MANAGEMENT ACCOUNTING SYSTEM EFFECTIVENESS AND FIRM SUCCESS: EVIDENCE FROM INFORMATION AND COMMUNICATION TECHNOLOGY BUSINESSES IN THAILAND

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Abtracts: *Management accounting system is an instrument of business operations which executives have implemented to enhance critical decision-making, facilitating and managing information for the purpose of improving management. While management accounting system is important, its outcomes have become interesting issues of business practitioners and researchers. In this research, management accounting system effectiveness (MASE) becomes an important topic that is needed to verification and investigation. The purpose of this research is to investigate the impacts of MASE on the firm success of information and communication technology businesses in Thailand. Here, MASE is an independent variable of the research and firm success is a dependent variable of the research. Operational excellence, strategic congruence, and value creation are also the mediators of the research. A questionnaire is used as the research tool for data collection, and accounting managers or accounting directors of the companies are the key informants. The 193 information and communication technology companies in Thailand are samples of the research. The results of the research reveal that (1) both business planning efficiency and firm decision-making achievement positively impacts operational excellence; (2) organizational control quality positively affects strategic congruence, value creation, and firm success; and (3) corporate direction effectiveness positively influences operational excellence, strategic congruence, and value creation. Both operational excellence and strategic congruence also have positive relationships with value creation and firm success. Likewise, value creation has a positive influence on firm success. In summary, management accounting system effectiveness (MASE) is a main driver of explaining and enhancing firm success. This research generates theoretical contributions and managerial contributions. Conclusion, limitations of the research and suggestions for further research are provided in detail.*

Keywords: *Management Accounting System Effectiveness, Business Planning Efficiency, Organizational Control Quality, Corporate Direction Effectiveness, Firm Decision Making Achievement, Operational Excellence, Strategic Congruence, Value Creation, and Firm Success*

1. Introduction

The success of business in the present has to face new challenges with a wide variety of business environments that differ from the administration in the past. Due to factors or impacts on organizations, both directly and indirectly in various fields, the company must find ways and means and new management techniques to improve operational efficiency and

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better performance. One focuses on the management accounting system. It is a tool that administrators use to manage accounting information which can be used in the management process, including planning, organization, command, control, and decision-making for fixing the problems; as well as the allocation of corporate resources for the benefits of the leaders who choose to have a variety of events and problems. The use of management accounting information is intended to enhance the quality of business decisions (Sprinkle, 2003).

The management accounting system is the collection of data showing the results of operations and financial position of the business as well as the financial and non-financial perspectives. If the operator can manage the management accounting system effectively, it allows operators to monitor and analyze business decisions better (Gerdin, 2005). The preparation of accounting standards will assist in the distribution. The situation of the business is a clear system; it can monitor the operation easily. It is an instrument that allows analysis, better business decisions, and creates a monitoring system to support the growth of business in the future (Seliem et al., 2003)

The management accounting system is a system that is recognized and shows the importance for the success of the business (Alleyne & Weekes-Marshall, 2011). It increases the ability of the organization to achieve its objectives (Sulaiman, Ahmad & Alwi, 2004) and cause the value of the economic sustainability of the business (Chenhall & Morris, 1995). Thus, the effectiveness of management accounting system is in the advantage of using management accounting systems which create value to support strategic and tactical management for excellence in operations, enabling organizations to compete (Valanciene & Gimzauskiene, 2007). In addition, management accounting has to adapt in a changing environment over time in response to economic and competitive pressures. Changes and adjustments to keep pace with economic transformation can influence the process of management. Therefore, it is predicted that there is a relationship of the change in the external environment to the needs of the effectiveness of management accounting systems (Hussain, 2003).

Effectiveness of management accounting is in the advantage of using a system of accounting in business. The study of previous research has been conducted regarding the accounting practice of the art, with a focus on exploring the practice of accounting management of the Company (Joshi, 2001; Angelakis, Theriou & Floropoulos, 2010; Alleyne & Weekes-Marshall, 2011). The study of the factors that is important to the practice of modern managerial accounting (Shields, 1998; Haldma & Laats, 2002; Chia & Koh, 2007; Wu & Boateng, 2010). From the literature review, the management accounting systems lacks the empirical evidence to examine the impact of the effectiveness of management accounting which was inspired to study the benefits derived from the use of management accounting systems.

Currently, information and communications technology are vital to organizations to stimulate economic and social development of the country. The evolution and advancement in technology has expanded to almost everywhere in the world. Information and communications technology has become a part of the manufacturing industry to create opportunities for learning and access to information for people who want to use the information. Moreover, the technology is being developed continuously. Enabling the development of organizations to keep pace with the changes is required to take into consideration. Both public and private

sectors are presented as well as the importance of the development of information and communication technologies in the country. In Thailand, the government's policy on IT 2010 with a focus on the development and application of Information and Communications Technology in Thailand gives priority to the development of information technology and communications, respectively. The National Economic and Social Development Plan No. 8 (1997-2001) to No. 10 (2007-2011), and from the National Statistics Office survey revealed this in the industry in 2009, and the foreign growth trend continues. In the year 2009, the growth trend of Information and Communication Technology expects that goods and services in the country will; grow by more than five billion baht. It is the reason why organizations need to focus on accounting information quality management systems that are clearly to be able to detect, analyze and make business decisions better and create a monitoring system to support the growth of the business. The above explanation makes information technology and communications to be of interest to investors. As a contribution to the company's management, accounting information must have the quality, accuracy, timeliness, and reliability that is critical to decisions. This research will consider the effectiveness of the management accounting system of information and communication technology businesses in Thailand. The effectiveness of management accounting roles in the creation of financial and accounting information for internal and external are used in evaluating the financial condition. The results of the operations of the company to control a various unit (Lapsley, 1994), such financial reports show the value of their sales. The allocation of costs and in contribution margin (Lin & Yu, 2002), management accounting is a tool in managing resources efficiently to support a rational decision-making venture success (Cooper & Kaplan, 1991).

Accounting information is relevant to all stages of business, from the vision of financial statements that show the results of operations and financial position of the entity management potential for policy implementation appropriately. Accounting information system has been used to define the objectives of the organization, including management, profitability analysis, and breakeven point or rate of return on the investment strategies of the organization that are defined (Gerdin, 2005). Personnel of the organization are responsible for the management of the organization's leaders at various levels who are responsible for planning, controlling, and recording costs. Now, the decision is critical for organizations to achieve the competitiveness to enhance business growth (Libby & water house, 1996). Executive-level management accounting information can be used to instruct and motivate employees to work according to the plan. Using management accounting information to determine whether it is planned or not. That affects the decision in the selection of system of accounting for the usefulness of a management accounting system that is accurate, complete and has timely information on demand of the executive to decide policy strategy which can be made competitive.

For this research, management accounting system effectiveness refers to the benefits of using an accounting system that is designed specifically for companies that provide essential information that a firm needs to make decisions and projections. The data is used for planning the targeting of the firm's future, which is why it has the potential to make the business competitive. This research focuses on the effectiveness of the system, including performance

management accounting, organizational business planning, quality control, and oversight that contribute to the success of the businesses. In this research, management accounting system effectiveness consists of business planning efficiency, organizational control quality, corporate direction effectiveness, and firm decision-making achievement.

This research aims at investigating the effects of management accounting system effectiveness on firm success of information and communication technology businesses in Thailand via operational excellence, strategic congruence and value creation as the mediators of the research. The key research question is how management accounting system effectiveness is positively related to firm success. The specific research questions are as follows: (1) How do business planning efficiency, organizational control quality, corporate direction effectiveness, and firm decision-making achievement affect operational excellence, strategic congruence, value creation, and firm success? (2) How does operational excellence influence value creation and firm success? (3) How does strategic congruence impact value creation and firm success? and (4) does value creation have a relationship with firm success?.

2. Literature Review

To verify the management accounting system effectiveness-firm success relationships, management accounting system effectiveness is an independent variable of the research which includes business planning efficiency, organizational control quality, corporate direction effectiveness, and firm decision-making achievement. Firm success is also a dependent variable of the research. Likewise, operational excellence, strategic congruence, and value creation are the mediators of the study. Thus, the conceptual linkage and research model present in the associations between management accounting system effectiveness and firm success, are shown in Figure 1.

- *Theoretical Foundation*

To clearly understand the relationships among all constructs, the knowledge-based view of the firms is a significant theory that is applied to explain the relationships between management accounting system effectiveness and the consequences.

- *Knowledge-Based View of the Firms*

Knowledge-based view of the firms is an appropriate theory which is implemented to describe an ability of firms that can increase competitive advantage and superior firm performance (Hitt, Ireland & Hoskisson, 1999). The purpose of this theory is to establish those characteristics of knowledge relevant to the firms. This theory has had the expansion and fulfillment of the resource-based view of the firms because the knowledge-based theory of the firm considers that organizations are valuable and heterogeneous entities loaded with knowledge (Grant, 1996). Within the resource-based view framework, Barney (1991) argues that firms gain a sustainable competitive advantage when their assets and capabilities possess specific characteristics: these are rare, valuable, difficult to imitate and non-substitutable. The resource-based view of the firms focuses on resource and capability while knowledge-based view of the firms pays attention to knowledge as only one part of capability. In this research, management accounting system effectiveness is the knowledge of the firms that is a key source of competitive advantage and performance. Firms with greater management accounting system effectiveness are likely to achieve superior competitive advantage, firm performance, and firm success.

