

Internal Control Quality, Accounting Information Usefulness, Regulation Compliance, and Decision-Making Success: Evidence from Canned and Processed Foods Businesses in Thailand

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ABSTRACT

The objective of this study is to investigate the effects of internal control quality on decision making success of canned and processed foods businesses in Thailand through a mediator of accounting information usefulness and a moderator of regulation compliance. In this study, 126 canned and processed foods businesses in Thailand are the samples of the study. The results of the study show that internal control quality has a significant positive influence on both accounting information usefulness and decision-making success while accounting information usefulness has an important positive impact on decision making success. Also, accounting information usefulness is a valuable mediator of the internal control quality-decision making success relationships. Interestingly, regulation compliance can explicitly strengthen the internal control quality-accounting information usefulness relationships and the internal control quality-decision making success relationships. In summary, internal control quality plays a key role in determining and driving firms' competitive advantage, performance, success, and survival in rigorous competitive markets and environments.

JEL Classification: M41

Keywords: internal control quality; accounting information usefulness; regulation compliance; decision making success

I. INTRODUCTION

In rigorous uncertain competitive markets and environments, firms have implemented a strategic tool and mechanism in enhancing their operations, practices and activities and gaining superior success and long-term survival and sustainability in doing business. To achieve business objectives, goals and targets, valuable strategic techniques are applied to help firms deal with business conditions, respond to customer needs and market requirements and achieve outstanding and sustainable performance. These techniques include learning, creativity, innovation, flexibility, governance, and other related issues. Internal control is one source of firms' corporate governance and it is considered as their valuable tool and mechanism in encouraging their efficient and effective performance. It plays a significant role in determining, driving and explaining firms' competitive advantage, performance and outcome. Also, with internal control, firms are aware of policies and procedures established to provide reasonable assurance of firms' objective, goal and target achievements (Zakaria et al., 2016). Internal control can help manage firms' operational and financial risks to achieve established objectives and sustain their performance. Thus, internal control is important for supporting and providing effective operations and identifying and promoting their growths in the future and in the long-term. Firms with internal control quality can effectively provide their accounting information usefulness, efficiently make decision choices and alternatives, potentially perform organizational duties and functions, and outstandingly enhance business competitiveness and performance. Such firms tend to have great accounting information usefulness and provide best decision-making success. Therefore, more internal control quality is positively related to better accounting informational usefulness and greater decision-making success.

Internal control quality is an important mechanism in assuring effectiveness and efficiency of corporate governance through monitoring actions of independent audit committee, increasing reliabilities of financial statements and communicating non-financial information to markets (Paletta and Alimehmeti, 2018). It can help firms connect transparency and accountability with better market competition. Firms with internal control quality are likely to make more qualities of financial and non-financial information and build greater success in decision making. As such, both accounting information usefulness and decision-making success are considered as outcomes of implementing internal control quality in an organization. In this study, internal control quality is defined as a firm's ability, competency and capability of providing and utilizing its internal control system in guiding itself to achieve several specific objectives, namely effectiveness and efficiency of operations, reliability of financial reporting and compliance with applicable laws and regulations (Schroeder and Shepardson, 2016). It can help increase higher-quality financial statement audits due to improved control risk assessments and enhance more accurate material weakness disclosure. Also, internal control quality can result in more accurate financial information that reflects true operations of firms' businesses and their future prospects (Campbell et al., 2016). Firms with better internal control quality can effectively provide and communicate reliable and useful information to top management in establishing and implementing their vision and mission and designing and making a decision relating to their business strategies and techniques in order to achieve sustainable organizational performance and success. Accordingly, internal control

quality is likely to have a significant positive determinant of firms' accounting information usefulness and decision-making success.

Accounting information usefulness is a potential consequence of providing internal control quality and it refers to financial information that is capable of making a difference in the decision making for financial statements users by possessing confirmatory value, predictive value or both (Frendy and Semba, 2017). Its qualitative characteristics comprise of relevance, reliability, comparability, and consistency. Great usefulness of accounting information can help provide and improve best decision making and enhance and increase firms' competitive advantage, performance and success. Thus, firms with better accounting information usefulness tend to have more success in decision making. In addition, decision making success is a valuable outcome of providing internal control quality and it is defined as decision outcomes from identifying goals, gathering information and using that information to determine the best course of actions to achieve the designated goals (Aritz et al., 2017). It can help firms provide better services and products through utilizing their knowledge of customers, markets and environments resulting in a sustainable competitive advantage and a continuous superior performance and profitability. Likewise, regulation compliance is proposed as a moderator of the aforementioned research relationships and it is likely to strengthen the aforementioned research relationships. Regulation compliance refers to an ability of firms to provide their duties, functions, activities, and practices that follow business laws, rules, standards, guidelines, and other related issues (Knuplesch et al., 2017). It can enable firms to achieve their business aims, goals and objectives. Effective regulation compliance significantly influences firms' competitiveness and success in doing business operations. Thus, regulation compliance tends to positively moderate the relationships among internal control quality, accounting information usefulness and decision-making success.

