การบัญชีต้นทุนตามเป้าหมายและความสามารถในการทำกำไร: หลักฐานเชิงประจักษ์จากธุรกิจชิ้นส่วนยานยนต์ในประเทศไทย
Target Costing and Firm Profitability: Empirical Evidence from Auto Parts Businesses in Thailand

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บทคัดย่อ

การวิจัยนี้ทดสอบอิทธิพลของการบัญชีต้นทุนตามเป้าหมายที่มีต่อความสามารถในการทำกำไรของธุรกิจชิ้นส่วนยานยนต์ในประเทศไทย ในการศึกษาวิจัยนี้ ธุรกิจชิ้นส่วนยานยนต์ในประเทศไทย จำนวน 189 ราย เป็นกลุ่มตัวอย่างในการวิจัย ซึ่งทำการเก็บรวบรวมข้อมูลโดยใช้แบบสอบถาม ผลลัพธ์ของการวิจัย พบว่า การบัญชีต้นทุนตามเป้าหมาย มีผลกระทบเชิงบวกต่อความถูกต้องของต้นทุน การลดต้นทุน และศักยภาพทางการแข่งขันด้านต้นทุน นอกจากนี้ ความถูกต้องของต้นทุน การลดต้นทุน และประสิทธิภาพของต้นทุน มีความสัมพันธ์เชิงบวกกับศักยภาพทางการแข่งขันด้านต้นทุน ขณะที่ศักยภาพทางการแข่งขันด้านต้นทุน มีผลกระทบเชิงบวกต่อความสามารถในการทำกำไร สำหรับความถูกต้องของต้นทุนและการลดต้นทุน เป็นตัวแปรกลางของความสัมพันธ์ระหว่างการบัญชีต้นทุนตามเป้าหมายกับศักยภาพทางการแข่งขันด้านต้นทุน ส่วนวิสัยทัศน์ของธุรกิจและแรงกดดันจากการแข่งขัน มีอิทธิพลเชิงบวกต่อการบัญชีต้นทุนตามเป้าหมายและกลายเป็นตัวแปรสาเหตุของการวิจัยนี้ ในการปรับปรุงและเพิ่มประโยชน์และผลประโยชน์ของการบัญชีต้นทุนตามเป้าหมาย ผู้บริหารจะต้องสนับสนุนการประยุกต์ใช้การบัญชีต้นทุนตามเป้าหมายในองค์กร การเชื่อมโยงเครื่องมือการดำเนินงานเชิงกลยุทธ์นำไปสู่ความได้เปรียบด้านต้นทุนและผลการดำเนินงานของกิจการ การกำหนดและการใช้ประโยชน์จากวิสัยทัศน์ของธุรกิจที่มีอิทธิพลต่อความสำเร็จของการบัญชีต้นทุนตามเป้าหมาย และการจัดการและการต่อสู้กับตลาดและสภาพแวดล้อมที่มีการแข่งขัน ด้วยเหตุนี้กิจการจะต้องสร้างสรรค์วิสัยทัศน์ของธุรกิจ ตระหนักถึงแรงกดดันจากการแข่งขัน และเตรียมการเปลี่ยนแปลงองค์กรผ่านการปรับปรุงอย่างเต็มที่ด้านการออกแบบ โครงสร้าง และแนวทางและวิธีการในการดำเนินงาน การปฏิบัติงานหน้าที่ และกลยุทธ์ เพื่อให้บรรลุข้อกำหนดของการประยุกต์ใช้การบัญชีต้นทุนตามเป้าหมาย

คำสำคัญ: การบัญชีต้นทุนตามเป้าหมาย ศักยภาพทางการแข่งขันด้านต้นทุน ความสามารถในการทำกำไร วิสัยทัศน์ขององค์กร แรงกดดันจากการแข่งขัน