- *Management Accounting Systems Effectiveness*

Management accounting system has proposed its own use to achieve corporate goals. According to the International Federation of Accountant (IFAC), schedule management accounting is the process of described identifying, measuring, gathering, and analyzing data preparation and included data communications that are in both finance and operations. Based on management for planning and control efficiency from existing resources. Therefore, management accountants are part of the process of managing an organization (Chenhall, 2003). In addition, the report of the Financial Accounting Standard Board (FASB) No. 2 is a framework that defines "accounting" as the purpose of providing useful information to the decision (Romney & Steinbard, 2003). Therefore, the accounting system is part of the process of financial management which shows: 1) controlling the activities of the organization, 2) planning future strategy and technical operations, 3) resource management, 4) performance, 5) decisions and 6) the increase of communications, both internal and external (IFAC, 1998). This is consistent with the concept of Libby and Waterhouse (1996), consisting of system planning, operation controlling, cost savings, regulation or direction, and decision-making systems.

The quantity and quality of accounting information is available to management as an indicator of the organization. The quality of processing information is quickly to plan the future more effectively and meet the needs of investors with effective opportunities to solve problems (Simon, 2000; Chong & Eggleton, 2003). Furthermore, Chapman (1998) pointed out the system of accounting in organizations that managers have for learning about the problem. Results, suggestions and opportunities lead to the right decision. The decision is likely to result in the improved performance of the organization. Therefore, it is expected that the accounting system is designed correctly and appropriately to suit the needs of organizational context to promote effective decision-making. Simplified management is leading to improved performance of the firm (Chenhall & Morris, 1986; Mia & Chenhall, 1994; Chenhall 2003).

Management accounting demonstrates the importance of planning, decision making and operational controls (Gupta & Gunasekaran, 2005). More importantly, the data from the accounting system as a management tool of choice for controlling plays the critical role of management in increasing competitiveness (Elliott, 1992). The firms that succeed will have operational excellence with a consistent strategy that is still in the competition and creates value for its stakeholders. There is pressure from competition in the era of globalization. There is more to allow customers to receive service from a company that creates value. In the pressures of globalization and competition, companies are forced to make operations more efficient in the accounting system and achieve greater success. The effectiveness of management accounting system is increasing the challenge of the firm's operations in the 21st century (Gupta & Gunasekarden, 2005). The management accounting is responsible for the presentation of financial information relating to accuracy and reliability which are relevant to management for use in decision-making. The survival of the business depends on the capabilities and strategies of effective management in order to improve the quality of decisions. The accounting manager must realize more and more the role of information systems of management accounting that affects operational excellence and strategic congruence for enhancing value creation and achieving firm success. To make more

contributions, the management accounting system effectiveness-firm success relationships, and management accounting system effectiveness includes business planning efficiency, organizational control quality, corporate direction effectiveness, and firm decision-making achievement.

- *Business Planning Efficiency*

Business planning is concerned with the operation of the business in every aspect of accounting and marketing performance measures of performance that demonstrate the turnover of assets, return on assets and the increase in the earnings per share of the firm (Ang & Fatemi, 1985). Business planning involves choosing a plan, any plan or multiple plans together for packaging operations of acquisitions that result in better performance (Schwenk & Shrader, 1993; Miller & Cardinal, 1994; Ibrahim, Angelidis & Parsa2004). The data analysis is consistent with the strategic plan and benefit of the organization in the implementation and evaluation, as well as a review of plans to suit changing circumstances. Successful business planning is to define the goals of the business to achieve its vision and mission of the organization. Also, the official confirmation of the strategic planning affects the performance of the company (McManus, Saint-Pierre & Domonkos, 1995).

Business Planning Efficiency is a process to review of the activities of the alternatives that have been evaluated with the aim of achieving efficiency (Julian & Clapp, 2000). Business Planning Efficiency is the result that exposes the plan to make the operation clearly understood as to the evaluation of the success and direction of investment decisions (Ocasio & Joseph, 2008). It is consistent with Wangraj and Ussahawanitchakit (2013) who suggest that the strategic goals, objectives and decision guidelines to achieve organizational objectives and targets to efficiently and effectively plan, may be different in terms of time. A business plan will be suitable for the organization that has the consistency of goals or strategies to provide the creativity and change the situation (Whittington & Cailluet, 2008), and determine the success of the organization. Thus, business planning efficiency refers to the results obtained from the organization's business plan according to the policies and objectives of an administrative section that has setting and can be used in the management of the organization in time with a focus on resource utilization efficiency. Firms with more business planning efficiency tend to achieve higher operational excellence, strategic congruence, value creation, and firm success. Therefore, the hypothesis is provided as follows.

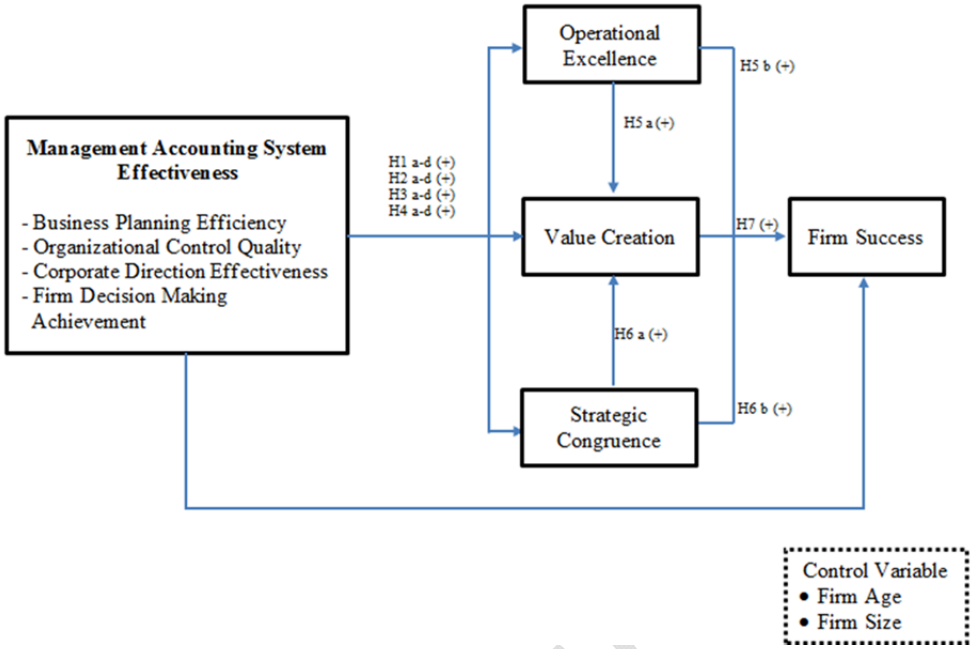
Hypothesis 1: *Business planning efficiency will positively relate to (a) operational excellence, (b) strategic congruence, (c) value creation, and (d) firm success.*

- *Organizational Control Quality*

Organization control is necessary in the management of the organization, but not limited to plans that include methods and standards. To make the operation more efficient and encourage compliance with the policies laid down by management, it can be defined as the expectation of a balance. A comparison between the actions of the members of the organization with the implementation of other perspectives (Shyam, 2002), is an evaluation process conducted by the smooth versus the actual goals or standards which were established. To measure the performance of the organization and control of the operations, is direction of the target. The control of the organization's efforts to increase opportunities for individual actions to

promote the goals of the organization (Flamholtz, Das & Tsui, 1985) is a measure of the efficiency of the organization and control. Several levels of

Figure 1
Conceptual model of management accounting system effectiveness and firm success



organization (Marchant, 1998) can effectively control the business success or strategic planning goals and performance standards of the organization. Additionally, the organization is the organization's efforts to increase the likelihood of success of the company (Basle, 2004) performance standards of the organization. It is the organization's efforts to increase the likelihood of success of the company (Basle, 2004).

In this research, organizational control quality is referring to level of output of the control and evaluation of continuous improvement of resources used efficiently and in accordance with the standards. The processes of controlling the activities of the organization meet or succeed in the expectations of plans, goals, and standards of the operation. Assessment of performance is an important control mechanism that allows achieving improvements in management practices that vary (Evans, 2005). Organization control quality of the service organization's control is an important factor affecting the quality (Ratnamiasih et al., 2012). So, the organization with control organization quality results in better decisions that will impact onthe potential for the organization to support organizations that drive the success of the business. Firms with greater organizational control quality seem to have more operational excellence, strategic congruence, value creation, and firm success. Therefore, the hypothesis is provided as follows.

Hypothesis 2: *Organizational control quality will positively relate to (a) operational excellence, (b) strategic congruence, (c) value creation, and (d) firm success.*

- Corporate Direction Effectiveness

The directing of the management of the business must be coordinated within the business and human resources to bring together work for the implementation to be effective. Allowing the use of existing

resources to get the full benefit of the procedure is to make the resources come together to work. Guidance to achieve goals, commands and incentives, or the directions is the management of the enterprise itself. Supervision of management is a very important and significant role in the film, directly in the planning and implementation of certain policies and acts as a key to supporting the work of the organization (Robbins & Coulter, 2003).

In this process, there must be communication between co-workers to get involved by setting guidelines to achieve direction involving the application of objectives as planned for, in working and preparing for a return to the incentive to work successfully. Brah and Lim (2006) found that the leadership of the executive has expected results in strategic planning. Planning an effective strategy to reduce costs enables new markets and builds customer service, which is considered a command and fixes problems caused by the work. The executive assigned to have authority and responsibility for the subordinates by motivating these individuals, has a duty to suit the ability and responsibility to achieve assigned duties to perform the assignment (Chai-amonphaisal & Ussahawanitchakit, 2010). The management must be ordered to make it clear to the individual within the organization to be aware of the duties and responsibilities. It includes incentives to individuals in the organization to have the common sense to do their duties toward each person to be the best in order to achieve the goals of the organization.

