

# **CUSTOMER ACCOUNTING AND COMPETITOR ACCOUNTING AS A STRATEGIC APPROACH FOR GOAL ACHIEVEMENT: EVIDENCE FROM AUTO PARTS MANUFACTURING COMPANIES IN THAILAND**

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## **ABSTRACT**

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This study investigates the influences of customer accounting and competitor accounting on goal achievement through customer relationship and competitive advantage as mediating of the study. Customer accounting includes customer profitability analysis, lifetime customer profitability analysis and valuations of customers as assets and competitor accounting consist of competitor cost assessment, competitive position monitoring and competitive performance appraisal. In this study, 136 auto parts manufacturing companies in Thailand are the samples of the study. The results reveal that lifetime customer profitability analysis has a significant positive influence on customer relationship. Also, customer profitability analysis, valuations of customers as assets, competitive position monitoring and competitive performance appraisal have a significant positive influence on competitive advantage. Moreover, customer relationship has a significant positive influence on competitive advantage. Likewise, customer relationship and competitive advantage have a significant positive influence on goal achievement. This study enables firms' executives to be aware of how to implement, apply and utilize customer accounting and competitor accounting for customer relationship, initialing competitive advantage, and goal achievement in the highly and rigorously competitive markets and environments through the valuable allocation of their resources, assets and strategies to customer accounting and competitor accounting.

**Keywords :** Competitor Accounting, Customer Accounting, Competitive Advantage, Goal Achievement

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## **INTRODUCTION**

Increasing global and local competition, globalization, technological advancements and increasingly demanding customers have all contributed to environmental uncertainty within the industry, and have changed the structures of global competition (Lee et al., 2015). These changes have placed industrial companies today under various types of force requiring them to increasingly increase their competitive priorities including quality, cost reduction, delivery and rapid response to demand of customer, productivity, flexibility and innovation to create new products (Alsoboa and Alduhiate, 2013). Competitive advantage is experienced by a company when its actions in an industry or market generate economic value and when few competing companies are engaging in similar actions (Barney, 2002). In order to increase and maintain competitive advantages, businesses need to manage resources efficiently and effectively. This, in turn, requires all the use of all available information. Then, companies should be able to create and use more strategic information

regarding future and external events to support and update their business strategy and achieve higher levels of firm performance (Ho et al., 2014).

The concept of strategic management accounting (SMA) is associated with strategy of business and retaining or increasing competitive advantage (The Chartered Institute of Management Accountants, 2008). Hence, SMA may be considered part of the resources required to sustain a competitive advantage by providing information associated to significant aspects in the organization including strategic decision making, planning, control, performance measurement, strategic costing, competitor accounting and customer accounting. The focus of SMA is on the market and external-oriented information rather than historical and internal information (Cadez and Guilding, 2012). Consequently, SMA is directed toward key components of the company's external environment for example market positioning, suppliers, customers and competitors (Kirli and Gümüş, 2011).

The objective of a firm's competitive advantage is to increase superior performance over the competitors. Therefore, knowledge and information are important matters to sustain this advantage. As a potential part of the internal capabilities of the company, the competitor accounting and the customer accounting, which is one of the major themes in SMA, could provide such an opportunity (Alsoboa and Alalaya, 2015). Hence, this study has implemented competitor accounting and customer accounting as a valuable strategic tool for enhancing companies to meet their performance, survival, and sustainability in current and future operations. So, competitor accounting and customer accounting are a key to determine and drive firms' customer relationship, competitive advantage and goal achievement.

Customer accounting refers to the process of identifying, measuring, communicating, and reporting economic information as sales, profit, and present value of earnings linking to a customer or customer group (Guilding and McManus, 2002). It comprises of customer profitability analysis, lifetime customer profitability analysis, and valuations of customers as assets. It offers financial data and information to support the critical association between customers and profitability. Therefore, companies with successful customer accounting implementation tend to succeed greater organization performance. Similarly, customer accounting emphasize on the financial measurement linking to customers and their behaviors and characteristics (Inglis, 2008). It presents the costing of product attributes that build value for customers and provide information for objectively making decisions considering an organization's competitiveness and profit position. Hence, companies have paid an attention on how they spend their investments to targeted customers. Furthermore, customer accounting explicitly leads to sustainable competitive advantage and superior financial returns via more efficient use of resources and increased value for customers (Holm et al., 2016).

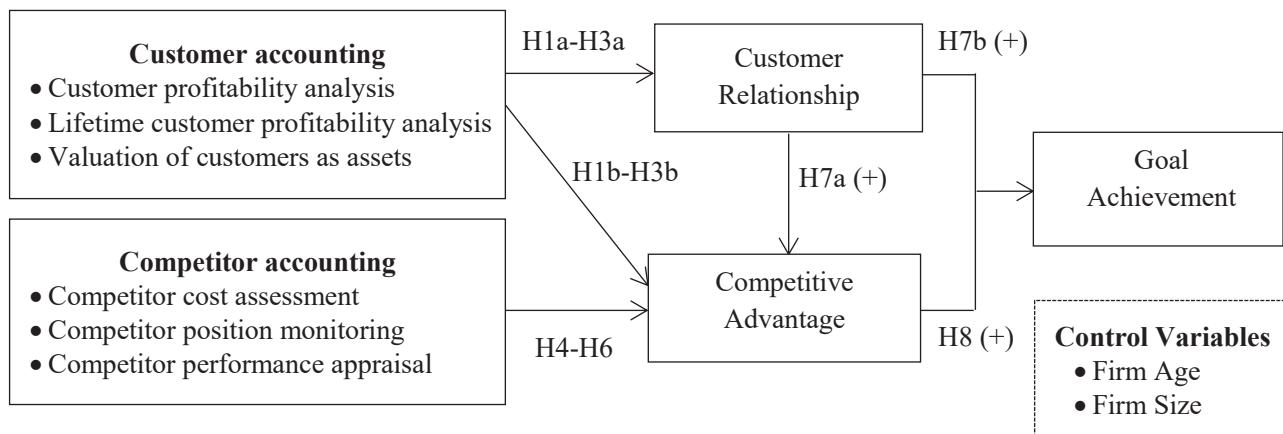
Competitor accounting refers to the provision and analysis of management accounting information about each of a company's competitor

