

# MANAGERIAL ACCOUNTING CONTROL ORIENTATION AND FIRM PERFORMANCE: AN EMPIRICAL INVESTIGATION OF GARMENT MANUFACTURING BUSINESSES IN THAILAND

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**Abstract:** *Extreme environmental change causes a firm to find tools in controlling operations for improving competitive advantage and performance of the organization. Prior research emphasis is on managerial accounting practice as a tool for operational management and control, but it is unclear on the capability and function of managerial accounting that may link to operational controlling. Therefore, this research aims at investigate the relationship between the dimension of managerial accounting control orientation (MACO) and firm performance. The questionnaires of 286 garment manufacturing businesses in Thailand were collected. Regression analysis was employed to verify the hypotheses. The evidence highlights that goal achievement setting and budgeting participation implementation have the strongest positive significance for all mediating outcomes. Both outstanding operational proficiency and superior information usefulness are significantly positive to decision-making value and resource management effectiveness. Furthermore, the findings also suggest that each dimension of MACO required either decision-making value or resource management effectiveness as a mediator variable effect on firm performance. The finding provides not only contributions, but also recommendation for future research.*

**Keywords:** *Managerial Accounting Control Orientation, Goal Achievement Setting, Target Costing Utilization, Value Chain Application, Cost Allocation Determination, Budgeting Participation Implementation, Outstanding Operational Proficiency, Excellent Cost Management, Superior Information Usefulness, Decision-Making Value, Resource Management Effectiveness, and Firm Performance.*

## 1. Introduction

Manufacturing firms confront a changing economic environment and competitive pressure. Environmental change causes these firms to adapt and find tools for controlling operations in accordance with their goals and objectives.

Traditional research has been focusing on financial accounting information usage for controlling operational activities, but the information is insufficient (Moilanen, 2008). Prior research (e.g., Chenhall et al., 2011; Dogar, 2014; Tappura et al., 2015) suggest that managerial accounting implementation such as cost activity, planning and goal-setting activity. These activities are beneficial to operational control and performance evaluation. Firstly, as to cost activity, the characteristic of cost activity is firms that explore the competitors' product price before setting their product price applying the cost allocation- setting fit, target costing, and value-added activity analysis. It helps firms to understand process of cutting cost in each production and service activity. These enable firms to monitor production processes and performance to reduce costs (Ciuhureanu, 2012). For planning and goal-setting activity, attribution is firms that set

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a precise timeline of success and plan their expenditure using budgeting. It assists each division of firm in recognizing and understanding the goals of the firm's needs. These are tools for assisting firms in monitoring their operations to ensure conformation of plans and goals (Duh, Xiao, and Chow, 2009; Granlund, 2011; Stergiou, Ashraf, and Uddin, 2013). In addition, managers can apply managerial accounting information in their short-term and long-term goals to improve firms' performance (Ittner and Larcker, 1995). Managerial accounting function usefulness is an important tool for managers who use planning, controlling, and decision-making to enhance firm performance. It ensures that managers apply broad managerial accounting processes to improve the efficiency and effectiveness of the operation (Chenhall and Smith, 2009). This is because managerial accounting information is richer than financial accounting (Wiersma, 2008). At this point, managers should use their skills, capabilities, and knowledge of the managerial accounting process, as well as be aware of the changing business environment for managing the challenges of controlling by gathering managerial accounting information usefulness (Erben, 2002; Hossan, Sarker, and Afroze, 2012). In addition, a managerial accounting process provides valuable information that is relevance, flexible, and timely, and has an effect on future (Tappura et al., 2015). Although importance of managerial accounting on operational control is recognized, it remains unclear on how exactly managerial accounting process capability plays a role in operational controls (Duh, Xiao, and Chow, 2009). In addition, it is unclear as to how the capability and function of managerial accounting link to operational controlling (Scapens and Bromwich, 2010; Stergiou, Ashraf, and Uddin, 2013). Therefore, this research aims to provide further insight into managerial accounting control orientation (MACO) and consequents.

A critical element to MACO is the valuable resource and process of capability and competency of firms. If firms have adequate capability and competency, they can apply managerial accounting functions effectively, leading to good performance and control. To build an excellent resource and process of capability and competency, firms need to develop the ability to find effective ways to apply the managerial accounting function for setting up and controlling operational activities. This research aims to explore how MACO, outstanding operational proficiency, excellent cost management, and superior information usefulness affect firm performance. These may have an effect on decision-making value and resource management effectiveness, and may improve firms' performance.

## 2. Literature Review

In this research, a conceptual framework of managerial accounting control orientation and firm performance is explicitly discussed and elaborately examined. Thus, the concept, linkage, and research model is provided in Figure 1.

### *- Managerial Accounting Control Orientation*

In order to understand managerial accounting control orientation, it is reviewed in the literature. Researchers have defined managerial accounting control. These definitions are integrative managerial accounting processes for utilizing determinant performance evaluation and control criteria in order to enhance the performance of an organization. In this research, the term "orientation" refers to the ability of the firm to use managerial accounting function, utilizing firm resources and cost management for achieving the goals.

MACO is an independent variable that is interesting for the investigation of this research; it refers to the ability of firms to implement capability and function of

managerial accounting used for the operational setting and control of firms that conform to policy, and promote goals achievement of the firm.