In this research, corporate direction effectiveness refers to management of the organization in order to monitor the responsibilities and performance. To implement performance based on planning, strategies, and goals of the company, the approach involves the directing achievement of the planned objectives of the work and provide incentives to return to work successfully. Firms with higher corporate direction effectiveness are likely to receive superior operational excellence, strategic congruence, value creation, and firm success. Therefore, the hypothesis is provided as follows.

Hypothesis 3: *Corporate direction effectiveness will positively relate to (a) operational excellence, (b) strategic congruence, (c) value creation, and (d) firm success.*

- *Firm Decision Making Achievement*

The management accounting system is to collect and provide useful information roles in providing information that is essential to achieve the goals, including control, decision-making (Roslender & Hart, 2003), and making choices that affect decisions (Badri, Davis, & Davis, 2001). That decision is made by one of the key executives of the management process, and is the difference of the decision process that leads to the selection of strategies and results of the operations of the firm (Dean & Sharfman, 1996). The decision of the cause, the practice of building its business is the potential and capacity to manage the target of consistent success strategies and environments that change rapidly (O 'Donnell & David, 2000). It can be seen that the accounting system is deployed for creating success and participating in decisions increasingly.

The literature review found that the decision refers to the act of a person to take action or to solve some problems (Solomon & Trotman, 2003). Consideration is to choose the probability of performance, or achievements of the Company to comply with the goals and the highest value (Chitmun & Ussahawanitchakit, 2012). Thus, in this research, firm decision-making

achievement refers to the success of alternative potential business that helps companies make the best decisions to achieve business objectives or goals of the company (Chenhall & Morris, 1995).

From the discussion above, this research expected that firm decision-making achievement is a distinctive dimension of management accounting system effectiveness (MASE) that seems to be highly important to uncover the effectiveness of management accounting system and contributes to strategic management superiority. The effectiveness of operational excellence value creation, strategic congruence, and firm success would be very interesting and useful to business practices. Firms with greater firm decision-making achievement are likely to achieve higher operational excellence, strategic congruence, value creation, and firm success. Therefore, the hypothesis is provided as follows.

Hypothesis 4: *Firm decision-making achievement will positively relate to (a) operational excellence, (b) strategic congruence, (c) value creation, and (d) firm success.*

- Consequence of Management Accounting System Effectiveness

- Operational Excellence

Excellence in operations will be instrumental in competition around the world the best companies perform and strive to develop faster than the competition (Bigelow, 2002). The operational excellence in the implementation of quality management philosophy is to focus on stakeholders and managing the development and continuous improvement of programs to be successful in the industry (Vrellas & Tsiotras, 2014). In a competitive business world the best company operates and strives to develop faster than the competition (Bigelow, 2002). Organizations with the ability to manage resources in line with best practice strategies are to achieve goals. The organization operating under the direct management of the company will choose the best practices in management in order to reduce the duplication of management that contributes to excellence in operations (Lyddon, 2010). So, excellence in operations is crucial for creating value and success for the company.

The literature review shows the importance of operational excellence for management accounting, as well as that of previous research, proposed that excellence in the implementation of strategic cost management improves operational planning, organizing and controlling so that excellence in operations will help the company achieve its business goals, increase its value to the company (Badri & Davis, 2000), the operational effectiveness of the organization that will reduce the resources of the economy, and the quality of the procedure to achieve goals and objectives; these include an increase in use, maintenance and protection. Ciptono (2005) found that the efficiency of the operation was demonstrated by the retention of profitable customers. Satisfaction of customers and related parties results in business by reducing the cost of operations through profitability and success of the company (Boonmunewai & Ussahawanitchakit, 2010). Operational excellence with a positive correlation to reliable social acceptance adds value to the organization (Scott, 1995) and has been both internal and external affairs (Sprinkle & Maines, 2010).

In this research, excellence in operations is defined as the firm's ability to use data from the accounting system to ensure the successful implementation of the company and the response. Changes in operations are recognized by the fact that both the internal and external corporate foundation of the administration of the organization’s

standard of work and the internet are suitable for high impact business goals and add value to the company (Badri & Davis, 2000). So, the company is trying to achieve and focus on excellence in carrying out its work, as this is the drive for operational excellence (Gordon, et al., 2009). Then, greater operational excellence is likely to have more value creation and firm success. Therefore, the hypothesis is provided as follows.

Hypothesis 5: *Operational excellence will positively relate to (a) value creation and (b) firm success.*

- *Strategic Congruence*

Management accounting system is partly a tool of business operations that provides information quality, gains competitive advantage, and achieves firm success. This information quality helps firms set a successful strategy in order to improve business performance, enhance corporate survival, and encourage organizational sustainability. Also, management accounting system effectiveness tends to integrate the different strategies of firms as a linkage strategy. Also, to make this strategy that drives in the same direction is called strategic congruence (Abushaiba & Zainuddin, 2012). Thus, strategic congruence refers to the firm that can apply managerial accounting practices for the deployment of clear management accounting information, in the strategic management of the firm, and to maintain competitive context in which value is created (Grundy, 1995; Manu and Sriam, 1996; Laonumtha and Ussahawanitchakit, 2013). Strategic congruence also allows companies to reduce uncertainty and its relationship to the development of internal affairs (Nohria & Garcia-point, 1991). Financial statements and operations are central to overseeing the operations of the business and to achieve the strategic goals for the success of the company (Iselin, Mia, & Sands, 2008, using the management account that allows the assessment achievement of company goals and perspectives (Valanciene & Gimzauskiene, 2007).

The goal of strategic congruence is to help companies increase profits. So, in this study, strategic congruence means companies that can implement account management for the use of management accounting information in a clear, strategic management of the company and to maintain competitiveness in the context that is created (Grundy, 1995; Manu & Sriam, 1996; Laonumtha & Ussahawanitchakit, 2013). The use of management accounting systems should continuously achieve the goal of global competitiveness and updates development in the consistency of the company's strategy that leads to the creation of value. Then, higher strategic congruence tends to have superior value creation and firm success. Therefore, the hypothesis is provided as follows.

Hypothesis 6: *Strategic congruence will positively relate to (a) value creation, and (b) firm success.*

- *Value Creation*

Value creation is the main objective that is important to demonstrate the ability of economic profitability. Return on investment is higher than the cost of the capital of the company to outperform competitors. This will lead to an increase in the value of a variety of factors. The quality of accounting information is to demonstrate the transparency of the organization and confidence of stakeholders. It will lead to an increase in value creation (Kaewprapa & Ussahawanitchakit, 2012).

However, management accounting information is useful and sufficient for the decision that reflects the value or competitive advantage to create value for

the firm (Ernst & Young, 2010).Therefore, in this study, value creation refers to the ability of companies to practice good accounting principles according to correct accounting. With the accounting information they need, responds to the needs of stakeholders and at best causes continued good image. Suttachai (2008) found that the account information that is reliable and relevant to the decision of the stakeholders demonstrates the effect on the profitability of the company. Also, Toulson and Dewe (2004) proposed that the value impact on the fortunes of the firm in the long term, demonstrates the success of the business. Thus, more value creation seems to have greater firm success. Therefore, the hypothesis is provided as follows.

Hypothesis 7: *Value creation will positively relate to firm success.*

- *Firm Success*

The firm's ability to adapt to the environment in order to achieve a competitive advantage over competitors' sustainable growth and profitability continues. To achieve the desired success, organizations will need to plan, control and coordinate the oversight and decisions of many agencies and employees at different levels in order to survive. In the era of globalization, it is a complex operation, both in terms of increased products and services, as well as uncertainty. Thus, management accounting is an important parameter for the survival of the business (Emmanual, Neelin, & Bretherton, 1994). Firm success demonstrates the importance of factors that affect the ability of the company in profitability, customer retention of existing and new customers, and an increase in the return on investment that is higher. However, many studies have shown important insights that influence a firm's success. In fact, the company's ability to compete in the global economy requires multidimensional capabilities of organizations; including the cost of production, customer focus, speed, innovation, operational excellence, and financial performance (Mohrman, Finegold & Mohrman, 2003).

The success of the companies that have the potential to achieve the objectives of the business in terms of overall performance, include four main views: finance, customers, internal business process, and learning and growth. Consistent with firm success, the dimensions are collected data from customer satisfaction, return on investment, product quality improvement, sales volume, market share, and profitability (Cadez & Guilding, 2008). Thus, this research defines firm success as the increase in earnings from operations, increased customer acceptance, sales growth and market share and it also includes a good image of the firm that has resulted in an increase in making investment decisions (Robin, 1992; Cadez & Guilding, 2008; Krumwiede, 2008).

3. Research Methods

- *Sample Selection and Data Collection Procedure*

This research studies the antecedents and the consequences of management accounting system effectiveness regarding information and communication technology businesses. The population is the information and communication technology businesses in Thailand, a totaling 12,630 companies from the Ministry of Information and Communication Technology of the Thai government on December 31, 2013.

