent with its internal and external environment to achieve optimal performance. Volatile competitive

pressure includes the increase in new competitors, the increasing potential of old competitors, the sale and distribution of the competition, the rapidly changing needs of customers, the quality and variety of products and price of the competition (Prempree, Ussahawanitchakit, and Boonlua, 2013). However, the increase in competitive intensity affects the structure and behavior of organizations such as changes in the management accounting control systems, cost reduction capability, and expenditure report (Laonamtha, Ussahawanitchakit, and Boonlua, 2013). Technology adoption drives firm cost goal achievement and it contributes to decision-making criteria in the use of accounting software programs to better control production activities (Gogus and Ozer, 2014).

In addition, firms facing rising competition are likely to use multiple performance measures in their effort to follow the various market factors and competitive advantages (Hoque, Mia, and Alam, 2001). However, the increase in competitive intensity affects the structure and behavior of organizations such as changes in the management accounting control systems, learning and capability and financial leverage. Thus, volatile competitive pressure refers to firm's perception relating to the uncertainty such as customers' demands, changes in the politics, economy, society, and technology which affect the operation and strategies of the organization (Gogus and Ozer; 2014; Laonamtha, Ussahawanitchakit, and Boonlua, 2013).

Thus, this research expects that volatile competitive pressure may influence the ability of a firm to control by using capability, function, means of managerial accounting and each dimension of business goal integration, strategic operational linkage, operational activity analysis, cost reduction competency and expenditure monitoring report. Hence, this research proposes the following hypotheses as presented in Figure 3. Taking all the aforementioned into account, this research formulates the following hypotheses:

Hypothesis 13a: Volatile competitive pressure is positively related to business goal integration.

Hypothesis 13b: Volatile competitive pressure is positively related to strategic operational linkage.

Hypothesis 13c: Volatile competitive pressure is positively related to operational activity analysis.

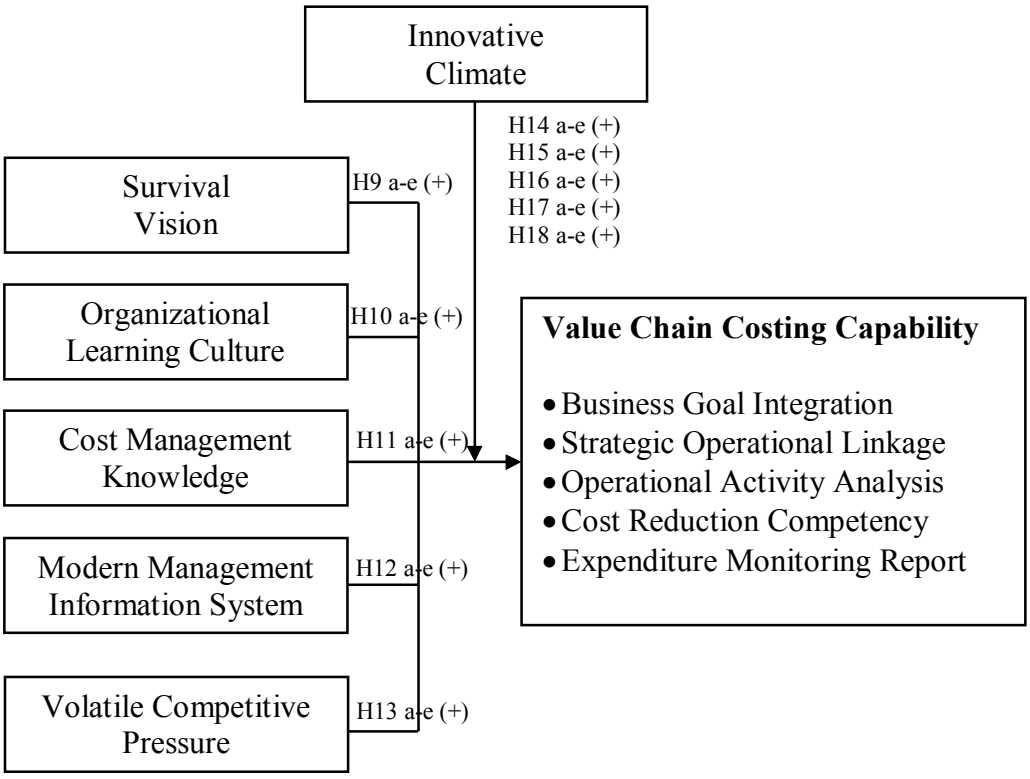
Hypothesis 13d: Volatile competitive pressure is positively related to cost reduction competency.

Hypothesis 13e: Volatile competitive pressure is positively related to expenditure monitoring report.

The Role of Moderating Effect on Antecedent Variables and Value Chain Costing Capability

This section explains the moderating effect of innovative climate on the relationships between value chain costing capability and its antecedents including survival vision, organizational learning culture, cost management knowledge, modern management accounting system and volatile competitive pressure as shown in Figure 4.

Figure 4 The Role of Moderating Effects on Antecedent Variables and Value Chain Costing Capability



Innovative Climate

In organizational research, climate is referred to as the tenor of workplace life (Rock, 2009). The term, organizational climate, can be defined as the employees' shared perceptions toward their organizational practices and procedures (Patterson et al., 2005). Likewise, organizational climate can be defined as the shared perceptions, feelings and attitudes that organizational members have the fundamental elements of the organization, which reflect the established norms, values and attitudes of the organization's culture and influences individuals' behavior (Sa'ari, Idrus, and Jaafar, 2016). Besides, organization climate is the frequent patterns of behavior exhibited in the daily life of the organization, and could be experienced, understood, and interpreted by the employees within the organization (Patterson et al., 2005).

Additionally, innovation is a key factor in the competitiveness of nations and firms (Madrid-Guijarro, Garcia, and Auken, 2009). Also, innovative firms are a prerequisite for a dynamic and competitive economy. Moreover, the innovative climate is the subjective perception experienced by organizational members as to whether the workplace is innovation-supportive or not (Carmeli and Schaubroeck, 2007). Likewise, the climate for innovation is the description of how innovation-driven organizations encourage employees to be creative through the use of correct methods, tools and provide appropriate resources (Shalley and Gilson, 2004). Innovative climate may be separated into two groups: in the first group, people consider innovative climate as individual cognitive appraisal about the work context attributes in terms of innovation meaning and values; and in the other group, innovative climate is deemed as shared and collective cognition about innovative sense and meaning when individual appraisals are aggregated (Sun, Zhao, and Ya Chen, 2011).

Additionally, innovative climate or organizational innovativeness is the organizational perception where employees are encouraged to think freely and communicate their opinions and ideas openly. This support for creativity can affect the way managers approach the benefit formulation process leading to better innovative results. Moreover, employees in an innovative climate are more open to new ideas and more willing to change and adapt (Acur et al., 2010). In this research, innovative climate is defined as the determination of the firm to enhance creative working environment, to develop the modern management, to use new technology in production

process, and to encourage the staff to present new ideas freely (Carmeli and Schaubroeck, 2007; Shalley and Gilson, 2004; Sun, Zhao, and Ya Chen, 2011).

The organizations that have an innovative environment will enable organizations to connect their ideas and knowledge with the organization's goals, set guidelines for the strategic operation, rise analysis capability, increase cost reduction, and monitor competency, leading to good firm performance. Correspondingly, the individuals interpret a specific aspect of their work environment depending on climate perceptions (Scott, 1993). Additionally, the formation of climate perceptions was found to be influenced by leader-member exchange, individual decision-making style, and intuitive decision-making style. In addition, the important factor in place of work that can influence innovation is the innovative climate (Sun, Zhaoand, and Ya Chen, 2011). The firms which deliver a sympathetic climate have a superior propensity to gain better benefits from creative employees. Moreover, the investigation of MNCs firm placed innovative climate in their subsidiary firm which tends to be conscious of the cost and performance aspects (Jain, Mathew, and Bedi, 2012). Furthermore, The organization's innovation in their operational practices can be enhanced by better communication among project team members, integration of the design and construction disciplines, more efficient designs, development of unique ways of completing work and sharing of the lessons learned (Gambatese and Hallowell, 2011). Also, the innovation has an effect on projects that successfully meet and exceed cost, quality, schedule and safety goals.

The failure of the innovation application depends on the firm's implementation ability (Hawley, 2016). Besides, an organization's perception of innovative climate depends on providing resources such as time, funding, and manpower (Whittinghill, 2011). It can be interpreted that innovative climate is a possible cause affecting on value chain costing capability of the firm. Moreover, the comparison of six different organization climates, one of which include innovative climate with the result suggesting that innovative service climate was positively related to guest satisfaction (reducing cost from activities that help to retain existing customer) but not to financial performance (regarding cost reduction) (Baytalskaya, 2011). However, additional results suggest that the interaction between innovative service and leadership climate is associated with higher financial performance and guest satisfaction outcomes.

Thus, innovative climate moderates the support of the relationships among the five dimensions of value chain costing capability and its outcomes as presented in Figure 4. Taking all the aforementioned into account, this research formulates the following hypotheses:

Hypothesis 14a: Innovative climate positively moderates the relationship between survival vision and business goal integration.

Hypothesis 14b: Innovative climate positively moderates the relationship between survival vision and strategic operational linkage.

Hypothesis 14c: Innovative climate positively moderates the relationship between survival vision and operational activity analysis.

Hypothesis 14d: Innovative climate positively moderates the relationship between survival vision and cost reduction competency.

Hypothesis 14e: Innovative climate positively moderates the relationship between survival vision and expenditure monitoring report.

Hypothesis 15a: Innovative climate positively moderates the relationship between organizational learning culture and business goal integration.

Hypothesis 15b: Innovative climate positively moderates the relationship between organizational learning culture and strategic operational linkage.

Hypothesis 15c: Innovative climate positively moderates the relationship between organizational learning culture and operational activity analysis.

Hypothesis 15d: Innovative climate positively moderates the relationship between organizational learning culture and cost reduction competency.

Hypothesis 15e: Innovative climate positively moderates the relationship between organizational learning culture and expenditure monitoring report.

Hypothesis 16a: Innovative climate positively moderates the relationship between cost management knowledge and business goal integration.

Hypothesis 16b: Innovative climate positively moderates the relationship between cost management knowledge and strategic operational linkage.

Hypothesis 16c: Innovative climate positively moderates the relationship between cost management knowledge and operational activity analysis.

Hypothesis 16d: Innovative climate positively moderates the relationship between cost management knowledge and cost reduction competency and.

Hypothesis 16e: Innovative climate positively moderates the relationship between cost management knowledge and expenditure monitoring report.

Hypothesis 17a: Innovative climate positively moderates the relationship between modern management information system and business goal integration.

Hypothesis 17b: Innovative climate positively moderated the relationship between modern management information system and expenditure monitoring report.

Hypothesis 17c: Innovative climate positively moderates the relationship between modern management information system and operational activity analysis.

Hypothesis 17d: Innovative climate positively moderates the relationship between modern management information system and expenditure monitoring report.

Hypothesis 17e: Innovative climate positively moderates the relationship between modern management information system and expenditure monitoring report.

Hypothesis 18a: Innovative climate positively moderates the relationship between volatile competitive pressure and business goal integration.

Hypothesis 18b: Innovative climate positively moderates the relationship between volatile competitive pressure and strategic operational.

Hypothesis 18c: Innovative climate positively moderates the relationship between volatile competitive pressure and operational activity analysis.

Hypothesis 18d: Innovative climate positively moderates the relationship between volatile competitive pressure and cost reduction competency.

Hypothesis 18e: Innovative climate positively moderates the relationship between volatile competitive pressure and expenditure monitoring report.

Summary

This chapter has described the conceptual model of value chain costing capability and firm performance. It also explains the details of two theories: network theory and contingency theories. In addition, this chapter has also offered a set of 18 hypotheses developed to test the relationships between its five antecedents (survival vision, organizational learning culture, cos management knowledge, modern management information system and volatile competitive pressure) and its consequences (cost competitiveness, strategic achievement, business progressiveness and firm performance) of value chain costing capability. Moreover, this research investigates the relationships between five antecedents and value chain costing capability via the moderating effect of innovative climate. The summary of hypothesized relationships is illustrated in Table 4.

The next chapter presents the research methods, including the sample selection and data collection techniques, the variable measurements of each construct, the methods, the statistics, the instrument development and the equations to test the hypotheses, and the summary of definitions and operational variables.

Table 4 Summary of Hypothesized Relationships

Hypotheses	Description of Hypothesized Relationships
H1a	Business goal integration is positively related to cost competitiveness.
H1b	Business goal integration is positively related to strategic achievement.
H1c	Business goal integration is positively related to business progressiveness.
H1d	Business goal integration is positively related to firm performance.
H2a	Strategic operational linkage is positively related to cost competitiveness.
H2b	Strategic operational linkage is positively related to strategic achievement.
H2c	Strategic operational linkage is positively related to business progressiveness.
H2d	Strategic operational linkage is positively related to firm performance.
H3a	Operational activity analysis is positively related to cost competitiveness.
H3b	Operational activity analysis is positively related to strategic achievement.
H3c	Operational activity analysis is positively related to business progressiveness.
H3d	Operational activity analysis is positively related to firm performance.
H4a	Cost reduction competency is positively related to cost competitiveness.
H4b	Cost reduction competency is positively related to strategic achievement.
H4c	Cost reduction competency is positively related to business progressiveness.
H4d	Cost reduction competency is positively related to firm performance.
H5a	Expenditure monitoring report is positively related to cost competitiveness.

Table 4 Summary of Hypothesized Relationships (Continued)

Hypotheses	Description of Hypothesized Relationships
H5b	Expenditure monitoring report is positively related to strategic achievement.
H5c	Expenditure monitoring report is positively related to business progressiveness.
H5d	Expenditure monitoring report is positively related to firm performance.
H6a	Cost competitiveness is positively related to strategic achievement.
H6b	Cost competitiveness is positively related to business progressiveness.
H6c	Cost competitiveness is positively related to firm performance.
H7	Strategic achievement is positively related to firm performance.
H8	Business progressiveness positively related to firm performance.
H9a	Survival vision is positively related to business goal integration.
H9b	Survival vision is positively related to strategic operational linkage.
H9c	Survival vision is positively related to operational activity analysis.
H9d	Survival vision is positively related to cost reduction competency.
H9e	Survival vision is positively related to expenditure monitoring report.
H10a	Organizational learning culture is positively related to business goal integration.
H10b	Organizational learning culture is positively related to strategic operational linkage.
H10c	Organizational learning culture is positively related to operational activity analysis.
H10d	Organizational learning culture is positively related to cost reduction competency.
H10e	Organizational learning culture is positively related to expenditure monitoring report.
H11a	Cost management knowledge is positively related to business goal integration.

Table 4 Summary of Hypothesized Relationships (Continued)

Hypotheses	Description of Hypothesized Relationships
H11b	Cost management knowledge is positively related to strategic operational linkage.
H11c	Cost management knowledge is positively related to operational activity analysis.
H11d	Cost management knowledge is positively related to cost reduction competency.
H11e	Cost management knowledge is positively related to expenditure monitoring report.
H12a	Modern management information system is positively related to business goal integration.
H12b	Modern management information system is positively related to strategic operational linkage.
H12c	Modern management information system is positively related to operational activity analysis.
H12d	Modern management information system is positively related to cost reduction competency.
H12e	Modern management information system is positively related to expenditure monitoring report.
H13a	Volatile competitive pressure is positively related to business goal integration.
H13b	Volatile competitive pressure is positively related to strategic operational linkage.
H13c	Volatile competitive pressure is positively related to operational activity analysis.
H13d	Volatile competitive pressure is positively related to cost reduction competency.
H13e	Volatile competitive pressure is positively related to expenditure monitoring report.

Table 4 Summary of Hypothesized Relationships (Continued)

Hypotheses	Description of Hypothesized Relationships
H14a	Innovative climate positively moderates the relationship between survival vision and business goal integration.
H14b	Innovative climate positively moderates the relationship between survival vision and strategic operational linkage.
H14c	Innovative climate positively moderates the relationship between survival vision and operational activity analysis.
H14d	Innovative climate positively moderates the relationship between survival vision and cost reduction competency.
H14e	Innovative climate positively moderates the relationship between survival vision and expenditure monitoring report.
H15a	Innovative climate positively moderates the relationship between organizational learning culture and business goal integration.
H15b	Innovative climate positively moderates the relationship between organizational learning culture and strategic operational linkage.
H15c	Innovative climate positively moderates the relationship between organizational learning culture and operational activity analysis.
H15d	Innovative climate positively moderates the relationship between organizational learning culture and cost reduction competency.
H15e	Innovative climate positively moderates the relationship between organizational learning culture and expenditure monitoring report.
H16a	Innovative climate positively moderates the relationship between cost management knowledge and business goal integration.
H16b	Innovative climate positively moderates the relationship between cost management knowledge and strategic operational linkage.
H16c	Innovative climate positively moderates the relationship between cost management knowledge and operational activity analysis.
H16d	Innovative climate positively moderates the relationship between cost management knowledge and cost reduction competency.

Table 4 Summary of Hypothesized Relationships (Continued)

Hypotheses	Description of Hypothesized Relationships
H16e	Innovative climate positively moderates the relationship between cost management knowledge and expenditure monitoring report.
H17a	Innovative climate positively moderates the relationship between modern management information system and business goal integration.
H17b	Innovative climate positively moderates the relationship between modern management information system and strategic operational linkage.
H17c	Innovative climate positively moderates the relationship between modern management information system and operational activity analysis.
H17d	Innovative climate positively moderates the relationship between modern management information system and cost reduction competency.
H17e	Innovative climate positively moderates the relationship between modern management information system and expenditure monitoring report.
H18a	Innovative climate positively moderates the relationship between volatile competitive pressure and business goal integration.
H18b	Innovative climate positively moderates the relationship between volatile competitive pressure and strategic operational linkage.
H18c	Innovative climate positively moderates the relationship between volatile competitive pressure and operational activity analysis.
H18d	Innovative climate positively moderates the relationship between volatile competitive pressure and cost reduction competency.
H18e	Innovative climate positively moderates the relationship between volatile competitive pressure and expenditure monitoring report.

CHAPTER III

RESEARCH METHOD

The previous chapter reviews the concept of value chain costing capability including a theoretical foundation, a literature review, and hypotheses development. This chapter describes the research methods used in the study. Firstly, the description concerns with sample selection and data collection procedure which includes population and sample, data collection method and the test of non-response bias. Secondly, the variable measurements are described. Thirdly, the research methods are explained about the instrumental verifications concerning test validity and reliability. Forthly, statistical analysies are presented. Finally, the table of the summary of the definitions and the operational variables of the constructs is illusttrated.

Sample Selection and Data Collection Procedure

Population and Sample

The population of this research was the electronic and electrical appliance businesses in Thailand. There were 703 firms which list were obtained from the database of the Department of Business Development, Ministry of Commerce, Thailand (www.dbd.go.th, assessed March 30, 2017). This research used Taro Yamane's framework to find the proper sample size to represent coverage of all the population. Taro Yamane's framework was applied in the study because it is suitable for research in behavioral science and social studies to identify the exact number of population and errors. According to Yamane (1973), the required sample size to be a representative of the electronics and electrical appliance business in this research was 255, which was the minimum requirement of the sample size. However, previous research suggested that the average response rate of the mailed questionnaire survey is ranged around 20 percent (Aaker, Kumer, and Day, 2001). Therefore, over sampling was needed to ensure a minimum sample size (Bartlett et al., 2001). To maximize the possibility of the response rate, this research determined 1,275 firms for a sampling

frame (255 x 100/20); however, this number exceeded the expected sample size. As a result, this research used 703 firms as a sample population.

The electronic and electrical appliance businesses were appropriately investigated because the production structures of this business type were necessarily improved or changed according to the market demand as well as to increase capability level in the world competitive market. Therefore, the adaptation was necessary for keeping up with consumer behaviours, technology changes, production based on customers' demand, basic industry development through new technology and innovation, and labour skill development etc. in order to obtain sustainable development and to possess more competitive capability in the world market which was shown in the online database of the website of Industrial Intelligence Unit, 2017 (www.iiu.oie.go.th). Thus, the formula to calculate the sample sizes with a 95% confidence level, and acceptable error (e) = 0.05, was obtained from Yamane (1973). When the population was identified, the sample size was determined, based on the formula as follows:

$$n = N / (1+N(e^2))$$

Where:

n = sample size

N = population size

e = level of precision

The values were set for the formula:

N = 703

e = 0.05

$$n = 703 / (1+703(0.05^2))$$

n = 255

Therefore, this research selected 703 electronic and electrical appliance businesses as the population and sample. Moreover, the key participants were accounting executives, accounting directors or accounting managers of each electronic and electrical appliance businesses in Thailand.

Data Collection

The key informants were the firms' accounting executives. The accounting executives were responsible for vision management on expressing straightforward opinions, the financial report and internal control systems, as well as opportunities to manage (Apak et al., 2012). The mail questionnaire survey was used to collect the data due to the fact that it was a widely-used method for large-scale data collection in behavioral accounting research to obtain reliable financial reporting, quality reports, added-value, and it created credibility for stakeholders who contributed to the firm performance (Sharma and lselin, 2012).

Furthermore, a mail survey was suitable because it helped a greater number of firms reduce cost and eliminate or decrease bias (Snyder and Elliard, 2012). The 703 questionnaires were directly distributed to the firms' accounting executives by mail. Then, the completed questionnaires were sent back directly to the researcher with the prepared return envelopes for ensuring confidentiality within four weeks. Furthermore, each package of the instrument consisted of a cover letter containing an explanation of the research, a questionnaire, and a postage pre-paid envelope. Besides, in reducing a possible indesirable bias, the researcher promised all individual responses would be kept completely in confidence and no information would be revealed or shared with any third party without an informant' s written permission (Yasamorn, 2011).

In this research, a valid and reliable self-administered questionnaire comprised seven sections. In the first section, respondents were requested to provide their personal information such as gender, age, marital status, education level, working experience, average monthly income at present and working position. The second section consisted of questions concerning the organizational characteristics: business owner type, business format, location, registered business capital, total asset of the firm at present, number of employees, the period of business operation, average sales revenue per year. To be more specific, the third section collected the data relating to the key concepts of value chain costing capability dimensions: business goal integration, strategic operational linkage, operational activity analysis, cost reduction competency, and expenditure monitoring report. The forth section presented questions concerning the consequences of cost competitiveness, strategic achievement, business progressiveness, and firm performance. The fifth section included questions regarding to the antecedents

of value chain costing capability including survival vision, organizational learning culture, cost management knowledge, modern management information system, and volatile competitive pressure. The sixth section consisted of a set of questions relating to innovative climate that affect the relationship among value chain costing capability antecedents and consequences. Finally, the seventh section provided an open-ended question to gather key respondents' suggestions and opinions.

The questionnaires were directly distributed to 703 electronic and electrical appliance firms in Thailand by mail. The questionnaires were sent to the target informants with a request for them to return the questionnaires withing four to six weeks. The successful mailing was 675 questionnaires whereas the other 28 were not successfully delivered. To increase the response rate, the researcher did the follow-up the firms which did not sent the quetionnaires back. A follow-up telephone call, suggested by Lamberti and Noci, 2010), was used after four weeks of the preliminary mailing. After four weeks, 122 responses were received with the increase of 31 responses, totaling 153 responses. Of all 153 returned questionnaires, 152 responses were usable, resulting in the effective response rate at 22.51 percent. According to Aaker, Kumar and Day (2001), the 20 percent response rate for a mail survey without an appropriate follow-up procedure is considered acceptable. Table 5 shows the results of the questionnaire mailing used for analysis in this research.

Table 5 Details of Questionnaire Mailing

Details	**Numbers**
Number of questionnaires mailing	703
Number of undelivered questionnaires	28
Number of successful questionnaire mailing	675
Number of received questionnaires	153
Number of questionnaires incomplete	1
Questionnaire usable	152
Response Rate (152 / 675) x 100	22.51 %

Test of Non-Response Bias

Due to some non-returned responses from the informants, the non-response bias is required to verify that all participants could be inferred as representatives of the population (Lewis, Hardy, and Snaith, 2013). Thus, the non-response bias was used to ensure that there was no bias problem in this research. In order to verify with the non-response bias, the comparisons between responders and non-responders, and early and late responders were retested with the t-test statistics on basic characteristics of the sample such as firm size, firm age, business owner type, and firm capital (Armstrong and Overton, 1977). To separate the responses into early and late groups, the first 50 percent of the received mails was determined as the early group, and the last 50 percent was determined as the late group. A total of 152 returned questionnaires were divided into two groups: the first 76 responses were classified as the early respondents and another 76 responses were classified as the late respondents. The t-test statistic was employed to verify the differences of business demographics in terms of firm capital, firm asset, firm size, firm age, and revenue. The t-test results showed that there were no siginificant differences between those groups so it was assumed that the returned questionnaires had no bias problem (Armstrong and Overton, 1977; Thompson, Loveland, and Fombelle, 2014).

The results are illustrated: the firm capital ($t = 0.000$, $p > 0.05$), the firm asset ($t = 0.411$, $p > 0.05$), the firm size ($t = -0.311$, $p > 0.05$), the firm age ($t = -0.855$, $p > 0.05$), and the revenue ($t = -0.198$, $p > 0.05$). These results indicated that there were no statistically significant differences between early and late groups at a 95% confidence level. Therefore, it could be stated that the non-response bias was not a problem in this research (Armstrong and Overton, 1977). The results of non-response bias are illustrated in Appendix C.

Measurements

In this research, the measurement procedures involved the development of multiple item for measuring each construct in the conceptual model. These constructs were transformed to the operational variables for precise measurement. To measure each construct in the conceptual model, all variables gained from the survey were

measured by a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Accordingly, the use of multiple items provided a wider range of the contents on the conceptual definitions and the improvement of reliability (Neuman, 2006). All constructs in this research were abstract that could not be directly measured or observed so they should be measured by multiple items (Churchill, 1979). To measure each construct in the conceptual model, all variables were gained from the survey. The variable measurement of this research was developed by using the definitions and the relevant literature, and Table 4 provides the definition of each construct, the operational variables, and scale source. The original items in scales are presented in Appendix A. Thus, the variable measurement of the dependent variables, independent variables, antecedent variables, mediating variables, moderating variables, and control variables of this research are elaborated as follows.

Dependent Variable

Firm performance. Firm performance was defined as the ability in outcomes, financial and non-financial performance, over the prior year, such as revenue, market share, market growth, and return on investment.This construct was measured by using a five-item scale modified from Laonamtha, Ussahawanitchakit and Boonlua (2013).

Independent Variables

This research consisted of 13 independent variables. The first variable was a core construct of this research i.e. value chain costing capability, which included five dimensions: business goal integration, strategic operational linkage, operational activity analysis, cost reduction competency, and expenditure monitoring report. These dimensions reflected the good aspects of value chain costing capability.

Business Goal Integration. Business goal integration referred to the ability of the firm to combine policies, information, and guidelines for management in various sections: to transfer information; to share operation guidelines; and to set the production cost suitably. This construct was measured by using a four-item scale developed as a new scale based on its definition.

Strategic Operational Linkage. Strategic opertional linkage was defined as the ability of the firm to link the internal operations, cost management, cost allocation, including the control and evaluation in the same direction. This construct was measured using a four-item scale developed as a new scale based on its definition.

Operational Activity Analysis. Operational activity analysis referred to the ability of the firm to specify good operation guidelines, to analyze the benefits of each operational activities, and to set direction and plan systematically and concretely. This construct was measured by using a four-item scale developed as a new scale based on its definition.

Cost Reduction Competency. Cost reduction competency was defined as the ability of the firm to analyze and plan production cost in the past and at present, to reduce non-performing activities, and to evaluate the worth of the invested cost accurately and beneficially for decision-making. This construct was measured by using a four-item scale modified from Wongjinda, Ussahawanitchakit, and Janjarasjit (2016).

Expenditure Monitoring Report. Expenditure monitoring report referred to the ability of the firm to identify, analyze, check, and present the expense information in each step of the working procedure accurately, timely and conformingly to the real situations. This construct was measured by using a four-item scale developed as a new scale based on its definition.

Antecedent Variables

For this research, the internal and external factors were treated as the antecedents of value chain costing capability. These variables were measured by using four internal factors including survival vision, organizational learning culture, cost management knowledge and modern management accounting system. In addition, one factor of the external factor was volatile competitive pressure.

Survival Vision. Survival vision referred to the foresight of the firm that focuses on the future target, development of good management system, continuous staff

self-development, and the application of technology for systematic management. This construct was measured by using a four-item scale modified developed as a new scale based on its definition.

Organizational Learning Culture. Organizational learning culture was defined as the firm's belief, value, and perception on collaborative learning, knowledge sharing in the organization, and continuous presentation of new operation models. This construct was measured by using a four-item scale modified developed as a new scale based on its definition.

Cost Management Knowledge. Cost management knowledge referred to the determination of the organization to learn and search for guidelines, to reduce non-performing activities and to evaluate the performance accurately and suitably. This construct was measured by using a four-item scale modified developed as a new scale based on its definition.

Modern Management Information System. Modern management information system was defined as the determination of the oragniztion on the system to collect and store the internal and external information of the organization in the past, present and future by using information technology to support the operation and decision making in different ways. This construct was measured by using a four-item scale developed as a new scale based on its definition.

Volatile Competitive Pressure. Volatile competitive pressure was defined as firm's perception relating to the uncertainty such as customers' demands, changes in the political, economic, social and technological which effect the operation and strategies of the organization. This construct was measured by using a six-item scale modified from Laonamtha, Ussahawanitchakit, and Boonlua (2013).

Mediating Variables

Cost Competitiveness. Cost competitiveness referred to the possess of an effective operation line with short production time, quick and correct delivery,

distinctive and creative products, and continuously lower operation cost. This construct was measured by using a four-item scale modified from Wongjinda, Ussahawanitchakit and Janjarasjit (2016).

Strategic Achievement. Strategic achievement referred to the possess of professional management with abilities to maintain a competitive level in the present and future, and to achieve organizational goals with good quality operation. This construct was measured by using a four-item scale developed as a new scale based on its definition.