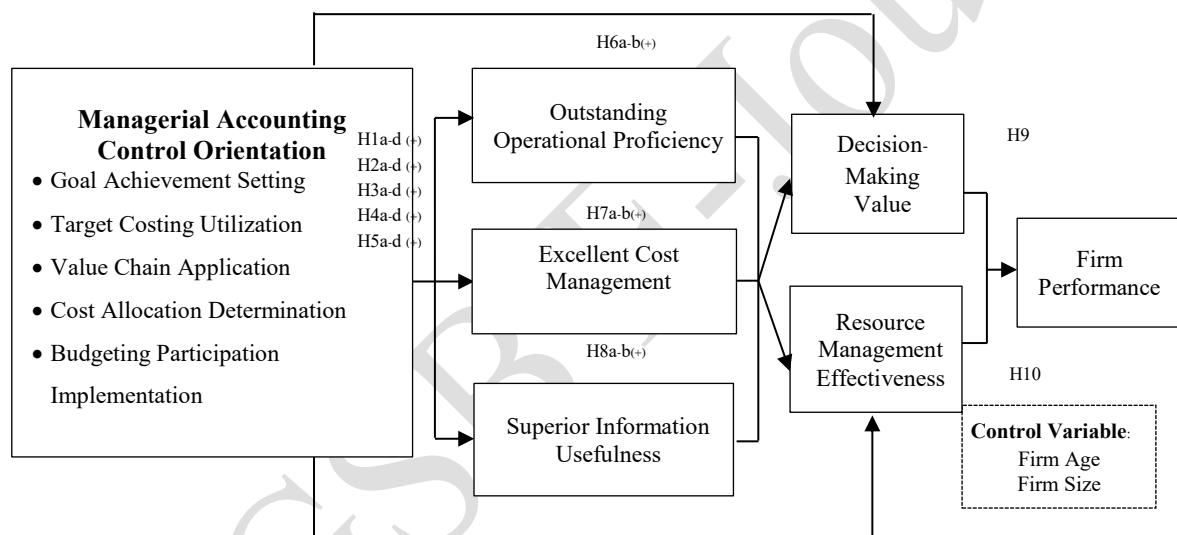
The conceptual framework implementation is able to provide a dimension of managerial accounting control orientation which integrates from the previous studies (Chenhall et al., 2011; Dogar, 2014; Tappura et al., 2015). According to prior research (Duh, Xiao, and Chow, 2009; Granlund 2011; Ciuhureanu, 2012; Stergiou, Ashraf, and Uddin, 2013), five dimensions of MACO

are applied including goal achievement setting, target costing utilization, value chain application, cost allocation determination, and budgeting participation implementation as elaborated in the next section.

#### - Goal Achievement Setting (GAS)

GAS refers to the guidelines of goal-setting that is assessable and practicable in order to use for monitoring product activity, costing, and actual time used for the manufacturing process (Duh, Xiao, and Chow, 2009).

**Figure 1: A Conceptual Framework**



An approach to work motivation that integrates beneficial influence with performance is goal-setting. Goal-setting is clear and optimal for working in the organization and can result in better job performance. In addition, if the firm has established a goal achieved by combining a firm's self-set goals and workers' self-set goals, it can use these goals to be a standard of performance for its compliance with all standards and managerial work function usages as the ways and means of performance evaluation, and is an assessment indicator setting for the operational control of the firm (Erez and Kanfer, 1983). Based on the literature

review are studied of authors such as O'Connell (1980) who shows that the usefulness of group goals and personal goals are correlated with higher performance. Furthermore, Ludwig and Goomas (2009) indicate that goal achievement setting can be used as a real-time performance control tool. It can improve performance, including best cost management and effective resource management. In addition, goals achievement setting is the road to success for the firm, and a powerful process for thinking about turning the vision for the firm's future into reality (Stein, 2012; Smith, 2013). Taking all the above notes

into account, this research sets five of the following hypotheses:

**H1:** *GAS is positively related to (a) outstanding operational proficiency, (b) excellent cost management, (c) superior information usefulness, (d) decision-making value, and (e) resource management effectiveness.*

*- Target Costing Utilization (TCU)*

TCU refers to the costing information use of competitors in the market for the firm's operational costing determinants and driving performance that is consistent with the above information, leading to more operational efficiency (Ciuhureanu, 2012). Based on previous research about target costing utilization (Maria, 2012), target costing is one technique of managerial accounting function that can lead to more information that is useful for a manager's decision-making and target costing, as costing tools for operational control. Characteristics of target costing are comprised of price-led costing, design of products and processes orientation, customer orientation, cross-functional teams, life-cycle cost reduction, and value chain involvement. These characteristics have a crucial role in building best cost management, resource management, and operational proficiency (Ansari and Bell, 1997; Burrows and Chenhall, 2012). This is also consistent with Everaert and Swenson (2014) who state that target costing processes involve cutting costs in the product design stage and product development cycle, increasing cost information in the decision-making process, and engineering and accounting design in the product development process. Thus, this research's relationship are hypotheses as shown below.

**H2:** *TCU is positively related to (a) outstanding operational proficiency, (b) excellent cost management, (c) superior information usefulness, (d) decision-*

*making value, and (e) resource management effectiveness.*

*- Value Chain Application (VCA)*

VCA is defined as a firm's operational utilization, related to an involvement activity setting, by which this activity causes the increase of a firm's value and leads to a firm's goal achievement (Laonamtha, Ussahawanitchakit, and Boonlua, 2013). The firm attempts to seek capability to save cost in all activities by managing the cost linkage between key production activities and production supporting activities. This is value chain in managerial accounting techniques for performance measure indicators to control operations leads to goals achievement of the firm. The characteristics of value chain application is continuous value chain analysis, a focus upon a set of value activities, production cost integration at all stages, and cutting activities that do not add value for the firm (McLarty, 2005). These can enhance the competitive advantage and performance of the firm.