This study aims at examining the relationships among internal control quality, accounting information usefulness, regulation compliance, and decision-making success of canned and processed foods businesses in Thailand. Here, internal control quality, accounting information usefulness, regulation compliance, and decision-making success are the independent variable, mediating variable, moderating variable, and dependent variable of the study respectively. Canned and processed foods businesses in Thailand are the appropriate samples of the study because Thailand is a strategic hub of food production for both Asia and the rest of the world due to its biodiversity and natural agricultural productivity. Also, the Thai Government has introduced policies which support food production at high standards of safety and quality. Thailand has both high potential and key fundamentals to become a major production base and a distribution source for world food production, as well as an attractive destination for international investors. Accordingly, canned and processed foods businesses are an important part of the Thai economy in terms of employment, national incomes, country development, and growth promotion. To empirically investigate the research relationships, the key research question is how internal control quality influences decision making success. The specific research questions are: (1) How internal control quality leads to accounting information usefulness, (2) How accounting information usefulness relates to decision making success, (3) How accounting information usefulness mediates the internal control quality-decision making success relationships, (4) How regulation compliance moderates the internal

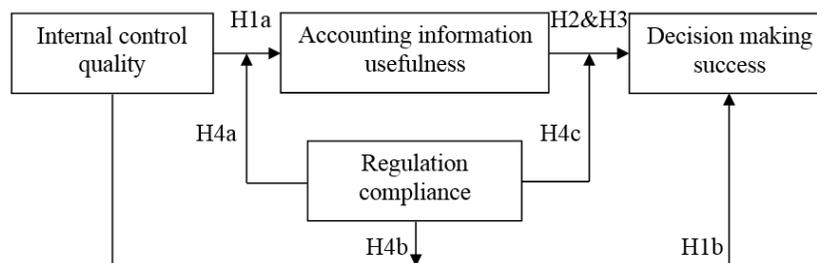
control quality-accounting information usefulness relationships, (5) How regulation compliance moderates the internal control quality-decision making success relationships, and (6) How regulation compliance moderates the accounting information usefulness-decision making success relationships. The rest of this study is as follows. Literature review of internal control quality, accounting information usefulness, regulation compliance, and decision-making success and their hypotheses development are systematically provided. Also, research methods, including samples of the study, data collection procedure, test of non-response bias, measures, instrument test, and statistics are logically considered. Then, research results and discussions with reasonable explanations from existing literature and empirical supports are empirically presented. Lastly, limitations of the study, contributions for theory and management, directions for future research, and conclusion of the study are reasonably provided in detail.

II. LITERATURE REVIEWS AND HYPOTHESES DEVELOPMENT

This study attempts to investigate the effects of internal control quality on decision making success. Interestingly, stakeholder perspective is considered as an appropriate theory in explaining the internal control quality-decision making success relationships. According to the stakeholder perspective, firms must develop mutually beneficial relationships with stakeholders as a key to a firm's capacity to respond to stakeholders' demands and generate future wealth (Cordeiro and Tewari, 2015). They can gain sustainable competitive advantage and achieve superior performance by creating their specific skills, knowledge, competencies, and capabilities. In this study, internal control quality represents firms' capacities to be aware of corporate governance and best operational and managerial practices in doing businesses that are required by the needs of stakeholders. Internal control explicitly enhances firms' competitiveness and success in rigorously competitive markets and environments. Internal control quality can effectively respond to stakeholders' needs, expectations and requirements. It potentially leads to firms' survival and sustainability. Thus, internal control quality has a potential influence on accounting information usefulness and decision-making success. Thus, the research relationships of these variables are discussed and hypothesized. The conceptual model presents the aforementioned relationships, as shown in Figure 1.

Figure 1

A research model of the internal control quality-decision making success relationships