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Abstract

This study examines the influences of target costing on firm profitability of auto parts businesses in Thailand. In this study, 189 auto parts businesses in Thailand are the samples of the study; by collecting data via a questionnaire. The results of this study indicate thattarget costing has a positive effect on cost accuracy, cost reduction and cost competitiveness. Likewise, cost accuracy, cost reduction and cost efficiency are positively related to cost competitiveness; and cost competitiveness has a positive impact on firm profitability. Cost accuracy and cost reduction are the mediators of the target costing-cost competitiveness relationships. Both corporate vision and competitive force that have a positive influence on target costing become the antecedents of the study. To improve and increase the benefits and advantages of target costing, executives need to determine how to implement target costing in an organization, link this strategic operational tool to cost advantages and firm performance, set and utilize business vision in order to achieve success on target costing, and manage and deal with competitive markets and environments. Thus, firms need to establish business vision, be aware of competitive forces and provide organizational changes through outstanding redesign, restructuring and re-engineering their operations, practices, functions, and strategies in order to meet target costing implementation requirements.

Keywords: Target Costing, Cost Competitiveness, Firm Profitability, Business Vision, Competitive Force

1. Introduction

Recently, firms have critically done business operations under complex competitive environments in both continuity and intensity, including growth of information technology, intense expansion of multinational businesses, establishment of new ventures, pressure of laws and regulations, change of stakeholder expectation, and uncertainty of customer taste. They have effectively attempted to implement several valuable business strategies and methods for competing in the fluctuate markets, achieving sustain competitive advantage for their operations and gaining superior business performance comparing with key competitors. Interestingly, product and service pricing is an important strategy which firms are explicitly concerned themselves with and have outstandingly utilized for enhancing their growth, to survive and to sustain in the competitive markets. Accordingly, there are many types of product and service pricing, such as cost-based price, cost-based plus price, market price, and competitive price. In this study, market price has become a significant strategy that is used for succeeding in uncertain environments.

Target costing is one of the accounting methods that helps firms successfully make decisions relating to product price by concerning themselves with market price as pricing based criteria. It refers to a process for ensuring that a product launched with specified functionality, quality, lead time, and sales price can be produced at a life-cycle cost that generates the desired level of profitability (Cooper and Slagmulder, 1997). Similarly, target costing is defined as an approach for the development of new products aimed at reducing their life-cycle costs while ensuring quality, reliability and other consumer requirements, by examining all possible ideas for cost reduction at the product planning, research and development and prototyping phases (Nicolini et al., 2000). It includes price-led costing, customer focus, focus on design of products and processes, cross-functional teams, life-cycle cost reduction, and value-chain involvement. It becomes a significant strategic tool in encouraging firms to achieve a competitive advantage and superior firm performance. With an uncertain environment, firms have utilized target costing to set their product prices through cost accuracy, cost reduction, cost efficiency, and cost effectiveness in order to gain firm profitability and success in business operations. Thus, relationships among target costing, cost accuracy, cost reduction, cost efficiency, cost effectiveness, and firm profitability are outstandingly examined. Likewise, both business vision and competitive force have been hypothesized as the antecedents of target costing. Business vision tends to support firms for successfully implementing targeting costing in setting their product prices (Hibbets, Albright, and Funk, 2003) while competitive force is an external factor that puts pressure to firms in looking for an important tool as target costing in determining a price strategy (Gopalakrishnan, Samuels, and Swenson, 2007). Accordingly, effects of business vision and competitive force on target costing are also verified.

To empirically validate the antecedents and consequences of target costing, this study aims at investigating the impacts of targeting costing on firm profitability of auto parts businesses in Thailand via business vision and competitive force as the antecedents of the study and cost accuracy, cost reduction, cost efficiency, and cost competitiveness as the consequences of the study. Accordingly, the key research question is how target costing influences firm profitability. The specific research questions are: (1) How is target costing related to cost accuracy, cost reduction, cost efficiency, and cost competitiveness? (2) How are cost accuracy, cost reduction and cost efficiency linked to cost competitiveness? (3) How is cost competitiveness connected with firm profitability? and (4) How do business vision and competitive force affect target costing? Accordingly, the research results could help firms clearly understand the importance, necessity and benefit of target costing implementation, efficiently determine critical factors that affect the success of this implementation and effectively identify the outcomes of its implementation.