Based on prior research, an author such as Grigore (2013) demonstrates that value chain application has effects on cost management and firm growth. Moreover, value chain application is involved to aggregate and analyze the cost cycle in each service and production activity utilized for operational control. Important value chains are comprehensive information in all activity involvement that has main characteristics. These are the activities and actors involved in delivering products or services, which provide consumer value and added value for the firm (Montgomery and Oladapo, 2014). Hence, this research proposes the following below hypotheses:

**H3:** *VCA is positively related to (a) outstanding operational proficiency, (b) excellent cost management, (c) superior information usefulness, (d) decision-making value, and (e) resource management effectiveness.*

*- Cost Allocation Determination (CAD)*

CAD refers to the ways and means to cost allocation corresponding with the situation for generating more efficient resources and the costing management of the firm (Togo, 2013). Cost allocation setting is an ability of the firm to apply managerial accounting competency in terms of cost allocation. It enables the computation of the cost of a product per unit in the production process of industries and appropriately calculates cost per product or service in each department. In addition, accuracy cost allocation can be used as an instrument for a firm's performance monitoring and profitability evaluation. Stable and fair cost allocation is a difficult and hard-to-solve problem to distribute cost shares among departments (Drechsel and Kimms, 2011), but can closely compute actual production costs in each division. Also, managers must learn about cost allocation setting to optimize allocation overheads for products in production and the services in each department (Terzioglu, 2012). Moreover, cost allocation setting plays a crucial role for decision-makers by building and using facilities or resources management (Chen and Chen, 2013). The main issue in cost allocation determination is to allocate the cost that is affected from joint performance (Costa and Jurado, 2013). It can mend cost management, more information offerings, and operational proficiency.

Cost allocation should be interpreted as a fixed cost allocation, whereas the overhead of the repeat-production department should be determined independently of the actual quantity of the units in repeat-production (Toktay and Wei, 2011). Thus, the research relationship is hypothesized as shown below.

**H4:** *CAD is positively related to (a) outstanding operational proficiency, (b) excellent cost management, (c) superior information usefulness, (d) decision-*

*making value, and (e) resource management effectiveness.*

*- Budgeting Participation Implementation (BPI)*

BPI is defined as the capability of creating and operating to maximize a firm's goal achievement and leading to a firm's effectiveness from budgeting participation (Stergiou, Ashraf, and Uddin, 2013). Behavioral management accounting research has been interested in participative budgeting study (Agbejule and Saarikoski, 2006). Managerial accounting process has one function which is good budgeting participation. By this, it offers superior information usefulness, enabling decision-making and best resource management. The function of the budget uses operational control, cost control, and resources control (Stede, 2000). Budgeting is a managerial tool that helps the firm better for its efficient and effective operations. It is involved with resource allocation, operation management and control, and performance evaluation (Fisher, Frederickson, and Pfeffer, 2002; Stede, 2000; Huang and Chen, 2009). Penno (1990) and Wing, Guo, and Lui (2010) find that budgeting participation has effects on performance and it builds information that is necessary to manage the operations of the firm.

In addition, budgeting participation provides information usefulness to apply to performance evaluation (Derfuss, 2009). Thus, these ideas lead to posit the following hypotheses:

**H5:** *BPI is positively related to (a) outstanding operational proficiency, (b) excellent cost management, (c) superior information usefulness, (d) decision-making value, and (e) resource management effectiveness.*

*- Outstanding Operational Proficiency (OOP)*

OOP refers to firm's ability to use managerial accounting practice

information for providing efficient operations, leading to firm performance and continuously adapting to operational changes (Webb, Lopez, and Regier, 2005). Outstanding operational proficiency occurs after controlling the operation by using the ability of the firm to apply managerial accounting information usefulness. If the firm has better operational proficiency, it can be a tool to provide information that enhances profitability forecasts and improves the competitive advantage of the firm (Baik et al., 2013).

Previous research indicates the crucial nature of operational proficiency in terms of managerial accounting. Operational proficiency can help organizations increase problem-solving capability, leading to business excellence, including cost reduction, and timely production (Ion, Catalina, and Georgiana, 2013). Furthermore, operation proficiency offers opportunities for goal achievement, customer satisfaction, and excellence comprised of production, utilities, and management of the firm (Vrellas and Tsiotras, 2014). Based on the above, the following hypotheses are postulated:

**H6:** *OOP is positively related to (a) decision-making value, and (b) resource management effectiveness.*

*- Excellent Cost Management (ECM)*

ECM is defined as the ability of the firm to perform an assessment from cost accounting and managerial accounting applications for accurate cost allocation (raw material, labor, and actual time used) in each department of the desired firm (Elliott et al., 2014). Excellent cost management generates acceptance by stakeholders and shareholders based on suitable cost-per-unit, leading to higher performance. This is because it has the special characteristics of cost accuracy allocation and appropriate resources, using evaluation in all activities about the manufacturing process, including value

creation for the firm (Ceccagnoli and Jiang, 2013; Fayard et al., 2014).

Management accounting function implementation is a tool for operational control, especially target costing utilization related to important techniques in managing the costs of both a product and the overall production process (Zengin and Ada, 2010). This is excellent cost management that is useful for creating value in decision-making, effective resource management for improving performance, and enhancing firm survival (Peng, Li, and Wan, 2012). Therefore, the research relationship is hypothesized as shown below:

**H7:** *ECM is positively related to (a) decision-making value, and (b) resource management effectiveness.*

*- Superior Information Usefulness (SIU)*

SIU refers to the decision and resource management performance of the firm that can use the function, approach, and process of managerial accounting to apply to the operational control of the firm, and create value and broad-scope information for a manager's decision-making and operational management (Chaikambang, Ussahawanitchakit, and Boonlua, 2012). The function of managerial accounting offers information for managers using decision-making and resource allocation management to improve performance and efficiency in expected future performance. The usefulness of accounting information has a high tendency to generate information for the decision-making of administrators and can improve the performance, estimation, and prediction of the firm (Sousa, 2013; Yeha and Teng, 2012; Kato, 2013).