A. Internal Control Quality

Internal control has become a valuable mechanism in helping firms achieve business objectives, goals and targets. It is a process designed to provide reasonable assurance regarding the achievement of objectives. Its characteristics comprise of five components, namely control environments, risk assessment, control activities, information and communication, and monitoring. To provide a strong control environment, firms need to demonstrate a commitment to integrity and ethical values, managerial independence and development and performance oversight of internal control (Janvrin et al., 2012). They must establish appropriate authorities and responsibilities and hold individuals accountable for their internal control responsibilities in pursuit of objectives. Also, a commitment to attract, develop and retain competent individuals in alignment with objectives is required. For making robust risk assessment, firms need to enable identification and assessment of operational risks, determine methods and approaches of risk management, consider the potential for fraud in assessing risks to goal achievements, and evaluate changes that affect internal control system (Pridgen and Wang, 2012). In addition, firms necessarily develop control activities over technology in order to support to acceptable risk mitigation to goal achievement and deploy these activities to manifest policies and establish relevant procedures to these policies (Dickins and Fay, 2017). They need to communicate information relating to objectives and responsibilities for internal control to personnel, board of directors and external parties. In achieving a successful internal control, firms must evaluate and monitor functions and duties of internal control and take corrective actions according to internal control deficiencies (Rae et al., 2017). The quality of internal control in an organization is important for enhancing and supporting firms to survive and sustain business activities long-term and in future operations. Firms with better internal control quality can effectively respond to customers, markets and stakeholders and efficiently increase competitive advantage and organizational performance. Thus, internal control quality is a key determinant of firms' operational success. It plays an important role in driving and explaining business results.

In this study, internal control quality is defined as a set of process that can potentially guide an organization to achieve effectiveness and efficiency of operations, provide assurance regarding reliability of financial reporting and make compliance with applicable laws and regulations (Schroeder and Shepardson, 2016). Internal control presents extensive knowledge of firms' operations, knowledge and awareness of which transactions are material to their financial statements and applications and implementations of required laws, regulations, guidelines, standards, and other related issues. It can allow firms to communicate reliable information to stakeholders and encourage them to have confidence and trust in firms' business operations, activities and practices (Campbell et al., 2016). Firms with greater internal control quality can provide more accurate financial information that reflects true operations of firms' businesses and their future prospects. Better useful information encourages top management to make a good decision that continuously affects best business results, namely competitiveness, success and sustainability. In contrast, weak internal control environment allows managers to intentionally manipulate or unintentionally misstate financial and operational information (Tang et al., 2015). This environment is likely to increase information asymmetry between managers and creditors and enhance investors

to either over-invest or under-invest. Firms with weak internal control tend to have low information quality and reliability, great information noise and risk, and less information transparency. However, firms still need to develop and improve the quality of internal control system through investing appropriate resources, assets, competencies, and capabilities in order to achieve sustainable business goals. Thus, firms need to focus on creating and increasing their internal control quality. Also, internal control quality reflects an ability of firms to build and create useful accounting information through identifying and assessing risks of material misstatement of their financial statements through understanding their entities and environments. Useful accounting information includes reliabilities of accounting data, namely comparability, verification, timeliness, and understandability. In this way, internal control quality can maintain firms' capacities to identify and exploit opportunities and resilience or capacity to respond or adapt to unexpected risks and opportunities (Kinney, 2000). It can help firms successfully make good choices and alternatives of business activities and practices long-term and in future operations. Accordingly, internal control quality tends to build and create accounting information usefulness and enhance and increase firms' decision-making success. It is likely to have a positive influence on accounting information usefulness and decision-making success. Therefore,

H1: Internal control quality is positively related to (a) accounting information usefulness and (b) decision making success.

B. Accounting Information Usefulness

In existing literature, the reliability of financial statements is one valuable consequence of providing internal control quality. It potentially determines and contributes to accounting information usefulness to stakeholders. Thus, accounting information usefulness is considered as a key outcome of maintaining internal control quality. In this study, accounting information usefulness is defined as financial information that can make a difference in the decision making for financial statements users by possessing confirmatory value, predictive value or both (Frendy and Semba, 2017). Its characteristics comprise of relevance, reliability, comparability, and consistency. Relevance improves users' abilities to make a decision involving fair values compared to existing practices (Huian, 2015). It is able to provide the users with tagged information of a specific line item for their decision making. Secondly, reliability provides fair value measurements that are more verifiable, faithfully represented and unbiased than they are under existing practices (Fornaro and Barbera, 2007). It presents transparent formation to users with straightforward search and analytical capability for their decision making. Thirdly, comparability better enables different firms to measure, report and disclose fair values of assets and liabilities in a similar manner (Birt et al., 2017). It enables users to identify and understand similarities in and differences among items with at least two items. Lastly, consistency is better able to measure fair values in a similar manner from period to period (Kobayashi et al., 2016). It is a commitment to applying similar accounting standards, methods, approaches, and procedures in financial statements from past to present. It is congruent with environmental conditions and statuses. Accordingly, accounting information usefulness is a capacity of information to make a difference in a decision-making process. It provides fair value

information with relevance and representational faithfulness for decision making. It enhances the users' abilities to make decisions of management, operation, investment, credit, create superior performance and success from their decisions and achieve organizational objectives. Firms with accounting information usefulness can enable internal users, investors and creditors to make proper economic decisions. More accounting information usefulness significantly relates to better decision making. It explicitly determines decision making success. Thus, accounting information usefulness is likely to have a positive influence on decision making success. While accounting information usefulness is proposed to have a positive effect on decision making success, it is also hypothesized to become a moderator of the research relationships. Accounting information usefulness can enhance linking internal control quality to decision making success. Firms with better accounting information usefulness can increase the internal control quality-decision making success relationships. Hence, accounting information usefulness is likely to moderate the aforementioned research relationships. Therefore,

H2: Accounting information usefulness is positively related to decision making success.