Business Progressiveness. Business progressiveness referred to the possess of an operation system with new technology and production techniques to produce quality productions, and the ability to serve the market demand continuously in uncertain situations. This construct was measured by using a four-item scale modified from Namnai, Ussahawanitchakit and Janjarasjit (2016).

Moderating Variables

Innovative Climate. Innovative climate is defined as the determination of the firm to enhance creative working environment, to develop the modern management, to use new technology in production process, and to encourage the staff to present new ideas freely (Sun, Zhao, and Ya Chen, 2011). This construct was measured by using a five-item scale developed as a new scale based on its definition.

Control Variables

Some variables might affect the dependent variables in this research. The inclusion of the control variable reduced spurious relationships (Chang, Witteloostuijn, and Eden, 2010). Based on the cost management literature, two variables were needed to be controlled: firm age and firm size (Chaikambang and Ussahawanitchakit, 2012). Therefore, the control variables of this research included firm age and firm size which might affect the relationships between value chain costing capability and firm performance and the antecedent variables. Moreover, larger companies were more willing to use accounting sophistication (Cinquini and Tenucci, 2008). Considering

value chain costing capability, it was expected to find a positive relationship between firm size and value chain costing capability. The related literature is detailed as follows:

Firm Size. Firm size was measured by the number of employees currently registered as full-time. Firm size may affect the ability of the firm to adjust and redefine the firm's strategy (Baden and Volberda, 1997). This research measured firm size by the number of employees in order to control possible size effects (Zahra, 2007). Previous research has shown that firm size may influence the capacity of a firm to operate its business in order to achieve goal performance. In this research, firm size was represented by a dummy variable in which 0 meant a firm had total employees less than or equal to 150 employees, and 1 meant a firm had total employees more than 150 employees (Namnai, Ussahawanitchakit, and Janjarasjit 2016).

Firm Age. Firm age was a proxy of the firm's experience measured by the number of years a firm had been in operation. Previous research indicated that firms with long time operation were more experienced to operate with modern cost management. In details, firm age was significantly relative to the cost management from the study of Kenyon and Meixell (2011). Additionally, larger sized firms were also able to translate sales growth to productivity growth and profits growth (Coad, Segarra and Teruel, 2013). Moreover, firm age showed that firms progressed performance and survival such as new learning, development and investment (Talebnia et al., 2010). In this research, firm age became a control variable because in an uncertain and increasing complex environment, it might increase managerial opportunism and reduced risk (Folta, 1998). Moreover, firm age might affect value chain costing capability in providing cost information quality, especially with respect to cost accounting management experience. In this research, firm age was represented by a dummy variable of which 0 meant the firm had been in business less than or equal to 15 years, and 1 meant the firm had the period of time in operation of more than 15 years.

Methods

In this research, all constructs in the conceptual framework were implemented by the adopted relative literature review and the creation on new scales. As a result, a pre-test approach was performed to manifest both validity and reliability of the questionnaire instrument in order to recognize all items in each measurable construct. Firstly, the questionnaire was double-checked by a specialist and experienced scholars to obtain the best possible scale measures. Then, a pre-test method was appropriately conducted to verify the validity and reliability of the questionnaire.

Validity and Reliability

Validity

Validity was defined as the degree to which measurement accurately evinces the concept of consideration (Hair et al., 2010). In order to verify the absoluteness and accuracy of the measures, the research examined content validity and construct valididy for checking robustness validity test of the survey questionnaire.

Content validity

Content validity was the extent to which the items of the scales sufficiently reflect the interrelated theoretical domains (Anderson, and Gerbing, 1991). The judgement of two experts as academic professionals and the researhers could evaluated the adequacy and improvement of the measurement together, based on the relevant theory and literature review (Rosier, Morgan, and Cadogan, 2010). Each construct was scaled with hard evidences in related literature to ensure concept correctness as well as the appropriateness of words, phases, and statements for the interrogation. To sufficiently validate the contents, this study requested two distinguished scholars as experts. This was according to the suggestion that the number of experts required for content validity was between two and twenty (Armstrong, Coen, Eriksen, and Cleeland, 2005). The details of their expertise are shown in Appendix I.

Construct validity

Construct validity referred to the measurement method that confirmed whether the item was an accurate scale as to the logical theory in the conceptual framework (Hair et al., 2010). It was assessed in congruence between a theoretical concept and a specific identifiable measurement for the value chain costing capability context.
In addition, factorial validity was also used to examine construct validity. Factorial validity tested by using factor analysis, it was applied to identify important factors, and reduce low correlated items. As a result, all factor loadings must be more than 0.40; indicating acceptable construct validity (Nunnally and Bernstein, 1994). Table 6 shows the factor loadings of the multi-item measurement. The construct validity is loaded on a single factor and the range of factor loading is between 0.656 and 0.959. These scales are greater than 0.4, which indicate construct validity acceptance (see also Appendix D).

Table 6 Results of Validity Testing and Reliability Testing

Variables	Factor Loadings	Item total correlation	Cronbach's alpha
Business Goal Integration (BGI)	0.894 – 0.921	0.813-0.853	0.923
Strategic Operational Linkage (SOL)	0.890 – 0.947	0.671-0.886	0.892
Operational Activity Analysis (OAA)	0.769 – 0.858	0.630-0.716	0.845
Cost Reduction Competency (CRC)	0.780 – 0.927	0.637-0.852	0.880
Expenditure Monitoring Report (EMR)	0.650 – 0.919	0.482-0.827	0.856
Cost Competitiveness (CCT)	0.724 – 0.872	0.546-0.726	0.800
Strategic Achievement (SGA)	0.819 – 0.936	0.689-0.868	0.886
Business Progressiveness (BPG)	0.841 – 0.911	0.725-0.832	0.904
Firm Performance (FPF)	0.871 – 0.959	0.797-0.936	0.946
Survival Vision (SVV)	0.800 – 0.912	0.663-0.812	0.880
Organizational Learning Culture (OLC)	0.877 – 0.954	0.787-0.913	0.933
Cost Management Knowledge (CMK)	0.799 – 0.814	0.652-0.799	0.863
Modern Management Information System (MIS)	0.813 – 0.929	0.676-0.864	0.882
Volatile Competitive Pressure (VCP)	0.820 – 0.913	0.747-0.866	0.938
Innovative Climate (INC)	0.656 – 0.872	0.479-0.747	0.796

n = 30

Reliability

Reliability was the extent to which the degree of multiple items was a consistent measurement in each construct (Hair et al., 2010).There were two ways available to estimate the reliability indicator; i.e. Cronbach's alpha coefficient and item total correlation. Cronbach's alpha coefficients was a scale of reliability to assure the internal consistency (Eagleman, 2013). Commonly, the acceptability of Cronbach's alpha coefficients was higher than expected, exceeding 0.70 to indicate high reliability (Nunnally, and Bernstein, 1994). The higher score of coefficients pointed out lower term errors, and all measured items by their single construct. Item total correlation was the relationship between a single item score and a summary score that were used to measure the construct. This approach assessed the consistency between multi-item measurements in the same construct in that high value pointed out a more reliable scale (Hair et al., 2010). Generally, the scale of total item correlation should exceed 0.3 to indicate acceptance of item reliability (Thoumrungroje, 2013). As shown in Table 8, the result of all reliability in both Cronbach's alpha coefficients and item total correlation are illustrated. Cronbach's alpha is a range between 0.796 and 0.946, which exceeds 0.70, to indicate high reliability. Moreover, the item total correlations are scaled from 0.479 to 0.936 in that all scales exceed 0.3; the result shows that item reliability is acceptable.

Statistical Techniques

There were statistical techniques composed of descriptive analysis, factor analysis, variance inflation factors (VIF's), correlation analysis, and multiple regression analysis that are mentioned as below.

Descriptive analysis

Descriptive analys provided basic verification data that was obtained from the profile of key informants and e-commerce firms. Generally, to check the accuracy of the input data from respondents, both frequency and percentage were simplified by testing. Moreover, the analysis regarding standard deviation was measured by a score spread from the average (Trainor et al., 2014).

Factor Analysis

Factor analysis was a data reduction approach from a large to small number of variables and summarized data to design correlations among variables (Hair et al., 2010). To avoid higher correlation between independent variables, the factor scores were considered by OLS regression using factor analysis. However, the factor loading illustrated that a strong relationship existed between an item and its construct. The higher the factor loading was, the greater items represented their key construct. The recommended factor loading was promoted from Nunnally and Bernstein (1994) that was equal to, or more than 0.40, which was the criteria condition in this research.

Variance Inflation Factors (VIF's)

Variance inflation factors was an approach for the detection of high correlations between multiple independents in the regression equation model that is known as the multicollinearity problem. In order to check multicollinearity, the VIF score could indicate them. Accordingly, Hair et al. (2010) suggested that multicollinearity was not a serious problem in a regression analysis if the VIF was lower than 10 on the scales.

Correlation Analysis

The Pearson product-moment correlation coefficient, or what is known as Pearson's correlation technique, was commonly used to examine the correlation among variables. Because the assumption of the regression analysis requires no problem of multicollinearity among independent variables, the correlation analysis was necessary for verification process in this research. Monitoring the multicollinearity problem was correlated highly with other independent variables where the multicollinearity problem seemed to occur (Homburg, Artz and Wieseke, 2012). It was caused by a lack of accuracy with the regression coefficient estimate. Accordingly, Hair et al. (2010) suggested a criterion to check the multicollinearity problem. The correlation coefficient must not exceed 0.8 on the scales.

Multiple regression analysis

The Ordinary Least Squares (OLS) regression analysis was applied to examine the hypotheses. Since this research collected the data of all variables, both interval and categorical, the regression analysis was appropriate to test the relationship (Hair et al., 2010). In order to avoid error in the result of regression analysis, the underlying assumption was employed to verify linearity, normality, multicollinearity, auto-correlation, and heteroscedasticity (Osborne and Waters, 2001) (See Appendix E). Consequently, the proposed hypotheses was transformed into fifteen equations as guidelines for the steps to do regression analysis. These equations are illustrated as follows.

The investigation of the relationships among five dimensions composed of value chain costing capability and cost competitiveness is presented in Equation 1:

Equation 1: $CCT = \alpha_{01}+\beta_1 BGI+\beta_2 SOL+\beta_3 OAA+\beta_4 CRC+\beta_5 EMR+\beta_6 FS+\beta_7 FA+\varepsilon$

To explore the relationships between the five dimensions of value chain costing capability and strategic achievement, Equation 2 is presented as follows:

Equation 2: $SGA = \alpha_{02}+\beta_8 BGI+\beta_9 SOL+\beta_{10} OAA+\beta_{11} CRC+\beta_{12} EMR+\beta_{13} FS+\beta_{14} FA+\varepsilon$

The investigation of the relationships among cost competiteveness and strategic achievement is presented in Equation 3 as shown below:

Equation 3: $SGA = \alpha_{03}+\beta_{15} CCT+ \beta_{16} FS+\beta_{17} FA+\varepsilon$

The relationships between the five dimensions of value chain costing capability and business progressiveness were investigated with their relationships by Equation 4:

Equation 4: $BPG = \alpha_{04}+ \beta_{18} BGI+\beta_{19} SOL+\beta_{20} OAA+\beta_{21} CRC+\beta_{22} EMR+\beta_{23} FS+\beta_{24} FA+\varepsilon$

The investigation of the relationships among cost competiteveness and business progressiveness is presented in Equation 5 as shown below:

Equation 5: $BPG = \alpha_{05}+\beta_{25}CCT+ \beta_{26}FS+\beta_{27}FA+\varepsilon$

The investigation of the relationships among the five dimensions composed of value chain costing capability and firm performance is presented in Equation 6:

Equation 6: $FPF = \alpha_{06}+\beta_{28}BGI+\beta_{29}SOL+\beta_{30}OAA+\beta_{31}CRC+\beta_{32}EMR+\beta_{33}FS+\beta_{34}FA+\varepsilon$

The investigation of the impacts of cost competitiveness, strategic achievement, business progressiveness and firm performance is presented in Equation 7:

Equation 7: $FPF = \alpha_{07}+\beta_{35}CCT+\beta_{36}SGA+\beta_{37}BPG+\beta_{38}FS+\beta_{39}FA+\varepsilon$

To examine the influence of the five antecedents: survival vision, organizational learning culture, cost management knowledge, modern management information system, and volatile competitive pressure, Equation 8 to 12 are presented as follows:

Equation 8: $BGI = \alpha_{08}+\beta_{40}SVV+\beta_{41}OLC+\beta_{42}CMK+\beta_{43}MIS+\beta_{44}VCP+\beta_{45}FS+\beta_{46}FA+\varepsilon$

Equation 9: $SOL = \alpha 10+\beta_{60}SVV+\beta_{61}OLC+\beta_{62}CMK+\beta_{63}MIS+\beta_{64}VCP+\beta_{65}FS +\beta_{66}FA +\varepsilon$

Equation 10: $OAA = \alpha_{12}+\beta_{80}SVV+\beta_{81}OLC+\beta_{82}CMK+\beta_{83}MIS+\beta_{84}VCP+\beta_{85}FS+\beta_{86}FA+\varepsilon$

Equation 11: $CRC = \alpha_{14}+\beta_{100}SVV+\beta_{101}OLC+\beta_{102}CMK+\beta_{103}MIS+\beta_{104}VCP+\beta_{105}FS +\beta_{106}FA+\varepsilon$

Equation 12: $EMR = \alpha_{16}+\beta_{120}SVV+\beta_{121}OLC+\beta_{122}CMK+\beta_{123}MIS+\beta_{124}VCP+\beta_{125}FS +\beta_{126}FA+\varepsilon$

The roles of the moderator, namely innovative climate, which moderated the relationships among survival vision, organizational learning culture, cost management knowledge, modern management information system and volatile competitive pressure and the five dimensions of value chain costing capability, were tested by Equation 13 to 17 as shown below:

Equation 13: $BGI = \alpha_{09}+\beta_{47}SVV+\beta_{48}OLC+\beta_{49}CMK+\beta_{50}MIS+\beta_{51}VCP+\beta_{52}INC+\beta_{53}(SVV*INC)+\beta_{54}(OLC*INC)+\beta_{55}(CMK*INC)+\beta_{56}(MIS*INC)+\beta_{57}(VCP*INC)+\beta_{58}FS+\beta_{59}FA+\varepsilon$

Equation 14: $SOL = \alpha_{11}+\beta_{67}SVV+\beta_{68}OLC+\beta_{69}CMK+\beta_{70}MIS+\beta_{71}VCP+\beta_{72}INC+\beta_{73}(SVV*INC)+\beta_{74}(OLC*INC)+\beta_{75}(CMK*OLC)+\beta_{76}(MIS*INC)+\beta_{77}(VCP*INC)+\beta_{78}FS+\beta_{79}FA+\varepsilon$

Equation 15: $OAA = \alpha_{013}+\beta_{87}SVV+\beta_{88}OLC+\beta_{89}CMK+\beta_{90}MIS+\beta_{91}VCP+\beta_{92}INC+\beta_{93}(SVV*INC)+\beta_{94}(OLC*INC)+\beta_{95}(CMK*OLC)+\beta_{96}(MIS*INC)+\beta_{97}(VCP*INC)+\beta_{98}FS+\beta_{99}FA+\varepsilon$

Equation 16: $CRC = \alpha_{15}+\beta_{107}SVV+\beta_{108}OLC+\beta_{109}CMK+\beta_{110}MIS+\beta_{111}VCP+\beta_{112}INC+\beta_{113}(SVV*INC)+\beta_{114}(OLC*INC)+\beta_{115}(CMK*OLC)+\beta_{116}(MIS*INC)+\beta_{117}(VCP*INC)+\beta_{118}FS+\beta_{119}FA+\varepsilon$

Equation 17: $EMR = \alpha_{17}+\beta_{127}SVV+\beta_{128}OLC+\beta_{129}CMK+\beta_{130}MIS+\beta_{131}VCP+\beta_{132}INC+\beta_{133}(SVV*INC)+\beta_{134}(OLC*INC)+\beta_{135}(CMK*OLC)+\beta_{136}(MIS*INC)+\beta_{137}(VCP*IC)+\beta_{138}FS+\beta_{139}FA+\varepsilon$

Where;

VCCC = Value Chain Costing capability
FPF = Firm performance
BGI = Business Gosl Integration
SOL = Strategic Operational Linkage
OAA = Operational Activity Analysis
CRC = Cost Reduction Competency
EMR = Expenditure Monitoring Report
CCT = Cost Competitiveness
SGA = Strategic Achievement
BPG = Business Progressiveness
SVV = Survival Vision
OLC = Organizational Learning Culture
CMK = Cost Management Knowledge
MIS = Modern Management Information System
VCP = Volatile Competitive Pressure

INC = Innovative Climate

FS = Firm size

FA = Firm age

ε = Error term

α = Constant

β = Coefficient

Summary

This chapter summarizes the research methods for gathering the data and examining all constructs in the conceptual model to answer the research questions. The content involves the sample selection and the data collection procedure including the population and the sample of the electronics and electrical appliance businesses in Thailand. This data collection was drawn from the Department of Business Development (DBD) on its website, http://www.dbd.go.th/. Based on this database, there were 703 companies as of March 30, 2017. The questionnaire mails were sent to the accounting directors or accounting managers of each firm as the key informants. The variable measurements were described for all variables in the conceptual model. In addition, the instrumental verifications of validity and reliability, and the statistical analyses are presented. Finally, Table 7 shows the summary of the definitions and the operational variables of constructs.

The results of the hypothesis testing are revealed in the next chapter which describes the response characteristics and descriptive statistics as well.

Table 7 Definitions and Operational Variables of Constructs

Constructs	Definitions	Operational Variables	Scale Sources
Dependent Variables			
Firm Performance (FPF)	The increase operational outcome that shows both the financial and non-financial performance of the firm over the long term.	The ability in outcomes, financial and non-financial performance, over the prior year, such as revenue, market share, market growth, and return on investment.	Laonamtha Ussahawanitchakit and Boonlua (2013)
Independent Variables of Value Chain Costing			
Business Goal Integration (BGI)	The ability of the firm to combine policies, information, and guidelines for management in various sections; to transfer information; to share operation guidelines; and to set the production cost suitably.	The uttlitization of mixing precise, to transfer information, to share operation guidelines and to set the production cost suitably.	New Scale
Strategic Operational Linkage (SOL)	The ability of the firm to link the internal operations, cost management, cost allocation, including the control and evaluation in the same direction.	Application of new techniques into manufacturing related to business strategy in order to prepare and persent cost information to achieve greater success.	New Scale

Table 7 Definitions and Operational Variables of Constructs (continued)

Constructs	Definitions	Operational Variables	Scale Sources
Independent Variables of Value Chain Costing			
Operational Activity Analysis (OAA)	The ability of the firm to specify good operation guidelines, to analyze the benefits of each operational activities, and to set direction and plan systematically and concretely.	Perception of the importance of value activities analysis, product examination and information flow in order to reduce cost and evaluate competitive cost position during management control of the chain.	New Scale
Cost Reduction Competency (CRC)	The ability of the firm to analyze and plan production cost in the past and at present, to reduce non-performing activities, and to evaluate the worth of the invested cost accurately and beneficially for decision-making.	The degree of application of value-added activities, by collecting and integrating cost information in each production process and eliminating non value-added activity, to be tools for controlling an operation.	New Scale
Expenditure Monitoring Report (EMR)	The ability of the firm to identify, analyze, check, and present the expense information in each step of the working procedure accurately, timely and conformingly to the real situations.	Systematic monitoring evaluation, correct evaluation, completeness, timeliness, verifiable evidence.	New Scale

Table 7 Definitions and Operational Variables of Constructs (continued)

Constructs	Definitions	Operational Variables	Scale Sources
Mediating Variables			
Cost Competitiveness (CCT)	The possess of an effective operation line with short production time, quick and correct delivery, distinctive and creative products, and continuously lower operation cost .	The outcome of cost saving, accurate cost allocation, continuous reduction of non-profitable activities, using less time in the production cycle and achieving the planned setting.	Wongjinda Ussahawanitchakit and Janjarasjit (2016)
Strategic Achievement (SGA)	The possess of professional management with abilities to maintain a competitive level in the present and future, and to achieve organizational goals with good quality operation.	The accomplishment of the goals performance consistent with the mission vision and goals.	Laonamtha Ussahawanitchakit and Boonlua (2013)
Business Progressiveness (BPG)	The possess of an operation system with new technology and production techniques to produce quality productions, and the ability to serve the market demand continuously in uncertain situations.	Achieve the goal more prominent than competitors, responding to forces for change through operational that is accepted by both internal and external organizations.	Namnai Ussahawanitchakit and Janjarasjit (2016)

Table 7 Table 7 Definitions and Operational Variables of Constructs (continued)

Constructs	Definitions	Operational Variables	Scale Sources
Antecedents Variables			
Survival Vision (SVV)	The foresight of the firm that focuses on the future target, development of good management system, continuous staff self-development, and the application of technology for systematic management.	The ability of a firm to clearly set operational direction, both at present and in the future, explicit goal achievement formulation and changeable policy appropriate with a situation.	New Scale
Organizational Learning Culture (OLC)	The firm's belief, value, and perception on collaborative learning, knowledge sharing in the organization, and continuous presentation of new operation models.	The managerial perception toward the firm ability and proficiency to learn under the organizational culture environment.	New Scale
Cost Management Knowledge (CMK)	The determination of the organization to learn and search for guidelines, to reduce non-performing activities and to evaluate the performance accurately and suitably.	The outcome of a firm that can be used and integratedknowledge of managerial accounting experience in the past to choose and implement good ways for the firm.	New Scale

Table 7 Table 7 Definitions and Operational Variables of Constructs (continued)

Constructs	Definitions	Operational Variables	Scale Sources
Antecedents Variables			
Modern Management Information System (MIS)	The determination of the organization on the system to collect and store the internal and external information of the organization in the past, present and future by using information technology to support the operation and decision making in different ways.	The new technology evolution, new information technology, higher technology diversity and continuous technology growth in the present.	New Scale
Volatile Competitive Pressure (VCP)	Firm's perception relating to the uncertainty such as customers' demands, changes in the politics, economy, society and technology which effect the operation and strategies of the organization.	The degree of the changes from the external organizations; the business must adapt to such changes in the political, economic, social and technological factors out of the control and influence upon the possible business operations.	Laonamtha Ussahawanitchakit and Boonlua (2013)

Table 7 Table 7 Definitions and Operational Variables of Constructs (continued)

Constructs	Definitions	Operational Variables	Scale Sources
Moderator variables			
Innovative Climate (INC)	The determination of the firm to enhance creative working environment, to develop the modern management, to use new technology in production process, and to encourage the staff to present new ideas freely.	The degree of environment for creative working, development of the modern management style, new technology utilization, which allow staff to present ideas freely,leading to increasing effectiveness of working potentials.	New Scale
Control variables			
Firm Size (FS)	A determinant of the organizational success, used to explain the value of firm performance.	Dummy variable 0 = total employees less than and equal to 150, 1 = total employees more than 150.	-
Firm Age (FA)	The firm's experience measured by the number of years a firm has been in operation.	Dummy variable 0 = below and equal 15 years, 1 = higher than 15 years.	-

CHAPTER IV

RESULTS AND DISCUSSION

The prior chapter describes research methods which help to understand the methods used in data analysis and hypothesis testing. This chapter presents the results of hypotheses testing which are organized as follows. Firstly, it presents the response characteristics and descriptive statistics to increase the understanding of the sample characteristics. Secondly, the hypotheses results and discussion are described. Finally, the comprehensiveness of all hypotheses outcomes is provided in a table format.

Respondent Characteristics and Descriptive Statistics

Respondent Characteristics

The respondents were the accounting executives of electronic and electrical appliance businesses in Thailand as they know value chain costing capability to produce cost information to serve organizational activities, including using the information to support many functions in the firm's operation to modify objectives and strategies to achieve goals. Thus, they could give the data according to the objective of this research. The descriptive statistics from the data was used to describe the mean, standard deviation, and correlation for all variables, correlation coefficients and direction in correlation matrix forms.

The unit of analysis in this research was from the electronic and electrical appliance businesses in Thailand. The key informant was an accounting executives or accounting manager. Characteristics of key informants were described by the demographic data including gender, age, marital status, educational level, working experience, average monthly income at present, and working position in a company. In addition, firm characteristics were also explained in terms of business owner type, business format, location of business, registered business capital, and total assets of the firm at present, number of employees, period of business operation, and average sales / revenue per year. Appendix B shows demographic characteristics of 152 key informants

who returned questionnaires. The number of the key informants, included 38.82 percent of males and 61.18 percent of females. The age of most participants was equal to or more than 30 years old (92.11 percent). The marital status of key informants comprised 43.42 percent of single status and 54.61 percent of married status. The educational level of key informants was mostly at an undergraduate or lower (59.25 percent). In addition, 27.63 percent of participants had been working for a firm more than 20 years. Also, 34.21 percent of key informants earned less than 50,000 baht a month. Finally, the working position of key informants in a company was an accounting director, at 49.34 percent. Moreover, Appendix B presents firm characteristics of 152 electronic and electrical appliance businesses in Thailand. The demographic data showed that business owner type of sampled firms, including limited company and partnership, were at 98.68 percent and 1.32 percent, respectively. Most sampled firms had a registered business capital less than 25 million baht (44.74 percent). Furthermore, 44.08 percent of firm respondents had total assets of the firm at present less than 25 million baht and the number of employees at present less than 50 employees (36.18 percent). In addition, most sampled firms had the period of time in business operation of more than 15 years (52.63 percent). Finally, the average of sales revenue per year of most sampled firms was more than 90 million baht (47.37 percent).

Correlation Analysis

The Pearson correlation for bivariate analysis of each variable pair was conducted in this research. One of them was to explore the relationships among variables, and to detect multicollinearity in multiple regression assumption. Accordingly, Hair et al. (2010) stated that multicollinearity might occur when inter-correlation in each predict variable was more than 0.80, which was a high relationship. Table 8 shows the results of the correlation analysis of all constructs. The bivariate correlation procedure was subject to a two-tailed test of statistical significance at $p < 0.01$ and $p < 0.05$.

As a result, the correlation matrix could prove the correlation between the two variables and verify the multicollinearity problems by the inter-correlations among the independent variables. As demonstrated in Table 9, the dimensions of value chain costing capability were significantly positive with business goal integration, strategic

operational linkage, operational activity analysis, cost reduction competency, and expenditure monitoring report that ranged from 0.452 to 0.688 at the $p < 0.01$ level. In the antecedents aspect, these variables were significantly related to all dimensions of value chain costing capability that range from 0.243 to 0.645 at the $p < 0.01$ level.

Meanwhile, the moderating effect between antecedent and each dimension of value chain costing capability were significantly positive with all correlations between 0.240 and 0.755 at the $p < 0.01$ level. Overall, the inter-correlations were in the range of from 0.240 to 0.755, $p < 0.01$, which was not exceeding 0.80 (Hair et al., 2010). Therefore, these scales indicated no multicollinearity problem in this research.

Table 8 Descriptive Statistics and Correlation Matrix of Value Chain Costing Capability and All Constructs

Variables	BGI	SOL	OAA	CRC	EMR	CCT	SGA	BPG	FPF	SVV	OLC	CMK	MIS	VCP	INC	FS	FA
Mean	4.08	3.91	3.91	4.02	3.98	3.54	3.71	3.76	3.91	4.16	3.89	3.98	3.94	4.10	4.06	n/a	n/a
S.D.	0.34	0.48	0.48	0.52	0.57	0.50	0.56	0.56	0.66	0.39	0.53	0.54	0.50	0.61	0.48	n/a	n/a
SOL	.651***																
OAA	.513***	.676***															
CRC	.517***	.683***	.613***														
EMR	.452***	.620***	.688***	.660***													
CCT	.297***	.400***	.472***	.409***	.503***												
SGA	.291***	.379***	.476***	.589***	.400***	.423***											
BPG	.306***	.500***	.469***	.495***	.362***	.436***	.715***										
FPF	.303**	.413***	.422***	.495***	.410***	.562***	.564***	.614***									
SVV	.418***	.385***	.382***	.343***	.389***	.381***	.415***	.509***	.403***								
OLC	.243***	.334***	.415***	.430***	.440***	.289***	.472***	.488***	.370***	.610***							
CMK	.412***	.597***	.575***	.594***	.639***	.474***	.413***	.562***	.398***	.518***	.481***						
MIS	.314***	.394***	.552***	.551***	.528***	.295***	.583***	.485***	.415***	.469***	.509***	.614***					
VCP	.296***	.500***	.403***	.481***	.437***	.278***	.414***	.463***	.387***	.455***	.355***	.645***	.443***				
INC	.340***	.396***	.434***	.506***	.433***	.240***	.462***	.441***	.285***	.475***	.444***	.672***	.755***	.553***			
FS	.042	.073	.123	.157	-.008	-.070	.227***	.185	.060	.029	.003	.051	.038	.072	.133		
FA	-.115	.030	.082	.072	.071	-.137	-.007	.071	-.042	-.071	.001	-.015	.219**	-.126	.171**	.262***	1.000

*** Correlation is significant at the 0.01 level (2-tailed), ** Correlation is significant at the 0.05 level (2-tailed)

Hypothesis Testing and Results

Multiple regressions by Ordinary Least Squares (OLS) regression were utilized to verify the hypotheses. The regression equation generated was a linear combination of the independent variables that best explained and predicted the dependent variable (Aulakh et al., 2000). Therefore, OLS was an appropriate method for examining the hypothesized relationships. In this research, all hypotheses were transformed into 17 equations. Furthermore, there were two dummy variables: firm size and firm age which were consistent with the data collection included in those equations for testing.

The Relationship between Each Dimension of Value Chain Costing Capability and Its Consequences

As shown in Figure 5, the relationships of each dimension of value chain costing capability and its consequences are represented in hypotheses H1a-d to H5a-d. A positive relationship is posited in each hypothesis. Thus, these hypotheses can be converted to the regression equation in Models 1, 2, 4, and 6, respectively.