Furthermore, more information usefulness builds an ability of the firm to identify future performance that is useful and sufficient for decisions and resource management to generate firm survival (Walter, 1994). In addition, Ward (2007)

demonstrates that the usefulness of particular accounting information can lead the firm to accurately predict an economic crisis in the future. Based on these literatures, the hypotheses are formulated as follows:

**H8:** *SIU is positively related to (a) decision-making value, and (b) resource management effectiveness.*

*- Decision-Making Value (DMV)*

DMV is defined as the firm's decision processes to choose projects or activities from various protuberant alternatives rather than competitor based on managerial accounting function usage (Doinea et al., 2011). Managerial accounting helps management decisions for the best alternative selection which enhances all stakeholder satisfaction (Socea, 2012). This leads to an increase of managerial accuracy in interpretation among optimal conditions (Scorte and Farcas, 2013). The above implies that decision-making value relates to optimal alternatives selection which is available for increasing a firm's performance. This is consistent with Kownatzki et al. (2013) who express that business that has a higher effectiveness of control; and correspond with decisive speed such as in goal-setting, extrinsic incentives, and decision process control. The decision speed can enhance profitability, sales growth, and firm performance. Therefore, the hypothesis is proposed as follows:

**H9:** *DMV is positively related to firm performance.*

*- Resource Management Effectiveness (RME)*

RME refers to the firm that can analyze the resource requirements and allocate accurate resources for each department, including worthwhile, used material (Buaphaun and Ussahawanitchakit, 2013). The ability of resource management occurs from

efficient management and problem-solving in operational activities. This uses and shares minimum resources which are used in manufacturing activities. However, extreme competition makes the firm focus on resource management and planning by creating an ability to evaluate the use of the available resources, including accurate resource allocation and decreasing resources used for firm survival and superior performance (Mihai, Alexandra, and Danut, 2014). This is consistent with Rivenbark, Roenigk, and Noto (2013) who mention firms that more readily make resource allocation decisions enhance higher performance with efficient measures. Hence, this research proposes the following hypothesis as below.

**H10:** *RME is positively related to firm performance.*

*- Firm Performance (FP)*

Firm performance can be measured from two perspectives, which are financial performance and non-financial performance. Prior research (e.g., Sebald and Walzl, 2014; Amsteus, 2014) find a key word in each variable definition to be a variable measurement, because some situations may be difficult to measure by using secondary data (Ayers, 2015). Furthermore, knowledge management research uses a subjective performance measurement for evaluating ability to implement existing knowledge that uses operational monitoring and management system-setting (Wang and Huynh, 2014). As discussed above, firm performance in this research is measured by the increase in outcomes, financial performance, non-financial performance, and the ability of a firm in managerial accounting control because these reflect high degree of profitability and shareholder satisfaction.

### **3. Research Methodology**

*- Sample Selection and Data Collection Procedure*

Garment manufacturing business is chosen as the data source to manifest the empirical research. The population in this research is 2,394 firms that were acquired from the database list of the Department of Business Development (DBD), Ministry of Commerce, Thailand. One of the reasons for choosing garment manufacturing businesses is because it is aware of reducing costs in all production activities, and increasing the ability to create ways, means, and applications of managerial accounting information which generates firm value and good performance (Islam and Jain, 2013).

Therefore, a suitable sample size, with 95 percent confidence, is 343 firms (Yamane, 1973). The sample size calculation by Yamane's method is a close estimate in accordance with the population. However, prior survey research calls for a 20 percent response rate from the mail survey, without a suitable follow-up procedure, and is considered sufficient (Aaker, Kumar, and Day, 2001). Hence, the sample size is 1,715 firms ( $((343/20) \times 100)$ ).

The mail surveys were sent to 1,800 accounting executives by using stratified random sampling as a sampling method with random sample in which members of the population are first divided into strata, there are randomly selected to be a part of the sample for representing the entire population (Koyuncu and Kadilar, 2010).

Four weeks after the preliminary mailing, a follow-up postcard was conducted to those individuals who had not responded to return the surveys (Lamberti and Noci, 2010). As the result, a total of 291 questionnaires were returns, and 286 were usable. With respect to the questionnaire mailing, 378 surveys were undeliverable because firms had stopped or had moved to unknown locations. Deducting the undeliverable from the original 1,800 mailed, the valid mailing was 1,422 surveys. Thus, the effective response rate is 20.11 percent  $((286/1,422) \times 100)$ .

In order to verify the non-response bias, the making of comparisons between responders and non-responders on basic characteristics of samples such as business owner type, firm size, firm capital, and firm age is by tested the independent sample t-test statistics, comparing early versus late responders (Armstrong and Overton, 1977). As a result, there was no significant difference between those groups. It is presumed that the returned questionnaires are without non-response bias problems.

#### *- Variable Measurements*

Multiple items are for measuring each construct. Certainly, variables are estimated scales from their definitions and are applied from relevant accounting research. The five-point Likert scale utilizes intervals ranging from 1 = strongly disagree, to 5 = strongly agree, due to the question that measures perception of variables (Newell and Goldsmith, 2001).

#### *- Dependent Variable*

*FP* is measured by the increase in outcomes, financial performance, non-financial performance, and the ability of a firm in managerial accounting control because these reflect high degree of profitability and shareholder satisfaction. A four-item scale is adapted from Laonamtha, Ussahawanitchakit, and Boonlua (2013).

#### *- Independent variable*

*GAS* is measured by the degree of the utilization of setting precise, timely goal operations, work, and product activity for controlling cost and time used in the manufacturing process. A four-item scale is newly developed.