The key informants are the accounting managers and accounting directors of the firms. The research employs a questionnaire as the instrument for collecting data. The questionnaire design was developed from an extensive review of the literature that was examined by

academics to improve and choose the best possible scale of measurement. This is a widely-used method for large-scale data collection in behavioral accounting and auditing research, because a representative sample can be collected from the chosen population in a variety of locations at a low cost (Kwok and Sharp, 1998). According to Yamane (1973), a sample size is 388 companies. For sending the questionnaires without following up, the response rate is not over 20% (Aaker, Kumar, & Day, 2001). Then, the appropriate samples of this research are 1,940 companies as calculated from 388 companies divided by 20%. The 1,940 questionnaires were directly distributed by mail to the accounting manager or accounting director of each firm. Then, the completed questionnaires were directly sent back to the researcher by prepaid return envelopes for ensuring confidentiality. Each package of the instrument consisted of a cover letter containing an explanation of the research, a questionnaire, and a pre-paid postage envelope.

The plan was to collect the data within eight weeks. In the first stage, the questionnaire was answered and returned to the researcher in the first four weeks. After four weeks, in order to increase the response rate, a follow up postcard was sent to firms which had not yet replied, reminding them to complete the questionnaire and asking them to cooperate in answering the questionnaire. For the convenience of a follow-up mailing, each questionnaire was assigned a coded number on the left corner on the back of the page of the questionnaire.

The questionnaires were directly distributed to 1,940 information and communication technology businesses in Thailand. The successful questionnaires mailing was 1,602 surveys, from which 193 responses were returned and completed. Accordingly, the response rate of this research 12.05%. Previous research mentions that the 12.05% for a response rate is considered acceptable (Morton et al., 2012). Even though the response rate is lower than 20%, the number of completed questionnaires is almost 200 and is acceptable. This research uses all of received questionnaires which were processed for regression analysis. According to Armstrong and Overton (1977), predictions of the magnitude of bias were also examined by extrapolation methods in the assumption that subjects who answer later or require more prodding to answer are more likely to be treated as non-respondents. In order to prevent possible response bias problems between respondents and non-respondents, a non-response bias test must be done to confirm that non-respondents are not different from respondents. Non-response bias corresponds to the test by a t-test comparison of the demographics (business capital registered, total firm assets, number of employees, operating time, and average sales per year) between early and late respondents (Armstrong & Overton, 1977). Any survey should be aware of non-response bias; therefore, the responses from the first group mailing are used to compare with those received from the second group mailing on the basis of firm characteristics. If there is no statistically significant difference between the early and late respondents, it shows that the non-response bias does not pose a major problem (Nwachukwu et al., 1997).

- *Variable Measurement*

    - *Dependent variable*

Firm success is the increase in earnings from operations, number of customers, product quality, sales, and market share that has resulted in an increase in making investment decisions (Robin, 1992; Cadez & Guilding, 2008; Krumwiede, 2008). A five-item scale is modified from Wangraj and Ussahawanitchakit (2013) to gauge the

increase of earnings from operations, number of customers, product quality, sales, and market share.

- *Independent variables*

Business planning efficiency is the results obtained from the organization's business plan, according to the policies and are an objective that the administrative section has set. It can be used in the management of the organization in time, with a focus on resource utilization efficiency. A four-item scale is developed to measure the operational outcomes of firms that occur from setting business plans according to their objectives and policies.

Organizational control quality is the level of output of the control and evaluation that continuously leads to the improvement of resource use efficiency and is in accordance with the standards (Evans, 2005). A four-item scale is developed to assess the improvement level of business operations and resource uses.

Corporate direction effectiveness is the management of the organization in order to monitor responsibilities and performance. It implements performance based on planning, strategies, and goals of the company. A four-item scale is developed to gauge the achievement of business goals and strategies.

Firm decision-making achievement is the success of alternative potential business that helps companies make the best decisions to achieve the business objectives or goals of the firm. A four-item scale is developed to evaluate the effectiveness of the decision-making activities of firms.

- *Mediating Variables*

Operational excellence is the ability of a firm to use information from management accounting systems in operations providing the firm success, and respond to operational changes that are recognized both internally and externally concerning the organization. A four-item scale is developed to measure the efficient outcomes of business operations.

Strategic congruence is the firm's ability that can apply managerial accounting practices for the clear deployment of management accounting information. This is in the strategic management of the firm and is directed towards the competitive context in which value is created. A four-item scale is developed to evaluate the integration and linkage of business strategies.

Value creation is the firm's ability to practice good accounting which utilizes accurate accounting principles and gives information on the account with the desired data. It is responding to the needs of stakeholders at best and causing a good image for outsiders (Mauboussin & Bartholdson, 2002). A four-item scale is developed to assess the benefits and advantages of management accounting system effectiveness.

- *Control Variables*

Some variables may affect the dependent variables in this conceptual model. Therefore, the inclusion of the control variable reduces them to spurious relationships (Shield & Vo, 2010). Based on the management accounting literature, two variables are needed to be controlled: firm age and firm size (Chitmun & Ussahawanitchakit, 2012). In this research, two control variables are included to account for firm characteristics that may influence the hypothesized relationships, which are firm age and firm size. Firm success may be influenced by firm age and firm size because it may be able to achieve superior performance (Ussahawanitchakit, 2005; Banker, Bardhan, & Chen, 2008). In addition, most strategic management literature indicates that firm age and firm size are the main factors pursuing firm success and firm competitive advantage

(Brush & Chaganti, 1999). The related literature is detailed as follows:

Firm age. Firm age is defined as a firm's experience measured by the number of years a firm has been in operation (Laonamtha, Ussahawanitchakit & Boonlua, 2013). A firm age is longer than others, can improve productivity and increase profitability that continues the lower debt ratio and make for a higher equity ratio (Coad, Segarra & Teruel, 2013). In detail, a firm age shows that the business has progressed toward performance and survival in areas such as new investments, learning, and developing (Agarwal & Gort, 2002; Talebnia et al., 2010). In detail, firm age is significantly relative to cost management formed by the study of Kenyon and Meixell (2011). In this research, firm age becomes a control variable because in an environment of uncertainty, and where complexity increases, it may increase managerial opportunism and reduce risk (Folta, 1998). Moreover, firm age may affect managerial accounting practice to provide managerial accounting information quality, especially with respect to accounting practice and accounting experience. In this research, firm age is represented by a dummy variable in which 0 means the firm has been in business less than or equal to 15 years, and 1 means the firm has been in business more than 15 years.

Firm size. Firm size is defined as the total assets of the firm (Joshi, 2001). Firm size is measured by the total assets of the firm. Firm size is a determinant of organizational success and explains the value of firm performance (Cinca, Callen & Molinero, 2005). Prior research has indicated that firm size is an important variable affecting changes designed to improve firm performance (Boateng & Glaister, 2002). In addition, firm size is an important factor in the design of certain characteristics of managerial accounting practice in organizations, such as large organizations that have more resources to finance the introduction of new systems and new practices into the organization (Joshi, 2001). Furthermore, large firm usage levels of new managerial accounting practices are usually high. In this research, firm size is represented by a dummy variable in which 0 means a firm has total assets lower than or equal to 50,000,000 baht, and 1 means a firm has total assets more than 50,000,000 baht.

Table 1
Results of Validity and Reliability Testing

Variables	n	Factor Loadings	Cronbach's Alpha
Firm Success (FSu)	30	0.670-0.932	0.881
Business Planning Efficiency (BPE)	30	0.867-0.950	0.931
Organizational Control Quality (OCQ)	30	0.877-0.893	0.907
Corporate Direction Effectiveness (CDE)	30	0.821-0.864	0.868
Firm Decision Making Achievement (FDA)	30	0.786-0.913	0.894
Operational Excellence (OE)	30	0.616-0.855	0.800
Value Creation (VC)	30	0.835-0.903	0.899
Strategic Congruence (SC)	30	0.852-0.922	0.911

- *Method*

In this research, testing the validity and reliability of a questionnaire as qualities of a good instrument were conducted from the pre-test of thirty information and communication technology businesses in Thailand. These were tested by factor analysis and Cronbach's alpha, respectively, to improve the questionnaire so as to ensure validity and reliability. Factor analysis was implemented to examine the underlying relationships of a large number of items and to determine whether they can be reduced to a smaller set of factors. The factor analyses were conducted separately on each set of the items representing a particular scale due to limited observations. With respect to the confirmatory factor analysis, this analysis has a high potential to inflate the component loadings. Thus, as a higher rule-of-thumb, a cut-off value of 0.40 was adopted (Nunnally & Bernstein, 1994). All factor loadings are greater than the 0.40 cut-off and are statistically significant. The reliability of the measurements was secondly evaluated by Cronbach's alpha coefficients. In the scale's reliability, Cronbach's alpha coefficients are greater than 0.70 (Nunnally & Bernstein, 1994). The scales of all measures appear to produce internally consistent results; thus, these measures are deemed appropriate for further analysis because they express an accepted validity and reliability in this study. Table 1 presents the results for both factor loadings and Cronbach's alpha for multiple-item scales used in this study.