associating to the competitor's resources, objectives and competitive stance, for use in developing and monitoring business strategy (Fong and Wong, 2012). It consists of competitive position monitoring, competitor cost assessment, and competitor performance appraisal. It is a significant component in management and business planning and control. It comprises learning from competitors, industry benchmarking, positioning, and identifying opportunities and threats. Organizations with superior competitor accounting tend to potentially identify and rank their competitiveness and excellently gain and achieve their financial and non-financial performance in a highly competitive environment and market.

Interestingly, this study purposes at investigative the effects of customer accounting and competitor accounting on goal achievement of auto parts manufacturing companies in Thailand through customer relationship and competitive advantage as mediating of the study. The key research questions in this study are how customer accounting and competitor accounting have an impact on goal achievement. The remaining parts of this study discuss relevant literature reviews, hypotheses development, research methods, results and discussions, contributions, suggestions for future research, and conclusion of the study.

## LITERATURE REVIEW

Customer accounting and competitor accounting have become a valuable approach of strategic management accounting that increase customer relationship, competitive advantage and goal achievement. In the research model, customer accounting includes customer profitability analysis, lifetime customer profitability analysis, and valuations of customers as assets, competitor accounting includes competitor cost assessment, competitive position monitoring, and competitor performance appraisal and its consequences consist of customer relationship, competitive advantage, and goal achievement. Figure 1 shows the conceptual model of the relationships among customer accounting and competitor accounting and goal achievement.



**Figure 1:** The Conceptual Model of the Relationships among Customer Accounting, Competitor Accounting and Goal Achievement

### Customer profitability analysis

Customer profitability analysis is the first dimension of customer accounting. Customer profitability analysis is a well-known concept in the strategic management accounting literature. In fact, in some studies, customer account profitability is also referred to as customer profitability analysis (Guiding and McManus, 2002). This method provides management information about the profitability of individual customers or customer groups. Basically, customer profitability analysis involves calculating the revenues and costs from doing business with customers (Foster and Gupta, 1994). The customer segment profitability analysis is compiled in the same way as customer profitability analysis but with emphasis on customer segments instead of individual customers (Guiding and McManus, 2002). For instance, the overhead costs are traced to the segments instead of the individual customers. A customer segment is considered homogenous and could be identified by, for instance, geographic location, purchasing behavior, or demographic variables (Lind and Strömsten, 2006). In this research, customer profitability analysis refers to the allocation of revenues and costs to individual customers or customer segments which the profitability of those segments and/or customers can be calculated (Raaij et al., 2003).

Generally, companies need to have a large group of long-term customers because those customers are more willing to pay premium prices for the risks and costs of switching and accept new products through cross-selling (Mark et al., 2012). Companies can create long-term relations with customers. Therefore, customer profitability analysis emphasizes firms to build their long-term customers. Moreover, customer profitability

analysis is a method which assesses the profit yield from market segments by primarily providing management with information that improves long-term yield decisions (Noone and Griffin, 1999). Firms continuously make distinctions among their customers by allocating more resources and providing more support to their regular and most profitable customers while decreasing resources expended on customers who are less profitable. Al-Mawali and Lam (2016) found that usage of customer profitability analysis allows companies to turn unprofitable customers into profitable ones by improving processes in order to lower service costs, or customize pricing policies using activity-based pricing, which may increase profitability, and increase focus on profitable customers. This information can be used to support customer relationship management strategies, which in turn support organizational performance. Consistent with Ussahawanitchakit (2017) reveal that customer profitability analysis has significant influences on customer relationship and firm performance. Therefore, the associations are hypothesized as follows:

Hypothesis 1: Customer profitability analysis has a positive influence on a) customer relationship and b) competitive advantage.

### Lifetime customer profitability analysis

The second dimension of customer accounting is lifetime customer profitability analysis. Lifetime customer profitability analysis is a potential technique that enhances companies to gain and increase long-term performance, success, and sustainability. Kumar (2007) defines lifetime customer profitability analysis as the sum of cumulated cash flows – discounted using weighted average cost of capital (WACC) – of a

customer over his or her lifetime within the company. In other words, lifetime customer profitability analysis is a predictive measure of future customer-related cash flows over a certain (multi-) period of time. While customer profitability analysis is a retrospective analysis of past accruals that represent the results of doing business with a customer over certain, mostly single-period of time (Holm et al., 2012). Also, Cadez and Guilding (2008) indicate that the practice of lifetime customer profitability analysis focuses on all expected future revenue streams and costs involved in servicing a particular customer. In this research, lifetime customer profitability analysis refers to the net present value of all cash flows derived from the customers over lifetime within the firm (Kumar, 2007).