The rest of this study presents relevant literature reviews and significant research hypotheses development; discusses the research methods used to test the hypotheses; indicates the results and reasonable discussions of the study; and concludes by discussing contributions for theory and management, identifying limitations of the study, and providing suggestions and directions for future research.

2. Relevant Literatures and Hypotheses Development

The conceptual model of target costing and its relationships is presented in Figure 1. In the model, target costing is the main variable of the study; cost accuracy, cost reduction, cost efficiency, cost competitiveness, and firm profitability are the consequences of the study; and corporate vision and competitive force are the antecedents of the study. Those variables are critically integrated in the same model as follows.

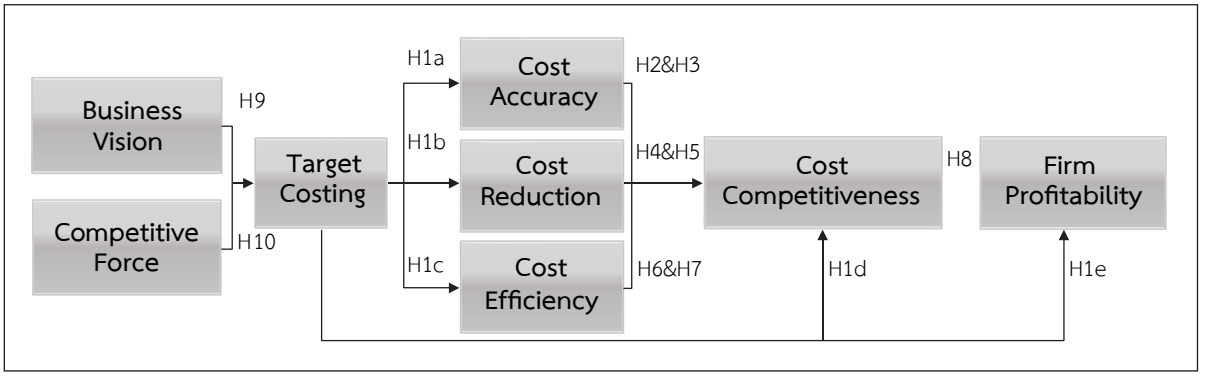

FIGURE 1: Conceptual Model of the Relationships among Target Costing, Cost Competitiveness and Firm Profitability

2.1 Target Costing

Target costing is a key tool in helping firms provide effective operational strategies in order to achieve organizational competitiveness and success and gain growth, survival and sustainability. Here, target costing is defined as a process for ensuring that a product launched with specified functionality, quality, lead time, and sales price can be produced at a life-cycle cost that generates the desired level of profitability (Cooper and Slagmulder, 1997). It is likely to encourage firms to determine best price strategy for competing the volatile markets and environments. Firms with successful target costing implementation tend to receive cost-based advantages and have superior firm profitability. Also, target costing refers to an approach for the development of new products aimed at reducing their life-cycle costs while ensuring quality, reliability and other consumer requirements, by examining all possible ideas for cost reduction at the product planning, research and development and prototyping phases (Nicolini et al., 2000). It is a cost-control tool during product and process design for firms' new product introductions. Firms have used a target costing in order to set their strategic prices for succeeding in business operations under the competitive markets.