Figure 5 The Relationship of Each Dimension of Value Chain Costing Capability and Its Consequences

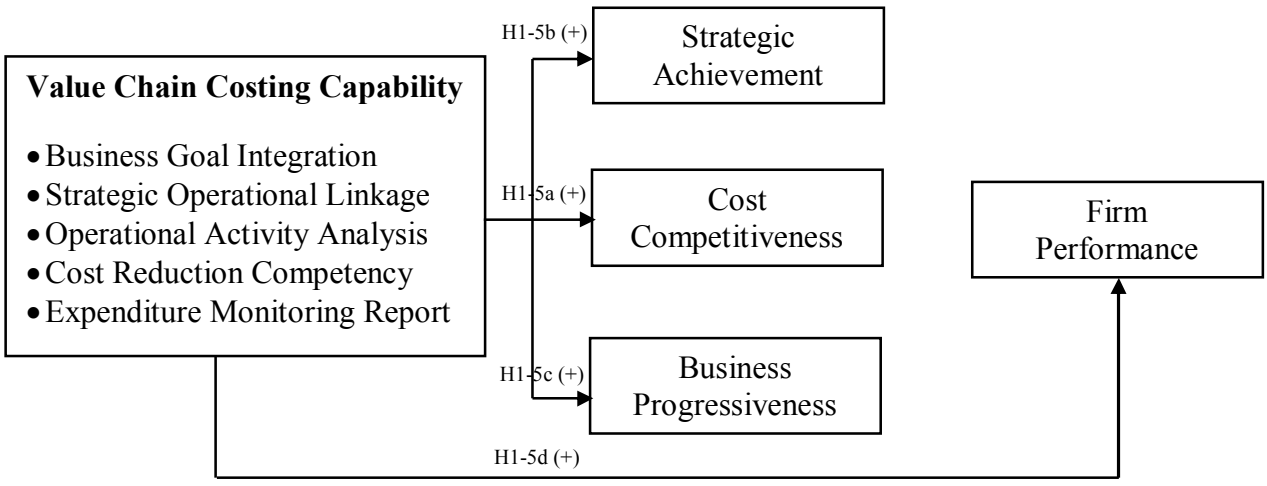


Table 9 demonstrates the correlation among each dimension of value chain costing capability and its consequences. Firstly, the relationship of the business goal integration focus had a positive correlation to cost competitiveness ($r = 0.297$, $p < 0.01$), strategic achievement ($r = 0.291$, $p < 0.01$), business progressiveness ($r = 0.306$, $p < 0.01$), and firm performance ($r = 0.303$, $p < 0.01$). Secondly, strategic operational linkage had a positive and significant correlation to cost competitiveness ($r = 0.400$, $p < 0.01$), strategic achievement ($r = 0.379$, $p < 0.01$), business progressiveness ($r = 0.500$, $p < 0.01$), and firm performance ($r = 0.413$, $p < 0.01$). Thirdly, operational activity analysis had a positive and significant correlation to cost competitiveness ($r = 0.472$, $p < 0.01$), strategic achievement ($r = 0.476$, $p < 0.01$), business progressiveness ($r = 0.469$, $p < 0.01$), and firm performance ($r = 0.422$, $p < 0.01$). Fourthly, cost reduction competency had a positive and significant correlation to cost competitiveness ($r = 0.409$, $p < 0.01$), strategic achievement ($r = 0.589$, $p < 0.01$), business progressiveness ($r = 0.495$, $p < 0.01$), and firm performance ($r = 0.495$, $p < 0.01$). Secondly, strategic operational linkage had a positive and significant correlation to cost competitiveness ($r = 0.400$, $p < 0.01$), strategic achievement ($r = 0.379$, $p < 0.01$), business progressiveness ($r = 0.500$, $p < 0.01$), and firm performance ($r = 0.413$, $p < 0.01$).

Last, expenditure monitoring report had a positive and significant correlation to cost competitiveness ($r = 0.503$, $p < 0.01$), strategic achievement ($r = 0.400$, $p < 0.01$), business progressiveness ($r = 0.362$, $p < 0.01$), and firm performance ($r = 0.410$, $p < 0.01$). Interestingly, as shown in Table 11, it is indicated that all inter-correlations do not exceed 0.80 which is advised by Hair et al. (2010).Table 12 reveals that the maximum value of VIF is 1.127, which is not exceeding 10 in the scale (Hair et al., 2010). Therefore, both VIF and correlations certify that multicollinearity problems do not occur.

Table 9 Descriptive Statistics and Correlation Matrix of Each Dimension of Value Chain Costing Capability and Its Consequences

Variables	BGI	SOL	OAA	CRC	EMR	CCT	SGA	BPG	FPF	FS	FA
Mean	4.08	3.91	3.91	4.02	3.98	3.54	3.71	3.76	3.91	n/a	n/a
S.D.	0.34	0.48	0.48	0.52	0.57	0.50	0.56	0.56	0.66	n/a	n/a
SOL	.651***										
OAA	.513***	.676***									
CRC	.517***	.683***	.613***								
EMR	.452***	.620***	.688***	.660***							
CCT	.297***	.400***	.472***	.409***	.503***						
SGA	.291***	.379***	.476***	.589***	.400***	.423***					
BPG	.306***	.500***	.469***	.495***	.362***	.436***	.715***				
FPF	.303**	.413***	.422***	.495***	.410***	.562***	.564***	.614***			
FS	.042	.073	.123	.157	-.008	-.070	.227***	.185	.060		
FA	-.115	.030	.082	.072	.071	-.137	-.007	.071	-.042	.262***	1.000

**** Correlation is significant at the 0.01 level (2-tailed), ** Correlation is significant at the 0.05 level (2-tailed)

Table 10 Results of Regression Analysis for the Relationships between Each Dimension of Value Chain Costing Capability and Its Consequences

Independent Variables	Dependent Variables			
	CCT (Model 1)	SGA (Model 2)	BPG (Model 4)	FPF (Model 6)
BGI : H1a-d	**.156****	-.008	**.155****	.102
	(.068)	(.064)	**(.068)**	(.071)
SOL : H2a-d	.046	**.216****	**.126****	**.157****
	(.069)	**(.065)**	**(.069)**	**(.072)**
OAA : H3a-d	**.207****	**.312*****	**.380*****	**.219****
	(.068)	**(.064)**	**(.068)**	**(.071)**
CRC : H4a-d	**.210****	**.413*****	**.323*****	**.329*****
	(.068)	**(.064)**	**(.069)**	**(.071)**
EMR : H5a-d	**.460*****	**.218****	**.141****	**.288*****
	(.069)	**(.064)**	**(.068)**	**(.071)**
FS	-.135	**.347***	.235	.048
	(.141)	**(.134)**	(.142)	(.148)
FA	**-.352****	-.210	.013	-.183
	(.143)	(.136)	(.144)	(.150)
Adjusted R^2	**0.309**	**0.382**	**0.306**	**0.249**
Maximum VIF	**1.127**	**1.127**	**1.127**	**1.127**

Beta coefficients with standard errors in parenthesis, *** p<0.01, ** p<0.05, * p<0.10

Table 10 demonstrates the hypothesis testing results. The results indicated that the coefficients of business goal integration had a positive and significant impact on cost competitiveness (H1a: β_1 = 0.156, p<0.05), and business progressiveness (H1c: β_{18} = 0.155, p<0.05). Likewise, business goal integration by using real-time performance control tool could be able to manage cost of production in firm effectively which resulted in business progressiveness (Ludwig and Goomas, 2009). It is suggested that business goal integration is the way of business progressiveness which is used as a guideline for administration from various departments in common direction effectively and competitively in the future. It is used as a guideline for administration from various agencies to be in the same direction effectively and competitively in the future (Smith, 2013; Stein, 2012).

On the other hand, business goal integration had no significant relationship with strategic achievement (H1b: β_8 = -0.008, p>0.10) and firm performance (H1d:

β_{28} = 0.102, p>0.10). Business goal integration had no positive result in strategic of firm achievement and operational in radical competition context (Buhovac and Slapnicar, 2007). Because of the integration of corporate policies and plans need more influential factors such as the attitude of executive and communicative quality. Similarly, prior research mentioned that cross-functional integration and communication quality had positive correlation with strategic creativity (Stater et al., 2010). Business goal integration with the production process using environmentally-friendly packing, reducing wastes during production, replacing non-recyclable materials and so on did not have positive effects on financial performance (Zhang and Li, 2017). This could be explained that such production process needed to invest on production process at the beginning, resulting in higher cost with less quantity of product sales. This might also be explained that this production process needed new specialized production skills and it might cause the different appearances of the products and took time to be adapted for customers' satisfaction. Therefore, business goal integration had no associate with both strategic achievement and firm performance. ***Hence, Hypotheses 1a and 1c were supported but Hypotheses 1b and 1d are not.***

Next, the relationship of strategic operational linkage had a positive and significant impact on strategic achievement (H2b: β_9 = 0.216, p<0.05), business progressiveness (H2c: β_{19} = 0.126, p<0.05) and firm performance (H2d: β_{29} = 0.157, p<0.05). Furthermore, strategic operational linkage was important in operation which linked data and operational for personnel in the organization to understand and motivate employee operation in order to achieve the goal for good result in operation and progress in business (Valmohammadi and Servate, 2011). Likewise, previous studied showed positive correlation between strategic operational linkage, firm performance, and market share (Cadez and Guilding, 2007; Tallon, 2012). Besides, the operational linkage could increase the ability of the firm to implement strategies, such as quick and effective responses to market forces, improvement of responses to customer needs (Ensign, 2001). Firm performance and business progressiveness should stem from the firm that links their strategies to quality improvement, reduced leading times, inventories and production cost, including having best managerial accounting practice (Cinquini and Tenucci, 2010).

On the other hand, strategic operational linkage had no significant relationship with cost competitiveness (H2a: $\beta_2 = 0.046$, $p>0.10$). Related with the results from Parnell (2011), it is referred to that there is no positive correlation between strategic operational linkage and financial performance disputed that the link of strategic and operation are not enough for the other factors such as the quality of co-working and internal communication. Likewise, competitive competency did not lie on link of strategic only (Tomas and Olson, 2010). Therefore, strategic operational linkage had no associate with both cost competitiveness. ***Hence, Hypotheses 2b, 2cand 2d were supported but Hypotheses 2a is not.***

Interestingly, the coefficients of operational activity analysis had a positive and significant impact on cost competitiveness (H3a: $\beta3 = 0.207$, $p<0.05$), strategic achievement (H3b: $\beta11 = 0.312$, $p<0.01$), business progressiveness (H3c: $\beta20 = 0.380$, $p<0.01$), and firm performance (H3d: $\beta30 = 0.219$, $p<0.05$). This might be because the firm had to specify good operation guidelines, to analyze the benefits of each operational activity, and to set systematic concrete direction and plan. Thus, these results were according to the effective operating activity analysis, and were able to improve capability in competition in order to achieve the mission to bring about a good progressive operation of the firm (Prajogo et al., 2008). In addition, competition at present affected various firms which needed operating activity analysis in order to increase the progress of business and more effective in competitive competency (Hutaibat, 2011). Moreover, progressive activity analysis infirm was the indicators of success in the strategic goals of the business as well (Taylor, 2005). Operational activity analysis impacted the activities contribute to the process of adding value to a product. Also, there was an emphasis on the importance of coordination of the linkages and interrelationships among activities (Ensign, 2001). Operational activity analysis of the firm could only reduce the costs but also improve the product value, so as to form the core competitiveness of enterprises (Bin and Shijuan, 2005). Moreover, operational activity analysis (value-creating activity, interdependent network, supplier-customer relationship, and continuous improvement) played a significant role in determining business outcomes (Ussahawanitchakit, 2017). ***Therefore, Hypotheses 3a, 3b, 3c and Hypotheses 3d were supported.***

The coefficients of cost reduction competency had a positive and significant impact on cost competitiveness (H4a: $\beta_4 = 0.210$, $p<0.05$), strategic achievement (H4b: $\beta_{11} = 0.413$, $p<0.01$), business progressiveness (H4c: $\beta_{21} = 0.323$, $p<0.01$), and firm performance (H4d: $\beta_{31} = 0.329$, $p<0.01$). The firm's production cost in the past and at present were analyzed and planned to reduce non-performing activities, and to evaluate the worth of the invested cost accurately and beneficially for decision-making. Moreover, value chain costing was an instrument for controlling all operational involvement for cutting costs and enabling effective resource management (Timmer et al., 2014). Further, cost reduction competency by value chain costing had a positive correlation in successful production competition and firm performance (Grigore, 2013). Besides, success in cost-effective competition for products affected in both time and cost reduction, as well as achievement of the goals set for better performance (Wahl and Bull, 2014). Likewise, cost reduction competency related to operational management of which all stages in the value chain contain technology commercialization, commitment, organization and growth that must take place (Joglekar and Levesque, 2013).

Therefore, Hypotheses 4a, 4b, 4c and Hypotheses 4d were supported.

The coefficients of expenditure monitoring report had a positive and significant impact on cost competitiveness (H5a: $\beta_5 = 0.460$, $p<0.01$), strategic achievement (H5b: $\beta_{12} = 0.218$, $p<0.05$), business progressiveness (H5c: $\beta_{22} = 0.141$, $p<0.05$), and firm performance (H5d: $\beta_{32} = 0.288$, $p<0.05$). This is because the firm had to identify, analyze, check, and present the expense information in each step of the working procedure accurately, timely and conformingly to the real situations. Research suggested that expenditure monitoring report was an operating evaluation investigation process for achieving the goal in good production management of the firm (Wu and Hung, 2008). Besides, the firm needed correct and punctual evaluating process which could be investigated by evidence that lead to the reliability of the data in business for enhancing your firm's competitiveness and successfulness (Pitkanen and Lukka, 2011). Expenditure monitoring report was presented to the management on the basis of accuracy, timeliness, completeness, and transparency which indicated the clear source including information presented carefully and neutrally benefiting management decision-making. It suggested that the expenditure monitoring affected cost competitiveness, strategic achievement, business progressiveness, and firm performance

(Gramling and Hemanson, 2007). ***Therefore, Hypotheses 5a, 5b, 5c and Hypotheses 5d were supported***.

For the control variable, the results do not find the relationships among firm size, cost competitiveness (β_6 = -.135, p > .05), business progressiveness (β_{23} = .235, p > .05), and firm performance (β_{33} = .048, p > .05). The result showed that firm size did not impact cost competitiveness, business progressiveness, and firm performance. However, the findings showed that firm size had a significant positive effect on strategic achievement (β_{13}= .347, p > .10). This was consistent with prior studies which suggested that firm size is an important factor in the design of certain characteristics of value chain capability, as large organizations have more resources to finance the introduction of new systems and modern techniques in cost information for the firm (Joshi, 2001).

Lastly, the results indicated that firm age had a significant negative relationship with cost competitiveness (β_7 = -.352, p < .05). This was interpreted that a firm with more than 15 years in business operation had less operational cost effectiveness. This might be caused a new business likely involves innovation and it is easy to welcome innovation and accept new ideas (Ciabuschi et al., 2012). However, firm age did not reflect a focus on strategic achievement (β_{14} = -.210, p > .05), business progressiveness (β_{24} = .013, p > .05), and firm performance (β_{34}= -.183, p > .05). It might imply that firm age did not impact strategic achievement, business progressiveness, and firm performance.

<u>The Relationships among Cost Competitiveness, Strategic Achievement, Business Progressiveness, and Firm Performance</u>

As shown in Figure 6, the consequences of value chain costing capability shows relationships among cost competitiveness, strategic achievement, business progressiveness, and firm performance. This research purposed that all constructs with positive relationships were developed in Hypotheses 5-7. Also, these hypotheses were converted to the regression equations 3, 5, and 7.

Figure 6 The Relationship among Cost Competitiveness, Strategic Achievement, Business Progressiveness, and Firm Performance

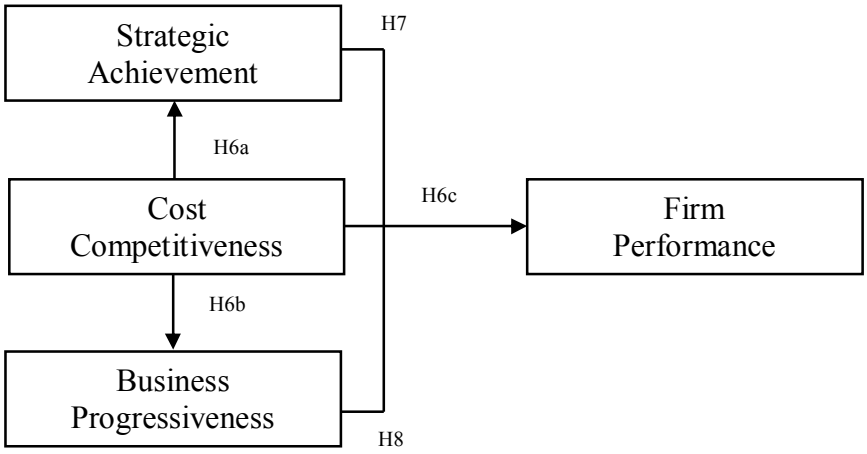


Table 11 Descriptive Statistics and Correlation Matrix of Value Chain Costing Capability, Cost Competitiveness, Strategic Achievement, Business Progressiveness and Firm Performance

Variables	CCT	SGA	BPG	FPF	FS	FA
Mean	3.54	3.71	3.76	3.91	n/a	n/a
S.D.	0.50	0.56	0.56	0.66	n/a	n/a
SGA	.423***					
BPG	.436***	.715***				
FPF	.562***	.564***	.614***			
FS	-.070	.227***	.185	.060		
FA	-.137	-.007	.071	-.042	.262***	1.000

*** Correlation is significant at the 0.01 level (2-tailed),
** Correlation is significant at the 0.05 level (2-tailed)

Table 11 demonstrates the correlation among cost competitiveness, strategic achievement, business progressiveness, and firm performance. The results indicate that cost competitiveness was positively correlated to strategic achievement ($r = 0.423$, $p < 0.01$), business progressiveness ($r = 0.436$, $p < 0.01$), and firm performance ($r = 0.562$, $p < 0.01$). Moreover, not only strategic achievement had a positive, significant correlation to firm performance ($r = 0.564$ $p < 0.01$), but also business

progressiveness had a positive, significant correlation to firm performance (r = 0.614, p < 0.01). These results indicate that the correlation do not exceed 0.80 which is recommended by Heir et al. (2010). Correspondently, Table 14 reveals that the maximum value of VIF is 1.090, which is not exceeding 10 in the scale (Hair et al., 2010). Therefore, both VIF and correlations were certified not to have multicollinearity problems.

Table 12 Results of Regression Analysis for the Relationships among Cost Competitiveness, Strategic Achievement, Business Progressiveness, and Firm Performance

Independent Variables	**Dependent Variables**		
	SGA (Model 3)	**BPG (Model 5)**	**FPF (Model 7)**
CCT : H6a-c	**.439*** (.072)**	**.461*** (.072)**	**.331*** (.068)**
SGA : H7	-	-	**.183** (.087)**
BPG : H8	-	-	**.343** (.087)**
FS	**.523** (.148)**	**.390** (.148)**	-.036 (.126)
FA	-.031 (.149)	.164 (.149)	-.030 (.123)
Adjusted R^2	**.230**	**.228**	**.482**
Maximum VIF	**1.090**	**1.090**	**1.090**

Beta coefficients with standard errors in parenthesis, *** p<0.01, ** p<0.05

As shown in Table 12, cost competitiveness had a positive effect with strong significance on strategic achievement (H6a: β_{15} = 0.439, p<0.01), business progressiveness (H6b: β_{25} = 0.461 p<0.01), and firm performance (H6c: β_{35} = 0.331, p<0.01). It means that the firms had the best cost competitiveness. The cost competitiveness was an instrument for enhancing firm growth from lower cost applications and for creating competitive advantage. This might be because firms possessed an effective operation line with short production period, quick and correct

delivery, distinctive and creative products and continuously lower operation cost. Cost management made the firm having cost competitiveness because the well-management of resource and labor appropriately helped decrease mistake from cost management by making progressiveness and good performance for the business (Custer, 2014). Moreover, cost competitiveness could generate stakeholder's acceptance from price to quality suitable for production which helped the firm achieve the purpose (Fayard, 2014). Besides, the executive could make a decision in changing the situation if the firm had cost competitiveness which resulted in the success and competitive advantage of the firm (Kren, 2014; Lari and Asllani, 2013). ***Thus, Hypotheses 6a, 6b, and 6c were supported.***

As shown in Model 7, strategic achievement had a positive and strong significant impact on firm performance (H7: $\beta_{36} = 0.183$, $p<0.05$). This means that the professional management should possess abilities to maintain a competitive level at the present and future, and to achieve organizational goals with the good quality operation. Accordingly, an empirical study suggested that data of well cost management and good quality make the firm have capacity in strategic achievement which led to sustainable competitive advantages (Cinquini and Tenucci, 2008). Further, strategic goal achievement had a positive correlation with the result of the firm operation for survival (Ninlaphay and Ussahawanitchakit, 2012). Also, strategic goal achievement had relation to competitive advantage and survival of organization continuously (Laonamtha, Ussahawanitchakit, and Boonlua, 2013). ***As a result, Hypothesis 7*** was ***supported.***

As shown in Model 7, business progressiveness had a positive and strong significant impact on firm performance (H8: $\beta_{37} = 0.343$, $p<0.05$). This means that business progressiveness could be the key to global business competitiveness. This indicated that firms should possess an operating system with new technology, production techniques for quality products, and the ability to serve the market demand continuously in uncertain situations. Likewise, it was the potential and ability to perform all aspects that were excellent, recognized both internally and externally in the organization; and outperforms their competitors in the same industry (Rabinovich, Dresner, and Evers, 2003). Similarly, prior research found that business progressiveness had a positive correlation with increasing firm performance (Valacience and Gimzauskiene, 2007). Accordingly, radical competition, many organizations were

searching for the good operation to make business progress to help the firm achieve the goal and good performance (Gordon, Loeb, and Tseng, 2009). ***As a result, Hypothesis 8 was supported.***

For the control variable, the results did not find the relationships among firm size and firm performance (β_{36} = -0.036, p > 0.05). The result showed that firm size did not impact firm performance. However, the findings showed that firm size had a significant positive effect on strategic achievement (β_{16}= 0.523, p < 0.05), business progressiveness (β_{26}= 0.390, p < 0.05). This result showed that a large firm had more strategic achievement and business progressiveness than a small firm. Lastly, the results indicated that firm age did not reflect a focus on strategic achievement (β_{17} = -.031, p > .05), business progressiveness (β_{24} = .164, p > .05), and firm performance (β_{34}= -.030, p > .05). It may imply that firm age did not impact strategic achievement, business progressiveness, and firm performance.

The Relationships among the Antecedents, Dimension of Value Chain Costing Capability, and the Moderating Role of Innovative Climate

As shown in Figure 7, the relationships were demonstrated with all antecedents and each dimension of value chain costing capability in H9 (a-e) – 13(a-e). These relationships were predicted to have a positive effect. The hypotheses could be converted to the regression equation from Model 9 to Model 13. Additionally, the moderating effect of innovative climate was also proposed to have a positive direction between antecedents and each dimension of value chain costing capability that were represented in H14 (a-e) – H18 (a-e). Accordingly, the implementation of regression equations could convert these hypotheses to Model 14-18.

Figure 7 The Relationships among Antecedent of Value Chain Costing Capability, and Innovative Climate as a Moderating Effect

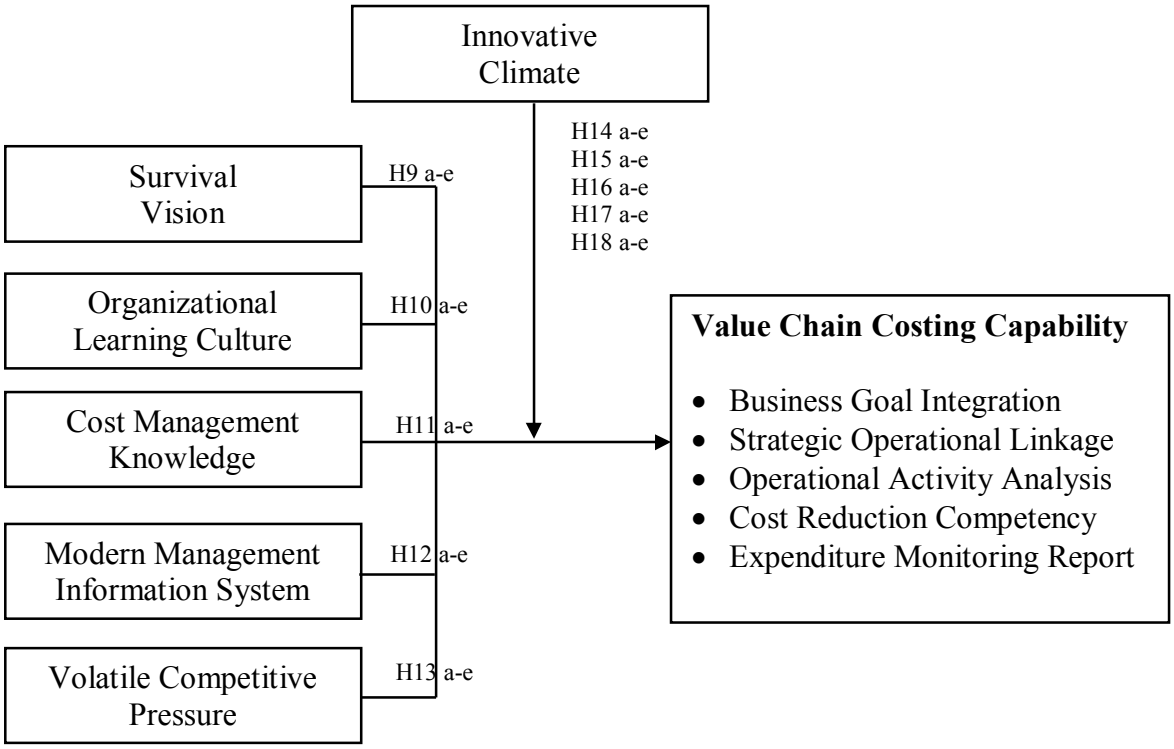


Table 13 illustrates the correlations among survival vision, organizational learning culture, cost management knowledge, modern management accounting system, volatile competitive pressure and each dimension of value chain costing capability. The elaboration of inter-correlation is described as follows. Firstly, survival vision was positively correlated to business goal integration ($r = 0.418$, $p < 0.05$), strategic operational linkage ($r = 0.385$, $p < 0.05$), operational activity analysis ($r = 0.382$, $p < 0.05$), cost reduction competency ($r = 0.343$, $p < 0.05$) and expenditure monitoring report ($r = 0.389$, $p < 0.05$). Secondly, organizational learning culture was positively correlated to business goal integration ($r = 0.243$, $p < 0.05$), strategic operational linkage ($r = 0.334$, $p < 0.05$), operational activity analysis ($r = 0.415$, $p < 0.05$), cost reduction competency ($r = 0.430$, $p < 0.05$) and expenditure monitoring report ($r = 0.440$, $p < 0.05$). Thirdly, cost management knowledge was positively correlated to business goal integration ($r = 0.412$, $p < 0.05$), strategic operational linkage ($r = 0.597$, $p < 0.05$), operational activity analysis ($r = 0.575$, $p < 0.05$), cost reduction competency ($r = 0.594$,

$p < 0.05$) and expenditure monitoring report ($r = 0.639$, $p < 0.05$). Fourthly, modern management information system was positively correlated to business goal integration ($r = 0.314$, $p < 0.05$), strategic operational linkage ($r = 0.394$, $p < 0.05$), operational activity analysis ($r = 0.552$, $p < 0.05$), cost reduction competency ($r = 0.551$, $p < 0.05$) and expenditure monitoring report ($r = 0.528$, $p < 0.05$).

Lastly, volatile competitive pressure was positively correlated to business goal integration ($r = 0.296$, $p < 0.05$), strategic operational linkage ($r = 0.500$, $p < 0.05$), operational activity analysis ($r = 0.403$, $p < 0.05$), cost reduction competency ($r = 0.481$, $p < 0.05$) and expenditure monitoring report ($r = 0.437$, $p < 0.05$). These correlations indicated that no variable was correlated to more than 0.80 as in the scale. Additionally, as shown in Table 16, it also demonstrates that the maximum VIF is 5.709 that do not exceed 10 (Hair et al., 2010). Thus, both correlations and the VIF were certified not to occur with multicollinearity problems.