*TCU* is measured by the degree of utilization of exploring the product and service prices in the market, clear product characteristics for evaluation, and maintaining product prices with customer needs before setting product and service



prices. A four-item scale is newly developed.

*VCA* is measured by the degree of application of value-added activities, by collecting and integrating cost information in each production process, and eliminating non value-added activity, to be tools for controlling an operation. A four-item scale is adapted from Laonamtha, Ussahawanitchakit, and Boonlua (2013).

*CAD* is measured by the degree of a firm's capabilities for appropriate cost allocation criteria-setting, cost per unit-setting for each manufacturing process, and finding crucial cost drivers for cost allocation. A four-item scale is newly developed.

*BPI* is measured by the degree of utilization of continuous budget preparedness collaboration, brainstorming from all divisions to allocate a budget, and exploring budget use needed by all divisions before plan-setting for operational control. A four-item scale is newly developed.

#### *- Mediating variable*

*OOP* is measured by the degree of achieving goals, prominence, and differential over competitors, accept from other persons and organizations, accurate and reliable information systems in the operation of each activity at a higher level. A four-item scale is newly developed.

*ECM* is measured by the degree of the outcome of saving costs, accurate cost allocation, continuously reducing non-profitable activities, using less time in the production cycle, and achieving the planned setting. A four-item scale is newly developed.

*SIU* is measured by the degree of the outcome of a firm that has richness information, a database, and can integrate both financial information and non-financial information for timely decision-making. A four-item scale is adapted from Chaikambang, Ussahawanitchakit, and Boonlua (2012).

*DMV* is measured by the degree of outcome of a firm's capability to choose project investments for special high returns, analyze and compare the returns of self-production, or purchase from other merchants, and set suitable product prices. A five-item scale is newly developed.

*RME* is measured by the degree of outcome of firms that can use limited resources for worthy, and maximum benefits that are enough and suitable to the firm's operation and competitive current circumstances. A three-item scale is adapted from Buaphaun and Ussahawanitchakit (2013).

#### *- Control Variables*

*Firm age (FA)* is represented by a dummy variable in which 0 means the firm has been in business less than or equal 10 years, and 1 means the firm has been in business more than 10 years (Kanchanda, Ussahawanitchakit, and Jhundra-indra, 2012).

*Firm size (FS)* is represented by a dummy variable in which 0 means a firm has total assets less than or equal to 100,000,000 baht; and 1 means a firm has total assets more than 100,000,000 baht (Prempre, Ussahawanitchakit, and Boonlua, 2013).

#### *- Method*

The data were collected by mail questionnaire. Therefore, the pre-test is conducted from the test of thirty questionnaires of accounting executives from a population that is sampled in this research. In order to show content validity sufficiency, this research employed two experts as distinguished scholars that who suggested that the number of experts required for content validity is between two and twenty (Gable and Wolf, 1993).

Also, this research has shown strong validity and reliability as demonstrated in Table 1. The factor loading was ranging from 0.708 to 0.958 in that these scales are more than 0.40, indicating acceptable construct validity. Also, Cronbach's alpha coefficients were measured between

0.750-0.947, which exceeds 0.70 to indicate high reliability (Nunnally and Bernstein, 1994).

#### - Statistical Techniques

The Ordinary Least Squares (OLS) regression analysis examined the hypotheses. Consequently, the proposed hypotheses were transformed into eight equations that guided the steps to regression analysis. Therefore, the equations are elaborated as follows.

$$Eq1: OOP = \alpha01 + \beta1GAS + \beta2TCU + \beta3VCA + \beta4CAD + \beta5BPI + \beta6FA + \beta7FS + \varepsilon1$$

$$Eq2: ECM = \alpha02 + \beta8GAS + \beta9TCU + \beta10VCA + \beta11CAD + \beta12BPI + \beta13FA + \beta14FS + \varepsilon2$$

$$Eq3: SIU = \alpha03 + \beta15GAS + \beta16TCU + \beta17VCA + \beta18CAD + \beta19BPI + \beta20FA + \beta21FS + \varepsilon3$$

$$Eq4: DMV = \alpha04 + \beta22GAS + \beta23TCU + \beta24VCA + \beta25CAD + \beta26BPI + \beta27FA + \beta28FS + \varepsilon4$$

$$Eq5: RME = \alpha05 + \beta29GAS + \beta30TCU + \beta31VCA + \beta32CAD + \beta33BPI + \beta34FA + \beta35FS + \varepsilon5$$

$$Eq6: DMV = \alpha06 + \beta36OOP + \beta37ECM + \beta38SIU + \beta39FA + \beta40FS + \varepsilon6$$

$$Eq7: RME = \alpha07 + \beta41OOP + \beta42ECM + \beta43SIU + \beta44FA + \beta45FS + \varepsilon7$$

$$Eq8: FP = \alpha08 + \beta46DMV + \beta47RME + \beta48FA + \beta49FS + \varepsilon8$$

#### 4. Results and Discussion

The descriptive statistics and correlation between variables are analyzed as shown in Table 2. The maximum scale of variance inflation factors (VIFs) was 2.153 which does not exceed the value of 10, indicating no multicollinearity (Hair et al., 2010). With regard to the autocorrelation effect, it was found that the Durbin-Watson (d) scale ranges from 1.540 to 2.284, which is between the critical value of  $1.5 < d < 2.5$  (Durbin and Watson, 1971). Therefore, as to autocorrelation effects, there is no problem in this research.

As shown in model 1 to 5, the evidence in Table 3 shows that goal achievement setting has a positive effect on outstanding operational proficiency ( $\beta_1 = 0.298$ ,  $p < .01$ ), excellent cost management ( $\beta_8 = 0.146$ ,  $p < .05$ ), superior information usefulness ( $\beta_{15} = 0.320$ ,  $p < .01$ ), decision-making value ( $\beta_{22} = 0.195$ ,  $p < .01$ ), and resource management effectiveness ( $\beta_{29} = 0.155$ ,  $p < .01$ ).