Lifetime customer profitability analysis is constructed using revenue per customer, customer retention rate, gross margin per transaction or period, hurdle rate, remarketing costs, and discount rate of money. Consequently, customer acquisition, customer selection, customer retention efforts, and resource allocation are applied to use customer lifetime value's measurement facing with the highly competitive environments (Ryals, 2008). Successful lifetime customer profitability analysis implementation has a positive influence on a great customer relationship and a superior firm performance. Companies with lifetime customer profitability analysis are likely to build customer relationship efficiently and affect their increased performance in the competitive environments and markets (Ussahawanitchakit, 2017). Moreover, lifetime customer profitability analysis enables a firm to identify which customers are most profitable in the long-term, so that customer relationships can be changed or controlled to increase the firm's profitability. Furthermore, lifetime customer profitability analysis provides management with clearer information including all revenues and costs that will occur in the period of the relationship between the organization and the customer (Guilding and McManus, 2002). This information offers the management correct signals to pay attention to the concept of lifetime customer profitability analysis and the long-term customer revenues, customer costs, and customer profitability. Respectively, the related hypotheses are postulated as the following: Hypothesis 2: Lifetime customer profitability analysis has a positive influence on a) customer relationship and b) competitive advantage.

### Valuations of customers as assets

This dimension, customers are treated as future assets that yield revenue (Guilding and McManus, 2002). A specific customer's economic value in the customer lifetime value analysis is the present value of the future cash flows gained from the customer relationship (Pfeifer et al., 2005). Motivated by the attention of increasing the number of the company's customers, fast technological change, and facing strong competition, many companies have aimed to carry better customer value (Woodruff, 1997). Carrying better customer value is now perceived as one of the greatest critical components for the success of any company in the present as well as in the future (Yonggui and Hing, 2004). Valuations of customers as assets emphasizes the foundation of a comprehensive dynamic customer database, the predicting customer value for the numerous segments, the segmentation of the customer base into homogeneous groups, and the allocation of resources to maximize the value of the customer base (Berger et al., 2002). With potentially managing customer assets, companies can explicitly create shareholder value and long-term profit and continuously increase profitability and market share. In this research, valuations of customers as assets refers to comprehensive method that is concerned with managing customer relationships as assets in order to maximize customer equity through the value sum of a company's current and potential customers (Persson, 2011).

In the literature, customers are significant intangible assets of a company that should be valued and managed (Gupta and Lehmann, 2003). For business activities with customer accounting, companies must actively manage their customer base by nurturing and protecting profitable customers and specially taking care of unprofitable customers by creating profitability or ultimately out of a firm (Sherrell and Collier, 2008). Companies attempt to identify individual capitalized customer value of the predictable future net cash flows that accrue to them from those customers. Then, customer accounting explicitly focuses on relationship-building efforts on the most valuable customers. It deals with increasing revenue from customers, decreasing customer-related costs, optimizing asset utilization, and reducing customer related risks. Consistent with Ussahawanitchakit (2017) found that valuations of customers as assets have significant influences on customer relationship and firm performance. Thus, valuations of customers as

assets become a key driver of determining customer relationship and competitive advantage. Therefore, the associations are hypothesized as follows:

Hypothesis 3: Valuations of customers as assets has a positive influence on a) customer relationship and b) competitive advantage.

### **Competitor cost assessment**

Competitor cost assessment is the first dimension of competitor accounting and it refers to the provision of regularly scheduled updated estimates of competitors' cost structures (Cadez and Guilding, 2008). Heinen and Hoffjan (2005) asserts that, the comparison of one's own cost structures with those of the competitors requires a systematic process that comprises appraising competitors' manufacturing activities, and technology-product design an assessment of the production equipment, the economies of scale, the relationship with the cost-influencing stakeholders such as suppliers and the technological product design. In order to provide a meaningful comparative analysis of the cost data of competitors, a number of transitive calculations must be carried out. The effects of future cost reduction programs by the competitors must be forecast and taken into account for the calculation of the product cost difference. Also, customs, freight costs and other indirect product-related costs must be recorded and compared. Finally, an adjustment for possible differences in value between the products to be compared must be carried out. If applicable, expected exchange rate variations must also be taken into account (Heinen and Hoffjan, 2005).

Competitor cost assessment helps companies better understand their competitors' cost structure for providing strategic decision-making in order to increase competitive advantage and to succeed firm performance in both financial and non-financial aspects. Better competitor cost assessment explicitly improves companies to determine valuable operational strategies for dealing with uncertain and complex environments and pursuing their profitability, competitiveness, and sustainability in rigorous competition. Furthermore, competitor cost assessment has a specific concentration on cost structures of competitors (Cadez and Guilding, 2007). This estimate of a significant competitor's relative cost position potentially enhances companies to provide strategic decision-making situation in order to compete with highly competitive environments and markets. Those competitors' related cost

information is critical to effect on how companies set operations and strategies to manage with their competitors' potential actions and future strategies. Therefore, competitor cost assessment is a strategic instrument in supporting companies to set valuable strategies for gaining competitive advantage and goal achievements (Phornlaphatrachakorn, 2017). Respectively, the related hypotheses are postulated as the following:

Hypothesis 4: Competitor cost assessment has a positive influence on a) competitive advantage and b) goal achievements.