Table 13 Descriptive Statistics and Correlation Matrix of Antecedent, Dimensions of Value Chain Costing Capability, and Innovative Climate

Variables	BGI	SOL	OAA	CRC	EMR	SVV	OLC	CMK	MIS	VCP	INC	FS	FA
Mean	4.08	3.91	3.91	4.02	3.98	4.16	3.89	3.98	3.94	4.10	4.06	n/a	n/a
S.D.	0.34	0.48	0.48	0.52	0.57	0.39	0.53	0.54	0.50	0.61	0.48	n/a	n/a
SOL	.651***												
OAA	.513***	.676***											
CRC	.517***	.683***	.613***										
EMR	.452***	.620***	.688***	.660***									
SVV	.418***	.385***	.382***	.343***	.389***								
OLC	.243***	.334***	.415***	.430***	.440***	.610***							
CMK	.412***	.597***	.575***	.594***	.639***	.518***	.481***						
MIS	.314***	.394***	.552***	.551***	.528***	.469***	.509***	.614***					
VCP	.296***	.500***	.403***	.481***	.437***	.455***	.355***	.645***	.443***				
INC	.340***	.396***	.434***	.506***	.433***	.475***	.444***	.672***	.755***	.569***			
FS	.042	.073	.123	.157	-.008	.029	.003	.051	.038	.054	.113		
FA	-.115	.030	.082	.072	.071	-.071	.001	-.015	.219***	-.104	.206**	.261***	1.000

*** Correlation is significant at the 0.01 level (2-tailed), ** Correlation is significant at the 0.05 level (2-tailed)

Table 14 The Relationships among Dimensions of Value Chain Costing Capability, Its Antecedents, and Innovative Climate

Independent Variables		Dependent Variables									
		BGI		SOL		OAA		CRC		EMR	
		Model 8	Model 13	Model 9	Model 14	Model 10	Model 15	Model 11	Model 16	Model 12	Model 17
SVV	(H9a-e)	**.306****	**.272****	.070	.109	.003	.058	-.110	-.145	-.037	.001
		(.099)	**(.100)**	(.089)	(.094)	(.087)	(.090)	(.084)	(.089)	(.083)	(.086)
OLC	(H10a-e)	-.112	-.026	.022	.036	.101	.105	**.162***	**.210****	**.154****	**.169****
		(.097)	(.096)	(.087)	(.090)	(.086)	(.086)	**(.083)**	**(.086)**	**(.081)**	**(.083)**
CMK	(H11a-e)	**.260****	.182	**.437*****	**.421*****	**.335****	**.285****	**.311****	**.289****	**.405*****	**.370****
		(.111)	(.123)	**(.100)**	**(.115)**	**(.098)**	**(.110)**	**(.095)**	**(.110)**	**(.093)**	**(.106)**
MIS	(H12a-e)	.114	.058	-.019	.050	**.280****	**.393*****	**.259****	**.276****	.076	**.190***
		(.102)	(.117)	(.092)	(.110)	**(.091)**	**(.104)**	**(.088)**	**(.104)**	(.086)	**(.100)**
VCP	(H13 a-e)	-.043	-.012	**.194****	**.228****	.020	.109	**.150***	**.175***	**.214****	**.271****
		(.098)	(.101)	**(.088)**	**(.095)**	(.087)	(.090)	**(.084)**	**(.090)**	**(.082)**	**(.087)**
INC			.152		-.129		-.167		.002		-.175
			(.126)		(.118)		(.113)		(.113)		(.108)
SVV x INC	(H14 a-e)		**.309****		-.048		-.023		-.146*		-.067
			(.093)		(.087)		(.083)		(.083)		(.080)
OLC x INC	(H15 a-e)		-.015		-.012		-.213**		.055		-.075
			(.103)		(.096)		(.092)		(.092)		(.088)
CMK x INC	(H16 a-e)		.168		.086		**.284****		.091		.162
			(.126)		(.118)		**(.113)**		(.112)		(.108)
MIS x INC	(H17 a-e)		.098		.013		-.022		.086		-.042
			(.093)		(.087)		(.083)		(.083)		(.080)
VCP x INC	(H18 a-e)		-.084		-.079		-.113		-.096		-.108
			(.116)		(.109)		(.103)		(.103)		(.099)
FS		.108	.150	.037	.023	.184	.168	.248	**.293***	-.146	-.143
		(.151)	(.178)	(.136)	(.141)	(.134)	(.134)	(.129)	**(.152)**	(.127)	(.129)
FA		**-.268***	**-.411****	.130	.126	.008	.003	-.005	.064	.208	.201
		(.161)	**(.192)**	(.145)	(.149)	(.143)	(.142)	(.138)	(.164)	(.135)	(.137)
Adjusted R^2		**0.212**	**0.275**	**0.359**	**0.361**	**0.382**	**0.421**	**0.424**	**0.422**	**0.445**	**0.464**
Maximum VIF		**2.353**	**5.709**	**2.353**	**5.709**	**2.353**	**5.709**	**2.353**	**5.709**	**2.353**	**5.709**

Beta coefficients with standard errors in parenthesis, *** p<0.01, ** p<0.05, * p<0.10

The results of multiple regression analysis are illustrated in Table14, description is as follows.

Firstly, the results demonstrated that survival vision was positively and significant related to business goal integration (H9a: β_{40} = 0.306, p< 0.05). Likely, setting clear vision was linked to the capability of policy setting, the purpose of firm achievement linked with operation plan and improvement in each day (Haylock, 2011; Holder and Thomas, 2005). Moreover, setting vision was a form of organization in order to make understanding about the firm environment in setting an objective for business goal integration (Foster and Akdere, 2007; Pugna and Boldeanu, 2014). ***Therefore, Hypotheses 9a was supported.***

However, the findings of survival vision were not significant for strategic operational linkage (H9b: β_{60} = 0.070, p>0.05), operational activity analysis (H9c: β_{80} = 0.003, p>0.05), cost reduction competency (H9d: β_{100} = -0.110, p>0.05), and expenditure monitoring report (H9e: β_{120} = -0.037, p>0.05). The survival vision of the business was difficult to integrate into all capabilities for setting the vision and continuous adjustment of vision to conform to the current business situation. When survival vision was inappropriate to the present business environment, it made the firm overlook existing value resources for operational control. This result indicated that if a firm's survival vision was not up to date, it caused the firm to omit the usefulness of strategic operational linkage, operational activity analysis, cost reduction competency and expenditure monitoring report. Similarly, clear vision was linked with the ability to set policy, enable goal achievement and connect mind-mapping for following the performance of the firm and improving its day-to-day operations (Haylock, 2011). In addition, the firm should integrate its body of knowledge, skills, and situation assessments (Koury, 2010). ***Thus, Hypotheses 9b, 9c, 9d and Hypotheses 9e were not supported.***

Secondly, the findings of organizational learning culture was positively and significantly related to cost reduction competency (H10d: β_{101} = 0.162, p<0.05) and expenditure monitoring report (H10e: β_{121} = 0.154, p<0.05). According to data above, organizational learning culture could effectively solve the problem of production management. This means that the firm should have belief, value, and perception

of collaborative learning, knowledge sharing in the organization, and continuous presentation of new operation models Likewise, learning the culture of an organization in accounting resulted in a successful cost management and monitoring of the operations (King, 2009). Besides, learning culture in an organization could develop new knowledge from sharing employees experience in both productions and follow up reports resulted in the ability of the business operations (Bingham and Davis, 2012). ***Hence, Hypotheses 10d and 10e were supported.***

However, the findings of organizational learning culture were not significant for business goal integration (H10a: $\beta_{41} = 0.112$, $p>0.05$) and strategic operational linkage (H10b: $\beta_{61} = 0.022$) operational activity analysis (H10c: $\beta_{81} = 0.101$, $p>0.05$). According to this evidence, the organizational learning culture did not always have a good effect on business goal integration, strategic operational linkage, and operational activity analysis depending on the situation.

This result suggested that learning in an organization did not mean good effect to a business environment such as the competitors, the government, the environment, and society which all affected operational activity, business goal, and strategic operational linkage (Chitmun and Ussahawanitchakit, 2012). Besides, technology progress and rapid globalization affected the role of employees in organizations that need to be transformed in order to develop their knowledge and skills for changing needs and to create a learning culture in the organization to match the current situation (Lin, 2008). Moreover, the employee capability in learning was important to empower the management and operations of the employees to enhance the ability to manage the organization (Hall and Robinson, 2006). ***Thus, Hypotheses 10a, 10b and Hypotheses 10c were not supported.***

Thirdly, the results demonstrated that cost management knowledge was positively and significantly related to business goal integration (H11a: $\beta_{42} = 0.260$, $p< 0.10$), strategic operational linkage (H11b: $\beta_{62} = 0.437$, $p<0.05$), operational activity analysis (H11c: $\beta_{82} = 0.335$, $p<0.05$), cost reduction competency (H11d: $\beta_{102} = 0.311$, $p<0.05$), and expenditure monitoring report (H11e: $\beta_{122} = 0.405$, $p<0.05$). According to the above evidence, cost management knowledge supported the organization on value chain costing capability. This means the organization should be determined to learn and search for guidelines, to reduce non-performing activities and to evaluate the

performance accurately and suitably. Likewise, Cost management knowledge affected growth in manufacturing industry in terms of production costs and monitoring performance (Farazmand, 2014). This relation could be able to increase competitive capability in industries. Also, accounting competency was associated with successful cost accounting implementation (Tontiset and Ussahawanitchakit, 2010). Furthermore, higher cost accountant competency was related to cost reporting usefulness (Rattanaphaptham and Ussahawanitchakit, 2010). The reasonable basis for managerial accounting was to provide valuable, reliable, incremental and relevant information for administrators' decision-making. Besides, personnel experience in cost management is the ability of the business to influence the operation of the business to achieve the target in a good way (Andersson and Carlback, 2009). ***Therefore, Hypotheses 11a-e were supported.***

Fourthly, the examination of modern management information system was positively and significantly related to operational activity analysis (H12c: $\beta_{83} = 0.280$, $p<0.05$), and cost reduction competency (H12d: $\beta_{103} = 0.259$, $p<0.05$), and expenditure monitoring report (H12e: $\beta_{130} = 0.190$, $p< 0.05$). Moreover, modern management information system allowed the company to increase operational efficiency and reduces production costs. This means that the firm had determination of the organization on the system to collect and store the internal and external information of the organization in the past, present, and future by using information technology to support the operation and decision making in different ways This result related to management information systems was the infrastructure that supported information for executives of organization's current strategy to manage costs and reduce costs (Leong and Jarmoszko, 2010). Furthermore, an information management system supports the work of various parties to run the data at the right time, resulting in good cost management in the organization (Llic, Milicevic, and Cyetkovic, 2010). ***Therefore, Hypotheses 12c, Hypotheses 12d*, *and Hypotheses 12e were supported.***

Nevertheless, modern management information system had no significance to business goal integration (H12a: $\beta_{43}= 114$, $p > 0.05$), and strategic operational linkage (H12b: $\beta_{63} = -0.019$, $p>0.05$). According to the result above, modern information management system was a large and very complicated system that the data could be collected with difficulty. Moreover, it was concerned with confidentiality of

information and the people who deal with it must be competent and reliable. If this quantity was absent, the issue might not be relevant to business goal integration, strategic operational linkage, and expenditure monitoring report. Personnel in management information systems in the organization must be experienced and capable to have a good relationship with the use of information system (Kebede, 2010). Besides, factors in using information in information management systems depends on the quality of information, knowledge, understanding of the job and the useful time in order to make the planning decisions and the operation of the organization properly for executives (Lin, 2008). ***Thus, Hypotheses 12a, and Hypotheses 12b were not supported.***

Finally, the study found that volatile competitive pressure had positive and significant relation on strategic operational linkage focus (H13b: $\beta_{64} = 0.194$, $p<0.05$), cost reduction competency (H13d: $\beta_{104} = 0.150$, $p<0.05$), and expenditure monitoring report (H13e: $\beta_{124} = 0.214$, $p<0.05$). These results showed that volatile competitive pressure kept the business adapting to the rapidly changing business environment, keeping track of costs and production activities. Likewise, the business of manufacturing technology had been successfully achieved cost and decision-making goals for better control of production reporting activity (Gogus and Ozer, 2014). Besides, the external competitive pressures were changing rapidly (Laonamtha, Ussahawanitichakit, and Boonlua, 2013).Thus, businesses were trying to report, monitor performance and evaluate to reduce external uncertainties. ***Therefore, Hypotheses 13b, 13d and Hypotheses 13e were supported.***

However, the findings of volatile competitive pressure were not significant for business goal integration (H13a: $\beta_{44} = -0.043$, $p>0.05$), and operational activity analysis (H13c: $\beta_{84} = 0.020$, $p>0.05$). According to this study, volatile competitive pressure influenced both positive and negative on business performance or affects the operation in some cases. Further, business performance of a business was affected by environmental uncertainty, but some of these variables did not have a correlation (Yushan and Cavusgil, 2006; Sonnenfeld and Srinivasan, 2006). ***Thus, Hypotheses 13a and Hypotheses 13c were not supported.***

For the control variable, the results did not find the relationships among firm size, business goal integration ($\beta_{45} = .108$, $p > .05$), strategic operational linkage

(β_{65} = .037, p > .05), operational activity analysis (β_{85} = .184, p > .05), cost reduction competency (β_{105} = .248, p > .05), and expenditure monitoring report (β_{125} = -.146, p > .05). It might imply that firm size did not impact dimensions of value chain costing capability. Lastly, the results indicated that firm age did not reflect a focus on strategic operational linkage (β_{66} = .130, p > .05), operational activity analysis (β_{86} = .008, p > .05), cost reduction competency (β_{106} = -.005, p > .05), and expenditure monitoring report (β_{126}= .280, p > .05). However, the findings showed that firm age had a significant negative effect on strategic achievement (β_{41}= -.268, p > .05). It implied that the relationship between firm age and business goal integration was affected by the business operation of a firm with less than 15 years in operation. This might be because complexity in operation of firms with less than 15 years could resolve problem more easily than firms with long operation.

The Moderating Role of Innovative Climate

As shown in Table 16, the moderating effect of innovative climate on the relationships among antecedents and each dimension of value chain costing capability are elaborated as follows. Firstly, the interaction between innovative climate and survival vision was positively and significantly related to business goal integration (H14a: β_{52}= 0.309, p< 0.05). This evidence showed that innovative climate could help organizations integrate their ideas, knowledge, and organizational goals into the vision of the executives who see them as a viable organization. Likewise, encouragement of innovation is the responsibility of the senior management by creating an environment, an atmosphere and a culture of work that inserts strategies to work together (Sigual et al., 2006). ***Therefore, Hypotheses 14a was supported.***

However, innovative climate has no significant moderating effects on the relationship between survival vision and dimensions of value chain costing capability: strategic operational linkage (H14b: β_{73} = -0.048, p> 0.05), operational activity analysis (H14c: β_{93} = -0.023, p> 0.05), cost reduction competency (H14d: β_{113} = -0.146, p> 0.05), and expenditure monitoring report (H14e: β_{133} = -0.067, p> 0.05). Likewise, The failure of innovation application depends on firm's implementation ability (Hawley, 2016). Besides, an organization's perception of innovative climate depends on resource provision, time, funding, and manpower (Whittinghill, 2011). It could be interpreted

that innovative climate was a possible cause in value chain costing capability of the firm. Since the contexts of the electrical and electronic appliances businesses in Thailand were concerned with technological changes and rival's high competitive development, the managers may have to modify the organization vision with operational strategies. There was a link between modern production process and audit of expense report, but it might not conform to the current situations. According to contingency theory, ***Hypotheses 14b, 14c, 14d and Hypotheses 14e were not supported.***

Secondly, the moderating effect of innovative climate between organizational learning culture and each dimension of value chain costing capability had no positive significance on business goal integration (H15a: β_{54} = -0.015, p> 0.05), strategic operational linkage (H15b: β_{74} = -0.012, p> 0.05), operational activity analysis (H15c: β_{94} = -0.213, p< 0.05), cost reduction competency (H15d: β_{114} = 0.055, p> 0.05), and expenditure monitoring report (H15e: β_{134} = -0.075, p> 0.05). Furthermore, the comparison of six different organization climates, one of which included innovative climate with the result suggesting that innovative service climate was positively related to guest satisfaction (reducing cost from activities that help to retain existing customer) but not to financial performance (regarding cost reduction) (Baytalskaya, 2011). However, additional results suggested that the interaction between innovative service and leadership climate was associated with higher financial performance and guest satisfaction outcomes. Since the contexts of the electrical and electronic appliances businesses in Thailand were concerned with technological changes and rival's high competitive development, the mangers may have to support the organization learning culture with innovative climate such as the encouragement for research and development in production process, learning from government section at the initial stage. However, there may be disadvantages and risks on loss of technological confidence and trade confidence. ***Hence, Hypotheses 15a - 15e were not supported.***

Thirdly, the interaction between innovative climate and cost management knowledge was positively and significantly related of operational activity analysis (H16c: β_{95}= 0.284, p< 0.05). These empirical results were consistent; the important factor in the workplace can influence innovation in the innovative climate. The firms who deliver a sympathetic climate have a superior propensity to gain better benefits

from creative employees (Sun, Zhao, and Ya Chen, 2011). ***Therefore, Hypotheses 16c was supported.***

However, innovative climate had no significant, moderating effects on the relationship between cost management knowledge and dimensions of value chain costing capability: business goal integration (H16a: β_{55} = 0.168, p> 0.05), strategic operational linkage (H14c: β_{75} = 0.086, p> 0.05), cost reduction competency (H14d: β_{115} = 0.091, p> 0.05), and expenditure monitoring report (H14e: β_{135} = 0.162, p> 0.05). In addition, the organization's culture influences individuals' behavior (Sa'ari, Idrus, and Jaafar, 2016). Moreover, the failure of innovation application in a firm depends on firm's implementation ability. Since the contexts of the electrical and electronic appliances businesses in Thailand were concerned with technological changes and rival's high competitive development, staff's knowledge and capabilities was essential. For example, a production staff with fundamental knowledge, skill and workability was capable to take various responsibilities in the production lines. Similarly, a machine operator should learn and train to operate various types of machine to absorb knowledge and different skills. ***Thus, Hypotheses 16a, 16b, 16d and Hypotheses 16e were not supported.***

Fourthly, innovative climate had no significant moderating effects on the relationship between modern management information system and all dimension of value chain costing capability: business goal integration (H17a: β_{56} = 0.098, p> 0.05), strategic operational linkage (H17b: β_{76} = 0.013, p> 0.05), operational activity analysis (H17c: β_{96} = -0.022, p> 0.05), cost reduction competency (H17d: β_{116} = 0.086, p> 0.05), and expenditure monitoring report (H17e: β_{136} = -0.042, p> 0.05). Further, innovation employed in firm culture may be failed depending on firm's implementation ability (Hawley, 2016). The organizations with an innovative environment would enable organizations to connect their ideas and knowledge with the organization's goals, set guidelines for the strategic operational, rise analysis capability, increase cost reduction, and monitor competency, and lead to firm performance. Thus, the individuals interpreted a specific aspect of their work environment depending on climate perceptions (Scott, 1993). Since the contexts of the electrical and electronic appliances businesses in Thailand were concerned with technological changes and rival's high competitive development, more information technology system for modern organization

management should be applied in an organization. The staff cooperation was also increasingly needed because staff's capabilities had the effects on value chain costing capability. ***Therefore, Hypotheses 17a - 17e were not supported.***

Likewise, the findings provided evidence for the moderating effect of innovative climate on the relationships between five antecedents of value chain costing capability (survival vision, organizational learning culture, cost management knowledge, modern management information system and volatile competitive pressure and all dimensions of value chain costing capability: business goal integration (H18a: β_{57} = -0.084, p> 0.05), strategic operational linkage (H18b: β_{77} = -0.079, p> 0.05), operational activity analysis (H18c: β_{97} = -0.113, p> 0.05), cost reduction competency (H18d: β_{117} = -0.096, p> 0.05), and expenditure monitoring report (H18e: β_{137} = -0.108, p> 0.05), that were not positively significant. Besides, organizations that promote innovation in their operational practices could enhance better communication among project team members, integration of the design and construction disciplines, more efficient designs, development of unique ways of completing work and sharing of the lessons learned (Gambatese and Hallowell, 2011). Also, the innovation had an effect on successful project, exceed cost, quality, and schedule and safety goals. Since the contexts of the electrical and electronic appliances businesses in Thailand were concerned with technological changes and rival's high competitive development, the managers had to be able to quickly modify the production plan according to the customers' demands, conforming to laws, politics and economy, leading to no effect of the innovative climate on the value chain costing capability. ***Therefore, Hypotheses 18a - 18e were not supported.***

Summary

In brief, the main contents in this chapter present multiple regression analysis results from the analysis of the total of eighteen hypotheses. The findings indicated that business goal integration had a positive significant effect on cost competitiveness, and business progressiveness. Similarly, strategic operational linkage had a positive significant effect on strategic achievement, and business progressiveness. Furthermore, operational activity analysis had a positive significance on cost competitiveness,

strategic achievement, and business progressiveness. Also, cost reduction competency had a positive significant effect on cost competitiveness, strategic achievement, and business progressiveness. Interestingly, expenditure monitoring report had a strongly positive significance on among cost competitiveness, strategic achievement, business progressiveness, and firm performance. Powerfully, cost competitiveness had a positive significance among strategic achievement, business progressiveness, and firm performance. Also, strategic achievement and business progressiveness had a positive significance on firm performance as well.

Regarding the antecedent factors, survival vision had positive and significant effects on business goal integration. Meanwhile, organizational learning culture had positive significance on cost reduction competency and expenditure monitoring report. Cost management knowledge had a potential effect to promote each dimension of value chain costing capability Also, modern information management system had positive significance on operational activity analysis and cost reduction competency. In addition, volatile competitive pressure had positive significance on operational activity analysis cost reduction competency and expenditure monitoring report. As to the moderating effect of innovative climate, it did not play a moderating role between the antecedent and each dimension of value chain costing capability, except for interaction between survival vision and cost reduction competency.

It had a strong positive significance for enhancing the strategy of value chain costing capability. In summary, Hypotheses 3, 4, 5, 6, 7, 8, and 11 were significantly supported. Hypotheses 1, 2, 9, 10, 12, 13, 14 and 16 were partially supported. However, Hypotheses 15, 17, and 18 were not supported. The summary of the hypotheses results are provided in Table 15.

Table 15 Result Summary of Hypothesized Testing

Hypotheses	Description of Hypothesized Relationships	Results
H1a	Business goal integration is positively related to cost competitiveness.	Supported
H1b	Business goal integration is positively related to strategic achievement.	Not Supported
H1c	Business goal integration is positively related to business progressiveness.	Supported
H1d	Business goal integration is positively related to firm performance.	Not Supported
H2a	Strategic operational linkage is positively related to cost competitiveness.	Not Supported
H2b	Strategic operational linkage is positively related to strategic achievement.	Supported
H2c	Strategic operational linkage is positively related to c business progressiveness.	Supported
H2d	Strategic operational linkage is positively related to firm performance.	Supported
H3a	Operational activity analysis is positively related to cost competitiveness.	Supported
H3b	Operational activity analysis is positively related to strategic achievement.	Supported
H3c	Operational activity analysis is positively related to business progressiveness.	Supported
H3d	Operational activity analysis is positively related to firm performance.	Supported
H4a	Cost reduction competency is positively related to cost competitiveness.	Supported

Table 15 Result Summary of Hypothesized Testing (Continued)

Hypotheses	Description of Hypothesized Relationships	Results
H4b	Cost reduction competency is positively related to strategic achievement.	Supported
H4c	Cost reduction competency is positively related to business progressiveness.	Supported
H4d	Cost reduction competency is positively related to firm performance.	Supported
H5a	Expenditure monitoring report is positively related to cost competitiveness.	Supported
H5b	Expenditure monitoring report is positively related to strategic achievement.	Supported
H5c	Expenditure monitoring report is positively related to business progressiveness.	Supported
H5d	Expenditure monitoring report is positively related to firm performance.	Supported
H6a	Cost competitiveness is positively related to strategic achievement.	Supported
H6b	Cost competitiveness is positively related to business progressiveness.	Supported
H6c	Cost competitiveness is positively related to firm performance.	Supported
H7	Strategic achievement is positively related to firm performance.	Supported
H8	Business progressiveness is positively related to firm performance.	Supported
H9a	Survival vision is positively related to business goal integration.	Supported
H9b	Survival vision is positively related to strategic operational linkage.	Not Supported

Table 15 Result Summary of Hypothesized Testing (Continued)

Hypotheses	Description of Hypothesized Relationships	Results
H9c	Survival vision is positively related to operational activity analysis.	Not Supported
H9d	Survival vision is positively related to cost reduction competency.	Not Supported
H9e	Survival vision is positively related to expenditure monitoring report.	Not Supported
H10a	Organizational learning culture is positively related to business goal integration.	Not Supported
H10b	Organizational learning culture is positively related to strategic operational linkage.	Not Supported
H10c	Organizational learning culture is positively related to operational activity analysis.	Not Supported
H10d	Organizational learning culture is positively related to cost reduction competency.	Supported
H10e	Organizational learning culture is positively related to expenditure monitoring report.	Supported
H11a	Cost management knowledge is positively related to business goal integration.	Supported
H11b	Cost management knowledge is positively related to strategic operational linkage.	Supported
H11c	Cost management knowledge is positively related to operational activity analysis.	Supported
H11d	Cost management knowledge is positively related to cost reduction competency.	Supported
H11e	Cost management knowledge is positively related to expenditure monitoring report.	Supported
H12a	Modern management information system is positively related to business goal integration.	Not Supported

Table 15 Result Summary of Hypothesized Testing (Continued)

Hypotheses	Description of Hypothesized Relationships	Results
H12b	Modern management information system is positively related to strategic operational linkage.	Not Supported
H12c	Modern management information system is positively related to operational activity analysis.	Supported
H12d	Modern management information system is positively related to cost reduction competency.	Supported
H12e	Modern management information system is positively related to expenditure monitoring report.	Supported
H13a	Volatile competitive pressure is positively related to business goal integration.	Not Supported
H13b	Volatile competitive pressure is positively related to strategic operational linkage.	Supported
H13c	Volatile competitive pressure is positively related to operational activity analysis.	Not Supported
H13d	Volatile competitive pressure is positively related to cost reduction competency.	Supported
H13e	Volatile competitive pressure is positively related to expenditure monitoring report.	Supported
H14a	The relationship between survival vision and business goal integration as positively moderated by innovative climate.	Supported
H14b	The relationship between survival vision and strategic operational linkage as positively moderated by innovative climate.	Not Supported
H14c	The relationship between survival vision and operational activity analysis as positively moderated by innovative climate.	Not Supported

Table 15 Result Summary of Hypothesized Testing (Continued)

Hypotheses	Description of Hypothesized Relationships	Results
H14d	The relationship between survival vision and cost reduction competency as positively moderated by innovative climate.	Not Supported
H14e	The relationship between survival vision and expenditure monitoring report as positively moderated by innovative climate.	Not Supported
H15a	The relationship between organizational learning culture and business goal integration as positively moderated by innovative climate.	Not Supported
H15b	The relationship between organizational learning culture and strategic operational linkage as positively moderated by innovative climate.	Not Supported
H15c	The relationship between organizational learning culture and operational activity analysis as positively moderated by innovative climate.	Not Supported
H15d	The relationship between organizational learning culture and cost reduction competency as positively moderated by innovative climate.	Not Supported
H15e	The relationship between organizational learning culture and expenditure monitoring report as positively moderated by innovative climate.	Not Supported
H16a	The relationship between cost management knowledge and business goal integration as positively moderated by innovative climate.	Not Supported
H16b	The relationship between cost management knowledge and strategic operational linkage as positively moderated by innovative climate.	Not Supported

Table 15 Result Summary of Hypothesized Testing (Continued)

Hypotheses	Description of Hypothesized Relationships	Results
H16c	The relationship between cost management knowledge and operational activity analysis as positively moderated by innovative climate.	Supported
H16d	The relationship between cost management knowledge and cost reduction competency as positively moderated by innovative climate.	Not Supported
H16e	The relationship between cost management knowledge and expenditure monitoring report as positively moderated by innovative climate.	Not Supported
H17a	The relationship between modern management information system and business goal integration as positively moderated by innovative climate.	Not Supported
H17b	The relationship between modern management information system and strategic operational linkage as positively moderated by innovative climate.	Not Supported
H17c	The relationship between modern management information system and operational activity analysis as positively moderated by innovative climate.	Not Supported
H17d	The relationship between modern management information system and cost reduction competency as positively moderated by innovative climate.	Not Supported
H17e	The relationship between modern management information system and expenditure monitoring report as positively moderated by innovative climate.	Not Supported
H18a	The relationship between Volatile competitive pressure and business goal integration as positively moderated by innovative climate.	Not Supported

Table 15 Result Summary of Hypothesized Testing (Continued)

Hypotheses	Description of Hypothesized Relationships	Results
H18b	The relationship between Volatile competitive pressure and strategic operational linkage as positively moderated by innovative climate.	Not Supported
H18c	The relationship between Volatile competitive pressure and operational activity analysis as positively moderated by innovative climate.	Not Supported
H18d	The relationship between Volatile competitive pressure and cost reduction competency as positively moderated by innovative climate.	Not Supported
H18e	The relationship between Volatile competitive pressure and expenditure monitoring report as positively moderated by innovative climate.	Not Supported

CHAPTER V

CONCLUSION

The prior chapter illustrates the characteristics of the key informants and organizations, descriptive statistics, a correlation matrix, and hypotheses testing. In order to summarize comprehensive discovery, this chapter initially highlights the conclusion according to the research content, including the completion of all hypotheses outcomes provided in the figure format. Then, the discussion is on the theoretical and managerial contributions, the limitations, and future research directions.

The research examined the relationships among each dimension of value chain costing capability: cost competitiveness, strategic achievement, business progressiveness, and firm performance. In addition, survival vision, organizational learning culture, cost management knowledge; modern management information system and volatile competitive pressure were designed as the antecedents of value chain costing capability. Moreover, the innovative climate construct was considered as a moderating effect among antecedents and dimensions of value chain costing capability. During the business operation period, it was proposed as a control variable that was included in each equation of regression analysis.

This study investigated the key research question: “how does value chain costing capability relate to firm performance?” In addition, there were five detailed research questions. 1) How does each dimension of value chain costing capability have an influence on cost competitiveness, strategic achievement, business progressiveness, and firm performance? 2) How does cost competitiveness affect strategic achievement, business progressiveness, and firm performance? 3) How do strategic achievement and business progressiveness have an influence on firm performance? 4) How do survival vision, organizational learning culture, cost management knowledge, modern management information system and volatile competitive pressure have an influence each dimension of value chain costing capability? And, 5) how does innovative climate moderate the relationships among survival vision, organizational learning culture, cost management knowledge, modern management information system and volatile competitive pressure; and each dimension of value chain costing capability?