**Table 1:** Results of measure validation

Constructs	Factor Loadings	Alpha Coefficient
Firm Performance (FP)	.880-.958	.947
Goal Achievement setting (GAS)	.799-.876	.857
Target Costing Utilization (TCU)	.802-.919	.868
Value Chain Application (VCA)	.756-.874	.799
Cost Allocation Determination (CAD)	.771-.905	.868
Budgeting Participation Implementation (BPI)	.740-.947	.894
Outstanding Operational Proficiency (OOP)	.708-.841	.766
Excellent Cost Management (ECM)	.782-.868	.850
Superior Information Usefulness (SIU)	.745-.906	.846
Decision-Making Value (DMV)	.782-.897	.911
Resource Management Effectiveness (RME)	.814-.848	.750

**Table 2: Descriptive Statistics and Correlation Matrix**

Variables	FP	GAS	TCU	VCA	CAD	BPI	OOP	ECM	SIU	DMV	RME	FA	FS
Mean	4.2395	4.0979	3.9869	3.9056	4.1949	4.1311	4.2238	4.0932	4.0306	4.1434	4.1282	n/a	n/a
S.D.	.4466	.6410	.6307	.5775	.5179	.6470	.5629	.6125	.5092	.4014	.5341	n/a	n/a
FP	1												
GAS	.388***	1											
TCU	.488***	.530***	1										
VCA	.530***	.534***	.624***	1									
CAD	.506***	.300***	.380***	.460***	1								
BPI	.678***	.511***	.627***	.622***	.498***	1							
OOP	.602***	.662***	.651***	.676***	.425***	.709***	1						
ECM	.139**	.285***	.259***	.247***	.190**	.277***	.285***	1					
SIU	.604***	.651***	.673***	.583***	.571***	.677***	.650***	.251***	1				
DMV	.740***	.624***	.761***	.688***	.549***	.695***	.687***	.255***	.712***	1			
RME	.599***	.544***	.636***	.592***	.535***	.690***	.665***	.185***	.750***	.671***	1		
FA	-.032	-.058	-.075	-.023	-.034	-.028	-.080	-.145**	-.081	-.050	-.068	1	
FS	.012	-.063	-.057	.012	-.043	.026	-.045	-.118**	-.046	-.035	-.083	.034	1

\*\*\* p < 0.01, \*\* p < 0.05

Goal achievement setting is a guideline of the firm for work practices and operational control practice. It can improve competitive advantage and performance of the firm. This is consistent with Ludwig and Goomas (2009) who suggest that goal achievement setting can be used as a real-time performance control tool. It can improve performance, including better cost management and effective resource management. Additionally, goals achievement setting is the road to success for the firm, and a powerful process for thinking about turning the vision for the firm's future into reality (Stein, 2012; Smith, 2013). **Thus, Hypotheses 1a - 1e are supported.**

In addition, in the light of target costing utilization, the results indicate that target costing utilization positively affect outstanding operational proficiency ( $\beta_2 = 0.153$ ,  $p < .01$ ), superior information usefulness ( $\beta_{16} = 0.274$ ,  $p < .01$ ), decision-making value ( $\beta_{23} = 0.387$ ,  $p < .01$ ), and resource management effectiveness ( $\beta_{30} =$

0.226,  $p < .01$ ). Target costing utilization is technically using managerial accounting process capability linkage to operational control for enhancing performance of the firm. This is consistent with Maria (2012) who indicates that target costing is one technique of the managerial accounting function that can lead to more information that is useful for a manager's decision-making and target costing, as costing tools for operational control. Moreover, target costing plays a crucial role in building best cost management, resource management, and operational proficiency (Ansari and Bell, 1997; Burrows and Chenhall, 2012). **Thus, Hypotheses 2a, 2c - 2e are supported.**

Target costing utilization has no significant effect on excellent cost management ( $\beta_9 = 0.063$ ,  $p > .10$ ). In extreme contextual change, firms should focus on integrating cost information into services and production activities, using cost management to resolve unexpected environmental change.

**Table 3: Results of Regression Analysis**

Independent Variables	Dependent Variables							
	OOP Eq. 1	ECM Eq. 2	SIU Eq. 3	DMV Eq. 4	RME Eq. 5	DMV Eq. 6	RME Eq. 7	FP Eq. 8
<b>Managerial Accounting Control Orientation :</b>								
GAS: H1a-e	<b>0.298***</b> (0.043)	<b>0.146**</b> (0.070)	<b>0.320***</b> (0.042)	<b>0.195***</b> (0.039)	<b>0.155***</b> (0.047)			
TCU: H2a-e	<b>0.153***</b> (0.049)	0.063 (0.079)	<b>0.274***</b> (0.048)	<b>0.387***</b> (0.043)	<b>0.226***</b> (0.053)			
VCA: H3a-e	<b>0.212***</b> (0.050)	0.076 (0.081)	-0.018 (0.049)	<b>0.155***</b> (0.044)	0.076 (0.055)			
CAD: H4a-e	0.025 (0.040)	-0.086 (0.066)	<b>0.272***</b> (0.040)	<b>0.195***</b> (0.036)	<b>0.212***</b> (0.044)			
BPI: H5a-e	<b>0.317***</b> (0.050)	<b>0.172**</b> (0.081)	<b>0.221***</b> (0.049)	<b>0.162***</b> (0.045)	<b>0.321***</b> (0.055)			
OOP: H6a-b						<b>0.381***</b> (0.051)	<b>0.321***</b> (0.050)	
ECM: H7a-b						0.034 (0.040)	-0.049 (0.039)	
SIU: H8a-b						<b>0.456***</b> (0.050)	<b>0.553***</b> (0.049)	
DMV: H9								<b>0.613***</b> (0.053)
RME: 10								<b>0.188***</b> (0.053)
<b>Control Variables:</b>								
Firm Age (FA)	-0.068 (0.069)	<b>-0.224**</b> (0.113)	-0.056 (0.068)	-0.045 (0.062)	-0.084 (0.076)	0.030 (0.077)	-0.018 (0.075)	0.015 (0.079)
Firm Size (FS)	0.053 (0.069)	<b>-0.242**</b> (0.113)	-0.064 (0.068)	-0.029 (0.060)	-0.084 (0.076)	0.006 (0.078)	-0.055 (0.075)	0.050 (0.079)
Adjusted R <sup>2</sup>	0.669	0.121	0.680	0.735	0.599	0.588	0.612	0.562
Maximum VIF	2.153	2.153	2.153	2.153	2.153	1.807	1.807	1.820
Durbin-Watson	1.540	1.805	1.620	2.027	2.284	1.905	2.187	1.788