### **Competitive position monitoring**

The second dimension of competitor accounting is competitive position monitoring and it refers to the analysis of competitors' positions within the industry by evaluating and monitoring trends in competitors' sales, market share, unit costs, volume and return on sales (Drury, 2008). According to the information provided, the firm is able to evaluate its own position relative to main competitors and consequently, formulate or control its strategy. Competitive position monitoring has proved to be the most useful tool of competitor accounting and that information on competitors' position effect on the performance of firms and that such information is especially important for productivity (Hassan et al., 2011). Competitor analysis is the identification and quantification of relative weaknesses and strengths (compared with competitors or potential competitors) which could be of importance in the development of a successful competitive strategy. Firms should investigate their competitors and create models of how they might react based on their future goals, capability, assumptions and their current situation (BPP Professional Education, 2005).

Successful competitive position monitoring encourages firms to initiate relevant and powerful strategies for doing business activities, operations and actions in order to meet their goal achievements in short-term and long-term perspectives. Competitive position is obtained by comparing firms' performance to their competitors on a set of criteria (Radas and Matovac, 2006). Those criteria comprise application of new production processes, product quality, production cost, investments in research and development, investments in innovation, employee skills, flexibility to satisfy customer needs, and quality and scope of sales network. Likewise, competitive position contains of differentiation position and low-cost position (Li et al., 2009). Likewise, Phornlaphatrachakorn

(2017) indicate that competitive position monitoring has a significant effect on marketing effectiveness, marketing capability and marketing performance. Consistent with Alsoboa and Alalaya (2015) found that competitive position monitoring contribute significantly and describe a high percentage of variation in the competitive advantages. Firms' more useful competitive position monitoring information tends to have better competitive advantage and to get goal achievements in a highly competitive market and environment. Respectively, the related hypotheses are postulated as the following:

**Hypothesis 5:** Competitive position monitoring has a positive influence on a) competitive advantage and b) goal achievements.

### **Competitor performance appraisal**

The last dimension of competitor accounting is competitive performance appraisal and it refers to the numerical analysis of a competitor's published statements as part of an assessment of a competitor's important sources of competitive advantage (Cadez and Guilding, 2008). A competitive performance appraisal may serve two purposes; it may be used to validate competitor cost estimates and to estimate a competitor's overall position and strength (Hesford, 2008). One of the most key tools for measuring the strength of competitors in an industry is to analyze their financial performance. The firms have to appraise the degree of success in implementation of their strategies based on the analysis of ratios and trends derived from financial statements, and the implications of this assessment for competitors, customers and suppliers (Alsoboa and Alalaya, 2015). Competitive performance appraisal explicitly implements an analytical method to investigate, interpret and compare competitors' accounts in published financial statements to firms' financial situations. Greater knowledge of competitor financial statement performance enhances companies to establish valuable and critical organizational strategies in order to achieve sustain organizational competitiveness and have their outstanding profitability.

In existing literature, Hesford (2008) revealed that monitoring the competitors' financial statement has a positive influence on economic value-added, return on investment, innovation, service quality, efficiency, market share and customer satisfaction. Also, competitor performance appraisal is a popular and valuable method for prioritizing developments and

improving companies' competitive advantage and performance (Chen, 2014). This appraisal helps companies set and identify successful operational strategies in order to improve their competitiveness and performance. Companies attempt to utilize competitor performance appraisal for supporting their strategies business and activities and gaining competitive advantage and superior performance (Phornlaphatrachakorn, 2017). Consequently, competitor performance appraisal becomes a significant strategic instrument in explaining and driving firms' business outcomes, namely competitive advantage, and goal achievements. Respectively, the hypotheses are proposed as follows:

**Hypothesis 6:** Competitive performance appraisal has a positive influence on a) competitive advantage and b) goal achievements.

### **Customer relationship**

Customer relationship is a significant outcome of customer accounting via customer profitability analysis, lifetime customer profitability analysis and valuations of customers as assets. Customer relationship refers to a combination of business processes that allows companies to better understand different aspects of their customers (Kuo, 2011). It involves continually learning about the customers. Better customer relationship helps maximize the value to a firm through customer satisfaction, customer response and customer acceptance. Similarly, customer relationship plays an important role in building value for firms. It explicitly leads to an increase in understanding of customer that relation to the basis for customer portfolio-based managerial actions on the strategic performance of customers and adjusting the service accordingly (Salojarvi et al., 2015). Companies with great customer relationship can offer sustainable competitive advantage and increase customer-based profit performance. To compete in the volatile markets, customer relationship supports companies to create competitive opportunities, strengthen their competitive advantage and enhance customer satisfaction (Ussahawanitchakit, 2017). Firms tend to have more values, mindset and orientation toward the exchange relationship before and after the sale. Finally, customer relationship is the procedure for achieving a continuing conversation with customers across all available touch points to offer them customer treatment based on their expected response and provide the contribution from each customer to overall maximized performance (Chahal and

Kumari, 2011). Customer relationship requires continuous adjustments to the service offerings to meet the changing customer needs. Therefore, customer relationship is positively associated to competitive advantage and goal achievements. Respectively, the related hypotheses are postulated as the following:

Hypothesis 7: Customer relationship has a positive influence on a) competitive advantage and b) goal achievements.