Over the past decade, target costing has become an important accounting method of strategic management accounting techniques and it helps firms remain competitive by providing a product that outweighs or at least equals competition on cost, functionality and quality, and lead time (Souissi and Ito, 2004). Firms with greater successful target costing implementation are likely to have more cost competitiveness and superior firm profitability. Congruence with resource-based view of the firm (RBV), internal resources are sources of competitive advantage and they critically explain the firm's sustainable competitive advantage (Barney, 1991). They must be valuable, rare, inimitable, and non-substitutable. Also, those resources could be assets and capabilities that can enable and facilitate the development of core competencies. Accordingly, target costing is a key resource of firms that promotes them to gain sustainable competitive advantage via cost accuracy, cost reduction, cost efficiency, and cost competitiveness that affect the great level of firm profitability.

Target costing utilization, comes in six principles, including price-led costing, customer focus, focus on design of products and processes, cross-functional teams, life-cycle cost reduction, and value-chain involvement (Gopalakrishnan, Samuels, and Swenson, 2007). Accordingly, those principles become significant factors of successful target costing implementation. To achieve all principles, firms must provide organizational changes efficiently and effectively through redesigning, restructuring and reengineering their operations, practices, functions, and strategies in order to meet the requirements of target costing implementation. Under a target costing method, allowable cost (target cost) is equal to the difference between selling price and desired profit

margin (target profit margin) while the selling price is dictated by customer demand and market completion and the desired profit margin is driven by corporate strategic profit planning (Souissi and Ito, 2004). To meet allowable cost, firms must redesign business functions and reconsider manufacturing and logistics process to reduce cost estimation and redesign products and production processes with the great level of quality and functionality via reducing the costs. Thus, cost accuracy, cost reduction, cost efficiency, and cost competitiveness become the consequences of target costing implementation.

In practice of target costing, firms have attempted to do their best implementation by concerning themselves with factors that may affect a success of this technique. If they cannot meet the allowable cost, they need to change their price strategies or their target markets. However, target costing is still likely to enhance firms to get cost accuracy, cost reduction, cost efficiency, and cost effectiveness. It is a superior approach to cost reduction and control with cost-based pricing system (Shank and Fisher, 1999). Likewise, target costing focuses on new product offerings, the new products' market sales prices and target profit margins, and the cost reduction of new products through the product planning, research and development processes (Ax, Greve, and Nilsson, 2008). Then, target costing tends to have an impact on cost reduction. In the existing literature, target costing works effectively when firms learn about business operations and activities and critically understand where and how the costs of products and services occur. The exact amount of the costs must be defined and determined in business transactions. Thus, cost accuracy becomes one of the main outcomes of applying target costing for business environments. Likewise, the successful management of cost management is also the outcome of target costing implementation. Firms need to pay attention to the uses and benefits of products and services' costs. The balancing and over-computing cost benefits to the cost uses are the goals of target costing operations. Hence, cost efficiency is the key outcome of target costing implementation. Moreover, target costing has supported firms' executives and employees to productively learn, synthesize and analyze cost environments and positions. Those activities push them to have outstanding cost competitiveness under the competitive changes and uncertainties. Accordingly, target costing explicitly enhances firms to have great cost competitiveness.

Interestingly, target costing is a primary technique for profit management through ensuring that future products generate sufficient profits to enable firms to achieve their long term profit plans (Ebuk and Balcioglu, 2011) and it promotes them to gain more profitability (Huh, Yook, and Kim, 2008). Firms with target costing implementation are able to encourage superior profitability in the competitive environments. Hence, target costing helps firms provide reasonable business strategies, determine effective product prices, and gain great firm performance. Thus, target pricing is likely to have a positive influence on cost accuracy, cost reduction, cost efficiency, cost effectiveness, and firm profitability. Therefore, the research hypotheses are as follows:

H1: Target costing has a positive influence on (a) cost accuracy, (b) cost reduction, (c) cost efficiency, (d) cost competitiveness, and (e) firm profitability.