Both network theory and contingency theory were employed to describe the relationship of the research model. Due to the fact that there were two groups of relationships, network theory was proposed to explain the relationship between each dimension of value chain costing capability and it consequents. At the same time, the contingency theory was also used to describe the relationship among the antecedents and dimensions of value chain costing capability. Electronic and electrical appliance businesses were chosen as the population. Also, the sample list was derived from the database of Department of Business Development, Ministry of Commerce, Thailand. The questionnaire instrument was verified by accounting scholars for its validity and reliability, and was checked with a pre-test approach. Both exploratory factor analysis and confirmation factor analysis were examined to verify the scale validity and reliability. All 703 mail questionnaires were sent to key informants: either the accounting directors or accounting managers, selected by the stratified random sampling method. With regards to the data collection from mail questionnaires, 152 were usable at 22.51 percent of an effective response rate. The results from each hypothesis testing to answer each research question are described as follows:

According to the first research question, the results revealed that business goal integration had a positive influence on cost competitiveness and business progressiveness. Strategic operational linkage had a positive influence on strategic achievement, business progressiveness and firm performance. Operational activity analysis, cost reduction competency, and expenditure monitoring report had a positive influence on all its consequents: cost competitiveness, strategic achievement, business progressiveness and firm performance.

In the second research question, the results demonstrated that cost competitiveness had a positive influence on strategic achievement, business progressiveness, and firm performance. The findings in the third research question showed that strategic achievement had a positive influence on firm performance. Meanwhile, business progressiveness had a positive influence on firm performance.

The findings of the fourth research question showed that cost management knowledge had a positive influence on all dimensions of value chain costing capability (business goal integration, strategic operational linkage, operational activity analysis, cost reduction competency and expenditure monitoring report). Also, survival vision

had a positive influence on business goal integration. Meanwhile, organizational learning culture had a positive influence on cost reduction competency and expenditure monitoring report. Furthermore, modern management information system had a positive influence on operational activity analysis and cost reduction competency. In addition, volatile competitive pressure had only a positive influence on strategic operational linkage, cost reduction competency and expenditure monitoring report.

Finally, the findings according to the fifth research question showed that innovative climate played a moderating role with positive significance on the interaction of survival vision in dimensions of value chain costing capability: business goal integration. Likewise, innovative climate played a moderating role with positive significance on the interaction of cost management knowledge in dimensions of value costing capability business: operational activity analysis.

The result summary of all questions is illustrated in Table 16.

Table 16 Summary of Results of All Hypotheses Questions

Research Questions	Hypotheses	Results	Conclusions
(1) How does each dimension of value chain costing capability have an influence on cost competitiveness, strategic achievement, business progressiveness and firm performance?	H1a-d H2a-d H3a-d H4a-d H5a-d	• Business goal integration had a positive influence on cost competitiveness, and business progressiveness. • Strategic operational linkage had a positive influence on strategic achievement, and business progressiveness. • Operational activity analysis had a positive influence on cost competitiveness, strategic achievement, business progressiveness, and firm performance. • Cost reduction competency had a positive influence on cost competitiveness, strategic achievement, business progressiveness, and firm performance. • Expenditure monitoring report had a positive influence on cost competitiveness, strategic achievement, business progressiveness, and firm performance.	Partially Supported
(2) How does cost competitiveness affect strategic achievement, business progressiveness, and firm performance?	H6a-c	Cost competitiveness had a positive influence on strategic achievement, business progressiveness, and firm performance.	Strongly Supported

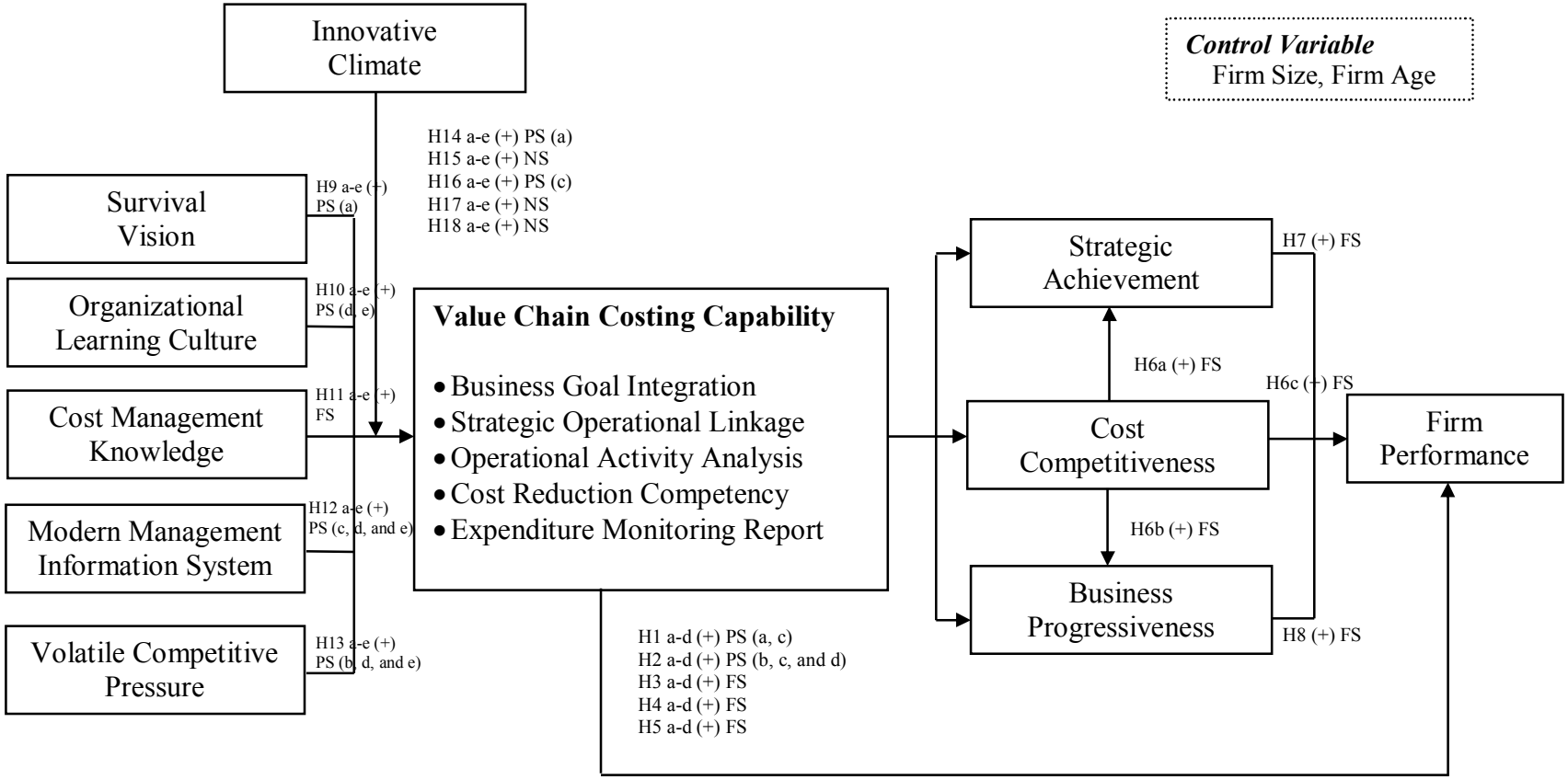
Table 16 Summary of Results of All Hypotheses Questions (continued)

Research Questions	Hypotheses	Results	Conclusions
(3) How do strategic achievement and business progressiveness have an influence on firm performance?	H7, H8	Strategic achievement and business progressiveness had a positive influence on firm performance.	Strongly Supported
(4) How do survival vision, organizational learning culture, cost management knowledge, modern management information system and volatile competitive pressure have an influence on each dimension of value chain costing capability?	H9a-e H10a-e H11a-e H12a-e H13a-e	• Survival vision had a positive influence on business goal integration. • Organizational learning culture had a positive influence on cost reduction competency, and expenditure monitoring report. • Cost management knowledge had a positive influence to all dimension of value chain costing capability. • Modern management information system had a positive influence on Operational activity analysis, cost reduction competency, and expenditure monitoring report. • Volatile competitive pressure had a positive influence on strategic operational linkage, cost reduction competency, and expenditure monitoring report.	Partially Supported

Table 16 Summary of Results of All Hypotheses Questions (continued)

Research Questions	Hypotheses	Results	Conclusions
(5) How does innovative climate moderate the relationships among survival vision, organizational learning culture, cost management knowledge, modern management information system and volatile competitive pressure; and each dimension of value chain costing capability?	H 14 a-e H 15 a-e H 16 a-e H 17 a-e H 18 a-e	Innovative climate as a moderating role had a positive and significant interaction only on survival vision: business goal integration. Innovative climate as a moderating role had a positive and significant interaction only on cost management knowledge: operational activity analysis.	Partially Supported

Figure 8 Summary of Results in the Relationships of the Conceptual Model



Note: - FS = Hypothesis is fully supported
PS = Hypothesis is partially supported (identify in parentheses)
NS = Hypothesis is not supported

Theoretical and Managerial Contributions

Theoretical Contribution

The network theory can explain the relationship of value chain costing capability variables and consequences. This theory perceives that the linkages of good relationship networks enable the people in a particular network to work collaboratively, leading to competitive advantages and better firm performance. The results of this research enhance the concept of the network theory in terms of linkages and mutual relationship among working units in a good organization. The relationship network can be integrated to the business goals, link operation, and analysis of working activities in order for business staff to collaborate work well, be capable of reducing cost, and audit the expense. The data of cost management can be used for effective decision-making in order to make the better firm performance. However, the findings of the present study cannot be generalized to the relationship of variables of business goal integration, strategic achievement, firm performance, strategic operational linkage, and cost competitiveness. The reason is that the cost management in this business type is difficult to control because there are several uncontrollable factors. Therefore, another good method and technique of cost management is needed to control the variable cost and reduce unnecessary activities.

On the other hand, contingency theory is used to explain the relationships between antecedent variable and moderator variable with the perception that there is no best method for organization management. It depends on the situations to determine the suitable management model. The administrators have to be capable of analyzing the situations well. The findings from this research support the concept of contingency theory in terms that internal and external factors have an influence on an organization and its performance. These factors compel the administrators to make decisions upon the changing situations accurately as well as to be capable of analyzing the situations well.

Managerial Contribution

The results of this study enable accounting managers and directors to analyze and realize the important strategic factors to make use for the organization's adaptation

and preparation under competitive and rapidly changing environment. Therefore, the main findings of this research can provide the practical guidelines for the organization management to apply the value chain costing capability as a tool for strategic management in business communication as with the following reasons.

Firstly, the findings reveal that the dimension of cost reduction competency is the most influence on firm performance. Thus, the managers have to emphasize on the analysis and production cost planning in order to reduce non-performing activities as well as to evaluate the worth of the cost investment accurately and beneficially for decision-making on financial and non-financial operation of the firm. In addition, the dimensions of expenditure monitoring report, operational activity analysis, and strategic operational linkage are also the factors with influence on firm performance. As a result, administrators should focus on operational activity analysis to operate the production operation with suitable and accurate cost allocation. The expenditure information should be obtained quickly, accurately and in time, according to particular rapidly changing situations. For example, administrators can apply value chain costing properly with full potential by doing production activity analysis to link all production procedures in each step to collaborate well among one another with added value. Any non-performing activities should be reduced, and the application of accounting information technology should be focused in order to obtain quick and accurate accounting reports for continuously doing the operation evaluation and follow-up activities.

Secondly, the results show that business progressiveness is the mediator variable which is the most influence on the firm performance. Therefore, the administrators have to be determined to improve the operating systems by using new technology and production techniques to produce quality products to meet the market demands in uncertain situations for the better firm performance. At the same time, cost competitiveness is also the variable which directly influences on business progressiveness, so the mangers have to focus on effective production lines with less production time, quick and correct product delivery, distinctive and creative products, and production cost lower than competitors. For example, the administrators support the application of new production technology and techniques to reduce the production time, but with high quality products, lower cost than competitors, and quick and accurate delivery. Therefore, administrators should allocate investment on necessary production

technology, and focus on staff training for increasing staff's skills and experience for taking their responsibilities.

Thirdly, the administrators have to consider the internal and external factors as important components to enhance value chain costing capability in the dimension of cost reduction competency. The study shows that cost management knowledge and modern management information system is the internal factor which is mostly influential on cost reduction competency. It can be explained that the managers have to promote learning on accurate cost allocation and the reduction of non-performing activities to evaluate the operation properly. Furthermore, the data collection and management must be emphasized and must be done systematically by using information technology to supports the quick and accurate operation and decision making. This is the factor for well enhancing the dimension of cost reduction competency. Therefore, administrators should allocate investment on necessary information technology resources to promote staff learning on information technology and cost management.

Finally, to accomplish the value chain costing capability, the managers should provide various necessary resources to develop the ability to learn, operate work, support effective management tools, and provide good opportunities for operation and competitive ability.

Limitations and Future Research Directions

Limitations

The sample size with the response rate in this research was based on an acceptable level of survey at 22.51%. However, only 152 respondents in the present study is considered as a small number. As a result, it may affect the analysis power of the statistical test so that the results of the hypotheses are also impacted.

Future Research Directions

There are a number of suggestions for future research that should be discussed.

Firstly, the findings show that business goal integration does not affect the firm performance and strategic achievement. The causes might be the operation integration and production cost guidelines. The relationship of the network in an organization has

to be reconsidered on the policy of raw material purchase and production technology. These factors possibly affect the management by inhibiting businesses to maintain the continuous competitive level and the good firm performance. On the other hand, the findings show that strategic achievement directly affects the firm performance. Future research should retest the variable of business goal integration and strategic operational linkage by changing the sample groups.

Secondly, the study finds strategic operational linkage does not affect cost competitiveness. This might be because the links of cost management, control and evaluation are not in the same direction, resulting in ineffective production such as long production period, late product delivery, products erroneous from the orders, production cost higher than competitors. Future research might consider the other variables of the moderator variable such as management system effectiveness.

Thirdly, innovative climate is a moderator variable to encourage the relationship among antecedents. The findings showed that innovative climate cannot drive this relationship. It may be because the industry context is in the conditions of rapidly changing technology and high competition of rivals. In addition, the government measures should be modified because a lot large companies move their production bases to Vietnam, Mexico etc. due to the tax burdens.

The research finds that innovative climate does not significantly strengthen the relationship among antecedents (organizational learning culture, modern management information system and volatile competitive pressure) and dimensions of value chain costing capability. The organization might face with competition of lower production cost of imported products and the problem of higher tax rate. The promotion of new production technology causes the high investment at the beginning period, which can be explained by contingency theory. Future research should consider other moderator variable such as accounting learning.

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APPENDICES

APPENDIX A

The Original Items

Table 1A Original Items in Scales

Construct	Items
Business Goal Integration (BGI)	
BGI1	Value chain costing assist firm combine business policies efficiently systematic and efficient policies of business in systematically and substantially.
BGI2	Value chain costing helps integrate information and management approach in departments properly in organization.
BGI3	Value chain costing support data transfer of business and share operational guidelines in the same direction.
BGI4	Value chain costing enables firm to determine production costs accurately harmonize with situation.
Strategic Operational Linkage (SOL)	
SOL1	Value chain costing enables the firm to link different operations in business together effectively.
SOL2	Value chain costing Value chain costing enables the firm to deal well with cost management in every step of the overall production.
SOL3	Value chain costing enables the firm to set criteria for cost division systematically.
SOL4	Value chain costing enables the firm to set strategic operational guidelines for control and evaluation in the same direction.
Operational Activity Analysis (OAA)	
OAA1	Value chain costing enables the firm to analyze the benefits of each operational activity in the organization.
OAA2	Value chain costing enables the firm to set guidelines for good and effective operation.
OAA3	Value chain costing enables the firm to synthesize competitive capability of the organization for setting the continuous competitive advantages.
OAA4	Value chain costing enables the firms to determine directions and business operational plans systematically and concretely.

Table 1A Original Items in Scales (continued)

Construct	Items
Cost Reduction Competency (CRC)	
CRC1	Value chain costing enables the firm to evaluate the worthiness of cost investment and to be useful for making decision.
CRC2	Value chain costing enables the firm to compare the operation cost in the past and present.
CRC3	Value chain costing enables the firm to reduce or cut non-productive activities in order to make cost management effective.
CRC4	Value chain costing enables the firm to analyze and plan cost production accurately and suitably for the situations.
Expenditure Monitoring Report (EMR)	
EMR1	Value chain costing enables the firm to report expense audit accurately and effectively.
EMR2	Value chain costing enables the firm to classify and analyze expense data conformingly and suitably.
EMR3	Value chain costing enables the firm to present correct data according to the real situations with full benefits.
EMR4	Value chain costing enables the firm to report expense in time accurately and quickly according to the purposes of the users.
Cost Competitiveness (CCT)	
CCT1	The operational cost is clearly lower than competitors.
CCT2	The firm's innovative products are continuously more outstanding than competitors.
CCT3	The firm can save the expense of product delivery more than competitors.
CCT4	The firm's production line is continuously more effective with less time circle than competitors.
Strategic Achievement (SGA)	
SGA1	The firm well achieves the organization's goal in operation quality.
SGA2	The firm sets operational management professionally and acceptably.

Table 1A Original Items in Scales (continued)

Construct	Items
Strategic Achievement (SGA)	
SGA3	The firm manages operation according to the strategic plans effectively and efficiently.
SGA4	The firm has capability and potential enough for maintaining the competitive level in the present and future economic conditions.
Business Progressiveness (BPG)	
BPG1	The firm produces quality products to be continuously available.
BPG2	The firm products always meet market's demands.
BPG3	The firm applies technology and techniques in new production well and effectively.
BPG4	The firm operates smoothly under variable conditions.
Firm Performance (FPF)	
FPF1	The firm's income continuously increases in comparison with the previous one.
FPF2	The firm has the increasing market shares and the trend to continuously increase annually.
FPF3	The firm has the increase of growth rate continuously in long term.
FPF4	The firm receives dividend from investment in a high satisfactory level.
FPF5	The firm is well-known and acceptable among customers and stakeholders regarding the capability to run business effectively and achieve the goal as planned.
Survival Vision (SVV)	
SVV1	The firm believes that the goal-setting policy for the future is helpful for more successful business operation.
SVV2	The firm emphasizes on the continuous development of the good management system which enables the firm to effectively operate business under various situations in the future.

Table 1A Original Items in Scales (continued)

Construct	Items
Survival Vision (SVV)	
SVV3	The firm always supports staff to learn and develop themselves to better increase effectiveness and competitive capability.
SVV4	The firm enhances the application of modern technology in the management system for the continuous business success and advantages.
Organizational Learning Culture (OLC)	
OLC1	The firm believes that good organization learning culture is helpful for them to respond to new challenges and increase the adaptation ability for good operation.
OLC2	The firm realizes that continuous and collaborative learning enables the firm to develop new innovation continuously.
OLC3	The firm enhances knowledge sharing in the organization as operational guidelines for solving working problems and improving the firm in a more effective way.
OLC4	The firm supports staff to propose ideas and new working models to increase organization improvement.
Cost Management Knowledge (CMK)	
CMK1	The firm believes that good cost management knowledge is helpful for enabling the firm to manage production cost more effectively.
CMK2	The firm emphasizes the search for guidelines and methods for accurate cost dividend and effective cost estimation.
CMK3	The firm is determined to reduce and eliminate non-profit activities to continuously reduce the operational expense and cost.
CMK4	The firm focuses on the accurate and suitable evaluation of work performance which helps the firm to have continuous effective cost management.

Table 1A Original Items in Scales (continued)

Construct	Items
Modern Management Information System (MIS)	
MIS1	The firm believes that modern management information system is helpful for data collection and the accounting report well responds to the users.
MIS2	The firm emphasizes on the development of information technology system for modern management conforming to the organizational administration and facilitate and for users to receive accurate information according to their needs.
MIS3	The firm focuses the application of the effective and continuous modern management information system to increase quality of relating accounting information.
MIS4	The firm always realizes that the good modern management information system is useful for collecting and presenting the information in time, properly for the situations.
Innovative Climate (INC)	
INC1	The firm believes that creative working atmosphere is helpful for success and growing operation.
INC2	The firm always enhances the development of modern management models to enable the firm to respond properly to the working conditions.
INC3	The firm is determined to continuously think up new production process to form the distinction and advantages over competitors.
INC4	The firm focuses on the search of new technology for the working process in order to increase the operation capability.
INC5	The firms supports the staff to suggest working ideas freely to facilitate creativity for new working models with more effectiveness and goal achievement.
Volatile Competitive Pressure (VCP)	
VCP1	With more variety of customers' demands, the firm focuses on studying and understanding them to be able to respond better to the demands.

Table 1A Original Items in Scales (continued)

Construct	Items
Volatile Competitive Pressure (VCP)	
VCP2	Under variable economic conditions, the firm is determined to develop the management capability to cope well with various situations.
VCP3	With more capable competitors, the firm is determined to present distinctive products in order to get more customers' acceptance.
VCP4	With continuous launches of new products, the firm always emphasizes on research and new product development in order to overcome competitors.
VCP5	With quick and continuous changes of technology at present, the firm is determined to apply new technology to always improve the production process to keep up with the present and future competition.
VCP6	Under the uncertain of politic condition in Thailand, the firm is able to be flexible and adapt the operation quickly.

APPENDIX B

Summary of Demographic Characteristics of Key Informations and Sampled Firms

Table 1B The Summary of Demographic Characteristics of Key Informations

Descriptions	Categories	Frequency	Percent
1. Gender	Male	59	38.82
	Female	93	61.18
	Total	**152**	**100.00**
2. Age	Less than 30 years old	12	7.89
	30 – 40 years old	34	22.37
	41-50 years old	82	53.95
	More than 50 years old	24	15.79
	Total	**152**	**100.00**
3. Marital Status	Single	66	43.42
	Married	83	54.61
	Divorced	3	1.97
	Total	**152**	**100.00**
4. Educational Level	Undergraduate or lower	90	59.21
	Higher than undergraduate	62	40.79
	Total	**152**	**100.00**
5. Working Experience	Less than 10 years	32	21.05
	10-15 years	59	38.82
	16-20 years	19	12.50
	More than 20 years	42	27.63
	Total	**152**	**100.00**
6. Average Monthly Income at Present	Less than 50,000 Baht	52	34.21
	50,000 – 70,000 Baht	51	33.55
	70,001-90,000 Baht	8	5.27
	More than 90,000 Baht	41	26.97
	Total	**152**	**100.00**
7. Working Position	Accounting manager	58	38.16
	Accounting director	75	49.34
	Others	19	12.50
	Total	**152**	**100.00**

Table 2B The Summary of Sampled Firm Characteristics

Descriptions	Categories	Frequency	Percent
1. Business Owner Types	A company limited	150	98.68
	Partnership	2	1.32
	Total	**152**	**100.00**
2. Business Format	Electronic manufacturing	90	59.21
	Electrical manufacturing	24	15.79
	Electronic and Electrical manufacturing	38	25.00
	Total	**152**	**100.00**
2. Location of business	Northern region	3	1.97
	Central region	39	25.66
	Eastern region	47	30.92
	Northeast region	5	3.29
	Bangkok	58	38.16
	Total	**152**	**100.00**
3. Registered Business Capital	Less than 25,000,000 Baht	68	44.74
	25,000,000 – 50,000,000 Baht	9	5.92
	50,000,001 – 100,000,000 Baht	24	15.79
	More than 100,000,000 Baht	51	33.55
	Total	**152**	**100.00**
4. Total Assets of the Firm at Present	Less than 50,000,000, Baht	67	44.08
	50,000,000 – 100,000,000 Baht	17	11.18
	100,000,001 – 150,000,000 Baht	10	6.58
	More than 150,000,000 Baht	58	38.16
	Total	**152**	**100.00**
5. Number of Employees	Less than 50 employees	55	36.18
	51 – 100 employees	10	12.50
	101 – 150 employees	24	15.79
	More than 150 employees	54	35.53
	Total	**152**	**100.00**

Table 2B The Summary of Sampled Firm Characteristics (continued)

Descriptions	Categories	Frequency	Percent
6. Period of Business Operation	Less than 5 years	14	9.21
	5 - 10 years	31	20.39
	11 – 15 years	27	17.77
	More than 15 years	80	52.63
	Total	**152**	**100.00**
7. Average Sales/ Revenue Per Year	Less than 10,000,000 Baht	40	26.32
	10,000,000 – 50,000,000 Baht	23	15.13
	50,000,001 – 90,000,000 Baht	17	11.18
	More than 90,000,000 Baht	72	47.37
	Total	**152**	**100.00**

APPENDIX C

Non-Response Bias Tests

Table 1C Non-Response Bias Tests

Comparison	N	Mean	Std. Dev.	t-value	p-Value
Firm Capital:	152				
• First Group	76	2.38	1.336	0.000	1.000
• Second Group	76	2.38	1.366		
Firm Asset:	152				
• First Group	76	2.43	1.379	0.411	0.681
• Second Group	76	2.34	1.381		
Firm Size:	152				
• First Group	76	2.47	1.301	-0.311	0.757
• Second Group	76	2.54	1.311		
Firm Age:	152				
• First Group	76	3.07	1.037	-0.855	0.394
• Second Group	76	3.21	1.050		
Revenue:	152				
• First Group	76	2.78	1.292	-0.189	0.850
• Second Group	76	2.82	1.283		

APPENDIX D

Factor Loadings and Reliability Analyses in Sample

Table 1D Item Factor Loadings and Reliability Analysis in Sample

Constructs	N	Items	Factor Loadings	Reliability (Alpha)
Business Goal Integration (BGI)	152	BGI1	.697	.704
		BGI2	.730	
		BGI3	.758	
		BGI4	.748	
Strategic Operational Linkage (SOL)	152	SOL1	.694	.766
		SOL2	.798	
		SOL3	.794	
		SOL4	.782	
Operational Activity Analysis (OAA)	152	OAA1	.766	.746
		OAA2	.767	
		OAA3	.708	
		OAA4	.772	
Cost Reduction Competency (CRC)	152	CRC1	.829	.806
		CRC2	.823	
		CRC3	.790	
		CRC4	.741	
Expenditure Monitoring Report (EMR)	152	EMR1	.743	.832
		EMR2	.799	
		EMR3	.881	
		EMR4	.838	
Cost Competitiveness (CCT)	152	CCT1	.837	.833
		CCT2	.730	
		CCT3	.874	
		CCT4	.826	

Table 1D Item Factor Loadings and Reliability Analysis in Sample (continued)

Constructs	N	Items	Factor Loadings	Reliability
Strategic Achievement (SGA)	152	SGA1	.816	.858
		SGA2	.833	
		SGA3	.888	
		SGA4	.814	
Business Progressiveness (BPG)	152	BPG1	.819	.852
		BPG2	.830	
		BPG3	.856	
		BPG4	.825	
Firm Performance (FPF)	152	FPF1	.788	.915
		FPF2	.890	
		FPF3	.903	
		FPF4	.872	
		FPF5	.863	
Survival Vision (SVV)	152	SVV1	.855	.880
		SVV2	.894	
		SVV3	.887	
		SVV4	.822	
Organizational Learning Culture (OLC)	152	OLC1	.768	.848
		OLC2	.854	
		OLC3	.855	
		OLC4	.850	
Cost Management Knowledge (CMK)	152	CMK1	.862	.899
		CMK2	.879	
		CMK3	.915	
		CMK4	.854	

Table 1D Item Factor Loadings and Reliability Analysis in Sample (continued)

Constructs	N	Items	Factor Loadings	Reliability
Modern Management Information System (MIS)	152	MIS1	.883	.876
		MIS2	.834	
		MIS3	.832	
		MIS4	.868	
Volatile Competitive Pressure (VCP)	152	VCP1	.905	.940
		VCP2	.848	
		VCP3	.849	
		VCP4	.848	
		VCP5	.906	
		VCP6	.917	
Innovative Climate (INC)	152	INC1	.767	.844
		INC2	.876	
		INC3	.818	
		INC4	.730	
		INC5	.740	

APPENDIX E

Test of Assumption of Regression Analysis

Equation 1

Equation 1: $CCT = \alpha_{01}+\beta_1 BGI+\beta_2 SOL+\beta_3 OAA+\beta_4 CRC+\beta_5 EMR+\beta_6 FS+\beta_7 FA+\varepsilon$

Interdependence of error term

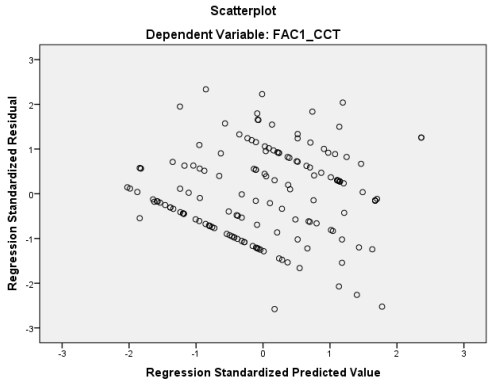
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.584[a]	.341	.309	.83153723	1.935

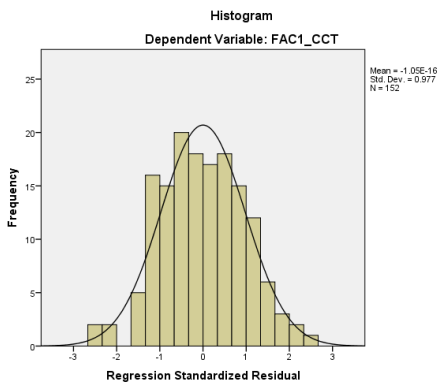
a. Predictors: (Constant), FAC1_EMR, FAC1_CRC, FAC1_OAA, FAC1_SOL, FAC1_BGI, Dum_FS, Dun_FA

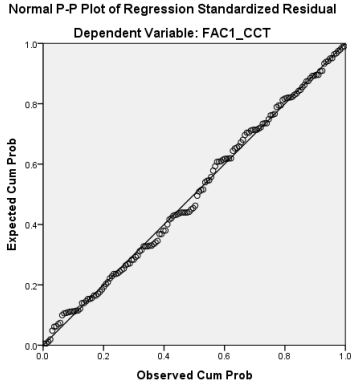
b. Dependent Variable: FAC1_CCT

Homoscedasticity



Normality





Equation 2

Equation 2: $SGA = \alpha_{02}+\beta_8 BGI+\beta_9 SOL+\beta_{10} OAA+\beta_{11} CRC+\beta_{12} EMR+\beta_{13} FS+\beta_{14} FA+\varepsilon$