H3: Accounting information usefulness mediates the internal control quality-decision making success relationships.

C. Regulation Compliance

In doing business, firms have effectively performed their business operations, activities, practices, functions, and duties in order to achieve organizational targets, goals and objectives. They need to have awareness and concerns about laws, rules, guidelines, standards, and other related issues and make a compliance of these requirements to their business methods, approaches and procedures. Successful regulation compliance can determine, drive and explain sustainable competitive advantage, superior organizational performance and long-term survival and sustainability. Therefore, regulation compliance is an important factor for continuous business success and it can enhance best business results in rigorously complex competitive environments. Here, regulation compliance refers to conforming to a rule, standard and law (Prorokowski and Prorokowski, 2014). It compasses all processes that require an entity to be aware of and conform to relevant regulations. It becomes required functions of firms in order to ensure robust and effectiveness of business strategy and successfully obtain overall risk management. Firms with potential regulation compliance tend to have outstanding corporate governance, provide a quality of internal control, present a usefulness of accounting information, and achieve superior performance and success. Regulations are defined as all laws and administrative provisions produced by governments and organs of state that have relevance for business practices (Doyle, 2007). Regulation compliance is an ability of firms to conform their duties, functions, activities, and practices to business laws, rules, standards, guidelines, and other related issues (Knuplesch et al., 2017). It provides firms' commitment to norms, regulators' perceptions and incentives for compliance. Thus, effectiveness and efficiency of regulation compliance reflect firms' business processes that successfully conform to relevant constraints, namely laws, rules, guidelines, and standards. They enhance sustainable competitive positioning and continuous performance increase. Accordingly, regulation compliance becomes firms' business process and practice that can help

achieve firms' targets, goals and objectives. In this study, regulation compliance is proposed to be a moderator of the relationships among internal control quality, accounting information usefulness and decision-making success. It is likely to positively moderate the aforementioned research relationships. More effective regulation compliance affects greater strength of the internal control quality-accounting information usefulness relationships, the internal control quality-decision making success relationships and the accounting information usefulness-decision making success relationships. Therefore,

H4: Regulation compliance moderates (a) the internal control quality-accounting information usefulness relationships, (b) the internal control quality-decision making success relationships and (c) the accounting information usefulness-decision making success relationships.

D. Decision Making Success

Internal control quality and accounting information usefulness are determinants of decision-making success in an organization. Here, decision making success is an outcome of providing internal control quality and presenting accounting information usefulness. It is defined as firms' selection of a preferred course of action from two or more alternatives by identifying goals, gathering information and using that information to determine the best course of action to achieve the designed goals (Aritz et al., 2017). It can help firms provide better services and products rooted in an in-depth knowledge of their customers, markets and environments resulting in a sustainable competitive advantage and a superior performance. It effectively, efficiently and ultimately enhances firms' performance and profitability. Decision making success refers to an ability of firms to define problems, understand all possible alternatives and their consequences and select the very best action after evaluating all the available options (White et al., 2015). It derives from firms' preferences and their expectations about the consequences of rational choices they make by sifting through options to find a satisfactory solution. Firms with decision making success can select faster and more rational choices, alternatives and options in doing businesses by ensuring they meet the set performance goals. They can achieve sustain competitive advantage, outstanding performance and profitability and continuous long-term survival in highly complex business environments and conditions. Accordingly, decision making success is proposed to become a valuable strategic outcome of implementing internal control quality and having accounting information usefulness.

III. RESEARCH METHODS

A. Sample Data and Collection Procedure

In this study, all 150 canned and processed foods businesses in Thailand from Thai foods processors' association are the appropriate samples of the study because the Thai Government has introduced policies which support food production at high standards of safety and quality in order to enhance employment, national incomes, country development, and growth promotion. Thus, canned and processed foods businesses are an important part of the Thai economy. A mail survey procedure via questionnaire was