### Competitive advantage

In this study, customer accounting, competitor accounting, and customer relationship are sources of competitive advantage in a business. Competitive advantage is a key driver of firms' achievement and it is defined as an outcome of effectively utilizing firms' resources and capabilities in business operations, practices and activities that outperform their competitors (Wang, 2014). Competitive advantage allows companies to provide distinguished them from their competitors, improving firm performance, charging premium prices, and generating added-value. Companies that have a competitive advantage can have higher long-term success. Furthermore, competitive advantage refers to the comparative positional superiority that leads to outperform their competitors in the marketplace (Tsao, 2014). Competitive advantage comprises of three characteristics, including market differentiation, innovation and cost leadership. Market differentiation is the establishment of a unique image in the market while innovation is the formation of the most up-to-date and attractive products by leading competitors in design, efficiency, quality, and style. Both market differentiation and innovation essentially lead to customer loyalty through meeting customers' particular needs in future and long term aspects. Moreover, cost leadership presents lower potential litigation expenses and costs in the markets compared with their competitors (Leonidou et al., 2015). Cost leadership comes from having special access to cheaper raw materials, achieving economies of scales, exploiting financially reprocessed by products, and adopting recycling programs. Interestingly, competitive advantage supports companies to make a business difficult to be replaced by competitors and can help them meet and maintain their goal achievement (Chuang and Huang, 2015). Companies can apply their corporate competitiveness in order to meet goal achievement and generate best success. Thus, competitive advantage has an important effect on

goal achievement. Respectively, the related hypotheses are postulated as the following:

Hypothesis 8: Competitive advantage has a positive influence on goal achievements.

### Goal achievement

Goal achievement is the last consequence in this study. In this study, goal achievement refers to an outcome of doing and operating business effectively and efficiently. It reflects to a high level of confidence in companies' abilities, capabilities and competencies to succeed their objectives and goals (Ahmad et al. 2010). Also, goal achievement is defined as utility with overall results of business operations, practices and activities. Greater goal achievement can support firms to gain and maintain greater performance in the competitive markets and environments. In addition, goal achievement means the objectives and targets of doing businesses that are met by using firms' valuable resources, capabilities and competencies. Its measurements consist of financial characteristics, for example sales turnover, annual sales, sales growth, market share, sales margins, return on assets, and survival rates, and non-financial characteristics, for example customer retention, customer satisfaction, and firm's image and reputation (Rahman et al. 2015). These financial characteristics seem to focus on short-term perspectives while non-financial characteristics tend to emphasize long-term perspectives. Accordingly, greater goal achievement is likely to create increased long-term survival. Thus, goal achievement becomes a significant corporate outcome in the complex and uncertain environments.

## METHODOLOGY

### Sample selection and data collection procedure

In this study, auto parts manufacturing companies in Thailand were a population. All 618 auto parts manufacturing companies in Thailand from Thai auto-parts manufacturers association were selected as the samples of the study. These businesses are important because they are major parts of Thailand's economy and they have invested their high amount of money in the businesses. Thailand's government has explicitly supported auto parts manufacturing businesses through issues of laws and regulations, tax benefits and others. Likewise, accounting information structure in the auto parts manufacturing companies is complicate. Thus, they tend to apply customer accounting and competitor accounting as a strategic tool in order to gain customer

relationship, competitive advantage and goal achievement.

This study implemented a questionnaire survey as the research tool. The questionnaire surveys via mail procedures were sent to 618 companies in auto parts manufacturing in Thailand by using accounting executives as the key informants. With regard to the questionnaire mailing, 20 surveys were undeliverable because some firms had moved to unknown locations. Deducting the undeliverable from the original 618 mailed, the valid mailing was 598 surveys, from which 139 responses were received. Due to three found incomplete and with response errors, they were deducted from further analysis. As a result, completed questionnaires are 136. The effective response rate was approximately 22.74% which is considered acceptable for the response rate for a mail survey because it is greater than 20% (Aaker et al., 2001). To test non-response bias and to detect and consider possible problems with non-response errors was investigated by t-test that followed to Armstrong and Overton (1977). The researcher was compared early and late responses about firm age and firm size. The results were not significant between early and late responses. Therefore, it was implied that these received questionnaires show insignificant non-response bias for the analysis in this research.

### Variable measurement

To measure each construct in the conceptual model, all variables are anchored by five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), except firm age and firm size. In addition, all constructs are developed for measuring from definition of each constructs and examine the relationship from theoretical framework and prior literature reviews. Therefore, the variable measurements of this study are described as follows:

#### 1. Dependent variable

Goal achievement is the ending dependent variable in this research. Four-item scale was issued to assess goal achievement. This construct was measured by how firms achieve business goals, objectives, targets, and policies through effectiveness, efficiency, profits, and sustainability of their operations, activities and practices.

#### 2. Independent variables

Customer profitability analysis, Four-item scale was developed to assess how firms provide the development of reliable customer revenue and customer cost figures, the recognition of future downstream costs of customers, the incorporation

of multiple periods into the analysis, and the recognition of different drivers of customer costs.

Lifetime customer profitability analysis, Four-item scale was introduced to evaluate how firms estimate the revenues and costs over a life-cycle of a customer relationship.

Valuations of customers as assets, Four-item scale was established to measure how firms identify the creation of a comprehensive dynamic customer database, the segmentation of the customer base into homogeneous groups, the forecasting customer value for the various segments, and the allocation of resources to maximize the value of the customer base.

Competitive position monitoring, Four-item scale was established to measure how firms provided competitors' information about screening of public information, tearing down competitors' products, identifying the competitors' suppliers and costs, analyzing efficiency and cost of competitive labor force, and evaluating state and capacity utilization of the competitor's assets employed.

Competitor cost assessment, Four-item scale was developed to assess how firms provided the analysis of competitor status and situation within the industry by assessing trends in competitor sales, market share, volume, unit costs, and return on sales.

Competitor performance appraisal, Four-item scale was introduced to evaluate how firms implemented an analytical technique to investigate, interpret and compare competitors' accounts in published financial statements to firms' financial situations in statements.