- *Statistical Techniques*

The ordinary least squares (OLS) regression analysis is used to test and examine the hypothesized relationships between the dependent variables and independent variables, because both dependent and independent variables in this research are categorical and interval data (Hair et al., 2010). Then, the aforementioned variables play significant roles in explaining the research relationships. Because the dependent variable, independent variables, and the control variables in this study were neither nominal data nor categorical data, OLS is an appropriate method for examining the hypothesized relationships (Aulakh, Kotabe & Teegen, 2000). With the interest of understanding the relationships in this study, the research equation of these relationships is depicted as follows.

$$\textit{Equation 1: } OE = \alpha_{01} + \beta_1 BPE + \beta_2 OCQ + \beta_3 CDE + \beta_4 FDA + \beta_5 FA + \beta_6 FS + \varepsilon_1$$

$$\textit{Equation 2: } VC = \alpha_{02} + \beta_7 BPE + \beta_8 OCQ + \beta_9 CDE + \beta_{10} FDA + \beta_{11} FA + \beta_{12} FS + \varepsilon_2$$

$$\textit{Equation 3: } VC = \alpha_{03} + \beta_{13} OE + \beta_{14} FA + \beta_{15} FS + \varepsilon_3$$

$$\textit{Equation 4: } VC = \alpha_{04} + \beta_{16} SC + \beta_{17} FA + \beta_{18} FS + \varepsilon_4$$

$$\textit{Equation 5: } SC = \alpha_{05} + \beta_{19} BPE + \beta_{20} OCQ + \beta_{21} CDE + \beta_{22} FDA + \beta_{23} FA + \beta_{24} FS + \varepsilon_5$$

$$\textit{Equation 6: } FSu = \alpha_{06} + \beta_{25} BPE + \beta_{26} OCQ + \beta_{27} CDE + \beta_{28} FDA + \beta_{29} FA + \beta_{30} FS + \varepsilon_6$$

$$\textit{Equation 7: } FSu = \alpha_{07} + \beta_{31} OE + \beta_{32} VC + \beta_{33} SE + \beta_{34} FA + \beta_{35} FS + \varepsilon_7$$

4. Results and Discussion

- *Descriptive Statistics and Correlation Matrix*

Table 2 presents the descriptive statistics and correlation matrix for all variables. With respect to potential problems relating to multicollinearity, variance inflation factors (VIFs) were used to provide information on the extent to which non-orthogonality among independent variables inflates standard errors. The VIFs

range from 1.044 to 2.993, which is well below the cut-off value of 10 recommended by Neter, Wasserman, and Kutner (1985), meaning that the independent variables are not correlated with each other. Therefore, there are no substantial multicollinearity problems encountered in this study.

Table 2
Descriptive Statistics and Correlation Matrix

Variables	FSu.	BPE	OCQ	CDE	FDA	OE	SC	VC	FA	FS
Mean	3.6415	4.0946	4.0168	3.8938	3.9935	3.9158	3.9132	3.9870	n/a	n/a
S.D.	0.68734	0.59931	0.59515	0.64073	0.60619	0.58883	0.69915	0.67453	n/a	n/a
FSu.	1									
BPE	0.344***	1								
OCQ	0.504***	0.649***	1							
CDE	0.407***	0.569***	0.556***	1						
FDA	0.393***	0.543***	0.593***	0.703***	1					
OE	0.484***	0.441***	0.394***	0.526***	0.529***	1				
VC	0.497***	0.445***	0.533***	0.479***	0.363***	0.649***	1			
SC	0.548***	0.405***	0.429***	0.417***	0.346***	0.663***	0.791***	1		
FA	0.077	0.105	0.233***	0.134	0.184**	0.221***	0.142**	0.105	1	
FS	0.073	0.113	0.038	0.066	-0.110	0.037	0.163**	0.108	0.104	1
*** p < 0.01, ** p < 0.05										

- *Hypothesis Testing and Results*

Table 3 presents the results of OLS regression analysis of the relationship between Management accounting system effectiveness and firm success. Management accounting system effectiveness includes business planning efficiency, organizational control quality, corporate direction effectiveness, and firm decision-making achievement.

The evidence in Table 3 relates to business planning efficiency (Hypotheses 1a–1d). The findings show the relationship between business planning efficiency and operational excellence has a significant positive effect as $\beta_1 = 0.166$, $p < .05$. Successful business planning is to target businesses that can help achieve the vision and mission of the organization. The business plan is any plan, and the plan involves selecting one or several sheets together to make the filling for the operation of the business that in turn, makes the performance as well (Ibrahim, Angelidis, & Parsa, 2004). Effective business planning is defined as the process of defining opinion on future activities of the alternatives that have been evaluated, with the aim of achieving absolute efficiency (Julian & Clapp, 2000). At this point, business planning efficiency is positively related to operational excellence. ***Thus, Hypothesis 1a is supported.***

Nevertheless, business planning efficiency also has no significant effects on value creation ($\beta_7 = 0.131$, $p > .10$), strategic congruence ($\beta_{19} = 0.079$, $p > .10$), and firm success ($\beta_{25} = 0.065$, $p > .10$). The business planning efficiency thus prepared is consistent and beneficial to the organization, implementation and evaluation, as well as a review of plans to suit changing circumstances. The plan will be beneficial to the organizations. Currently, there are numerous businesses that lack planning or mapping which is based on correct principles, and used for the benefit of the organization. ***Thus, Hypotheses 1b – 1d are not supported.***

In light of organizational control quality (Hypotheses 2a – 2d), the results indicate

that organizational control quality positively relates to value creation (β_8 = 0.221, p < .05), strategic congruence (β_{20} = 0.371, p < .01), and firm success (β_{26} = 0.418, p < .01). Effective control can be defined as a systematic process of regulating organizational activities to make successful acquisitions or strategic planning goals and performance standards of the organization, increasing the likelihood of success of the business (Basle, 2004). Evaluation of performance as control mechanisms that help to improve the success of the firm is in accordance with Ratnamiasih et al. (2012) who found that the quality control of organizations and the services control the organization was an important factor affecting the quality (McPhail, Herington & Guilding, 2008; Evans, 2005). For organizational control to make operations more efficient and promote the implementation of the policy, management has to be aware of the irregularities that occur in the organization and to avoid impacts to the business in a timely manner. It allows administrators to create a competitive advantage. Organizational control quality makes better decisions with better outcomes for the organization and the potential to support organizations that drive the success of the business (Wangraj & Ussahawanitchakit, 2013). These overall reasons indicate that organizational control quality plays a significant role in value creation, strategic congruence, and firm success. ***Thus, Hypotheses 2b – 2d are supported.***

Nevertheless, organizational control quality also has no significant effects on operational excellence (β_2 = 0.041, p > .10). This is consistent with Ittner and Larcher (1997) who found a negative relationship between control strategies (such as market research, benchmarking and monitoring strategic) and performance of the company upon the level of control and evaluation, so as to meet the standards that managers need to be careful with the consequences. ***Thus, Hypotheses 2a not supported.***

The results relate to corporate direction effectiveness (Hypotheses 3a – 3d). The evidence reveals that corporate direction effectiveness positively relates to operational excellence (β_3 = 0.248, p < .01), value creation (β_9 = 0.215, p < .01), and strategic congruence (β_{21} = 0.279, p < .01). This is consistent with many researchers, that supervision of management has a very important and significant role in governance directly in the planning and the implementation of certain policies, and serving importantly to support the work of the organization (Robbins & Coulter, 2003). The directing systems that allow developers, can use existing resources for advantage in the process of bringing those resources to work together. Also, Brah and Lim (2006) found that the leadership of the senior management expected in strategic planning in the firm benefits for overseeing the compliance of the management to decide how to best for the resources of the company in accordance with the plan, strategy, and policy of the firm. From these overall reasons, it is indicated that corporate direction effectiveness plays a significant role in operational excellence, value creation, and strategic congruence. ***Thus, Hypotheses 3a-c are supported.***

Nevertheless, corporate direction effectiveness also has no significant effects on firm success (β_{27} = 0.149, p > .10). Command and incentives, directing the management of the organization, are to help businesses take full advantage of the resources available for the process of bringing together all resources to achieve the goals and set guidelines. Supervisors may require employees under their command to command and check the date recommended and to solve the problems that may arise in the performance of an interoperable portfolio. When the output

produced under the standard production of managers and supervisors need to quickly take action, it could be a new technique or equipment, or remedial action taken for new materials to replace the original to yield the correct standard, and may result in the success of the business down. ***Thus, Hypothesis 3d is not supported.***

Firm decision-making achievement (Hypotheses 4a-d) significantly and positively relates to operational excellence (β_4 = 0.267, p < .01). This is consistent with KUNC and Morecroft (2010) who found that decisions are related to the management concept of resource development and performance of the firm. Management accounting information makes choices that new information may affect how people make decisions (Badri, Davis & Davis, 2001). The decision is the key administration and differences of the decision process that lead to the selection strategy and results in the operations of the company (Dean & Sharfman, 1996). It represents a decision to increase the capacity of its capabilities towards firm success (Chenhall, 2003). ***Hence, Hypothesis 4a is supported.***

Nevertheless, firm decision-making achievement also has no significant effects on value creation (β_{10} = 0.000, p >. 10), strategic congruence (β_{22} = 0.085, p >. 10), and firm success (β_{28} = 0.094, p >. 10). The decision was also one of the important activities of the administration, and the difference in the decisions to be taken to a form of strategic options and the operation of the firm (Dean & Sharfman, 1996). However, the firm needs to seek to build technical solutions. The choice is to provide relevant information to managers who should be wary of the company's decision (Chenhall, 2003). ***Thus, Hypotheses 4b-d are not supported.***

The evidence in Table 3 indicates that operational excellence has significant and positive relationships to value creation (β_{13} = 0.671, p < .01), and firm success (β_{31} = 0.199, p < .05). Operational excellence is the ability of the enterprise to use information from an accounting system administrator to set performance goals, and improvement processes and analyze data in the operational success of the business. Consistent with Vrellas, Charisis and George (2014), it was found that operational excellence is a philosophy of quality management, development and continuous improvement in the commitment to firm success. Operational excellence demonstrates the operation was profitable (Ciptono, 2005); businesses can be achieved by reducing the cost of operations through profitability and success of the company (Boonmunewai & Ussahawanitchakit, 2010). Operational excellence has a positive impact on the reliability of corporate social acceptance, and adds value to the organization (Scott, 1995). ***Hence, Hypotheses 5a and 5b are supported.***