2.2 Cost Accuracy

Cost accuracy is the first consequence of implementing target cost in an organization. It refers to the degree to which the result of a measurement, calculation, or specification of cost conforms to the correct value or a standard. It is a faithful cost measurement or representation of the truth, correctness and precision. Likewise, cost accuracy is an essential piece of firms' decision making, including pricing, improvement efforts, product design, and product migration (Edwards and Bozarth, 1998). It is able to enhance firms to provide a truly accurate statement of a cost variable associated with a perspective product, be aware of the potential impact of process changes, assess the efficiency of a product design, and make decisions to pursue new markets. Firms with implementing target costing seem to have an accuracy of product costs because they effectively consider all factors that affect their costs, including costing system, production process, product design, and business functionality. Thus, those factors definitely help firms provide accurate costs of products in order to support their top management in determining organizational strategies for achieving cost advantages, firm performance, business success and growth, and organizational survival and sustainability. Hence, cost accuracy tends to have a positive effect on cost competitiveness. It is likely to link target costing to cost competitiveness and to become a mediator of mediates the target costing-cost competitiveness relationships. Therefore, the research hypotheses are as follows:

H2: Cost accuracy has a positive effect on cost competitiveness.

H3: Cost accuracy mediates the target costing-cost competitiveness relationships.

2.3 Cost Reduction

Cost reduction becomes a main strategic outcome of implementing target costing in the competitive markets (Shank and Fisher, 1999). It is defined as the process used by firms to reduce their costs and increase their profits through applying their organizational strategies and product development processes. Interestingly, cost reduction is a normal activity in any firm that means the activities of cost tracking and evaluation performed by the executives for the purpose of their reducing costs (Milic, 2010). Firms can efficiently reduce their product costs and effectively diminish their operational expenses via utilizing target costing. Besides, cost reduction is the process of looking for, finding and removing unwarranted expenses from an organization to increase profits without having a negative impact on product quality. Firms have explicitly used cost reduction as a basic strategy of business survival. They are likely to make their business operations more efficient

and boost profitability more effective. Accordingly, target costing potentially helps firms reduce product costs and operational expenses in order to achieve their cost competitiveness and gain their business success under the uncertain environments (Gopalakrishnan, Samuels, and Swenson, 2007). For the mediating effects, cost reduction seems to mediate the target costing-cost competitiveness relationships through connecting target costing with cost competitiveness. Hence, cost reduction seems to have a positive effect on cost competitiveness. Therefore, the research hypothesis is as follows:

H4: Cost reduction has a positive effect on cost competitiveness.

H5: Cost reduction mediates the target costing-cost competitiveness relationships.

2.4 Cost Efficiency

Cost efficiency is another consequence of target costing potentiality. Target costing is a successful program that increases the productivity of quality efforts by reducing the input costs required to produce a unit of product (Rust, Moorman, and Dickson, 2002). Firms have implemented target costing in order to encourage cost efficiency in business operations. Then, cost efficiency is an outcome of effective target costing implementation. To clearly review the relationships between target costing and cost efficiency, cost efficiency means the use of the real costs could be managed in such a way that the actual cost may be lower than previously budgets (Octavia and Mariyani, 2013). It presents how much of resources are used efficiency and potentially to produce a set of product results. With the utilization of target costing, firms definitely consume efficiency of production costs in order to make a result of sales gross profit minus the cost of goods sold. Hence, cost efficiency tends to affect the achievement of cost advantages and firm performance. Accordingly, it is likely to have a positive effect on cost competitiveness in the increasingly competitive environments. Firms with greater cost efficiency seem to gain more cost competitiveness in order to receive superior profitability, success, growth, survival, and sustainability. Similar to cost accuracy and cost reduction aspects, cost efficiency tends to reasonably become a mediating effect on the target costing-cost competitiveness relationships. Therefore, the research hypothesis is as follows:

H6: Cost efficiency has a positive effect on cost competitiveness.

H7: Cost efficiency mediates the target costing-cost competitiveness relationships.