#### 3. Moderating variable

Customer relationship was measured by how firms provide continuous adjustments to the service offerings to meet the changing needs of customers. This construct was measured by Four-item scale.

Competitive advantage was measured by how firms measure an outcome of effectively utilizing firms' resources and capabilities in corporate operations, practices and activities that outperform their competitors. Four-item scale was issued to assess goal achievement.

#### 4. Control variables

Control variables in this study comprise firm age and firm size. Based on the sample data, firm age was measured by the number of years a firm has been in existence by using a dummy variable as less than 15 years = 0 and equal to or greater than 15 years = 1. Next, firm size was measured by the number of employees in a firm by

using a dummy variable as less than 300 employees = 0 and equal to or greater than 300 employees = 1.

### Reliability and validity

To verify a quality of the research tool in this study, factor analysis, item-total correlation and cronbach alpha are applied. Firstly, factor analysis was utilized to measure the underlying associations of a large number of items and to determine whether they can be reduced to a smaller set of factors. A higher rule-of-thumb, a cut-off value of 0.40, was adopted (Nunnally and Bernstein, 1994). All factor loadings are

statistically significant and greater than the 0.40 cut-off. Secondly, discriminant power was used to evaluate the validity of the measurements by item-total correlation. In the scale validity, item-total correlation is greater than 0.30 (Churchill, 1979). Lastly, the reliability of the measurements was assessed by Cronbach alpha coefficients. In the scale reliability, Cronbach alpha coefficients are greater than 0.70 (Nunnally and Bernstein, 1994). Therefore, the scales of all measures appear to produce internally consistent results and these measures are deemed appropriate for further analysis as shown in Table 1.

**Table 1:** Result of measure validation

Variables	Factor Loadings	Item-total correlation	Cronbach's Alpha
Customer Profitability Analysis (CPA)	.759-.862	.590-.723	.830
Lifetime Customer Profitability Analysis (LCP)	.718-.845	.531-.687	.806
Valuation of Customers as Assets (VCA)	.818-.866	.677-.748	.865
Competitor Cost Assessment (CCA)	.921-.948	.826-.880	.932
Competitor Position Monitoring (CPM)	.863-.911	.758-.833	.912
Competitor Performance Appraisal (CPP)	.921-.958	.829-.903	.940
Customer Relationship (CRE)	.829-.908	.712-.821	.883
Competitive Advantage (CAD)	.721-.876	.583-.788	.872
Goal Achievement (GAC)	.743-.885	.613-.803	.881

### Statistical techniques

To empirically investigate the research relationships, multiple regression analysis is conducted because all variables in this research were neither nominal data nor categorical data (Chan and Mak, 2012). From the conceptual model and hypotheses, the following six equation models are formulated:

$$\text{Equation 1: } CRE = \alpha_1 + \beta_1 CPA + \beta_2 LCP + \beta_3 VCA + \beta_4 AGE + \beta_5 SIZ + \varepsilon_1$$

$$\text{Equation 2: } CAD = \alpha_2 + \beta_6 CPA + \beta_7 LCP + \beta_8 VCA + \beta_9 AGE + \beta_{10} SIZ + \varepsilon_2$$

$$\text{Equation 3: } CAD = \alpha_3 + \beta_{11} CCA + \beta_{12} CPM + \beta_{13} CPP + \beta_{14} AGE + \beta_{15} SIZ + \varepsilon_3$$

$$\text{Equation 4: } CAD = \alpha_4 + \beta_{16} CRE + \beta_{17} AGE + \beta_{18} SIZ + \varepsilon_4$$

$$\text{Equation 5: } CAD = \alpha_5 + \beta_{19} CPA + \beta_{20} LCP + \beta_{21} VCA + \beta_{22} CPA + \beta_{23} LCP + \beta_{24} VCA + \beta_{25} CRE + \beta_{26} AGE + \beta_{27} SIZ + \varepsilon_5$$

$$\text{Equation 6: } GAC = \alpha_5 + \beta_{28} CRE + \beta_{29} CAD + \beta_{30} AGE + \beta_{31} SIZ + \varepsilon_6$$

### RESULTS AND DISCUSSION

Table 2 shows descriptive statistics and correlation matrix for all variables. Correlation coefficients are ranging from 0.284 - 0.912. With respect to potential problems relating to multicollinearity, variance inflation factors (VIF) were used to test the intercorrelations among independent variable. In this study, the VIFs range from 1.058 to 7.167, well below the cut-off value of 10 (Hair et al., 2010), meaning that the independent variables are not correlated with each other. So, there are no substantial multicollinearity problems encountered in this study.

**Table 2:** Descriptive statistics and correlation matrix

Variables	CPA	LCP	VCA	CCA	CPM	CPP	CRE	CAD	GAD
Mean	4.044	4.059	3.965	3.865	4.007	3.912	4.318	4.056	4.137
S.D	.561	.540	.619	.665	.585	.721	.536	.555	.563
Customer Profitability Analysis (CPA)		1							
Lifetime Customer Profitability Analysis (LCP)		.784***	1						
Valuation of Customers as Assets (VCA)		.438***	.511***	1					
Competitor Cost Assessment (CCA)		.458***	.429***	.309***	1				
Competitor Position Monitoring (CPM)		.540***	.492***	.326***	.774***	1			
Competitor Performance Appraisal (CPP)		.445***	.418***	.284***	.912***	.806***	1		
Customer Relationship (CRE)		.402***	.447***	.302***	.331***	.455***	.356***	1	
Competitive Advantage (CAD)		.565***	.445***	.489***	.568***	.607***	.607***	.470***	1
Goal Achievement (GAC)		.492***	.512***	.408***	.601***	.588***	.622***	.561***	.684***
									1