used for data collection method. Internal audit executives, namely internal audit directors, internal audit managers or internal audit heads, of canned and processed foods businesses in Thailand are the key informants of the study because they have taken the highest responsibilities of internal audit and control functions and other related activities in their organization. With regard to the questionnaire mailing, 4 surveys were undeliverable because some listed firms had moved to unknown locations. Deducting the undeliverable from the original 150 mailed, the valid mailing was 146 surveys, from which 129 responses were received. Of the surveys completed and returned, 126 were usable. The effective response rate was approximately 86.30%. Then, the response rate for a mail survey, with an appropriate follow-up procedure, if greater than 20% is considered acceptable (Aaker *et al.*, 2001). To test potential and non-response bias and to detect possible problems with non-response errors, the assessment and investigation of non-response-bias was centered on a comparison of the first and the second wave data as recommended by Armstrong and Overton (1977). There were no statistically significant differences between first and second groups at a 95% confidence level as firm size ($t = 0.12, p > .05$), firm age ($t = 0.13, p > .05$) and firm capital ($t = 0.11, p > .05$). In this regard, neither procedure showed significant differences. Accordingly, this study can appropriately use the samples of this for testing the research relationships and approving the research results.

B. Measures

All constructs were measured using a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree), except for firm size, firm age and firm capital. Measurements of these constructs are self-developed from existing literatures as shown in Table 1. Appendix A presents the measurements of all variables in this study.

Table 1
A summary of measurements of all variables

Variables	Items	References
Internal control quality	5	Schroeder and Shepardson (2016)
Accounting information usefulness	4	Frendy and Semba (2017)
Regulation compliance	5	Prorokowski and Prorokowski (2014)
Decision making success	5	Aritz et al. (2017)

Here, internal control quality, accounting information usefulness, regulation compliance, and decision-making success are the variables of the study. Firstly, internal control quality is a set of process that can potentially guide an organization to achieve effectiveness and efficiency of operations, provide assurance regarding reliability of financial reporting and make compliance with applicable laws and regulations (Schroeder and Shepardson, 2016). Five-item scale was developed to assess how firms set a good system of internal control and define an appropriate standard of operational management and control in order to achieve their continuous organizational learning, successful risk management and firm innovation that affect sustainable competitive advantage and long-term performance. Secondly, accounting information usefulness is defined as a capacity of financial information that make a difference in the decision making for financial statements users by possessing confirmatory value, predictive

value or both (Frendy and Semba, 2017). Four-item scale was established to measure how firms provide financial information that has the significant characteristics for creating effective uses and benefits in an organization, namely relevance, reliability, comparability, and consistency. Thirdly, regulation compliance refers to conforming to a rule, standard and law (Prorokowski and Prorokowski, 2014). Five-item scale was initiated to evaluate how firms compass all processes that require an entity to be aware of and conform to relevant regulations which have become required functions of firms in doing businesses. Lastly, decision making success is a firm's selection of a preferred course of action from two or more alternatives by identifying goals, gathering information and using that information to determine the best course of action to achieve the designed goals (Aritz et al., 2017). Five-item scale was defined to gauge how firms have produced better services and products rooted in an in-depth knowledge of their customers, markets and environments resulting in a sustainable competitive advantage and a superior performance.

To prove the aforementioned research relationships in this study, the control variables of the study are considered as firm size, firm age and firm capital. Firm age (FA) was measured by the number of years a firm has been in existence (Zahra et al., 2000) by using a dummy variable as less than 10 years = 0 and equal to or greater than 15 years = 1. Also, firm size (FS) was measured by the number of employees in a firm (Arora and Fosfuri, 2000) by using a dummy variable as less than 150 employees = 0 and equal to or greater than 150 employees = 1. In addition, firm capital (FC) was measured by the amount of money a firm has invested in doing business (Ussahawanitchakit, 2007) by using a dummy variable as less than 100 million baht = 0 and equal to or greater than 100 million baht = 1.

C. Measurement Model, Construct Validity and Reliability

After verifying that an exploratory factor analysis for scale items results in the expected construct solutions, the current study performs confirmatory factor analysis and assesses the construct validity and reliability of the measures following Gerbing and Anderson (1988). The measurement model estimation results for factor loadings and composite reliability for each construct are provided in Table 2. Firstly, confirmatory factor analysis was implemented to assess the underlying relationships of a large number of items and to determine whether they can be reduced to a smaller set of factors (Bagozzi et al., 1991; Nunnally and Bernstein, 1994). All factor loadings are larger than the 0.40 cut-off and are statistically significant. Secondly, discriminant power was utilized to gauge the validity of the measurements by item-total correlation (Churchill, 1979). In the scale validity, item-total correlation is larger than 0.30. Lastly, the reliability of the measurements was evaluated by Cronbach alpha coefficients (Nunnally and Bernstein, 1994). In the scale reliability, Cronbach alpha coefficients are larger than 0.70. Accordingly, all the factor loadings for each construct turn out to be significant, providing a convergent validity. This study also establishes reliability by securing composite reliability for each construct. Thus, the scales of all measures appear to produce internally consistent results and these measures are deemed appropriate for further analysis as they express an accepted validity and reliability in this study.