Interdependence of error term

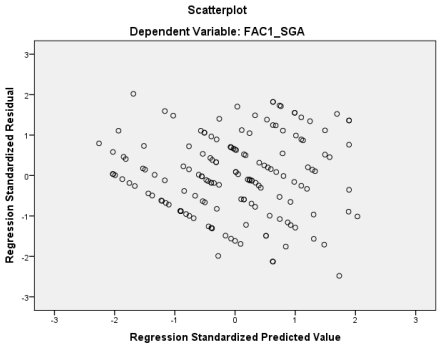
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.641[a]	.411	.382	.78597235	1.922

a. Predictors: (Constant), FAC1_EMR, FAC1_CRC, FAC1_OAA, FAC1_SOL, FAC1_BGI, Dum_FS, Dun_FA

b. Dependent Variable: FAC1_SGA

Homoscedasticity



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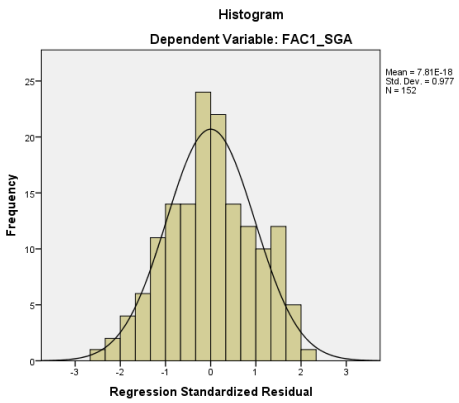
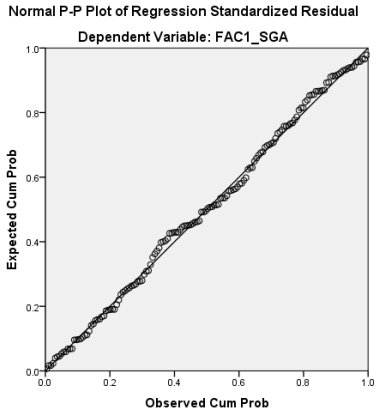




Equation 3

Equation 3: $SGA = \alpha_{03}+\beta_{15}CCT+ \beta_{16}FS+\beta_{17}FA+\varepsilon$

Interdependence of error term

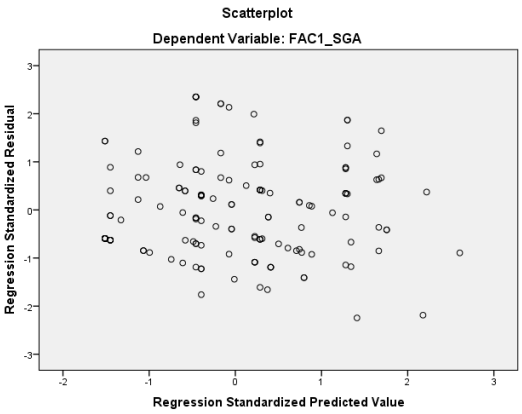
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.496[a]	.246	.230	.87736476	1.868

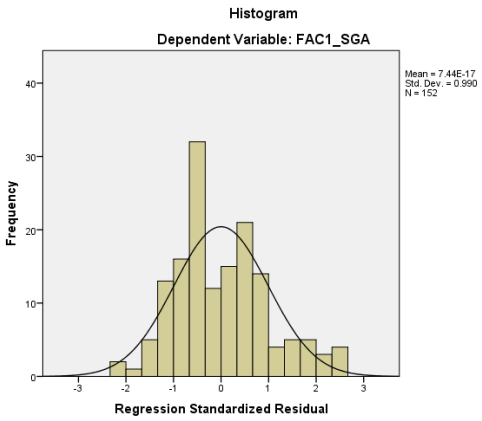
a. Predictors: (Constant), FAC1_CCT, Dum_FS, Dun_FA

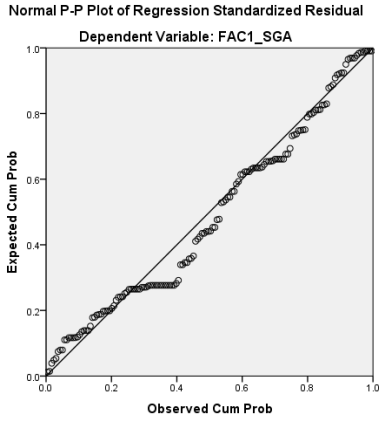
b. Dependent Variable: FAC1_SGA

Homoscedasticity



Normality





Equation 4

Equation 4: $BPG = \alpha_{04} + \beta_{18}BGI + \beta_{19}SOL + \beta_{20}OAA + \beta_{21}CRC + \beta_{22}EMR + \beta_{23}FS + \beta_{24}FA + \varepsilon$

Interdependence of error term

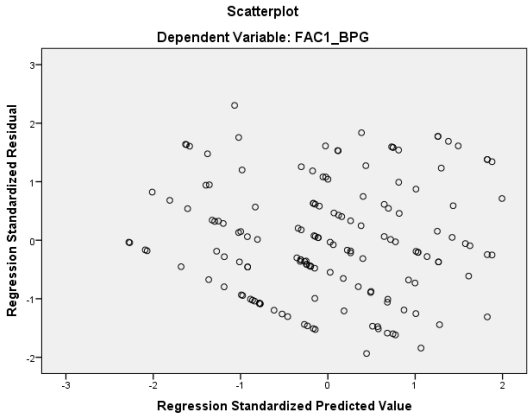
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.582[a]	.339	.306	.83284424	2.144

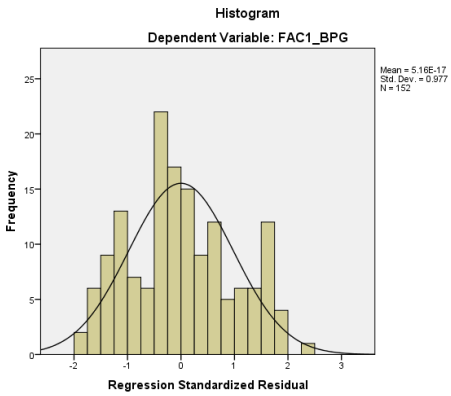
a. Predictors: (Constant), FAC1_EMR, FAC1_CRC, FAC1_OAA, FAC1_SOL, FAC1_BGI, Dum_FS, Dun_FA

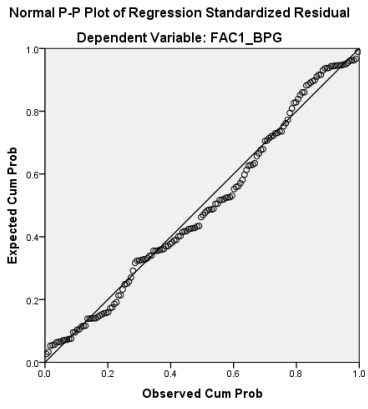
b. Dependent Variable: FAC1_BPG

Homoscedasticity



Normality





Equation 5

Equation 5: $BPG = \alpha_{05}+\beta_{25}CCT+ \beta_{26}FS+\beta_{27}FA+\varepsilon$

Interdependence of error term

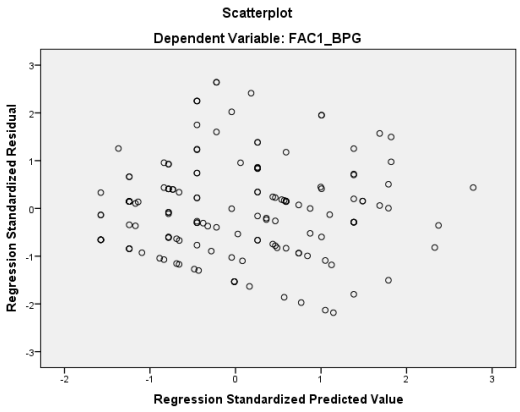
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.493[a]	.243	.228	.87879635	2.132

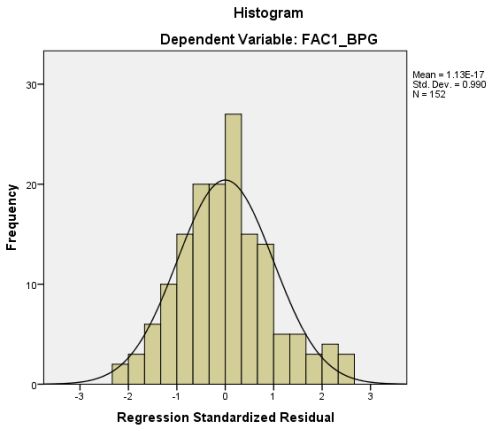
a. Predictors: (Constant), FAC1_CCT, Dum_FS, Dun_FA

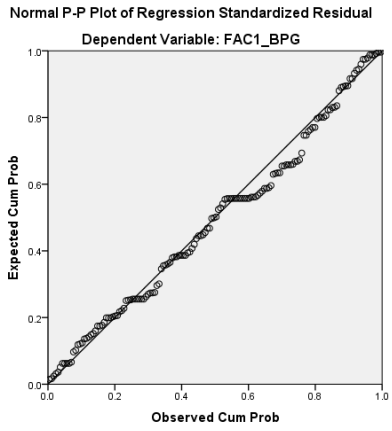
b. Dependent Variable: FAC1_BPG

Homoscedasticity



Normality





Equation 6

Equation 6: $FPF = \alpha_{06}+\beta_{28}BGI+\beta_{29}SOL+\beta_{30}OAA+\beta_{31}CRC+\beta_{32}EMR+\beta_{33}FS+\beta_{34}FA+\varepsilon$

Interdependence of error term

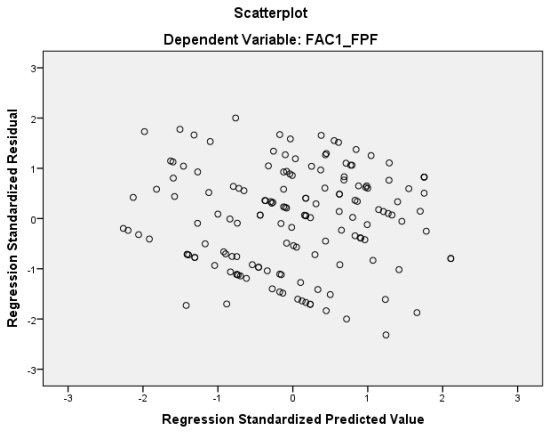
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.527[a]	.277	.242	.87054870	1.988

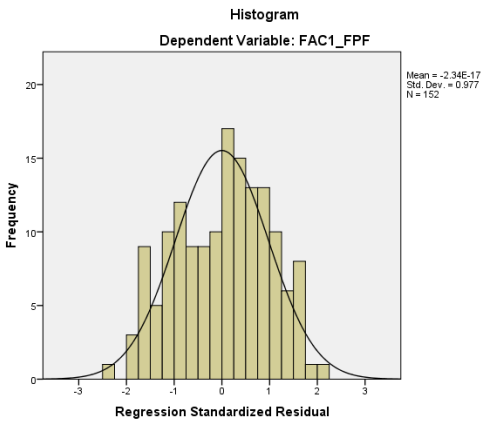
a. Predictors: (Constant), FAC1_EMR, FAC1_CRC, FAC1_OAA, FAC1_SOL, FAC1_BGI, Dum_FS, Dun_FA

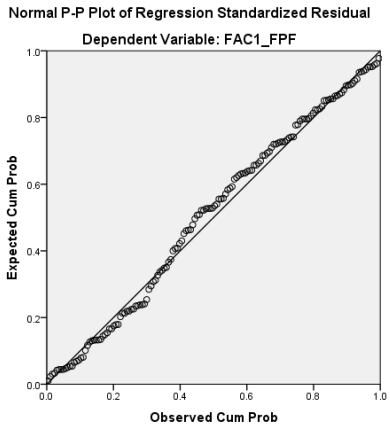
b. Dependent Variable: FAC1_FPF

Homoscedasticity



Normality





Equation 7

Equation 7: $FPF = \alpha_{07}+\beta_{35}CCT+\beta_{36}SGA+\beta_{37}BPG+\beta_{38}FS+\beta_{39}FA+\varepsilon$

Interdependence of error term

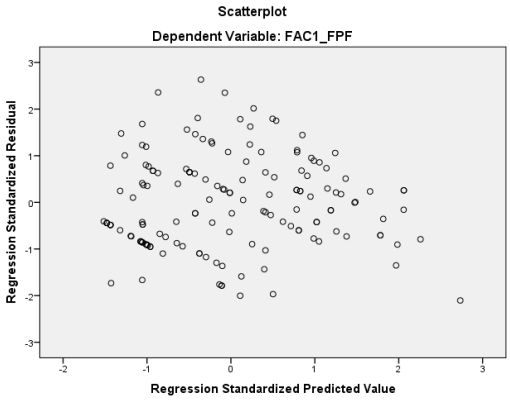
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.707[a]	.499	.482	.71966231	1.839

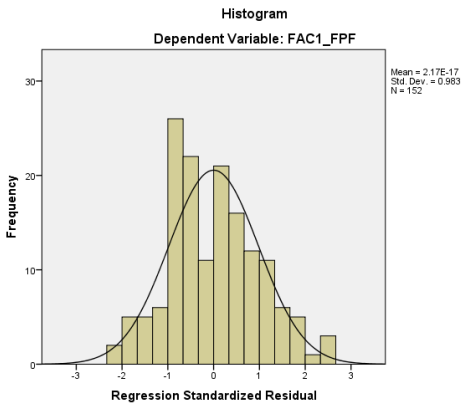
a. Predictors: (Constant), FAC1_BPG, Dun_FA, Dum_FS, FAC1_CCT, FAC1_SGA

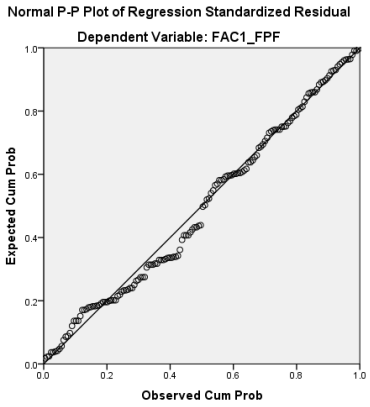
b. Dependent Variable: FAC1_FPF

Homoscedasticity



Normality





Equation 8

Equation 8: $BGI = \alpha_{08}+\beta_{40}SVV+\beta_{41}OLC+\beta_{42}CMK+\beta_{43}MIS+\beta_{44}VCP+\beta_{45}FS+\beta_{46}FA+\varepsilon$

Interdependence of error term

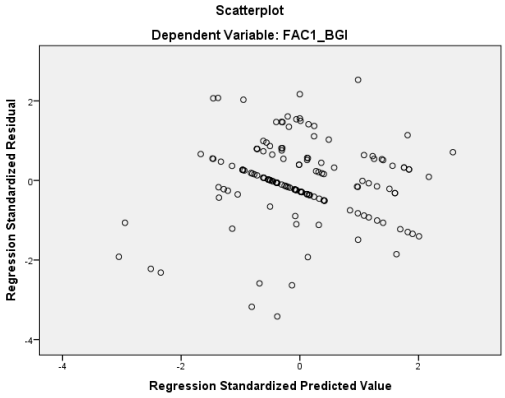
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.499[a]	.249	.212	.88751006	1.507

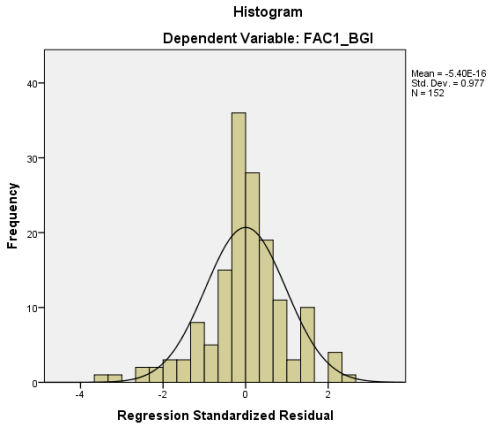
a. Predictors: (Constant), FAC1_VCP, Dum_FS, Dun_FA, FAC1_OLC, FAC1_MIS, FAC1_SVV, FAC1_CMK

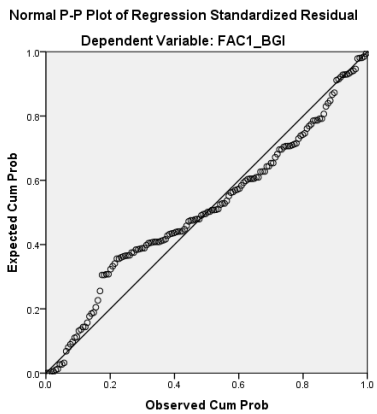
b. Dependent Variable: FAC1_BGI

Homoscedasticity



Normality





Equation 9

Equation 9: $SOL = \alpha 10+\beta_{60}SVV+\beta_{61}OLC+\beta_{62}CMK+\beta_{63}MIS+\beta_{64}VCP+\beta_{65}FS+\beta_{66}FA+\varepsilon$

Interdependence of error term

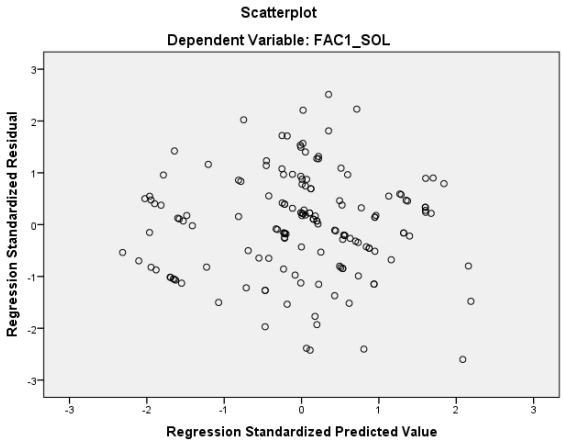
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.623[a]	.388	.359	.80081894	1.544

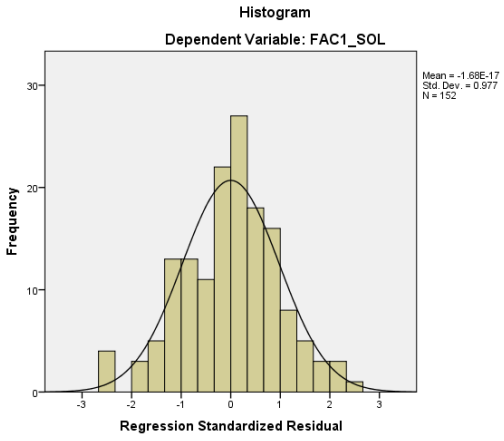
a. Predictors: (Constant), FAC1_VCP, Dum_FS, Dun_FA, FAC1_OLC, FAC1_MIS, FAC1_SVV, FAC1_CMK

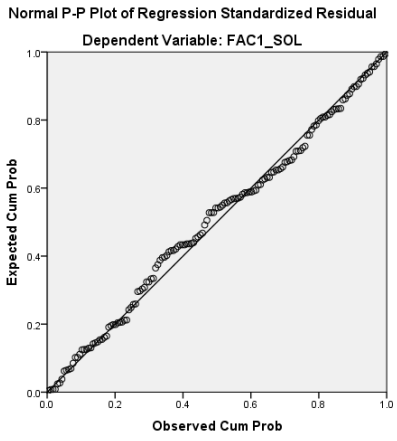
b. Dependent Variable: FAC1_SOL

Homoscedasticity



Normality





Equation 10

Equation 10: $OAA = \alpha_{12}+\beta_{80}SVV+\beta_{81}OLC+\beta_{82}CMK+\beta_{83}MIS+\beta_{84}VCP+\beta_{85}FS+\beta_{86}FA+\varepsilon$

Interdependence of error term

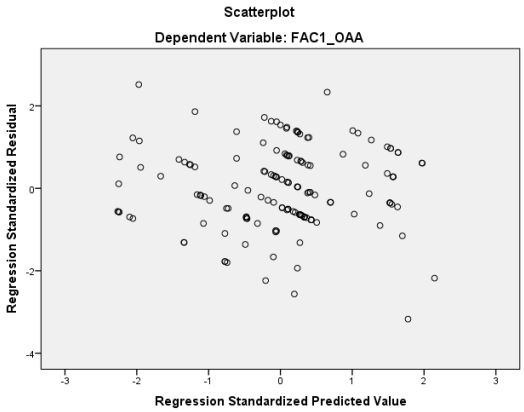
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.641[a]	.410	.382	.78635899	1.972

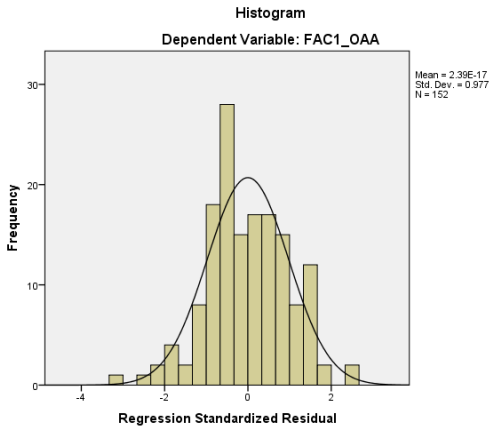
a. Predictors: (Constant), FAC1_VCP, Dum_FS, Dun_FA, FAC1_OLC, FAC1_MIS, FAC1_SVV, FAC1_CMK

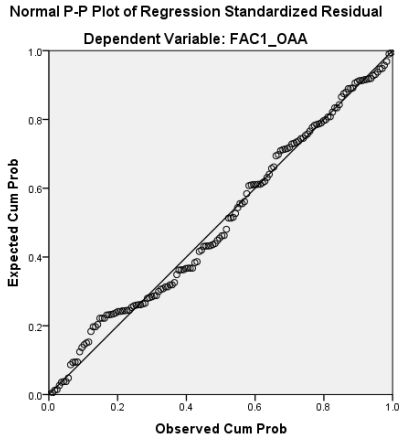
b. Dependent Variable: FAC1_OAA

Homoscedasticity



Normality





Equation 11

Equation 11: $CRC = \alpha_{14}+\beta_{100}SVV+\beta_{101}OLC+\beta_{102}CMK+\beta_{103}MIS+\beta_{104}VCP+\beta_{105}FS+\beta_{106}FA+\varepsilon$

Interdependence of error term

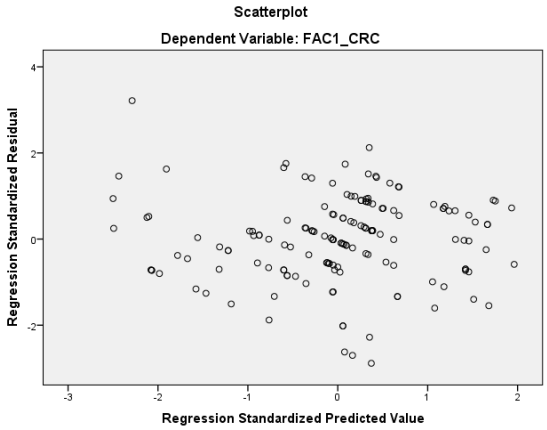
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.671[a]	.451	.424	.75885594	1.631

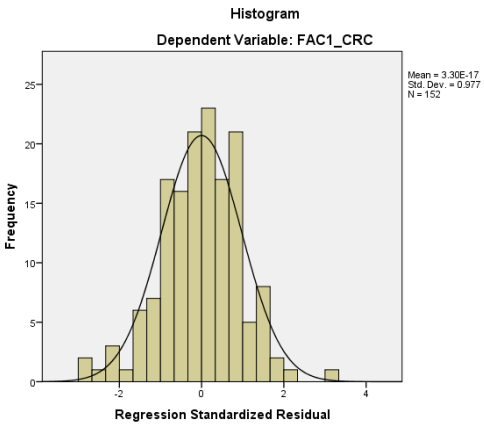
a. Predictors: (Constant), FAC1_VCP, Dum_FS, Dun_FA, FAC1_OLC, FAC1_MIS, FAC1_SVV, FAC1_CMK

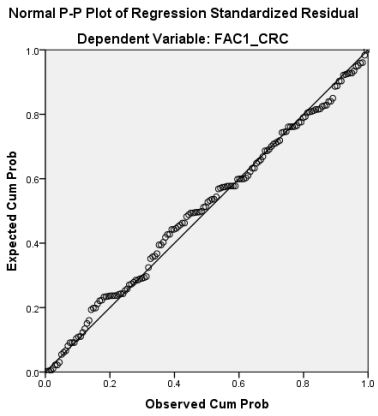
b. Dependent Variable: FAC1_CRC

Homoscedasticity



Normality





Equation 12

Equation 12: $EMR = \alpha_{16}+\beta_{120}SVV+\beta_{121}OLC+\beta_{122}CMK+\beta_{123}MIS+\beta_{124}VCP+\beta_{125}FS+\beta_{126}FA+\varepsilon$

Interdependence of error term

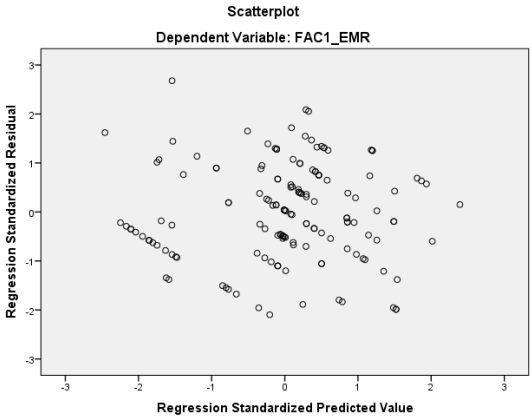
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.686[a]	.470	.445	.74521206	1.747

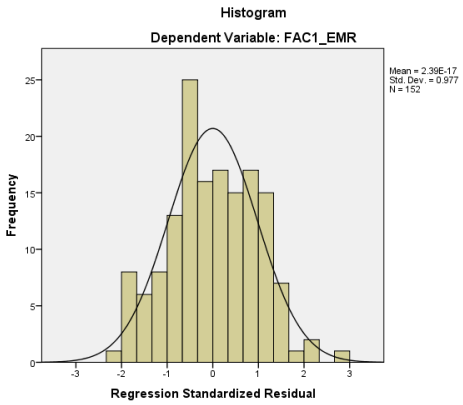
a. Predictors: (Constant), FAC1_VCP, Dum_FS, Dun_FA, FAC1_OLC, FAC1_MIS, FAC1_SVV, FAC1_CMK

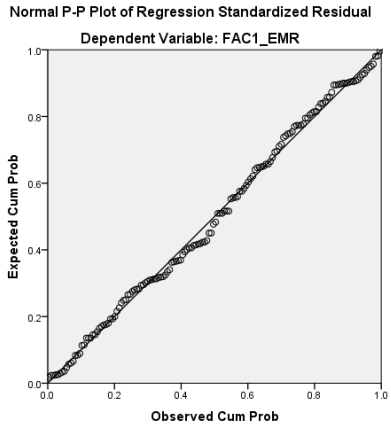
b. Dependent Variable: FAC1_EMR

Homoscedasticity



Normality





Equation 13

Equation 13: $BGI = \alpha_{09}+\beta_{47}SVV+\beta_{48}OLC+\beta_{49}CMK+\beta_{50}MIS+\beta_{51}VCP+\beta_{52}IC+\beta_{53}(SVV*INC)+\beta_{54}(OLC*INC)+\beta_{55}(CMK*INC)+\beta_{56}(MIS*INC)+\beta_{57}(VCP*INC)+\beta_{58}FS+\beta_{59}FA+\varepsilon$

Interdependence of error term

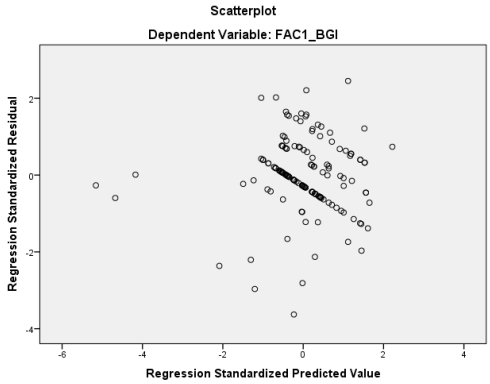
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.581[a]	.337	.275	.85159951	1.511

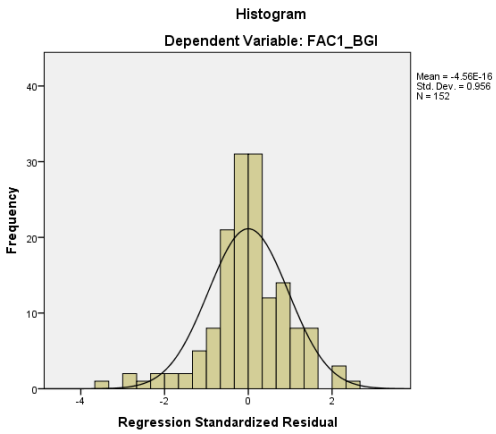
a. Predictors: (Constant), VCP_INC, FAC1_SVV, Dum_FS, Dun_FA, FAC1_VCP, FAC1_MIS, SVV_INC, FAC1_OLC, FAC1_CMK, OLC_INC, MIS_INC, FAC1_INC, CMK_INC

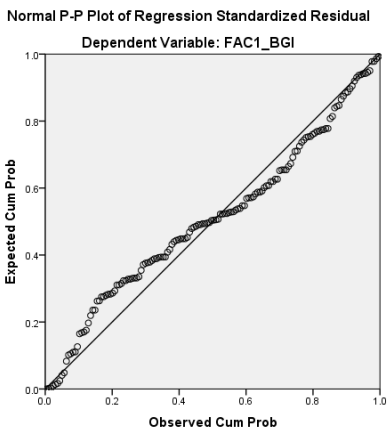
b. Dependent Variable: FAC1_BGI

Homoscedasticity



Normality





Equation 14

Equation 14: $SOL = \alpha_{11}+\beta_{67}SVV+\beta_{68}OLC+\beta_{69}CMK+\beta_{70}MIS+\beta_{71}VCP+\beta_{72}INC$
$+\beta_{73}(SVV*INC)+\beta_{74}(OLC*INC)+\beta_{75}(CMK*OLC)+\beta_{76}(MIS*INC)$
$+\beta_{77}(VCP*INC)+\beta_{78}FS+\beta_{79}FA+\varepsilon$