\*\*\* p&lt;0.01, \*\* p&lt;0.05

**Table 3:** Results of multiple regression analysis<sup>a</sup>

Independent Variables	Dependent Variables					
	CRE Model 1	CAD Model 2	CAD Model 3	CAD Model 4	CAD Model 5	GAC Model 6
Customer Profitability Analysis (CPA)	.101 (.119)	<b>.518***</b> (.105)			<b>.378***</b> (.094)	
Lifetime Customer Profitability Analysis (LCP)	<b>.301**</b> (.124)	-.144 (.109)			<b>-.258***</b> (.096)	
Valuation of Customers as Assets (VCA)	.086 (.086)	<b>.316***</b> (.076)			<b>.277***</b> (.066)	
Competitor Cost Assessment (CCA)			.021 (.159)			-.065 (.138)
Competitor Position Monitoring (CPM)				<b>.330***</b> (.111)		.095 (.103)
Competitor Performance Appraisal (CPP)					<b>.306*</b> (.172)	<b>.383**</b> (.148)
Customer Relationship (CRE)					<b>.439***</b> (.075)	<b>.194***</b> (.066)
Competitive Advantage (CAD)						<b>.509***</b> (.063)
Firm Age (AGE)	-.059 (.159)	-.135 (.139)	-.089 (.139)	-.242 (.154)	-.011 (.121)	<b>-.284**</b> (.118)
Firm Size (SIZ)	.309** (.156)	.199 (.137)	.084 (.140)	.234 (.155)	-.020 (.121)	<b>.264**</b> (.119)
Adjusted R <sup>2</sup>	.207	.388	.390	.226	.549	.555

\*\*\* p<0.01, \*\* p<0.05, \* p<0.10, <sup>a</sup> Beta coefficients with standard errors in parenthesis

The results of multiple linear regression analysis of the relationships among customer accounting dimensions, competitor accounting dimensions, customer relationship, competitive advantage and goal achievement show in table 3.

For the dimensions of customer accounting, the results of first dimension show that customer profitability analysis has a significant positive impact on competitive advantage ( $\beta_6 = 0.518, p < 0.01$ ). In existing literature, it provides management information about the profitability of individual customers or customer groups. Basically, it involves calculating the revenues and costs from doing business with customers (Foster and Gupta, 1994). Also, it allows firms to turn unprofitable customers into profitable ones by improving processes in order to lower service costs, or customize pricing policies using activity-based pricing, which may increase profitability, and increase focus on profitable customers (Al-Mawali and Lam, 2016). **Therefore, Hypothesis 1b is supported.** However, customer profitability analysis does not have an effect on customer relationship ( $\beta_1 = 0.101, p > 0.10$ ). To reasonably explain the research result, the revenues from different customers do not contribute equally to the net income (Pfeifer et al., 2005). Therefore, business will focus on high profit customers and it affects the costs for managing that customer. In contrast, firms may reduce costs in low profit customers. As a result, customer relationships in each group are different. Therefore, customer profitability analysis may not build effective customer relationship. **Therefore, Hypothesis 1a is not supported.**

For the second dimension of customer accounting, the results show that lifetime customer profitability analysis has a significant positive impact on customer relationship ( $\beta_2 = 0.301, p < 0.05$ ). In existing literature, it is a potential technique that enhances companies to gain and increase long-term performance, and sustainability. The practice of lifetime customer profitability analysis focuses on all expected future revenue streams and costs involved in servicing a particular customer (Cadez and Guilding, 2008). Firms with lifetime customer profitability analysis are likely to build customer relationship efficiently (Ussahawanitchakit, 2017). **Therefore, Hypothesis 2a is supported.** On the other hand, lifetime customer profitability analysis does not have an effect on competitive advantage ( $\beta_7 = -0.144, p > 0.10$ ). To reasonably explain the research result, lifetime customer profitability analysis has definitely focused on the long-term performance.

Within the short-term aspects, lifetime customer profitability analysis may not build competitive advantage. **Therefore, Hypothesis 2b is not supported.**

For the last dimension of customer accounting, valuation of customers as assets has a significant positive impact on competitive advantage ( $\beta_8 = 0.316, p < 0.01$ ). In existing literature, customers are significant intangible assets of a business that should be valued and managed. It focuses on a capability of firms to coordinate value creation and risk management activities linking to customers (Senn et al., 2013). It deals with increasing revenue from customers, decreasing customer-related costs, optimizing asset utilization, and reducing customer related risks. **Therefore, Hypothesis 3b is supported.** However, valuation of customers as assets does not have an effect on customer relationship ( $\beta_3 = 0.086, p > 0.10$ ). One reason for this could be that valuation of customers as assets focuses more on long-term goals and profits (Gupta and Zeithaml, 2006), so the effects of this dimension might only appear on customer relationship in the future. **Therefore, Hypothesis 3a is not supported.**