Table 2
Results of measure validation

Items	Factor Loadings	Item-total Correlation	Cronbach Alpha
Internal control quality (ICQ)	0.78-0.83	0.70-0.83	0.72
Accounting information usefulness (AIU)	0.67-0.87	0.67-0.87	0.86
Regulation compliance (RGC)	0.77-0.88	0.76-0.89	0.87
Decision making success (DMS)	0.88-0.93	0.87-0.94	0.95

IV. RESULTS AND DISCUSSION

Table 3 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 1.03 to 2.50, well below the cut-off value of 10 as recommended by Neter et al. (1985), means that the independent variables are not correlated with each other. Therefore, there are no substantial multicollinearity problems encountered in this study.

Table 3
Descriptive statistics and correlation matrix

Variables	ICQ	AIU	RGC	DMS
Mean	4.23	4.19	4.00	3.94
Standard Deviation	0.36	0.39	0.42	0.63
Internal control quality (ICQ)				
Accounting information usefulness (AIU)	0.36**			
Regulation compliance (RGC)	0.18	0.68***		
Decision making success (DMS)	0.32**	0.55***	0.74***	

p<.05, *p<.01

Table 4
Results of path coefficients and hypotheses testing

Hypotheses	Relationships	Coefficients	Standard error	t-value	Results
H1a	ICQ → AIU	0.33**	0.14	2.34	Supported
H1b	ICQ → DMS	0.68**	0.28	2.45	Supported
H2	AIU → DMS	1.91***	0.61	3.14	Supported
H3	ICQ → AIU	0.33**	0.14	2.34	Supported
	AIU → DMS	1.91***	0.61	3.14	

p<.05, *p<.01, CFI = 0.93; GFI = 0.94; IFI = 0.92; RMSEA = 0.04

To investigate and verify the relationships among internal control quality, accounting information usefulness, regulation compliance, and decision-making success, structural equation model and multiple regression analysis are considered as the appropriate statistical methods. Structural equation model is applied to test the main research relationships while multiple regression analysis is implemented to examine the moderating effects of the research relationships. Table 4 presents the results of path coefficients and hypotheses testing of the research relationships. The comparative fit

index (CFI), the goodness of fit index (GFI), the incremental fit index (IFI), and the root mean square error of approximation (RMSEA) are considered as the determinants of the goodness of fit of the models in the study (Herda and Lavelle, 2012). Firstly, CFI values always lie between 0 and 1, with values over 0.90 indicating a relatively good fit (Bentler, 1990). Secondly, GFI value is an index that ranges from 0 to 1, with value over 0.90 indicating a relatively good fit (Byrne, 1998). Thirdly, IFI values exceeding 0.90 indicate a relatively good fit (Kline, 1998). Lastly, a RMSEA value of less than 0.05 indicates a close fit and less than 0.08 suggests a marginal fit (Bollen and Long, 1993). Thus, the initial test of the measurement model results in a good fit to the data.

A. The Relationships among Internal Control Quality, Accounting Information Usefulness and Decision-Making Success

In Table 4, the results show that internal control quality has a significant positive influence on accounting information usefulness ($b = 0.66, p < 0.02$) and decision-making success ($b = 0.68, p < 0.02$). Internal control quality is an important determinant of both accounting information usefulness and decision-making success. Thus, it plays a key role in driving accounting information usefulness and decision-making success. In existing literature, internal control quality can potentially guide an organization to achieve effectiveness and efficiency of operations, provide assurance regarding reliability of financial reporting and make compliance with applicable laws and regulations (Schroeder and Shepardson, 2016). It also helps communicate reliable information to stakeholders and encourage them to have confidence and trust in firms' business operations, activities and practices (Campbell et al., 2016). Firms with greater internal control quality can increase information asymmetry between managers and creditors and enhance investors to either over-invest or under-invest. Thus, internal control quality can enhance usefulness of firms' information to inside users and external parties. *Therefore, Hypothesis 1a is supported.* Similarly, internal control quality can improve firms' decision-making process and increase their decision-making success. It explicitly helps maintain their capacities to identify and exploit opportunities and resilience or capacity to respond or adapt to unexpected risks and opportunities (Kinney, 2000). Successfully making good choices and alternatives of business activities and practices can enhance firms' sustainable competitive advantage and superior performance. Then, internal control quality positively influences firms' decision-making success. Therefore, Hypothesis 1b is supported.