2.5 Cost Competitiveness

As mentioned earlier, cost accuracy, cost reduction and cost efficiency are the antecedents of cost competitiveness. The positive relationships among cost accuracy, cost reduction, cost efficiency, and cost competitiveness are empirically proposed. Cost competitiveness is defined as the advantages of firms' business operations that occur from a success of cost management compared with their competitors (Santana, 2009). It allows them to earn profits on competitive markets and environments. Then, more cost competitiveness has an effect on greater firm profitability. Moreover, cost competitiveness can help firms achieve competitive advantage and business performance through the effectiveness and potentiality of cost position (Wang et al., 2014). It potentially promotes them to focus on business results, including profitability, survival and sustainability. Hence, firms have successfully implemented target costing in order to gain cost accuracy, cost reduction, cost efficiency, and cost competitiveness. They are also able to effectively utilize cost competitiveness in order to receive firm profitability. Thus, cost competitiveness has a positive impact on firm profitability. Therefore, the research hypothesis is as follows.

H8: Cost competitiveness has a positive impact on firm profitability.

2.6 Business Vision

With increasing rigorous markets and environments, business vision has become an important factor that encourages firms to create effective organizational strategies and provide potential corporate practices in order to achieve sustain competitive advantage and gain superior firm performance. Business vision refers to a concrete idea that represents idealized future states for the organization (James and Lahti, 2011). It provides a sense of meaning to employees that motivates them to accept and implement the organization's goals. Also, business vision is a key element of effective leadership in organizational settings (Bogler and Nir, 2001). It is a guide to what needs to be achieved by the organization's members and how the organization should run. Clear business vision tends to help firms smoothly run their operational activities and practices and critically get organizational profitability. While business vision is essential to organization's members who want to have a clear understanding of the purpose, direction and strategies of their enterprise, target costing, that is one of effective organizational strategies, is a valuable consequence of business vision creation. In the existing literature, both top management leadership and management support as parts of business vision are musts for the successful implementation of target costing because they create the necessary awareness for target costing and enable the target costing team to acquire the

resources needed to accomplish the goals (Feil, Yook, and Kim, 2004; Hamood, Omar, and Sulaiman, 2011). Hence, firms with great business vision are likely to enhance themselves to receive operational success and gain organizational growth, survival, and sustainability in the fluctuate environments. Thus, business vision has a positive influence on target costing. Therefore, the research hypothesis is as follows.

H9: Business vision is an antecedent of positively driving target costing implementation.

2.7 Competitive Force

Competition is an external factor that affects the success of target costing implementation. It is a key driver in encouraging firms to make a decision about what they must consider in order to enhance successful target costing and how they use it in the enterprises. Intensity of competition has been recognized as an important factor influencing the design and use of target costing implementation (Ax, Greve, and Nilsson, 2008). Thus, competitive force becomes a main antecedent of encouraging successful target costing. To explicitly understand this external factor, competitive force is defined as a business environment that influences firms' capabilities, competencies, strategies, practices, and operations in an organization. It shapes the state of competition in an industry and provides a complete picture of what constitutes the competitive environment for firms (Hoque and Chia, 2012). Interestingly, competitive force consists of five components, namely the threat of new entrants, the bargaining power of customers, the bargaining power of suppliers, the threat of substitute products, and the intensity of rivalry among the core competitors (Porter, 1998). These components become important forces of searching effective strategic tools in doing firms' business activities and gaining organizational success. Similarly, competitive force is a main factor that pushes firms to successfully apply management control systems in their enterprises and get survival, continuity and sustainability (O'Connor, Vera-Munoz, and Chan, 2011). Firms have studied it and made understanding of its characteristics very well in order to provide business strategies fitting with the competitive environments for achieving outstanding firm performance. Hence, competitive force is a significant antecedent of target costing. Thus, it tends to have a positive effect on target costing. Therefore, the research hypothesis is as follows.

H10: Competitive force is an antecedent of positively driving target costing implementation.