Interdependence of error term

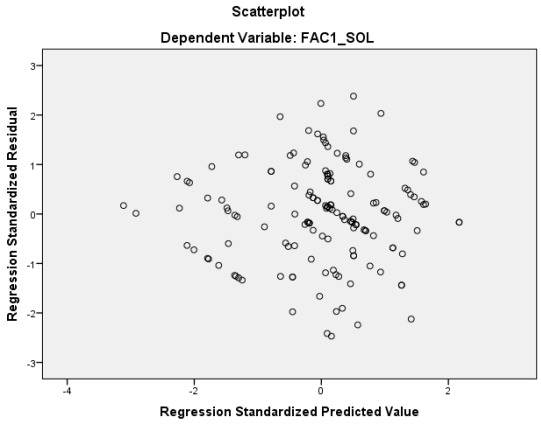
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.645[a]	.416	.361	.79926317	1.544

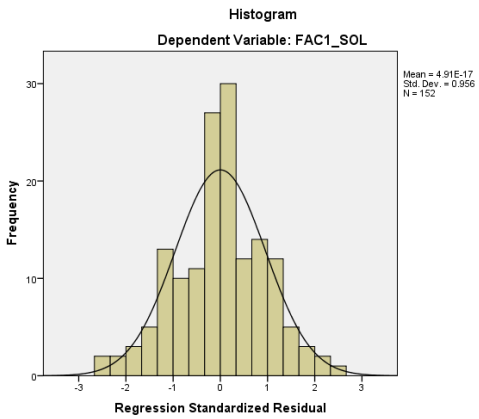
a. Predictors: (Constant), VCP_INC, FAC1_SVV, Dum_FS, Dun_FA, FAC1_VCP, FAC1_MIS, SVV_INC, FAC1_OLC, FAC1_CMK, OLC_INC, MIS_INC, FAC1_INC, CMK_INC

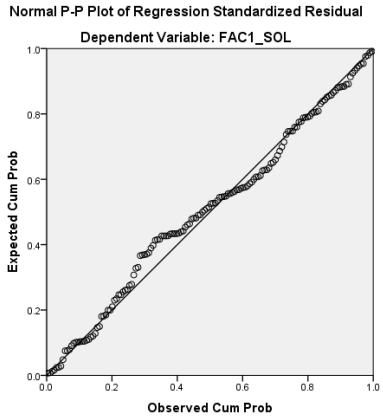
b. Dependent Variable: FAC1_SOL

Homoscedasticity



Normality





Equation 15

Equation 15: $OAA = \alpha_{013}+\beta_{87}SVV+\beta_{88}OLC+\beta_{89}CMK+\beta_{90}MIS+\beta_{91}VCP+\beta_{92}INC$
$+\beta_{93}(SVV*INC)+\beta_{94}(OLC*INC)+\beta_{95}(CMK*OLC)+\beta_{96}(MIS*INC)$
$+\beta_{97}(VCP*INC)+\beta_{98}FS+\beta_{99}FA+\varepsilon$

Interdependence of error term

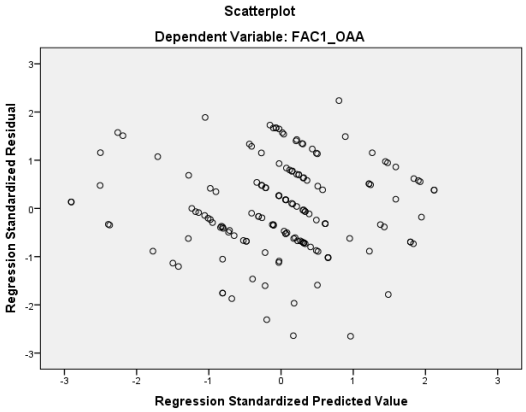
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.686[a]	.471	.421	.76073532	1.973

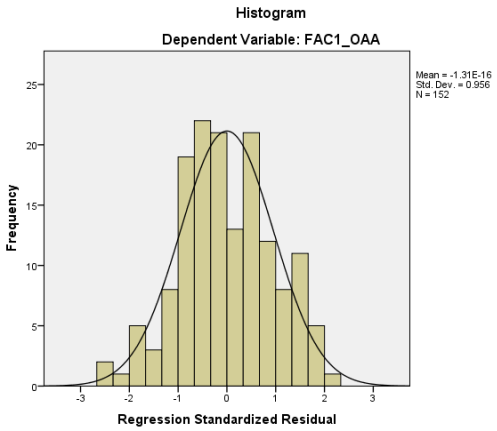
a. Predictors: (Constant), VCP_INC, FAC1_SVV, Dum_FS, Dun_FA, FAC1_VCP, FAC1_MIS, SVV_INC, FAC1_OLC, FAC1_CMK, OLC_INC, MIS_INC, FAC1_INC, CMK_INC

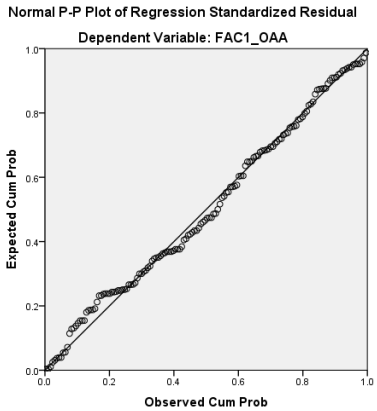
b. Dependent Variable: FAC1_OAA

Homoscedasticity



Normality





Equation 16

Equation 16: $CRC = \alpha_{15}+\beta_{107}SVV+\beta_{108}OLC+\beta_{109}CMK+\beta_{110}MIS+\beta_{111}VCP+\beta_{112}INC$
$+\beta_{113}(SVV*INC)+\beta_{114}(OLC*INC)+\beta_{115}(CMK*OLC)$
$+\beta_{116}(MIS*INC)+\beta_{117}(VCP*INC)+\beta_{118}FS+\beta_{119}FA+\varepsilon$

Interdependence of error term

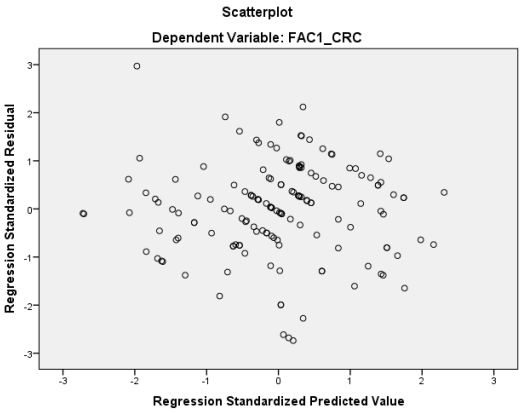
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.687[a]	.472	.422	.76013158	1.614

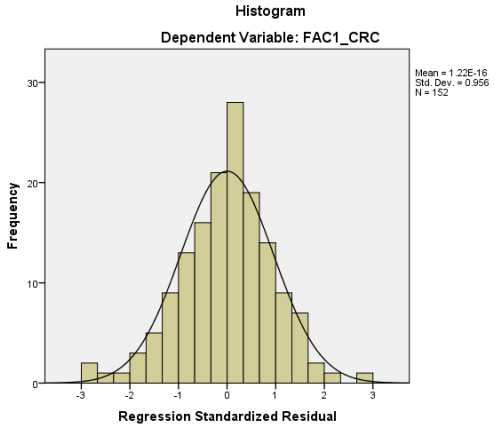
a. Predictors: (Constant), VCP_INC, FAC1_SVV, Dum_FS, Dun_FA, FAC1_VCP, FAC1_MIS, SVV_INC, FAC1_OLC, FAC1_CMK, OLC_INC, MIS_INC, FAC1_INC, CMK_INC

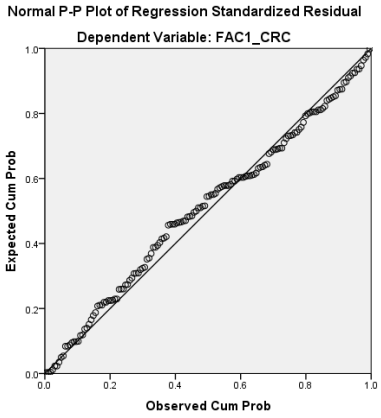
b. Dependent Variable: FAC1_CRC

Homoscedasticity



Normality





Equation 17

Equation 17: $EMR = \alpha_{17}+\beta_{127}SVV+\beta_{128}OLC+\beta_{129}CMK+\beta_{130}MIS+\beta_{131}VCP+\beta_{132}INC$
$+\beta_{133}(SVV*INC)+\beta_{134}(OLC*INC)+\beta_{135}(CMK*OLC)$
$+\beta_{136}(MIS*INC)+\beta_{137}(VCP*IC)+\beta_{138}FS+\beta_{139}FA+\varepsilon$

Interdependence of error term

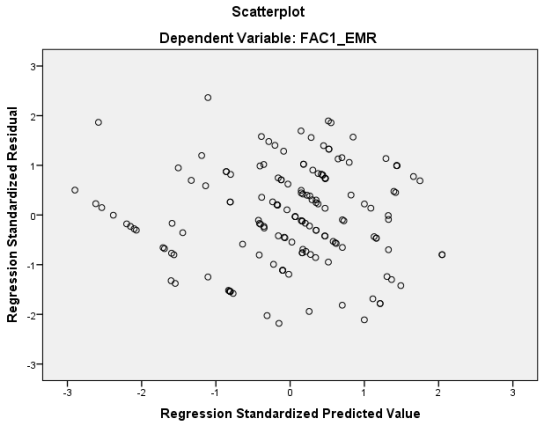
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.714[a]	.510	.464	.73187138	1.766

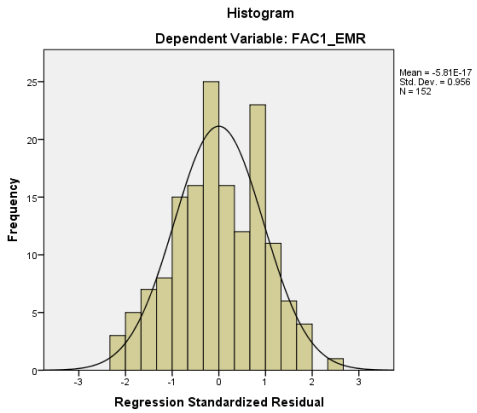
a. Predictors: (Constant), VCP_INC, FAC1_SVV, Dum_FS, Dun_FA, FAC1_VCP, FAC1_MIS, SVV_INC, FAC1_OLC, FAC1_CMK, OLC_INC, MIS_INC, FAC1_INC, CMK_INC

b. Dependent Variable: FAC1_EMR

Homoscedasticity



Normality



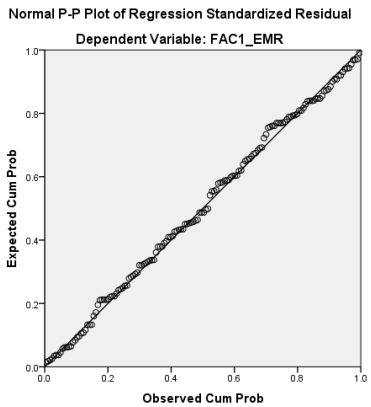


Table 1E The results of the independence of error terms assumption testing (Autocorrelation and Multicollinearity)

Equation	Durbin-Watson (The value of D Statiatic)	Maximum Variance Inflation Factors (VIFs)
1	1.935	1.127
2	1.922	1.127
3	1.868	1.090
4	2.144	1.127
5	2.132	1.090
6	1.988	1.127
7	1.839	1.090
8	1.507	2.353
9	1.544	2.353
10	1.972	2.353
11	1.631	2.353
12	1.747	2.353
13	1.511	5.709
14	1.544	5.709
15	1.973	5.709
16	1.614	5.709
17	1.766	5.709

APPENDIX F

Cover Letter and Questionnaire: Thai Version

แบบสอบถามเพื่อการวิจัย

เรื่อง ศักยภาพการบัญชีต้นทุนห่วงโซ่คุณค่าและผลการดำเนินงานของกิจการ :
การทดสอบเชิงประจักษ์จากธุรกิจผลิตชิ้นส่วนอุปกรณ์อิเลคทรอนิกส์และเครื่องใช้ไฟฟ้าในประเทศไทย

<u>คำชี้แจง :</u>

โครงการวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาวิจัยเรื่อง “ศักยภาพการบัญชีต้นทุนห่วงโซ่คุณค่าและผลการดำเนินงานของกิจการ : การทดสอบเชิงประจักษ์จากธุรกิจผลิตชิ้นส่วนอุปกรณ์อิเลคทรอนิกส์และเครื่องใช้ไฟฟ้าในประเทศไทย” เพื่อใช้เป็นข้อมูลในการจัดทำวิทยานิพนธ์ในระดับปริญญาเอกของผู้วิจัย ในหลักสูตรปรัชญาดุษฎีบัณฑิต คณะการบัญชีและการจัดการ มหาวิทยาลัยมหาสารคาม โทรศัพท์ 043-754333

ข้าพเจ้าใคร่ขอความอนุเคราะห์จากท่านผู้ตอบแบบสอบถาม ได้โปรดตอบแบบสอบถามชุดนี้ โดยรายละเอียดของแบบสอบถามประกอบด้วยส่วนคำถาม 7 ตอน ดังนี้

ตอนที่ 1 ข้อมูลทั่วไปเกี่ยวกับ ผู้บริหารฝ่ายบัญชีธุรกิจผลิตชิ้นส่วนอุปกรณ์อิเลคทรอนิกส์และเครื่องใช้ไฟฟ้าในประเทศไทย

ตอนที่ 2 ข้อมูลทั่วไปเกี่ยวกับธุรกิจผลิตชิ้นส่วนอุปกรณ์อิเลคทรอนิกส์และเครื่องใช้ไฟฟ้าในประเทศไทย

ตอนที่ 3 ความคิดเห็นเกี่ยวกับศักยภาพการบัญชีต้นทุนห่วงโซ่คุณค่าของธุรกิจผลิตชิ้นส่วนอุปกรณ์อิเลคทรอนิกส์และเครื่องใช้ไฟฟ้าในประเทศไทย

ตอนที่ 4 ความคิดเห็นเกี่ยวกับผลการดำเนินงานของธุรกิจผลิตชิ้นส่วนอุปกรณ์อิเลคทรอนิกส์และเครื่องใช้ไฟฟ้าในประเทศไทย

ตอนที่ 5 ความคิดเห็นเกี่ยวกับปัจจัยภายในที่มีผลต่อการดำเนินงานของธุรกิจผลิตชิ้นส่วนอุปกรณ์อิเลคทรอนิกส์และเครื่องใช้ไฟฟ้าในประเทศไทย

ตอนที่ 6 ความคิดเห็นเกี่ยวกับปัจจัยภายนอกที่มีผลต่อการดำเนินงานของธุรกิจผลิตชิ้นส่วนอุปกรณ์อิเลคทรอนิกส์และเครื่องใช้ไฟฟ้าในประเทศไทย

ตอนที่ 7 ข้อคิดเห็นและข้อเสนอแนะเกี่ยวกับการบริหารจัดการต้นทุนของธุรกิจผลิตชิ้นส่วนอุปกรณ์อิเลคทรอนิกส์และเครื่องใช้ไฟฟ้าในประเทศไทย

คำตอบของท่านจะถูกเก็บรักษาเป็นความลับ และจะไม่มีการใช้ข้อมูลใด ๆ ที่เปิดเผยเกี่ยวกับตัวท่านในการรายงานข้อมูล รวมทั้งจะไม่มีการร่วมใช้ข้อมูลดังกล่าวกับบุคคลภายนอกอื่นใดโดยไม่ได้รับอนุญาตจากท่าน

ท่านต้องการรายงานสรุปผลการวิจัยหรือไม่

ต้องการ E - mail _____ ☐ ไม่ต้องการ

หากท่านต้องการรายงานสรุปผลการวิจัย โปรดระบุ E-mail Address ของท่าน หรือแนบนามบัตรของท่านมากับแบบสอบถามชุดนี้

ผู้วิจัยขอขอบพระคุณที่ท่านได้กรุณาเสียสละเวลาในการตอบแบบสอบถามชุดนี้อย่างถูกต้องครบถ้วน และหวังเป็นอย่างยิ่งว่าข้อมูลที่ได้รับจากท่านจะเป็นประโยชน์อย่างยิ่งต่อการวิจัยในครั้งนี้ และขอขอบพระคุณอย่างสูงมา ณ โอกาสนี้ หากท่านมีข้อสงสัยประการใดเกี่ยวกับแบบสอบถาม โปรดติดต่อ นางสรินยา สุภัทรานนท์ ซึ่งเป็นผู้วิจัยในครั้งนี้ โทรศัพท์เคลื่อนที่ 086-215-4991 หรือ E – mail : Kaisirinya@hotmail.com

(นางสรินยา สุภัทรานนท์)
นิสิตระดับปริญญาเอกสาขาวิชาการบัญชี
คณะการบัญชีและการจัดการ มหาวิทยาลัยมหาสารคาม

<u>ตอนที่ 1</u> ข้อมูลทั่วไปเกี่ยวกับผู้บริหารธุรกิจผลิตอุปกรณ์อิเลคทรอนิกส์และเครื่องใช้ไฟฟ้าในประเทศไทย

1. เพศ

❑ ชาย ❑ หญิง

2. อายุ

❑ น้อยกว่า 30 ปี ❑ 30 – 40 ปี

❑ 41-50 ปี ❑ มากกว่า 50 ปี

3. สถานภาพสมรส

❑ โสด ❑ สมรส

❑ หม้าย/หย่าร้าง

4. ระดับการศึกษา

❑ ปริญญาตรีหรือต่ำกว่า ❑ สูงกว่าปริญญาตรี

5. ประสบการณ์การทำงานในกิจการ

❑ น้อยกว่า 10 ปี ❑ 10 - 15 ปี

❑ 16 – 20 ปี ❑ มากกว่า 20 ปี

6. รายได้เฉลี่ยต่อเดือน

❑ ต่ำกว่า 50,000 บาท ❑ 50,000 – 70,000 บาท

❑ 70,001 – 90,000 บาท ❑ มากกว่า 90,000 บาท

7. ตำแหน่งงานในปัจจุบัน

❑ ผู้จัดการฝ่ายบัญชี ❑ ผู้อำนวยการฝ่ายบัญชี

❑ อื่น ๆ (โปรดระบุ).....

<u>ตอนที่ 2</u> ข้อมูลทั่วไปเกี่ยวกับผู้ธุรกิจผลิตอุปกรณ์อิเลคทรอนิกส์และเครื่องใช้ไฟฟ้าในประเทศไทย

1. รูปแบบธุรกิจ

❑ บริษัทจำกัด ❑ ห้างหุ้นส่วน

2. ประเภทธุรกิจ

❑ ผลิตอุปกรณ์ไฟฟ้า ❑ ผลิตอุปกรณ์อิเลคทรอนิกส์

❑ ผลิตอุปกรณ์ไฟฟ้าและอุปกรณ์อิเลคทรอนิกส์

3. ที่ตั้งของธุรกิจ

❑ ภาคเหนือ ❑ ภาคกลาง

❑ ภาคตะวันออก ❑ ภาคใต้

❑ ภาคตะวันตก ❑ ภาคตะวันออกเฉียงเหนือ

❑ กรุงเทพมหานคร

3. ทุนในการดำเนินงาน

❑ ต่ำกว่า 25,000,000 บาท ❑ 25,000,000 – 50,000,000 บาท

❑ 50,000,001 – 100,000,000 บาท ❑ มากกว่า 100,000,000 บาท

3. มูลค่าสินทรัพย์รวมของกิจการในปัจจุบัน

❑ ต่ำกว่า 50,000,000 บาท ❑ 50,000,000 - 100,000,000 บาท

❑ 100,000,001 - 150,000,000 บาท ❑ มากกว่า 150,000,000 บาท

4. จำนวนพนักงาน

❑ น้อยว่า 50 คน ❑ 51 -100 คน

❑ 101-150 คน ❑ มากกว่า 150 คน

5. ระยะเวลาในการดำเนินธุรกิจ

❑ น้อยกว่า 5 ปี ❑ 5 - 10 ปี

❑ 11 - 15 ปี ❑ มากกว่า 15 ปี

6. รายได้ของกิจการต่อปี

❑ ต่ำกว่า 10,000,000 บาท ❑ 10,000,000 – 50,000,000 บาท

❑ 50,000,001 – 90,000,000 บาท ❑ มากกว่า 90,000,000 บาท

ตอนที่ 3 ความคิดเห็นเกี่ยวกับศักยภาพการบัญชีต้นทุนห่วงโซ่คุณค่าของธุรกิจผลิตชิ้นส่วนอุปกรณ์อิเลคทรอนิกส์และเครื่องใช้ไฟฟ้าในประเทศไทย

การบัญชีต้นทุนห่วงโซ่คุณค่า หมายถึง ความสามารถขององค์กรในการจดบันทึก รวบรวมและวิเคราะห์ข้อมูลที่เกี่ยวกับกิจกรรมทางการผลิตและการดำเนินงานทั้งภายในและภายนอกองค์กร ด้วยค่าใช้จ่ายในการดำเนินงานที่ต่ำกว่าคู่แข่งขัน นำเสนอข้อมูลได้ถูกต้องและทันเวลา สร้างคุณค่าให้กับลูกค้า นำไปสู่ความได้เปรียบทางการแข่งขันและผลการดำเนินงานที่ดีขึ้นอย่างต่อเนื่อง

ศักยภาพการบัญชีต้นทุนห่วงโซ่คุณค่า (Value Chain Costing Capability)	ระดับความคิดเห็น				
	มากที่สุด 5	มาก 4	ปานกลาง 3	น้อย 2	น้อยที่สุด 1
การบูรณาการเป้าหมายธุรกิจ (Business Goal Integration) 1. การบัญชีต้นทุนห่วงโซ่คุณค่า ช่วยให้กิจการสามารถรวมนโยบายธุรกิจเข้าด้วยกันได้อย่างเป็นระบบและเป็นรูปธรรมได้อย่างมีประสิทธิภาพ					
2. การบัญชีต้นทุนห่วงโซ่คุณค่า ช่วยให้กิจการผสมผสานข้อมูลและแนวทางการบริหารงานจากหน่วยงานต่างๆ เข้าด้วยกันได้เป็นอย่างดี					
3. การบัญชีต้นทุนห่วงโซ่คุณค่า ช่วยให้กิจการมีการถ่ายโอนข้อมูลและแบ่งปันแนวทางการดำเนินงานไปทิศทางเดียวกันได้อย่างเป็นระบบ					
4. การบัญชีต้นทุนห่วงโซ่คุณค่า ช่วยให้กิจการสามารถกำหนดทิศทางต้นทุนการผลิตให้สอดคล้องกับสถานการณ์ได้อย่างเหมาะสม					
การเชื่อมโยงการดำเนินงานเชิงกลยุทธ์ (Strategic Operational Linkage) 5. การบัญชีต้นทุนห่วงโซ่คุณค่า ช่วยให้กิจการสามารถเชื่อมโยงแนวทางการดำเนินงานต่างๆ ภายในกิจการให้ประสานกันได้อย่างมีประสิทธิภาพ					
6. การบัญชีต้นทุนห่วงโซ่คุณค่า ช่วยให้กิจการสามารถบริหารจัดการต้นทุนทุกขั้นตอนการผลิตในภาพรวมให้สอดคล้องกันได้เป็นอย่างดี					
7. การบัญชีต้นทุนห่วงโซ่คุณค่า ช่วยให้กิจการสามารถจัดการหลักเกณฑ์ในการจัดสรรต้นทุนได้อย่างเป็นระบบ					
8. การบัญชีต้นทุนห่วงโซ่คุณค่า ช่วยให้กิจการมีแนวปฏิบัติทางการดำเนินงานเชิงกลยุทธ์เพื่อการควบคุมและประเมินผลไปในทิศทางเดียวกัน					
การวิเคราะห์กิจกรรมดำเนินงาน (Operational Activity Analysis) 9. การบัญชีต้นทุนห่วงโซ่คุณค่า ช่วยให้กิจการสามารถวิเคราะห์ประโยชน์ของแต่ละกิจกรรมการดำเนินงานในองค์กรได้เป็นอย่างดี					
10.การบัญชีต้นทุนห่วงโซ่คุณค่า ช่วยให้กิจการกำหนดแนวทางการดำเนินงานที่ดีและมีประสิทธิภาพได้เป็นอย่างดี					
11. การบัญชีต้นทุนห่วงโซ่คุณค่า ช่วยให้กิจการสังเคราะห์ศักยภาพการแข่งขันขององค์กรที่เป็นแนวทางในการสร้างความได้เปรียบทางการแข่งขันอย่างต่อเนื่อง					
12. การบัญชีต้นทุนห่วงโซ่คุณค่า ช่วยให้กิจการสามารถกำหนดทิศทางและแผนงานการดำเนินงานของธุรกิจได้อย่างเป็นระบบและรูปธรรม					

ตอนที่ 3 (ต่อ)

ศักยภาพการบัญชีต้นทุนห่วงโซ่คุณค่า (ต่อ) **(Value Chain Costing Capability)**	**ระดับความคิดเห็น**				
	มากที่สุด **5**	**มาก** **4**	**ปานกลาง** **3**	**น้อย** **2**	**น้อยที่สุด** **1**
ความสามารถในการลดต้นทุน (Cost Reduction Competency) 13. การบัญชีต้นทุนห่วงโซ่คุณค่า ช่วยให้กิจการสามารถประเมินความคุ้มค่าของต้นทุนที่เสียไปอย่างต่อเนื่องและเป็นประโยชน์ในการตัดสินใจ					
14. การบัญชีต้นทุนห่วงโซ่คุณค่า ช่วยให้กิจการสามารถเปรียบเทียบต้นทุนในการดำเนินงานของกิจการในปัจจุบันกับอดีตที่ผ่านมาได้เป็นอย่างดี					
15. การบัญชีต้นทุนห่วงโซ่คุณค่า ช่วยให้กิจการสามารถลดหรือตัดกิจกรรมที่ไม่ก่อให้เกิดรายได้ จึงเกิดประสิทธิภาพสูงสุดในการจัดการต้นทุนของกิจการมากยิ่งขึ้น					
16. การบัญชีต้นทุนห่วงโซ่คุณค่า ช่วยให้กิจการสามารถวิเคราะห์และวางแผนต้นทุนการผลิตให้มีความถูกต้องเหมาะสม ทันต่อสถานการณ์มากยิ่งขึ้น					
การรายงานติดตามตรวจสอบค่าใช้จ่าย **(Expenditure Monitoring Report)** 17. การบัญชีต้นทุนห่วงโซ่คุณค่า ช่วยให้กิจการสามารถนำเสนอรายงานการตรวจสอบค่าใช้จ่ายได้อย่างความถูกต้องและมีศักยภาพมากขึ้น					
18. การบัญชีต้นทุนห่วงโซ่คุณค่า ช่วยให้กิจการสามารถจำแนกและวิเคราะห์ข้อมูลค่าใช้จ่าย ให้สอดคล้องและเหมาะสมที่สุด					
19. การบัญชีต้นทุนห่วงโซ่คุณค่า ช่วยให้กิจการสามารถนำเสนอข้อมูลได้อย่างตรงไปตรงมาสอดคล้องกับสถานการณ์จริงและเกิดประโยชน์สูงสุด					
20. การบัญชีต้นทุนห่วงโซ่คุณค่า ช่วยให้กิจการสามารถนำเสนอรายงานค่าใช้จ่ายได้ทันเวลา ถูกต้อง รวดเร็วตามวัตถุประสงค์ของผู้ใช้					

<u>ตอนที่ 4</u> ความคิดเห็นเกี่ยวกับผลการดำเนินงานของธุรกิจผลิตชิ้นส่วนอุปกรณ์อิเลคทรอนิกส์และเครื่องใช้ไฟฟ้าในประเทศไทย

ผลลัพธ์จากการดำเนินงาน (Performance)	ระดับความคิดเห็น				
	มากที่สุด 5	มาก 4	ปานกลาง 3	น้อย 2	น้อยที่สุด 1
ความสามารถทางการแข่งขันด้านต้นทุน (Cost Competitiveness)					
1. กิจการมีต้นทุนการดำเนินงานที่ต่ำกว่าคู่แข่งขันอย่างชัดเจน					
2. กิจการมีการสร้างสรรค์นวัตกรรมผลิตภัณฑ์ที่โดดเด่นกว่าคู่แข่งขันได้อย่างต่อเนื่อง					
3. กิจการสามารถประหยัดค่าใช้จ่ายในการส่งมอบสินค้าได้มากกว่าคู่แข่งขันอยู่เสมอ					
4. กิจการมีสายงานการผลิตที่มีประสิทธิภาพโดยใช้วงจรเวลาการผลิตน้อยกว่าคู่แข่งขันอย่างต่อเนื่องเสมอมา					
การบรรลุผลสำเร็จเชิงกลยุทธ์ (Strategic Achievement)					
5. กิจการสามารถบรรลุเป้าหมายขององค์กรด้านคุณภาพในการดำเนินงานได้เป็นอย่างดี					
6. กิจการจัดระบบการบริหารงานในการดำเนินงานอย่างมืออาชีพและเป็นที่ยอมรับโดยทั่วไป					
7. กิจการมีการบริหารงานเป็นไปตามกลยุทธ์ที่วางแผนไว้อย่างมีประสิทธิภาพและประสิทธิผลสูงสุด					
8. กิจการมีความสามารถและศักยภาพเพียงพอที่จะรักษาระดับการแข่งขันในสภาวะเศรษฐกิจในปัจจุบันและอนาคต					
ความก้าวหน้าทางธุรกิจ (Business Progressiveness)					
9. กิจการมีผลิตภัณฑ์ที่มีคุณภาพสามารถจำหน่ายได้อย่างต่อเนื่อง					
10. กิจการมีผลิตภัณฑ์ที่สามารถตอบสนองความต้องการของตลาดได้อย่างเสมอมา					
11. กิจการมีการประยุกต์ใช้เทคโนโลยีและเทคนิคในการผลิตสินค้าใหม่ๆ ได้เป็นอย่างดีและมีประสิทธิภาพ					
12. กิจการมีการดำเนินงานได้อย่างราบรื่นภายใต้สถานการณ์ที่มีความไม่แน่นอนสูง					
ผลการดำเนินงาน (Firm Performance)					
13. กิจการมีรายได้จากการดำเนินงานที่เพิ่มขึ้นอย่างต่อเนื่องเมื่อเทียบกับผลการดำเนินงานที่ผ่านมา					
14. กิจการมีส่วนแบ่งการตลาดเพิ่มขึ้นและมีแนวโน้มที่จะเพิ่มอย่างต่อเนื่องทุกปี					
15. กิจการมีอัตราการเจริญเติบโตของส่วนแบ่งการตลาดเพิ่มขึ้นอย่างต่อเนื่องในระยะยาว					
16. กิจการได้รับผลตอบแทนจากการลงทุนในระดับที่น่าพึงพอใจเป็นอย่างยิ่ง					
17. กิจการได้รับการยอมรับและเป็นที่รู้จักของลูกค้า และผู้ที่เกี่ยวข้องถึงความสามารถในการดำเนินงานที่มีประสิทธิภาพ และบรรลุผลสำเร็จตามเป้าหมายที่ตั้งไว้					