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

This is consistent with Everaert and Swenson (2014) who indicate that the characteristic of target costing processes is cutting costs in the product design stage and product development cycle, but one should be aware to combine engineering processes for increasing cost information in the cost management process. **Thus, Hypothesis 2b is not supported.**

Moreover, the evidence reveals that value chain application positively affects outstanding operational proficiency ( $\beta_3 = 0.212$ ,  $p < .01$ ) and decision-making value

( $\beta_{24} = 0.155$ ,  $p < .01$ ). The results indicate that value chain application is choosing only special activities that have value-added for the firm. The firm selects added value activities for using as a tool in operational control because the firm needs better operational management and decision-making. In addition, value chain provides rich information for the firm to plan and control operations. It helps the firm's cost objective achievement (McLarty, 2005). **Thus, Hypotheses 3a, 3d are supported.**

Value chain application also has no significant effect on excellent cost management ( $\beta_{10} = 0.076$ ,  $p > .10$ ),

superior information usefulness ( $\beta_{17} = -0.018, p > .10$ ), and resource management effectiveness ( $\beta_{31} = 0.076, p > .10$ ). In fact, firm's value chain application should analyze both internal value-added activities and external value-added activities for leading it, as an instrument, towards operational control.

A combination of internal and external value-added activities analyses supports a firm's incremental and relative information usefulness for enhancing operational risk management and monitoring and evaluating the goals of the firm (Montgomery and Oladapo, 2014).

**Thus, Hypotheses 3b - c, 3e are not supported.**

The results show that cost allocation determination has a positive effect on superior information usefulness ( $\beta_{18} = 0.272, p < .01$ ), decision-making value ( $\beta_{25} = 0.195, p < .01$ ), and resource management effectiveness ( $\beta_{32} = 0.212, p < .01$ ). The results demonstrate that cost allocation determination is one of the keys to bring rich information to the firm for use in decision-making, and sets the scope of cost per unit in each division. It provides data, offering the firm an opportunity to increase competitive advantage and performance (Chen and Chen, 2013). Furthermore, the main issue in cost allocation determination is to allocate the cost that is affected by joint performance (Costa and Jurado, 2013).

**Hence, Hypotheses 4c - 4e are supported.**

Nonetheless, cost allocation determination has no significant effects on outstanding operational proficiency ( $\beta_4 = 0.025, p > .10$ ) and excellent cost management ( $\beta_{11} = -0.086, p > .10$ ). Rapid business environmental change is the reason for the difficulty of allocating cost to distribute cost in production activities accurately. This is consistent with prior research that suggests stable and fair cost allocation is a difficult and hard-to-solve problem to distribute cost shares among departments (Drechsel and Kimms, 2011), but can closely compute actual production costs in

each division. Managers must learn about cost allocation-setting to optimize allocation overhead for products in production and the services in each department (Terzioglu, 2012). **Thus, Hypotheses 4a - 4b are not supported.**

The evidence reveals that budgeting participation implementation positively affects outstanding operational proficiency ( $\beta_5 = 0.317, p < .01$ ), excellent cost management ( $\beta_{12} = 0.172, p < .05$ ), superior information usefulness ( $\beta_{19} = 0.221, p < .01$ ), decision-making value ( $\beta_{26} = 0.162, p < .01$ ), and resource management effectiveness ( $\beta_{33} = 0.321, p < .01$ ). The results suggest that budgeting participation implementation is a crucial factor that leads the firm to successful operational control. Budgeting participation creates the motivation of workers and supervisors to commit their practices for controlling expenses so as not exceeded the budget of the firm.

Moreover, budgeting is a managerial tool that helps the firm better for its efficient and effective operations. It is involved with resource allocation, operational management and control, and performance evaluation (Fisher, Frederickson, and Pepper, 2002; Stede, 2000; Huang and Chen, 2009). **Hence, Hypotheses 5a - 5e are supported.**

On the other hand, as shown in model 6 and 7, the results show in Table 3 indicate that outstanding operational proficiency has a positive significant effect on decision-making value ( $\beta_{36} = 0.381, p < .01$ ) and resource management effectiveness ( $\beta_{41} = 0.321, p < .01$ ). Consistent with Ion, Catalina, and Georgiana (2013) it reveals that outstanding operational proficiency can help organizations increase problem-solving capability, leading to business excellence that includes cost reduction and timely production. Furthermore, operational proficiency offers opportunities for goal achievement, customer satisfaction, and excellence, comprised of production, utilities, and

management of the firm (Vrellas and Tsiotras, 2014). **Hence, Hypotheses 6a and 6b are supported.**