For the dimensions of competitor accounting, the results show that competitive position monitoring has a significant positive impact on competitive advantage ( $\beta_{12} = 0.330, p < 0.01$ ). In existing literature, it encourages companies to initiate relevant and powerful strategies for doing business activities, operations and actions in order to meet their goal achievements in short- and long-term perspectives. Businesses' more useful competitive position monitoring information tends to have better competitive advantage and to get goal achievements in a highly competitive market and environment (Alsoboa and Alalaya, 2015). **Therefore, Hypothesis 5 is supported.** Similarly, the results found that competitive performance appraisal has a significant positive impact on competitive advantage ( $\beta_{13} = 0.306, p < 0.10$ ). It is a popular and valuable method for prioritizing developments and improving companies' competitive advantage and performance (Chen, 2014). This appraisal helps companies set and identify successful operational strategies in order to improve their competitiveness and performance. Companies attempt to utilize competitor performance appraisal for supporting their strategies business and activities and gaining competitive advantage and superior performance (Phornlaphatrachakorn, 2017). **Therefore, Hypothesis 6 is supported.** Surprisingly,

competitor cost assessment has no relationship with competitive advantage ( $\beta_{11} = 0.021, p > 0.10$ ). It helps firms better understand their competitors' cost structure for providing strategic decision-making in order to increase firm performance. Better competitor cost assessment explicitly improves companies to determine valuable operational strategies for dealing with uncertain and complex environments and pursuing their profitability, competitiveness, and sustainability in rigorous competition. Furthermore, it has a specific concentration on cost structures of competitors (Cadez and Guilding, 2007). However, competitor cost assessment does not have an effect on competitive advantage in this study. The study conducted by Woodruff (1997) maybe consistent with this result, where he argued that the next major source for competitive advantage likely will come from more outward orientation toward customers. ***Therefore, Hypothesis 4 is not supported.***

In the next part, the relationships among customer relationship, competitive advantage and goal achievements. The results found that customer relationship has a significant positive impact on competitive advantage ( $\beta_{16} = .439, p < 0.01$ ) and goal achievements ( $\beta_{28} = .286, p < 0.01$ ). In existing literature, it involves continually learning about the customers. Better customer relationship helps maximize the value to a firm through customer satisfaction, customer response and customer acceptance. Similarly, customer relationship plays a significant role in create value for firms. Firms with great customer relationship can offer sustainable competitive advantage and increase customer-based profit performance (Salojarvi et al., 2015). ***Thus, Hypotheses 7a and 7b are supported.*** Finally, the results found that competitive advantage has a significant positive impact on goal achievements ( $\beta_{29} = .509, p < 0.01$ ). It allows firms to provide distinguished them from their competitors, improving firm performance, and creating added-value. Firms that have a competitive advantage can have higher long-term success. Competitive advantage supports companies to make a business difficult to be replaced by competitors and can help them meet and maintain their goal achievement (Chuang and Huang, 2015). Firms can apply their corporate competitiveness in order to meet goal achievement. ***Therefore, Hypothesis 8 is supported.***

## CONTRIBUTIONS AND DIRECTIONS FOR FUTURE RESEARCH

### Theoretical contribution and directions for future research

This study attempts to link customer accounting and competitor accounting to goal achievement via customer relationship and competitive advantage as the connectivity of the relationships. In this study, customer accounting and competitor accounting has an indirect influence on goal achievement. As a result, this study confirms the existing literature of customer accounting, competitor accounting and its consequences. However, each dimension of customer accounting and competitor accounting has some effect on customer relationship and competitive advantage. To increase and expand the research results, future research may need to explicitly search for more literature in order to reconceptualize the relationship model. Moreover, future research is needed to test the generalizability of the study by collecting data from different populations and/or countries. Likewise, this study focuses on only firm age and firm size as the control variables. Future research may put other control variables, such as firm experience, firm heterogeneity and time effects, in the study in order to add research benefits and advantages. While this study employed OLS regression analysis to test the aforementioned relationships, future may logically apply structural equation model (SEM), partial least squared and path analysis to prove the relationships. Its results can help verify and compare abilities, competencies and capabilities of these statistical techniques in order to appropriately use them for testing the relationships further.

### Professional contribution

This research helps executives effectively implement and potentially utilize the benefits and advantages of customer accounting and competitor accounting very well. Executives need to initiate, build and develop customer accounting and competitor accounting system in an organization through paying more attention on valuable strategic allocation of their resources to these system. Successful implementation of customer accounting and competitor accounting system helps executives provide useful operational activities and strategies, increase customer relationship, competitive advantage and achieve superior performance. Hence, customer accounting and competitor accounting becomes a strategic

valuable approach for goal achievement in current situation and in the future.

## CONCLUSION

The purpose of this study is to examine the effects of customer accounting and competitor accounting on goal achievement of auto parts manufacturing companies in Thailand through customer relationship and competitive advantage as mediating of the study. The key research questions in this study are how customer accounting and competitor accounting have an impact on goal achievement. Customer accounting includes customer profitability analysis, lifetime customer profitability analysis and valuations of customers as assets and competitor accounting consist of competitor cost assessment, competitive position monitoring and competitive performance appraisal. The results indicated that lifetime customer profitability analysis has a significant positive influence on customer relationship. Also,

customer profitability analysis, valuations of customers as assets, competitive position monitoring and competitive performance appraisal have a significant positive influence on competitive advantage. Moreover, customer relationship has a significant positive influence on competitive advantage. Likewise, customer relationship and competitive advantage have a significant positive influence on goal achievement. In summary, customer accounting and competitor accounting is an important business tool in helping businesses provide business activities and strategies, promote customer relationship, competitiveness, and encourage outstanding outcomes in rigorous and complex competitive environments. To increase and expand the benefits and advantages of the current study, future research needs to collect data from new aspects and to include a reconceptualized literature review.

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