3. Data and Methods

3.1 Samples and Data

The empirical investigation of this study was accomplished on a population of auto parts businesses in Thailand. Here, all 590 auto parts businesses in Thailand from Department of Business Development, Ministry of Commerce, Thailand were selected as the samples. To achieve a data collection, a mail survey procedure via questionnaire was implemented by using accounting executives of auto parts businesses in Thailand as the key informants. These accounting executives have taken the highest responsibilities of accounting functions and other related activities in an organization, such as chief financial officers, accounting directors or accounting managers. In the questionnaire mailing process, 63 surveys were undeliverable because some listed firms had moved to unknown locations. Deducting the undeliverable mailing, the valid mailing was 527 surveys, from which 223 responses were received. Of the surveys completed and returned, there are 189 usable questionnaires. The effective response rate was approximately 35.86% which is considered acceptable for the response rate for a mail survey because it is greater than 20% (Aaker, Kumar, and Day, 2001). Thus, 189 usable questionnaires are empirically utilized to measure validation of the research tool and to analyze data for the research results.

For verifying potential and non-response bias and detecting and considering possible problems with non-response errors, this study assesses and investigates the non-response-bias by centering on a comparison of the first and the second wave data, such as firm age, firm size and firm capital as recommended by Armstrong and Overton (1977). There were no statistically significant differences between first and second groups at a 95% confidence level as firm age ($t = 0.121$, $p > 0.05$), firm size ($t = 0.133$, $p > 0.05$) and firm capital ($t = 0.164$, $p > 0.05$). According to this regard, neither procedure explicitly showed significant differences.

3.2 Variables

In this study, there are eight variables that are empirically investigated, including firm profitability as a dependent variable, target costing as an independent variable, cost accuracy, cost reduction, cost efficiency, and cost competitiveness as consequence variables, and business vision and competitive force as antecedent variables. Multiple items are considered for measuring each construct. Despite that all constructs are obviously defined, the measurement is impossible for one to directly manifest or observe the scale due to the abstract nature of the construct (Diamantopoulos and Siguaw, 2000). Certainly, variables are estimated scales from their definitions

and are applied from relevant targeting costing research and other related literatures. These measurements are presented in Appendix A. All constructs were measured using a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree), except from firm size, firm age, and firm capital. All details are explained as follows.

Firm profitability is the dependent variable of the study, and it is defined as an outcome of business activities and operations in an increasing competitive markets and environments. Here, firm profitability is hypothesized to become an outcome of target costing implementation. Four-item scale was issued to assess how firms gain the increasing profits from operations, the growths of market share compared with past years, performance that meets the objectives and goals, and new and existing customers' acceptances relating to good customer responses.

For efficiently proving the research relationships, target costing is an important independent variable of the study and it refers to a process for ensuring that a product launched with specified functionality, quality, lead time, and sales price can be produced at a life-cycle cost that generates the desired level of profitability (Cooper and Slagmulder, 1997). Firms with great target costing implementation are likely to enhance firms' cost advantages and firm profitability in a rigorous business environment. Seven-item scale was developed to gauge how firms manage the cost and quality of products, determine product pricing in a competitive environment, set engineering activities in producing products and services, link and integrate all activities together starting with product and service designs to the delivery to the customers, control all activities' costs from materials to finished goods, provide the diminishing costs and times of production and transportation and the increasing efficiency and productivity, and develop the coordination and understanding of different enterprises in a cost system through value chain by making long-term commitment and creating joint benefits and advantages. .

Similarly, the consequences of this study consist of cost accuracy, cost reduction, cost efficiency, and cost competitiveness. Cost accuracy is the first consequence of the study and is defined as the degree to which the result of a measurement, calculation, or specification of cost conforms to the correct value or a standard that is able to enhance firms to provide a truly accurate statement of a cost variable associated with a perspective product, be aware of the potential impact of process changes, be extremely useful in assessing the efficiency of a product design, and make decisions to pursue new markets (Edwards and Bozarth, 1998). Three-item scale was established to evaluate how firms provide the appropriate costs related to the product and service characteristics, present the costs that reflect the capabilities and competencies of products and services, and show the real production process cost of products and services.