In contrast, the results reveal that excellent cost management does not have any significant effect on decision-making value ( $\beta_{37} = 0.034$ ,  $p > .01$ ) and resource management effectiveness ( $\beta_{42} = -0.049$ ,  $p > .01$ ). This is consistent with Fayard, (2014); Ceccagnoli and Jiang (2013) who suggest that excellent cost management generates acceptance by stakeholders and shareholders based on suitable cost-per-unit, leading to higher performance. This is because it has special characteristics of cost accuracy allocation and appropriate resources using evaluation of all activities about the manufacturing process, including value creation of the firm. Therefore, these results indicate that firms should be careful about using excellent cost management for enhancing competitive advantage. **Thus, Hypotheses 7a and 7b are not supported.**

In addition, superior information usefulness positively affects decision-making value ( $\beta_{38} = 0.456$ ,  $p < .01$ ) and resource management effectiveness ( $\beta_{43} = 0.553$ ,  $p < .01$ ). The results indicate that superior information usefulness is the one key factor for encouraging operational management of the firm. This is consistent with Sousa, (2013); Yeha and Teng, (2012); Kato, (2013) who demonstrate that usefulness of accounting information has a high tendency to generate information for the decision-making of administrators and can improve the performance, estimation, and prediction of the firm. **Thus, Hypotheses 8a and 8b are supported.**

As shown in model 8, the results indicate that decision-making value positively affects firm performance ( $\beta_{46} = 0.613$ ,  $p < 0.01$ ). This is consistent with previous research which finds that businesses have a higher effectiveness of control, corresponding with decision speed such as in goal-setting, extrinsic incentives, and decision process control. The decision speed can enhance profitability, sales growth, and firm performance (Kownatzki

et al., 2013). **Thus, Hypothesis 9 is supported.**

Moreover, the results indicate that resource management effectiveness has a positive significant effect on firm performance ( $\beta_{47} = 0.188$ ,  $p < 0.01$ ). This is accordance with prior research which finds that extreme competition makes the firm focus on resource management and planning by creating ability to evaluate the use of the available resources, including accurate resource allocation and decreasing resources used for firm survival and superior performance (Mihai, Alexandra, and Danut, 2014). **Thus, Hypothesis 10 is supported.**

For the control variable in model 2, the results indicate that firm age and firm size has a significant negative effect on excellent cost management ( $\beta_{13} = -0.224$ ,  $\beta_{14} = -0.242$ ,  $p < .05$ ). It implies that complexity in operation of firm with junior firm and small firm can easy resolve problem more than firm with long operation and large firm.

## 5. Conclusions and Recommendations

The key purpose of the research is to investigate the relationship between MACO and firm performance in Thai garment manufacturing businesses. The sample includes 286 observations from 1,800 garment manufacturing businesses that are conducted by stratified random sampling methods.

The OLS regression results reveal that goal achievement setting and budgeting participation implementation positively affects outstanding operational proficiency, excellent cost management, superior information usefulness, decision-making value, and resource management effectiveness. Target costing utilization positively affects outstanding operational proficiency, superior information usefulness, decision-making value, and resource management effectiveness. Value chain application has a positive effect on outstanding operational proficiency and decision-making value. Cost allocation

determination positively affects superior information usefulness, decision-making value, and resource management effectiveness.

For the effects of the consequences, this research shows that outstanding operational proficiency and superior information usefulness positively affects decision-making value and resource management effectiveness. Decision-making value and resource management effectiveness positively affects firm performance. The finding of this research sheds light on guidelines applying competencies of managerial accounting process that link to operational control can improve competitive advantage and performance of firms.

#### - *Contributions*

The discovery provides several contributions as follows. Firstly, a conceptual framework tests five new dimensions of MACO and its relationship with its consequences. The findings suggest that five dimensions of MACO are firms' capability and a valuable process in that they enhance firms' competitive advantages. This research provides further understanding of how firms can utilize MACO dimensions (goal achievement setting, target costing utilization, value chain application, cost allocation determination, and budgeting participation implementation) in their operational control to create competitive advantages over other firms.

Secondly, the research indicates that target costing utilization is an important factor influences decision-making value. These conclude that firms may develop target costing by exploring product prices of competitors and appraising the customer price need before setting appropriate product prices themselves in managerial accounting process to provide rich managerial accounting information for

assisting executives to make better decisions.

Finally, the findings show that decision-making value is a crucial factor to promote firms' performance. Thus, firms should develop optimal alternatives selection capability by using existing managerial accounting process competency as an operational control and management instrument to increase competitive advantage and performance.

#### - *Recommendations*

However, in order to build more interesting issues for accounting scholars, future research has a few recommendations. Due to the fact that the firm age and firm size were a control variable that has an effect on some models, the researcher should examine it carefully.

Based on the result of model 2 that is control variables significance, in order to maintain a high level of internal validity in future research that still remains relationships with goal achievement setting and budgeting participation implementation on excellent cost management. It requires a separate sample group which is different in the garment manufacturing business period and total assets of operation between the two groups. For example, in data collection, only the firm has garment manufacturing business period operation that either does not exceed ten years or is more than ten years. Additionally, only the firm has total assets of garment manufacturing operation that either does not exceed one hundred million baht or is more than one hundred million baht

In addition, in order to complete the concept, an interested researcher should find antecedents and moderators that can relate to MACO and firm performance. For example, the antecedent might be long-term business vision, managerial accounting experience, accounting employee competency, modern technology growth, and environmental uncertainty,

and moderator might be best managerial accounting system. The findings show that excellent cost management does not affect decision-making value and resource management effectiveness. Future research might re-investigate the relationship because environmental and time changes might affect the findings.

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