<u>ตอนที่ 5</u> ความคิดเห็นเกี่ยวกับปัจจัยภายในที่มีผลต่อการดำเนินงานของธุรกิจผลิตชิ้นส่วนอุปกรณ์อิเลคทรอนิกส์และเครื่องใช้ไฟฟ้าในประเทศไทย

ปัจจัยภายในที่มีผลต่อการดำเนินงาน (Internal Environmental Operation)	ระดับความคิดเห็น				
	มากที่สุด 5	มาก 4	ปานกลาง 3	น้อย 2	น้อยที่สุด 1
วิสัยทัศน์เพื่อความอยู่รอด (Survival Vision) 1. กิจการเชื่อมั่นว่า การกำหนดนโยบายในการบริหารงานที่มุ่งเน้นเป้าหมายในอนาคตจะช่วยให้กิจการบริหารงานประสบความสำเร็จมากยิ่งขึ้น					
2. กิจการให้ความสำคัญกับการพัฒนาระบบการบริหารจัดการที่ดีอย่างต่อเนื่อง ซึ่งจะช่วยให้กิจการสามารถดำเนินงานภายใต้สถานการณ์ต่างๆ ในอนาคตได้อย่างมีประสิทธิภาพ					
3. กิจการสนับสนุนให้บุคลากรมีการเรียนรู้และพัฒนาตนเองอยู่เสมอ ซึ่งจะช่วยให้เพิ่มประสิทธิภาพและศักยภาพทางการแข่งขันได้ดียิ่งขึ้น					
4. กิจการส่งเสริมให้มีการประยุกต์ให้เทคโนโลยีที่ทันสมัยในการบริหารงานอย่างเป็นระบบ ซึ่งจะช่วยให้การดำเนินงานประสบความสำเร็จและได้เปรียบคู่แข่งขันอย่างต่อเนื่อง					
วัฒนธรรมการเรียนรู้ขององค์กร (Organizational Learning Culture) 5. กิจการเชื่อมั่นว่าการมีวัฒนธรรมการเรียนรู้ขององค์กรที่ดี มีส่วนช่วยทำให้กิจการตอบสนองความท้าทายใหม่ๆ และเพิ่มความสามารถในการปรับเปลี่ยนการดำเนินงานที่ดี					
6. กิจการตระหนักว่าการเรียนรู้ร่วมกันอย่างต่อเนื่อง ช่วยให้สามารถพัฒนานวัตกรรมใหม่ๆ ของกิจการอย่างต่อเนื่อง					
7. กิจการส่งเสริมให้มีการแบ่งปันความรู้ที่เกิดในองค์กร มาเป็นแนวทางในการแก้ปัญหาในการทำงาน จะช่วยให้ปรับเปลี่ยนองค์กรได้อย่างมีประสิทธิภาพมากยิ่งขึ้น					
8. กิจการสนับสนุนให้บุคลากรมีการนำเสนอแนวคิด และรูปแบบการทำงานใหม่ๆ ทำให้ความสามารถในการปรับเปลี่ยนขององค์กรเพิ่มขึ้น					
ความรู้ในการบริหารต้นทุน (Cost Management Knowledge) 9. กิจการเชื่อมั่นว่าการเรียนรู้ในการบริหารต้นทุนที่ดี จะช่วยทำให้กิจการสามารถมีต้นทุนผลิตภัณฑ์ที่มีประสิทธิภาพมากยิ่งขึ้น					
10. กิจการให้ความสำคัญกับการแสวงหาแนวทางและวิธีการในการปันส่วนต้นทุนที่ถูกต้อง จะช่วยทำให้กิจการมีการคำนวณต้นทุนที่มีประสิทธิภาพมากยิ่งขึ้น					
11. กิจการมุ่งมั่นให้มีการลดและกำจัดกิจกรรมที่ไม่เพิ่มมูลค่าในการดำเนินงานของกิจการ จะช่วยทำให้มีค่าใช้จ่ายและต้นทุนในการดำเนินงานลดลงอย่างต่อเนื่อง					
12. กิจการมุ่งเน้นให้มีการประเมินผลการปฏิบัติงานที่ถูกต้องและเหมาะสม จะช่วยให้กิจการมีการบริหารต้นทุนที่มีประสิทธิภาพอย่างต่อเนื่อง					

ตอนที่ 5 (ต่อ)

ปัจจัยภายในที่มีผลต่อการดำเนินงาน (ต่อ) (Internal Environmental Operation)	ระดับความคิดเห็น				
	มากที่สุด 5	มาก 4	ปานกลาง 3	น้อย 2	น้อยที่สุด 1
ระบบสารสนเทศเพื่อการบริหารสมัยใหม่ (Modern Management Information System) 13. กิจการเชื่อมั่นว่าระบบสารสนเทศเพื่อการบริหารสมัยใหม่ จะช่วยทำให้การรวบรวมข้อมูลและนำเสนอรายงานทางการบัญชีสามารถตอบสนองต่อความต้องการของผู้ใช้ได้ดียิ่งขึ้น					
14. กิจการให้ความสำคัญกับการพัฒนาระบบสารสนเทศเพื่อการบริหารสมัยใหม่ให้มีความสอดคล้องกับการบริหารงานขององค์กรอยู่เสมอ ซึ่งจะช่วยให้ผู้ได้รับข้อมูลที่ถูกต้องตรงกับความต้องการมากยิ่งขึ้น					
15. กิจการมุ่งเน้นให้มีการประยุกต์ใช้ระบบสารสนเทศเพื่อการบริหารสมัยใหม่ที่มีประสิทธิภาพอย่างต่อเนื่อง ซึ่งจะช่วยให้ข้อมูลการบัญชีที่เกี่ยวข้องกับการดำเนินงานมีคุณภาพมากยิ่งขึ้น					
16. กิจการตระหนักเสมอว่าระบบสารสนเทศเพื่อการบริหารสมัยใหม่ที่ดี จะช่วยให้การจัดทำและนำเสนอข้อมูลทันต่อเวลาและสถานการณ์ได้ดียิ่งขึ้น					
บรรยากาศเชิงนวัตกรรม (Innovative Climate) 17. กิจการเชื่อมั่นว่าการสร้างบรรยากาศในการทำงานที่สร้างสรรค์ จะช่วยทำให้การดำเนินงานประสบความสำเร็จและเติบโตได้อย่างยั่งยืน					
18. กิจการส่งเสริมให้มีการพัฒนารูปแบบการบริหารจัดการที่ทันสมัยอยู่เสมอ ซึ่งจะช่วยให้ กิจการสามารถตอบสนองต่อสภาพแวดล้อมการทำงานได้เป็นอย่างดี					
19. กิจการมุ่งมั่นให้มีการคิดค้นกระบวนการใหม่ๆ ในการผลิตสินค้าอย่างต่อเนื่อง ซึ่งจะช่วยให้เกิดการสร้างความแตกต่างและความได้เปรียบเหนือคู่แข่งขันได้มากยิ่งขึ้น					
20. กิจการมุ่งเน้นให้มีการแสวงหาเทคโนโลยีใหม่ๆ มาใช้ในกระบวนการทำงานอยู่เสมอ ซึ่งจะช่วยเพิ่มขีดความสามารถในการดำเนินงานให้มีประสิทธิภาพมากยิ่งขึ้น					
21. กิจการสนับสนุนให้บุคลากรสามารถนำเสนอแนวความคิดการทำงานได้อย่างอิสระ ซึ่งจะช่วยให้เกิดความคิดสร้างสรรค์ในการปฏิบัติงานใหม่ๆ ที่มีประสิทธิภาพและบรรลุเป้าหมายได้ดียิ่งขึ้น					

<u>ตอนที่ 6</u> ความคิดเห็นเกี่ยวกับปัจจัยภายนอกที่มีผลต่อการดำเนินงานของธุรกิจผลิตชิ้นส่วนอุปกรณ์อิเลคทรอนิกส์และเครื่องใช้ไฟฟ้าในประเทศไทย

ปัจจัยภายนอกที่มีผลต่อการดำเนินงาน (External Environmental Operation)	ระดับความคิดเห็น				
	มากที่สุด 5	มาก 4	ปานกลาง 3	น้อย 2	น้อยที่สุด 1
แรงกดดันทางการแข่งขันที่เปลี่ยนแปลงอย่างรวดเร็ว (Volatile Competitive Pressure) 1. ในปัจจุบันลูกค้ามีความต้องการหลากหลายมากขึ้น ทำให้กิจการต่างๆ ต้องมุ่งเน้นในการศึกษาและทำความเข้าใจเพื่อสามารถตอบสนองต่อความต้องการของลูกค้าได้ดีมากขึ้น					
2. สภาพเศรษฐกิจที่มีความผันผวนอย่างต่อเนื่อง ทำให้กิจการต่างๆ ต้องมุ่งมั่นในการพัฒนาศักยภาพการบริหารงานเพื่อให้สามารถต่อสู้กับสถานการณ์ต่างๆ ได้เป็นอย่างดี					
3. คู่แข่งขันที่มีศักยภาพการดำเนินงานมากยิ่งขึ้น ทำให้กิจการต่างๆ ต้องมุ่งเน้นในการนำเสนอสินค้าที่มีความแตกต่าง เพื่อให้ได้รับการยอมรับจากลูกค้ามากยิ่งขึ้น					
4. ในปัจจุบันมีผลิตภัณฑ์ใหม่ๆ เกิดขึ้นอย่างต่อเนื่อง ทำให้กิจการต่างๆ ต้องให้ความสำคัญกับการวิจัยและพัฒนาผลิตภัณฑ์ใหม่อยู่เสมอ เพื่อให้สามารถต่อสู้กับคู่แข่งขันได้ดียิ่งขึ้น					
5. การเปลี่ยนแปลงของเทคโนโลยีในปัจจุบันเกิดขึ้นอย่างรวดเร็วและต่อเนื่อง ทำให้กิจการต่างๆ มุ่งมั่นในการนำเทคโนโลยีใหม่ๆ มาใช้ปรับปรุงกระบวนการผลิตให้มีความพร้อมอยู่เสมอ เพื่อให้ทันต่อการแข่งขันในปัจจุบันและอนาคต					
6. สถานการณ์ทางการเมืองในประเทศมีความไม่แน่นอน ทำให้กิจการต่างๆ ต้องมีความยืดหยุ่นและปรับเปลี่ยนการดำเนินงานได้อย่างรวดเร็วยิ่งขึ้น					

<u>ตอนที่ 7</u> ข้อเสนอแนะเกี่ยวกับการบริหารต้นทุนของธุรกิจผลิตชิ้นส่วนอุปกรณ์อิเลคทรอนิกส์และเครื่องใช้ไฟฟ้าในประเทศไทย

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ขอขอบพระคุณที่ได้สละเวลาตอบแบบสอบถาม

APPENDIX G

Questionnaire: English Version

Questionnaire for the Ph. D. Dissertation Research
"Value Chain Costing Capability and Firm Performance: An Empirical Investigation of Electronic and Electrical Appliance Businesses in Thailand"

Dear Sir or Madam,

This research is a part of a doctoral dissertation of Mrs. Sarinya Suphatranon at the Mahasarakham Business School, Mahasarakham University, Thailand. The objective of this research is to examine the operation of electronic and electrical appliances businesses in Thailand. The questionnaire is divided into 7 parts

Part 1: Personal information of about accounting directors or accounting managers of electronic and electrical appliances businesses in Thailand,

Part 2: General information about electronic and electrical appliances businesses in Thailand,

Part 3: Opinion on value chain costing capability of electronic and electrical appliances businesses in Thailand,

Part 4: Opinion on business outcomes of electronic and electrical appliances businesses in Thailand,

Part 5: Opinion on internal environmental operation of electronic and electrical appliances businesses in Thailand,

Part 6: Opinion on external environmental operation electronic and electrical appliances businesses in Thailand, and

Part 7: Recommendations and suggestions in the operation of electronic and electrical appliances businesses in Thailand.

Your answer will be kept as confidentiality and your information will not be shared with any outsider party without your permission.

If you want a summary of this research, please indicate your E-mail address or attach your business card with this questionnaire. The summary will be mailed to you as soon as the analysis is completed.

Thank you for your time answering all the questions. I have no doubt that your answer will provide valuable information for academic advancement. If you have any questions with respect to this research, please contact me directly.

Sincerely yours,

(Sarinya Suphatranon)
Ph. D. Student
Mahasarakham Business School
Mahasarakham University, Thailand

Contact Info:
Office No: 043 – 754333 ext. 3431
Fax No: 043 – 754422
Cell phone: 086 – 215 – 4991
E-mail: Kaisirinya@hotmail.com

Part 1 Personal information of about accounting managers/directors of electronic and electrical appliances business in Thailand

1. Gender

- ❑ Male
- ❑ Female

2. Age

- ❑ Less than 30 years old
- ❑ 30 – 40 years old
- ❑ 41-50 years old
- ❑ More than 50 years old

3. Marital status

- ❑ Single
- ❑ Married
- ❑ Divorced

4. Educational level

- ❑ Bachelor's degree or lower
- ❑ Higher than Bachelor's degree

5. Working experience

- ❑ Less than 10 years
- ❑ 10- 15 years
- ❑ 16 – 20 years
- ❑ More than 20 years

6. Average monthly income at present

- ❑ Less than 50,000 Baht
- ❑ 50,000 – 70,000 Baht
- ❑ 70,001-90,000 Baht
- ❑ More than 90,000 Baht

7. Working position

- ❑ Accounting manager
- ❑ Accounting director
- ❑ Other (Please Specify)……..…

Part 2 General information of electronic and electrical appliances businesses in Thailand

1. Business owner type
   - ❑ Company limited
   - ❑ Partnership
2. Business format
   - ❑ Electrical manufacturing
   - ❑ Electronics manufacturing
   - ❑ Electrical and Electronics manufacturing
3. Location
   - ❑ Northern region
   - ❑ Central region
   - ❑ Eastern region
   - ❑ Northeastern region
   - ❑ Bangkok
4. Registered business capital
   - ❑ Less than 25,000,000 Baht
   - ❑ 25,000,000 – 50,000,000 Baht
   - ❑ 50,000,001 – 100,000,000 Baht
   - ❑ More than 100,000,000 Baht
5. Total assets of the firm at present
   - ❑ Less than 50,000,000 Baht
   - ❑ 50,000,000 - 100,000,000 Baht
   - ❑ 100,000,001 - 150,000,000 Baht
   - ❑ More than 150,000,000 Baht
6. Number of employees
   - ❑ Less than 50 people
   - ❑ 50 – 100 people
   - ❑ 101 – 150 people
   - ❑ More than 150 people
7. The period of business operation
   - ❑ Less than 5 years
   - ❑ 5 - 10 years
   - ❑ 11 – 15 years
   - ❑ More than 15 years
8. Average sales revenue per year
   - ❑ Less than 10,000,000 Baht
   - ❑ 10,000,001 – 50,000,000 Baht
   - ❑ 50,000,001 – 90,000,000 Baht
   - ❑ More than 90,000,000 Baht

<u>Part 3</u> Opinion in operation of electronic and electrical appliances businesses in Thailand

Value chain costing refers to the ability of firms to record, collect, and analyze information which relates to manufacturing activities, internal and external of firm operations with creation to customers, lead to competition advantages as well as higher firm performance consecutively.

Value Chain Costing Capability	Opinion Levels				
	Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
Business Goal Integration 1. Value chain costing assist firm combine business policies efficiently systematic and efficient policies of business in systematically and substantially.	5	4	3	2	1
2. Value chain costing helps integrate information and management approach in departments properly in organization.	5	4	3	2	1
3. Value chain costing support data transfer of business and share operational guidelines in the same direction.	5	4	3	2	1
4. Value chain costing enables firm to determine production costs accurately harmonize with situation.	5	4	3	2	1
Strategic Operational Linkage 5. Value chain costing enables the firm to link different operations in business together effectively.	5	4	3	2	1
6. Value chain costing Value chain costing enables the firm to deal well with cost management in every step of the overall production.	5	4	3	2	1
7. Value chain costing enables the firm to set criteria for cost division systematically.	5	4	3	2	1
8. Value chain costing enables the firm to set strategic operational guidelines for control and evaluation in the same direction.	5	4	3	2	1
Operational Activity Analysis 9. Value chain costing enables the firm to analyze the benefits of each operational activity in the organization.	5	4	3	2	1
10. Value chain costing enables the firm to set guidelines for good and effective operation.	5	4	3	2	1
11. Value chain costing enables the firm to synthesize competitive capability of the organization for setting the continuous competitive advantages.	5	4	3	2	1
12. Value chain costing enables the firms to determine directions and business operational plans systematically and concretely.	5	4	3	2	1

<u>Part 3</u> Opinion in operation of electronic and electrical appliances businesses in Thailand (Continued)

Value Chain Costing Capability	Opinion Levels				
	Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
Cost Reduction Competency 13. Value chain costing enables the firm to evaluate the worthiness of cost investment and to be useful for making decision.	5	4	3	2	1
14. Value chain costing enables the firm to compare the operation cost in the past and present.	5	4	3	2	1
15. Value chain costing enables the firm to reduce or cut non-productive activities in order to make cost management effective.	5	4	3	2	1
16. Value chain costing enables the firm to analyze and plan cost production accurately and suitably for the situations.	5	4	3	2	1
Expenditure Monitoring Report 17. Value chain costing enables the firm to report expense audit accurately and effectively.	5	4	3	2	1
18. Value chain costing enables the firm to classify and analyze expense data conformingly and suitably.	5	4	3	2	1
19. Value chain costing enables the firm to present correct data according to the real situations with full benefits.	5	4	3	2	1
20. Value chain costing enables the firm to report expense in time accurately and quickly according to the purposes of the users.	5	4	3	2	1

<u>Part 4</u> Opinion business outcomes of electronic and electrical appliances businesses in Thailand

Business Performance	Opinion Levels				
	Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
Cost Competitiveness 1. The operational cost is clearly lower than competitors.	5	4	3	2	1
2. The firm's innovative products are continuously more outstanding than competitors.	5	4	3	2	1
3. The firm can save the expense of product delivery more than competitors.	5	4	3	2	1
4. The firm's production line is continuously more effective with less time circle than competitors.	5	4	3	2	1
Strategic Achievement 5. The firm well achieves the organization's goal in operation quality.	5	4	3	2	1
6. The firm sets operational management professionally and acceptably.	5	4	3	2	1
7. The firm manages operation according to the strategic plans effectively and efficiently.	5	4	3	2	1
8. The firm has capability and potential enough for maintaining the competitive level in the present and future economic conditions.	5	4	3	2	1
Business Progressiveness 9. The firm produces quality products to be continuously available.	5	4	3	2	1
10. The firm products always meet market's demands.	5	4	3	2	1
11. The firm applies technology and techniques in new production well and effectively.	5	4	3	2	1
12. The firm operates smoothly under variable conditions.	5	4	3	2	1
Firm Performance 13. The firm's income continuously increases in comparison with the previous one.	5	4	3	2	1
14. The firm has the increasing market shares and the trend to continuously increase annually.	5	4	3	2	1
15. The firm has the increase of growth rate continuously in long term.	5	4	3	2	1
16. The firm receives dividend from investment in a high satisfactory level.	5	4	3	2	1
17. The firm is well-known and acceptable among customers and stakeholders regarding the capability to run business effectively and achieve the goal as planned.	5	4	3	2	1

<u>Part 5</u> Opinion on internal environmental operation of electronic and electrical appliances businesses in Thailand

Internal Environmental Operation	Opinion Levels				
	Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
Survival Vision					
1. The firm believes that the goal-setting policy for the future is helpful for more successful business operation.	5	4	3	2	1
2. The firm emphasizes on the continuous development of the good management system which enables the firm to effectively operate business under various situations in the future.	5	4	3	2	1
3. The firm always supports staff to learn and develop themselves to better increase effectiveness and competitive capability.	5	4	3	2	1
4. The firm enhances the application of modern technology in the management system for the continuous business success and advantages.	5	4	3	2	1
Organizational Learning Culture					
5. The firm believes that good organization learning culture is helpful for them to respond to new challenges and increase the adaptation ability for good operation.	5	4	3	2	1
6. The firm realizes that continuous and collaborative learning enables the firm to develop new innovation continuously.	5	4	3	2	1
7. The firm enhances knowledge sharing in the organization as operational guidelines for solving working problems and improving the firm in a more effective way.	5	4	3	2	1
8. The firm supports staff to propose ideas and new working models to increase organization improvement.	5	4	3	2	1
Cost Management Knowledge					
9. The firm believes that good cost management knowledge is helpful for enabling the firm to manage production cost more effectively.	5	4	3	2	1
10. The firm emphasizes the search for guidelines and methods for accurate cost dividend and effective cost estimation.	5	4	3	2	1
11. The firm is determined to reduce and eliminate non-profit activities to continuously reduce the operational expense and cost.	5	4	3	2	1
12. The firm focuses on the accurate and suitable evaluation of work performance which helps the firm to have continuous effective cost management.	5	4	3	2	1

<u>Part 5</u> Opinion on internal environmental operation of electronic and electrical appliances businesses in Thailand (Continued)

Internal Environmental Operation	Opinion Levels				
	Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
Modern Management Information System 13. The firm believes that modern management information system is helpful for data collection and the accounting report well responds to the users.	5	4	3	2	1
14. The firm emphasizes on the development of information technology system for modern management conforming to the organizational administration and facilitate and for users to receive accurate information according to their needs.	5	4	3	2	1
15. The firm focuses the application of the effective and continuous modern management information system to increase quality of relating accounting information.	5	4	3	2	1
16. The firm always realizes that the good modern management information system is useful for collecting and presenting the information in time, properly for the situations.	5	4	3	2	1
Innovative Climate 17. The firm believes that creative working atmosphere is helpful for success and growing operation.	5	4	3	2	1
18. The firm always enhances the development of modern management models to enable the firm to respond properly to the working conditions.	5	4	3	2	1
19. The firm is determined to continuously think up new production process to form the distinction and advantages over competitors.	5	4	3	2	1
20. The firm focuses on the search of new technology for the working process in order to increase the operation capability.	5	4	3	2	1
21. The firms supports the staff to suggest working ideas freely to facilitate creativity for new working models with more effectiveness and goal achievement.	5	4	3	2	1

<u>Part 6</u> Opinion on external environmental operation of electronic and electrical appliances businesses in Thailand

External Environmental Operation	Opinion Levels				
	Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
Volatile Competitive Pressure 1. With more variety of customers' demands, the firm focuses on studying and understanding them to be able to respond better to the demands.	5	4	3	2	1
2. Under variable economic conditions, the firm is determined to develop the management capability to cope well with various situations.	5	4	3	2	1
3. With more capable competitors, the firm is determined to present distinctive products in order to get more customers' acceptance.	5	4	3	2	1
4. With continuous launches of new products, the firm always emphasizes on research and new product development in order to overcome competitors.	5	4	3	2	1
5. With quick and continuous changes of technology at present, the firm is determined to apply new technology to always improve the production process to keep up with the present and future competition.	5	4	3	2	1
6. Under the uncertain of politic condition in Thailand, the firm is able to be flexible and adapt the operation quickly.	5	4	3	2	1

<u>Part 7</u> Suggestions concerning the operation of electronic and electrical appliance businesses in Thailand.

Thank you for your time and attention to this matter

APPENDIX H

Letters to the Experts

บันทึกข้อความ

หน่วยงาน คณะการบัญชีและการจัดการ มหาวิทยาลัยมหาสารคาม โทรศัพท์ 043-754333-3431 Fax 043- 754422

ที่ ศธ.0530.10/ **วันที่** 23พฤษภาคม 2560

เรื่อง ขอเรียนเชิญเป็นผู้เชี่ยวชาญตรวจสอบเครื่องมือวิจัย

เรียน ผู้ช่วยศาสตราจารย์ ดร.ศรัญญา รักสงฆ์

ด้วย นางสรินยา สุภัทรานนท์ นิสิตระดับปริญญาเอก หลักสูตรปรัชญาดุษฎีบัณฑิต (ปร.ด.) สาขาวิชาการบัญชี คณะการบัญชีและการจัดการ มหาวิทยาลัยมหาสารคาม กำลังศึกษาวิทยานิพนธ์ เรื่อง "ศักยภาพการบัญชีต้นทุนห่วงโซ่คุณค่าและผลการดำเนินงานของกิจการ: การทดสอบเชิงประจักษ์จากธุรกิจผลิตชิ้นส่วนอุปกรณ์อิเลคทรอนิกส์และเครื่องใช้ไฟฟ้าในประเทศไทย" ซึ่งเป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปรัชญาดุษฎีบัณฑิต ดังนั้น เพื่อให้การดำเนินการเป็นไปด้วยความเรียบร้อยและบรรลุตามวัตถุประสงค์ คณะการบัญชีและการจัดการ มหาวิทยาลัยมหาสารคาม จึงใคร่ขอความอนุเคราะห์ท่านเป็นผู้เชี่ยวชาญตรวจสอบเครื่องมือวิจัยและข้อเสนอแนะเพื่อนำข้อมูลที่ได้ไปดำเนินการทำวิทยานิพนธ์ต่อไป ตามเอกสารแนบท้าย

จึงเรียนมาเพื่อโปรดพิจารณา

(ผู้ช่วยศาสตราจารย์ ดร.นิติพงษ์ ส่งศรีโรจน์)
คณบดีคณะการบัญชีและการจัดการ

บันทึกข้อความ

หน่วยงาน คณะการบัญชีและการจัดการ มหาวิทยาลัยมหาสารคาม โทรศัพท์ 043-754333-3431 Fax 043- 754422

ที่ ศธ.0530.10/ วันที่ 23พฤษภาคม 2560

เรื่อง ขอเรียนเชิญเป็นผู้เชี่ยวชาญตรวจสอบเครื่องมือวิจัย

เรียน ผู้ช่วยศาสตราจารย์ ดร.เกสินี ทมิ่นไธสง

ด้วย นางสรินยา สุภัทรานนท์ นิสิตระดับปริญญาเอก หลักสูตรปรัชญาดุษฎีบัณฑิต (ปร.ด.) สาขาวิชาการบัญชี คณะการบัญชีและการจัดการ มหาวิทยาลัยมหาสารคาม กำลังศึกษาวิทยานิพนธ์ เรื่อง "ศักยภาพการบัญชีต้นทุนห่วงโซ่คุณค่าและผลการดำเนินงานของกิจการ: การทดสอบเชิงประจักษ์จากธุรกิจผลิตชิ้นส่วนอุปกรณ์อิเลคทรอนิกส์และเครื่องใช้ไฟฟ้าในประเทศไทย" ซึ่งเป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปรัชญาดุษฎีบัณฑิต ดังนั้น เพื่อให้การดำเนินการเป็นไปด้วยความเรียบร้อยและบรรลุตามวัตถุประสงค์ คณะการบัญชีและการจัดการ มหาวิทยาลัยมหาสารคาม จึงใคร่ขอความอนุเคราะห์ท่านเป็นผู้เชี่ยวชาญตรวจสอบเครื่องมือวิจัยและข้อเสนอแนะเพื่อนำข้อมูลที่ได้ไปดำเนินการทำวิทยานิพนธ์ต่อไป ตามเอกสารแนบท้าย

จึงเรียนมาเพื่อโปรดพิจารณา

(ผู้ช่วยศาสตราจารย์ ดร.นิติพงษ์ ส่งศรีโรจน์)
คณบดีคณะการบัญชีและการจัดการ

VITA

VITA

NAME	Mrs. Sarinya Suphatranon
DATE OF BIRTH	March 11, 1974
PLACE OF BIRTH	Tak Province
ADDRESS	593/1 Ramkamhang Road, Amphur Muang, Tak Province, Thailand 63000
POSITION OFFICE	Instructor and Researcher Rajamangala University of Technology Lanna, Tak Campus, 41/1 Phaholyothin Road, Amphur Muang, Tak Province, Thailand 63000

EDUCATION BACKGROUND

1997	Bachelor of Business Administration (Accounting) Rajamangala Institute of Technology Lanna Chiang Mai, Thailand
2006	Master of Accounting Phakklang University, Nakhon Sawan, Thailand
2018	Doctor of Philosophy (Accounting) Mahasarakham University Maha Sarakham, Thailand

RESEARCH

Suphatranon, S. and Ussahawanitchakit, P. (2016). The effect of Accounting Governance on Goal Achievement: An empirical of Listed Firms in Thailand. *The Business and Management Review*, 7(5), 105-111.