Interestingly, accounting information usefulness importantly determines, drives and explains decision making success. It has an important positive effect on decision making success ($b = 1.91, p < 0.01$). In this study, accounting information usefulness can make a difference in a decision-making process. It provides fair value information with relevance and representational faithfulness for decision making. It enhances the users' abilities to make decisions of management, operation, investment, credit, create superior performance and success from their decisions and achieve organizational objectives. Firms with accounting information usefulness can make a difference in the decision making for financial statements users by possessing confirmatory value, predictive value or both (Frendy and Semba, 2017). They tend to effectively achieve continuous success, long-term survival and future sustainability in doing businesses. More usefulness of accounting information reflects efficiency, effectiveness and

success of firms' business operations, activities and practices. Therefore, Hypothesis 2 is supported. Also, accounting information usefulness plays an important mediating role in affecting the internal control quality-decision making success relationships. It definitely links internal control quality to decision making success. Firms with internal control quality can increase decision making success through providing a helpful connection of accounting information usefulness. They can have a potential relationship between internal control quality and accounting influence usefulness while accounting information usefulness of firms can also relate to decision making success. Accordingly, accounting information usefulness positively mediates the internal control quality-decision making success relationships. Therefore, Hypothesis 3 is supported.

B. The Moderating Effects of the Research Relationships

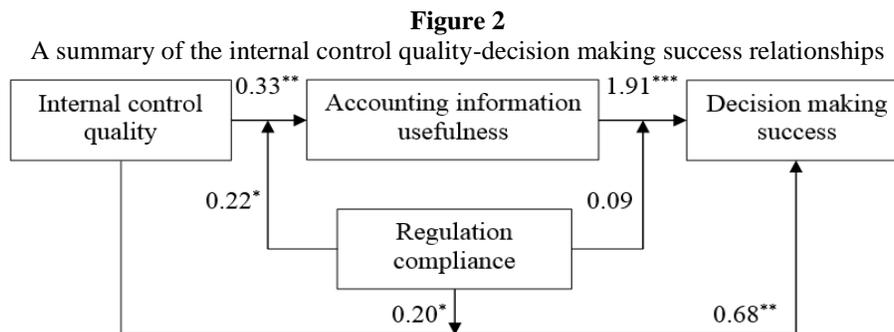
Table 5
Results of multiple regression analyse^s

Independent variables	Dependent variables		
	AIU	DMS	DMS
ICQ	0.24* (0.13)	0.11 (0.13)	
AIU			0.05 (0.18)
RGC	0.62*** (0.12)	0.73*** (0.12)	0.67*** (0.17)
ICQ*RGC	0.22* (0.12)	0.20* (0.13)	0.09 (0.08)
FA	-0.02 (0.19)	-0.03 (0.20)	-0.14 (0.18)
FS	0.12 (0.13)	0.02 (0.13)	-0.04 (0.14)
FC	-0.16 (0.15)	-0.04 (0.15)	0.03 (0.15)
AdjR ²	0.52	0.51	0.49

*p<.05, ***p<.01, ^a Beta coefficient with standard errors in parenthesis.

Table 5 presents the results of multiple regression analyses for examining the moderating effects of the research relationships. To achieve business targets, goals and objectives, firms need to be aware of, conform to and concern with laws, rules, guidelines, standards, and other related issues and comply with these requirements to their business methods, approaches and procedures (Prorokowski and Prorokowski, 2014). Regulation compliance reflects an ability of firms to conform their duties, functions, activities, and practices to business laws, rules, standards, guidelines, and other related issues (Knuplesch et al., 2017). It provides firms' commitment to norms, regulators' perceptions and incentives for compliance. Successful regulation compliance can determine, drive and explain sustainable competitive advantage, superior organizational performance and long-term survival and sustainability. Thus, regulation compliance can help promote the effects of internal control quality on accounting information usefulness and decision-making success. It can strengthen the

internal control quality-accounting information usefulness relationships ($b = 0.22, p < 0.09$) and the internal control quality-decision making success relationships ($b = 0.20, p < 0.10$). Better regulation compliance is positively related to the aforementioned research relationships. Therefore, Hypotheses 4a-4b are supported. However, regulation compliance does not moderate the accounting information usefulness-decision making success relationships ($b = 0.09, p < 0.27$). Even though firms have conformed to all required regulations, they still have a weak relationship between accounting information usefulness and decision-making success because firms' decision-making success explicitly follows their capacities to use and utilize valuable information but does not depend on successful regulation compliance. Thus, regulation compliance is not a moderator of the accounting information usefulness-decision making success relationships. Therefore, Hypotheses 4c is not supported. Figure 2 shows a summary of the internal control quality-decision making success relationships.