Similarly, the results indicate that strategic congruence is significantly and positively related to value creation (β_{16} = 0.795, p < 0.01). Strategic congruence of a coherent strategy to achieve strategic goals and performance optimization enables companies to reduce uncertainty and evolve within the enterprise (Nohria & Points, 1991) the firm has the resources to assist in timely and efficient decisions (Laonumtha & Ussahawanitchakit, 2013). Customer strategies, production strategies and tactics, management accounting quality are part of the success, providing information to enhance strategic goals (Abushaiba & Zainuddin, 2012). ***Thus, Hypothesis 6a is supported.***

In contrast, the results reveal that strategic congruence does not significantly affect firm success (β_{32} = 0.101, p > .10). Management accounting systems information becomes the primary operating system for the business in the storing, summarizing, analyzing and reporting of information to all who want

reliable accounting information and useful (O'Donnell & David, 2000). Consistent with Nicolaou (2000), information needs of different levels of user information will affect the performance of the data and the complexity of the data; the processes of governance causes reduced performance. ***Thus, Hypothesis 6b is not supported.***

Moreover, the results indicate that value creation is significantly and positively related to firm success (β_{33} = 0.337, p < 0.01). This is consistent with prior research which found that impact on value creation in the long term prosperity of the company demonstrates the success of the business (Toulson & Dewe, 2004). ***Thus, Hypothesis 7 is supported.***

Table 3
Results of OLS Regression Analysis[a]

Independent Variables	Dependent Variable						
	OE. Eq. 1	**VC.** Eq. 2	**SC.** Eq. 5	**FSu.** Eq. 6	**VC.** Eq. 3	**VC.** Eq. 4	**FSu.** Eq. 7
Management Accounting System Effectiveness :							
Business Planning Efficiency (BPE : H1a-d)	**0.166**** **(0.083)**	0.131 (0.090)	0.079 (0.083)	0.065 (0.088)			
Organizational Control Quality (OCQ : H2a-d)	0.041 (0.085)	**0.221**** **(0.092)**	**0.371***** **(0.085)**	**0.418***** **(0.090)**			
Corporate Direction Effectiveness (CDE : H3a-d)	**0.248***** **(0.088)**	**0.215**** **(0.096)**	**0.279***** **(0.089)**	0.149 (0.093)			
Firm Decision-Making Achievement (FDA : H4a-d)	**0.267***** **(0.129)**	0.000 (0.099)	0.085 (0.092)	0.094 (0.097)			
Operational Excellence (OE: H5a-b)					**0.671***** **(0.055)**		**0.199**** **(0.085)**
Strategic Congruence (SC: H6a-b)						**0.795***** **(0.045)**	0.101 (0.103)
Value Creation (VC: H7)							**0.337***** **(0.103)**
Control Variables:							
Firm Age (FA)	**0.129**** **(0.122)**	0.004 (0.133)	0.014 (0.123)	0.058 (0.129)	-0.053 (0.111)	-0.005 (0.090)	-0.018 (0.123)
Firm Size (FS)	0.020 (0.124)	0.070 (0.134)	**0.111*** **(0.124)**	0.071 (0.130)	0.089 (0.109)	-0.021 (0.091)	0.014 (0.123)
Adjusted R^2	0.337	0.221	0.334	0.264	0.440	0.620	0.313
Maximum VIF	2.430	2.430	2.430	2.430	1.062	1.044	2.993

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

For the control variable, the results indicate that firm age has a significant positive relationship with operational excellence (β_5 = 0.129, p < .05), meaning that the firm with more than 15 years in business operation has more operational excellence. However, firm age does not reflect a focus on value creation (β_{11} =

0.004, p > .10), strategic congruence (β_{23} = 0.014, p > .10), and firm success (β_{29} = 0.058, p > .10). Also, firm age has no statistically significant effects on the relationship to value creation and firm success (β_{14} = -0.053, p > .10; β_{17} = -0.005, p > .10; β_{34} = -0.018, p > .10, respectively). It may imply that firm age does not impact value creation, strategic congruence, and firm success.

Lastly, firm size has a significant positive relationship with strategic congruence (β_{24} = 0.111, p < .10), meaning that a firm with more than 15 years in business operation has more strategic congruence. Besides, it is not significantly related to operational excellence (β_{6} = 0.020, p > .10), value creation (β_{12} = 0.070, p > .10), and firm success (β_{30} = 0.071, p > .10). Moreover, firm size has no statistically significant effects on the relationship to value creation and firm success (β_{15} = 0.089, p > .10; β_{18}= -0.021, p > .10; β_{35} = 0.014, p > .10, respectively). The result shows that firm size does not impact operational excellence, value creation, and firm success.

5. Contributions

- *Theoretical Contribution*

This research provides a clear understanding of the relationships among management accounting system effectiveness and firm success of the information and communication technology business in Thailand. In addition, operational excellence, value creation, strategic congruence, and firm success under the moderating effects of accounting learning capability influence these relationships. Furthermore, the study is intended to expand the theoretical contributions to the previous knowledge and literature of management accounting system effectiveness. Moreover, the contribution of the theoretical is empirically testing with the consequent constructs of which there are only a few research studies in this management accounting system discipline.

Another contribution is the identification of the four dimensions of management accounting system effectiveness for empirical study which provides an important theoretical contribution by expanding on four dimensions that are significant and positively related to operational excellence, value creation, strategic congruence, and firm success. According to the results of this study, the need for further research is apparent because this study finds that some dimensions of management accounting system effectiveness do not associate with the consequences.

The results of this research confirm theory namely, the knowledge-based view of the firms which supports the overall association of variables in this conceptual model. The knowledge-based view of the firms is applied to explain the four dimensions of management accounting system effectiveness (business planning efficiency, organizational control quality, corporate direction effectiveness, and firm decision-making achievement) and its consequences (operational excellence, value creation, strategic congruence, and firm success).

- *Managerial contributions*

The results are the beneficial contribution for practitioners. The research provides evidence for the role of management accounting system effectiveness influencing business operations to achieve competitive advantage and enhance firm success by focusing on management accounting system effectiveness such as business planning efficiency, organizational control quality, corporate direction effectiveness, and firm decision-making achievement which have effects on an organization's behavior. In addition, management accounting system effectiveness helps lead to important organizational capability which is

operational excellence, value creation, and strategic congruence toward firm success. Interestingly, this research provides a better understanding of how the firm can encourage management accounting system effectiveness.

In conclusion, management accounting system effectiveness is important for business success and organizational sustainability. Managers should thoroughly understand, manage, and then utilize management accounting system effectiveness by planning, organizing, directing, and decision-making within the organization; and, for organizational members to provide operational excellence, value creation, and strategic congruence. Consequently, firms can generate operational excellence, value creation, strategic congruence, and firm success.

6. Limitations and Suggestions for Future Research

- *Limitations*

This research has some limitations that should be mentioned, and are due to the slowdown of the economic system, and cessation of firm operation. In addition, the Ministry of Information and Communication Technology of the Thai government lacks updated information on the current status of firms from the closure or change that affects recipients returned mail survey questionnaire.

- *Future Research Directions*

The results of this research are obtained only from the 193 information and communication technology businesses in Thailand; thus, future research should try using other populations or samples, either in or out of Thailand, for comparative study purposes, so as to broaden the perspective of the research. Besides, future research may apply to other methods such as in-depth interviews and case studies to collect the data. To verify and confirm the research results, researchers may apply the in-depth interview method to recheck the results because some information and data could not be derived from the questionnaires. However, talking to key informants may result in better and receive valuable information. For the case studies, researchers will achieve insight information on each company that could make contributions to the existing study and further study.

In addition, some hypotheses are not statistically significant. As a result, future research needs to re-investigate the research hypotheses that are not statistically significant and should consider further study. Thus, future research is needed to recheck the relationships in the conceptual model and find a new measurement. Likewise, future research should focus on increasing the response rate of the study. With the prior studies, the more response rate to the research will add more respondents of the research that make greater reliability and credibility of that research.

References:

Aaker, D. A., Kumar, V., & Day G. S. (2001). Marketing Research. New York: John Wiley and Sons.

Abbott, R. (2004). Integration and Structuring for Enhanced Knowledge Management. *Drug Information Journal.* 38(2), 187-196.

Abushaiba I. A., & Zainuddin Y. (2012). Performance measurement system design, competitive capability and performance consequences – a conceptual Like. *International Journal of Business and Social Science*, 3(11), 184-193.

Agarwal, R., & Gort, M. (2002). Firm Product Life Cycles and Firm Survival. *American Economic Review*, 92, 184-190.

Alleyne, P., & Weekes-Marshall, D. (2011). An Exploratory Study of Management Accounting Practices in Manufacturing Companies in Barbados. *International Journal of Business and Social Science*, 2(9), 49-50.

Armstrong, P., Marginson, P., Edwards, P., & Purcell, J. (1996). Budgetary control and the labour force: Findings from a survey of large British companies. *Management Accounting Research,* 7(1), 1 – 23.

Ang J.S., & A.M. Fatemi. (1985). Financial planning and performance: An empirical investigation. *Advances in Financial Planning and Forecasting*, 1, 225–240.

Angelakis, G., Theriou, N., & Floropoulos, I. (2010). Adoption and benefits of management accounting practices: Evidence from Greece and Finland, Advances in Accounting, *incorporating Advances in International Accounting*, 26 (1), 87-96.

Armstrong, J. S., & Overton, T. S. (1977). Estimating non-response bias in mail surveys. *Journal of Marketing Research*, 14(3), 396-402.

Aulakh, P. S., Kotabe, M., & Teegen, H. (2000). Export strategies and performance of firms from emerging economies: Evidence from Brazil, Chile, and Mexico. *Academy of Management Journal*, 43(3), 342-361

Badri, M. A., Davis, D., & Davis, D. (2001). A comprehensive 0–1 goal programming model for project selection. *International Journal of Project Management*, 19(4), 243-252.

Banker, R. D., Bardhan, I. R., & Chen, T.Y. (2008).The Role of Manufacturing Practices in Mediating the Impact of Activity-Based Costing on Plant Performance. *Accounting, Organizations and Society*, 33(1), 1-19.

Basle. (2004). Framework for the Evaluation of Internal Control Systems. 13th *Nordic Conference on Small Business Research,*

Bigelow, M. (2002). How to achieve operational excellence. *Quality Progress*, 35(10), 70-75.

Boateng, A., & Glaister, K. W. (2002). Performance of International Joint Ventures: Evidence for West Africa. *International Business Review,* 11(5), 523-541.

Boonmunewai, S., & Ussahawanitchakit, P. (2009). Knowledge Sharing Effectiveness in Public Accounting Firms. *European Journal of Management,* 9(4): 53-64

Brah, S.A., & Lim, H.Y. (2006). The Effects of Technology and TQM on the Performance of Logistic Companies. *International Journal of Physical Distribution & Logistics Management.* 36, 192-209.

Brush, C. G., & Chaganti, R. (1999). Businesses without Glamour? An Analysis of Resources on performance by Size and Age in Small Service and Retail Firms. *Journal of Business Venturing,* 14(3), 233-257.

Cadez, S., & Guilding, C. (2008). An Exploratory Investigation of an Integrated Contingency Model of Strategic Management Accounting. *Accounting, Organizations and Society,* 33, 1-19.

Chai-Amonphaisal, K., & Ussahawanitchakit, P. (2010). Strategic

Management Accounting and Corporate Performance of Thai-Listed Companies: A Mediating Effect of Management Process. *International Journal of Strategic Management,* 10(1): 1-23.

Chalatharawat, J., & Ussahawanitchakit, P. (2009). Accounting information usefulness for performance evaluation and its impact on the firm success: An empirical investigation of food manufacturing firms in Thailand. *Review of Business Research,* 9 (2), 1-22.

Chatman, Jennifer A., & Sigal G. Barsade. (1995). Personality, organizational culture, and cooperation: Evidence from a business simulation. *Administrative Science Quarterly,* 40, 423-443.

Chenhall, R. H. (2003). Management Control Systems Design within Its Organizational Context: Finding from Contingency-Based Research and Directions for the Future. *Accounting, Organization and Society,* 28, 127-168.

Chenhall, R. H. (2004). The Role of Cognitive and Affective Conflict in Early Implementation of Activity-Based Cost Management. *Behavioral Research in Accounting,* 16, 19-44.

Chenhall, R. H., & Morris, D. (1995). Organic Decision and Communication Processes and Management Accounting Systems in Entrepreneurial and Conservative Business Organizations. *Omega,* 23(5), 485-497.

Chenhall, R. H., & Morris, D. (1986). The Impact of Structure, Environment, and Interdependence on the Perceived Usefulness of Management Accounting Systems. *The Accounting Review,* 61(1), 16-35.

Chia, Y. M., & Koh, H. C. (2007). Organizational Culture and the Adoption of Management Accounting Practices in the Public Sector: A Singapore Study. *Financial Accountability & Management*, 23(2), 189-213.

Chitmun, S., & Ussahawanitchakit, P. (2012). Best modern managerial accounting practice of corporate governance awarded firms in Thailand: An empirical investigation of the antecedents and consequences. *Journal of the Academy of Business & Economics,* 12(5), 125-152.

Cinquini, L., & Tenucci, A. (2007). Strategic management accounting: Exploring distinctive features and links with strategy. *Munich Personal RePec Archive*, 212(7), 1-26.

Ciptono, W. S. (2005). Exploring the linkages between deming's principle, world-class company, operational excellence, and company performance in an oil and industry setting. *GadjahMada International Journal of Business,* 7(2), 205-239.

Coad, A., Segarra, A., & Teruel, M. (2013). Like Milk or Wine: Does Firm Performance Improve with Age? *Structural Change and Economic Dynamics,* 24, 173-189.

Cooper, R., & R. S. Kaplan. (1991). The Design of Cost Management Systems: Text, Cases, and Readings. Englewood Cliffs, NJ: Prentice Hall.

Dean, W. J., & Sharfman, P. M. (1996). Does Decision Process Matter? A Study of Strategic Decision-making Effectiveness. *Academy of Management Journal,* 39(12), 368-391.

Emmanual, K. A., Neelin, J. D., & Bretherton, C. S. (1994). On large-scale circulations in convecting atmospheres. Quart. J. Roy. Meteor. Soc., 120, 1111-1143

Ernst & Young. (2010). "Stakeholder confidence: Telling the right story, the right way, at the right time", Working Paper. http://www.ey.com/GL/en/Issues/Driving-growth/Growing-Beyond--Stakeholder-confidence.

Evans, N. (2005).Assessing the Balanced Scorecard as a Management Tool for Hotels. *International Journal of Contemporary Hospitality Management,* 17, 376-390.

Flamholtz, E. G., Das, T. K., & Tsui, A. S. (1985). Toward an Integrative Framework of Organizational Control. *Accounting Organizations and Society,* 1 (10), 35-50.

Folta, T. B. (1998). Governance and uncertainty: The tradeoff between administrative control and commitment. *Strategic management Journal,* 19, 1007-1028.

Fry, T. D. (1992). Manufacturing Performance and Cost Accounting.*Production and Inventory Management Journal,* 33(3): 30-35.

Garavan, T. N., & McGuire, D. (2001). Competencies and Workplace Learning: Some Reflections on the Rhetoric and the Reality. *Journal of Workplace Learning,*13(4), 144-163.

Gerdin, J. (2005). Management accounting system design in manufacturing departments: an empirical investigation using a multiple contingencies approach. *Accounting Organizations and Society,* 30(2), 99-126.

Gordon, L. A., Loeb, M. P., & Tseng, C.Y. (2009). Enterprise risk management and firm performance: A contingency perspective. *Journal of Accounting and Public Policy,* 28(4), 301-327.

Hair, J. F. Jr., Black W. C., Babin B. J., Anderson R. E., & Tatham R.L. (2010) Multivariate Data Analysis. 6th ed. New Jersey: Pearson Education International.

Haldma, T., & and Laats, K. (2002). Contingencies Influencing the Management Accounting Practices of Estonian Manufacturing Companies. *Management Accounting Research,* 13, 379-400.

Helfat C. E., & Peterraf M. A. (2003). The dynamic resource-based view: Capability lifecycles. *Strategic Management Journal*, 24, 997-1010.

Huysman, M. (2000). Rethinking Organizational Learning: Analyzing Learning Process of Information System Designers. *Accounting Management and Information Technologies,* 10, 81-99.

Ibrahim, N. A., Angelidis, J. P., & Parsa, F. (2004). The Status of Planning in Small Businesses. *American Business Review, 22*(2), 52–60.

International Accounting Standards Board (FASB). (2001). Framework for the Preparation and Presentation of Financial Statement. London: UK.

International Federation of Accountants (IFAC). (1998). International Management Accounting Practice Statement: Management Accounting Concepts. New York. (Revised March): 82-100.

International Federation of Accountants (IFAC). (2005). Code of Ethics for

Professional Accountants, International Federation of Accountants

Isa, C., & Thye, K. (2006). Advanced Management Accounting Techniques: An Exploratory Study on Malaysian Manufacturing Firms. 1-16.

Iselin, E. R., Mia, L., & Sands, J. (2008). Multi-perspective strategic goal setting, performance reporting and organizational performance. *Journal of Applied Accounting Research,* 9(2), 76-96.

Ittner, C.D., & Larcker, D.F. (2001). Assessing Empirical Research in Managerial Accounting: A Value-Base Management Perspective. *Journal of Accounting and Economics.* 32, 349-410.

Jiang, X., & Li, Y. (2008). The Relationship between Organizational Learning and Firms' Financial Performance in Strategic Alliances: A Contingency Approach. *Journal of World Business,* 43, 365-379.

Jimenez-Jimenez, D., & Sanz-Valle, R. (2011). Innovation, Organizational Learning, and Performance. *Journal of Business Research,* 64, 408-417.

Joshi P. L. (2001). The international diffusion of new management accounting practices: The case of India. *Journal of International Accounting. Auditing & Taxation,* 10, 85-109.

Julian, D. A., & Clapp, J. (2000). Planning, investment and evaluation procedures to support coordination and outcomes based funding in a local United Way system. *Evaluation and Program Planning,* 23, 231-240.

Kaewprapa, K., & Ussahawanitchakit, P. (2011). Effects of Comprehensive Income Reporting on Decision Making Quality of Listed Companies in Thailand. *European Journal of Management,* 11(4): 41-53.

Kenyon, G., & Meixell, M. (2011). Success factors and cost management strategies for logistics outsourcing. *Journal of Management and Marketing Research,* 1-17.

Konthong, K., & Ussahawanitchakit, P. (2010). AIS Competency, Accounting Outcomes, and Firm Performance: An Empirical Study of Thai-Listed Firms. *Journal of International Management Studies*, 10(3): 43-67.