V. CONTRIBUTIONS AND DIRECTIONS FOR FUTURE RESEARCH

A. Theoretical Contribution and Directions for Future Research

Internal control is one source of firms' corporate governance and it is a valuable tool and mechanism in enhancing firms' sustainable competitive advantage by encouraging their efficient and effective performance. This study definitely confirms that internal control is important for doing businesses and internal control quality plays a significant role in determining both accounting information usefulness and decision-making success. It is congruent with the stakeholder perspective by considering internal control quality as a reflection of firms' capacities to respond to stakeholders' demands and generate future wealth. To increase and expand the current study, future research is needed to collect data from larger different populations because a population of canned and processed foods businesses in Thailand is small in order to verify and prove the relationships among internal control quality, accounting information usefulness, regulation compliance, and decision-making success and test the generalizability of the study. While accounting information usefulness comprise four dimensions, namely relevance, reliability, comparability, and consistency, future research may search for more information and do more literature reviews relating to the dimensions of accounting information usefulness. Future research needs to investigate the mediating

effects of these accounting information usefulness dimensions on the research relationships.

B. Managerial Contribution

Internal control quality becomes a significant driver of firms' competitive advantage and performance. Thus, firms need to pay an attention to how firms build and create efficiency, effectiveness and quality of internal control system. They must invest and allocate their resources, assets, capacities, capabilities, abilities, and competencies to their internal control system. Also, firms can continuously learn benefits, contributions and advantages of internal control system and utilize that system to achieve their business targets, goals and objectives, namely performance, success, survival, and sustainability. Accordingly, firms can provide internal control quality through learning and understanding its characteristics and capacities and apply it to their operations, activities, activities, and practices. More internal control quality is likely to affect better goal achievement in long term and future operations under rigorous complex business environments, markets and conditions.

VI. CONCLUSION

Internal control quality plays an important role in defining, determining, driving, and explaining firms' outcome, namely competitive advantage, performance, success, survival, and sustainability. Here, this study aims at examining the impacts of internal control quality on decision making success of canned and processed foods businesses in Thailand. This study considers internal control quality, accounting information usefulness, regulation compliance, and decision-making success as the independent variable, mediating variable, moderating variable, and dependent variable respectively. In this study, 126 canned and processed foods businesses in Thailand are the samples of the study. The results show that internal control quality has a significant positive effect on both accounting information usefulness and decision-making success. In addition, accounting information usefulness has a potential positive influence on decision making success and it is also a mediator of the internal control quality-decision making success relationships. Likewise, regulation compliance explicitly moderates the internal control quality-accounting information usefulness relationships and the internal control quality-decision making success relationships. Accordingly, firms need to pay attention to building and creating a good internal control system through investing and allocating their resources and assets. They can use and utilize the internal control system to enhance their competitiveness and outstanding outcome. For achieving the research's expansions, future research needs to collect data from larger different populations, search for more information and do more literature reviews relating to the dimensions of accounting information usefulness and test the mediating effects of these dimensions on the research relationships.

Appendix A
Measurement of all variables

Items
Internal control quality (ICQ)
<ol style="list-style-type: none"> 1. We believe that a quality of internal control system can enhance and promote firms' operational efficiency and effectiveness. 2. We can utilize internal control system to achieve firms' business targets, goals and objectives. 3. We focus on implementing internal control quality in order to build and create effectiveness of business operations, activities and practices. 4. We can provide and present a reliability of financial reporting under benefiting and maintaining a quality of internal control system. 5. We can successfully conform to all required regulations, namely laws, rules, guidelines, standards, and other related issues within internal control quality.
Accounting information usefulness (AIU)
<ol style="list-style-type: none"> 1. We can provide value information for making a decision involving fair values compared to existing practices. 2. We can present fair value measurements of information that are more verifiable, faithfully represented and unbiased than we are under existing practices. 3. We can better enable different firms to measure, report and disclose fair values of information relating to assets and liabilities in a similar manner. 4. We are better able to measure fair values of information in a similar manner from period to period.
Regulation compliance (RGC)
<ol style="list-style-type: none"> 1. We have effectively operated our business activities and practices according to laws, rules and other related regulations. 2. We have a successful administration and management under societal criteria and acceptable standards. 3. We have systematically studied and analyzed related laws, rules and guidelines and effectively implemented them in doing businesses. 4. We believe that objective awareness of and concern with laws, rules and other related regulations can efficiently and effectively affect our performance. 5. We emphasize an analysis of forthcoming laws, rules and other related regulations and doing research with these issues in order to gain effective implementation.
Decision making success (DMS)
<ol style="list-style-type: none"> 1. We have gained continuous operations, management and performance through providing decision making success. 2. We can always select good alternatives and options and choose best ways in making investments of our operations. 3. We can effectively use appropriate skepticism for managing organizational operations. 4. We can analyze and search for good trends and ways of doing businesses in the long term and in the future operations. 5. We can gain maximized operational efficiency and effectiveness under a quality of best decision-making process.

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