Krumwiede, K. R. (2008). A Closer Look at German Cost Accounting Methods. *Management Accounting Quarterly*, 10(1), 1-14.

Krumwiede, K. R., Suessmair, A., & MacDonald, J. (2007). An Exploratory Study of the Factors Affecting the Implementation Success of German Cost Accounting Methods. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1003833 July 15, 2009.

Kwok, W., & Sharp, D. J. (1998). A review of construct measurement issues in behavioral accounting research. *Journal of Accounting Literature,* 17, 37-174.

Laonamtha, U., Ussahawanitchakit, P., & Boonlua, S. (2013). Modern Cost Management Capability and Firm Performance: An Empirical Assessment of Auto Parts Businesses in Thailand. *Review of Business Research,* 13(4): 77-102.

Lyddon B. (2010). Challenges to achieving operational excellence, particularly in Europe. *Journal of Payments Strategy & Systems,* 5 (1), 83-94.

Manu, F.A., & Sriram, V. (1996). Innovation, Marketing Strategy,

Environment and Performance. *Journal of Business Research*, 35 (1), 79-91.

Mauboussin, M.J., & Bartholdson, K. (2002). Measuring the Moat: Assessing the magnitude and sustainability of value creation. *Credit Suisse First Boston Equity Research*, Boston.

McManus, G., Saint-Pierre, J., & Domonkos, J. (1995). Formal strategic planning, informedness and firm performance: An empirical investigation. *Global Finance Journal,* 6(l), 47-63.

McPhail, R., Herington, C., & Guilding, C. (2008). Human Resource Mangers Perception of the Application and Merits of Balanced Scorecard in Hotels.*International Journal of Hospitality Management,* 27, 623-631.

Merchant, K.A. (1998). Modern management control systems: text & cases, Prentice Hall, Upper Saddle River, NJ.

Morton, S.M.B., Bandara, D.K., Robinson, E.M., & Carr, P.E.A. (2012). In the 21st Century, What is an Acceptable Response Rate? *Australian and New Zealand Journal of Public Health.* 36(2) : 106-108.
Mia, L., & Chenhall, R. H. (1994).The usefulness of management accounting systems, functional differentiation and managerial effectiveness.*Accounting, Organizations and Society,* 19(1), 1–13.

Miller, C. C., & Cardinal, L. B. (1994). Strategic Planning and Firm Performance: A Synthesis of More Than Two Decades of Research. *Academy of Management Journal*, 37(6), 1649–1665.

Nath, P., Nachiappan, S., & Ramanathan, R. (2010). The Impact of Marketing Capability, Operations Capability and Diversification Strategy on Performance: A Resource-Based View. *Industrial Marketing Management*, 39: 317-329.

Neter, J., William, W., & Michael, H. K. (1985). Applied Linear Statistical Models: Regression, Analysis of Variance, and Experimental Designs, 2nd Edition. Homewood: Richard D. Irwin, Inc.

Nohria, N., & Garcia-Point, C. (1991).Global strategic linkages and industry structure.*Strategic Management Journal,* 12, 105-124.

Nonaka, I. (1994). Dynamic theory of organizational knowledge creation. *Organization Science,* 5, 14-37.

Nunnally, J. C. (1970). Introduction to Psychological Measurement. New York: McGraw-Hill.

Nunnally, J.C., & Bernstein, I. H. (1994). Psychometric Theory. New York, NY: McGraw-Hill.

Nwachukwu, S. L. S., Vitell, S. J., Gilbert, F. W., & Barnes, J. H. (1997). Ethics and social responsibility in marketing: An examination of the ethical evaluation of advertising strategies. *Journal of Business Research,* 39, 107-118.

O'Donnell, E., & David, J. S. (2000). How Information Systems Influence User Decisions: A Research Framework and Literature Review. *International Journal of Accounting Information Systems,* 1(3), 178-203.

Ocasio, W., & Joseph, J. (2008). Rise and Fall, or Transformation? The Evolution of Strategic Planning at the General Electric Company, 1940-2006. *Long Range Planning,* 41, 248-272.

Pansuppawatt, P., & Ussahawanitchakit, P. (2011). Strategic Organizational Creativity

of Medical and Cosmetic Businesses in Thailand: An Empirical Investigation of the Antecedences and Consequences. *International Journal of Strategic Management*, 11(2): 1-25.

Pizzini, M. J. (2006). The Relation Between Cost-System Design, Managers' Evaluations of the Relevance and Usefulness of Cost Data and Financial Performance: An Empirical Study of US Hospitals. *Accounting Organizations and Society,* 31, 179-210.

Ratnamiasih, I., Govindaraju, R., Prihartono, B., & Sudirman, I. (2012). Leadership and hospital service quality, 3rd *International conference on business and economic research (3rd ICBER 2012)*, 1468-1476

Robin, B. J. (1992). Budgeting and Cost Management: A Route to Continuous Improvement. *Management Accounting,* 70(4): 36-38.

Robbins, S.P., & Coulter,M. (2003). Management.(7th ed.) Pearson Education.

Roslender, R., & Hart S. J. (2002). Integrating management accounting and marketing in the pursuit of competitive advantage: The case for strategic management accounting. *Critical Perspectives on Accounting,* 13, 255-277.

Roslender, R., & Hart, S. J. (2003). In search of strategic management accounting: Theoretical and field study perspectives. *Management Accounting Research,* 14, 255-279.

Scott, W. R. (1995). Institutions and Organizations. Thousand Oaks, CA: Sage.

Schwenk C. R., & Shrader, C. B. (1993). Effects of Formal Strategic Planning on Financial Performance in Small Firms: A Meta-Analysis. *Entrepreneurship Theory and Practice*, 17(3), 53–64.

Seliem, A.A.M., Ashour, A.S., Khalil, O.E.M., & Millar, S.J. (2003). The relationship of some organizational factors to information systems effectiveness: a contingency analysis of Egyptian data. *Journal of Global Information Management,* 11(1).

Serrano-Cinca, Fuertes-Callen, C. Y., & Mar-Molinero, C. (2005). Measuring DEA efficiency in internet companies.*Decision Support Systems,* 38, 557-573.

Sha, B. L. (2011). Practice Analysis: Professional Competencies and Work Categories in Public Relations Today. *Public Relations Review,* 37, 187-196.

Shank, J. K., & Govindarajan, V. (1992). Strategic cost management: The value chain perspective. *Journal of Management Accounting Research,* 6(3), 179-197.

Shian, S.G., & Vo, H. T. (2010). The relationship between corporate strategy, capital structure and firm performance: An empirical study of the listed companies in Vietnam. *International Research Journal of Finance and Economics,* 50, 62-71.

Shields, M. D. (1995). An Empirical Analysis of Firms' Implementation Experiences with Activity-Based Costing.*Journal of Management Accounting Research,* 7, 148-166.

Shields, Michale D. (1998). Management Accounting Practices in Europe: A Perspective from the States. *Management accounting research,* 9,501-513.

Shyam S. (2002). Management Control, Expectations, Common Knowledge, and Culture.*Journal of Management*

Accounting Research, Tuesday, January 1, 2002

Solomon J. F., Solomon, A., Norton, S. D., & Joseph, N. L. (2000). A conceptual framework for corporate risk disclosure emerging from the agenda for corporate governance reform. *British Accounting Review,* 32(1), 447-478.

Solomon, I., & Trotman, K. T. (2003). Experimental Judgment and Decision Research in Auditing: The First 25 years of AOS. *Accounting, Organizations and Society,* 28(4), 395-412.

Sprinkle, G. B. (2003). Perspectives on experimental research in managerial accounting. *Accounting, Organizations and Society*, 28, 287-318.

Sulaiman, M., Ahmad, N., & Alwi, N. (2004). Management accounting practices in selected Asian countries. A review of the literature. *Managerial Auditing Journal,* 9(4), 493−508.

Suttachai. S. (2008). Management incentives in selecting accounting policies. *Journal of Accounting Profession,* 9(2), 68-80.

Talebnia, G., Salehi, M., Valipour, H., & Shafiee, S. (2010). Empirical Study of the Relationship between Ownership Structure and Firm Performance: Some Evidence of Listed Companies in Tehran Stock Exchange. *Journal of sustainable Development,* 3(2).

Toulson, P.K., & Dewe, P. (2004). HR accounting as a measurement tool. *Human Resource Management Journal,* 14(2), 75-90.

Ussahawanitchakit, P. (2005). Effect of E-commerce on Export Marketing Strategy and Performance: An Empirical of Thai Firm. *Review of Business Research,* 5(3), 46-54.

Ussahawanitchakit, P. (2012). Competitive environment, organizational innovation and competitive advantage of electronics businesses in Thailand. *International Journal of Business Research,* 12(2), 1-8.

Valanciene, L., & Gimzauskiene E. (2007). Does implementation of modern management accounting conceptions ensure corporate value creation? *Economics and Management,* 12, 154-164.

Vrellas, C. G., & Tsiotras, G. D. (2014). Operational Excellence in the Greek Brewing Industry. *Global Business and Organizational Excellence,* 33(2), 31-38.

Wangraj, P., & Ussahawanitchakit, P. (2013). Best Management Accounting Practice and Firm Success: Evidence from Food Businesses in Thailand. *Journal of Academy of Business and Economics*, 13(3): 37-56.

Whittington, & Cailluet. (2008). The crafts of strategy: Introduction to special issue. *Long Range Planning ,* 41(3), 241-247

Wu, J., & Boateng, A. (2010). Factors Influencing Changes in Chinese Management Accounting Practices. *Journal of Change Management,* 10(3), 315-329.