Cost reduction is another consequence of the study and is the process of looking for, finding and removing unwarranted expenses from an organization to increase profits without having a negative impact on product quality. It means the activities of cost tracking and evaluation performed by the executives for the purpose of their reducing costs (Milic, 2010). Four-item scale was initialed to gauge how firms manage the diminishing costs of product life cycle, gain the effectively cutting costs of operational value chain, and decrease the non-important operational expenses and increase the outstanding cost control efficiency.

Cost efficiency is the third consequence of the study and refers to the use of the real costs which could be managed in such a way that the actual cost may be lower than previously budgeted (Octavia and Mariyani, 2013). It presents how much of the resources are used efficiently and potentially to produce a set of product results. Three-item scale was introduced to measure how firms utilize the cost information for achieving decision making success, implementing the cost data for successfully determining operational plans and policies, and using the cost evidence for linking operational strategies to best competitive advantages.

For the last consequence of the study, cost competitiveness is defined as the advantages of firms' business operations that occur from a success of cost management compared with their competitors (Santana, 2009). It enables them to earn profits in competitive markets and environments. Then, more cost competitiveness has an effect on greater firm profitability. Three-item scale was developed to examine how firms gain the benefits and advantages of their operational costs over the significant competitors and others.

To empirically verify the research relationships, this study also tests the effects of business vision and competitive force on the aforementioned relationships. Both business vision and competitive force are hypothesized to become the antecedents of the study. Business vision is an internal factor of the firms and refers to a concrete idea that represents idealized future states for the organization (James and Lahti, 2011). It is a guide to what needs to be achieved by the organization's members and how the organization should run. Four-item scale was issued to test how firms provide a sense of meaning to employees that motivates them to accept and implement the organization's goals, objectives and policies.

Competitive force is another antecedent of the study and is an external factor of the firms. It means a business environment that influences firms' capabilities, competencies, strategies, practices, and operations in an organization. It shapes the state of competition in an industry and provides a complete picture of what constitutes the competitive environment for firms (Hoque and Chia, 2012). Four-item scale was established to investigate how firms deal with business environments that affect the efficiency, effectiveness, success, survival, and sustainability of firms' operations and activities.

For the control variables of this study, there are three variables, including firm age, firm size and firm capital. Firm age (FA) may influence the firm's technological learning capacity, and implementation of business activities, actions and strategies, and the profitability of organizational operations (Zahra, Ireland, and Hitt, 2000). It was measured by the number of years a firm has been in existence. Next, firm size (FS) may affect the ability to learn and diversify operations, and to compete and survive in the markets (Arora and Fosfuri, 2000). It was measured by the number of employees in the firm. Also, firm capital (FC) may impact the capacity of the firm to implement business methods and strategies in order to achieve competitive advantage and superior performance (Ussahawanitchakit, 2007). It was measured by the amount of money a firm has invested in doing business.

3.3 Methods

To potentially confirm the quality of the research tool, factor analysis, item-total correlation and cronbach alpha are applied in the study. Factor analysis was implemented to assess the underlying relationships of a large number of items and to determine whether they can be reduced to a smaller set of factors. Factor analysis was conducted separately on each set of the items representing a particular scale due to limited observations. This analysis has a high potential to inflate the component loadings. Thus, a higher rule-of-thumb, a cut-off value of 0.40, was adopted (Nunnally and Bernstein, 1994). All factor loadings are greater than the 0.40 cut-off and are statistically significant. Discriminant power was utilized to gauge the validity of the measurements by item-total correlation. In the scale validity, item-total correlation is greater than 0.30 (Churchill, 1979). Also, the reliability of the measurements was evaluated by Cronbach alpha coefficients. In the scale reliability, Cronbach alpha coefficients are greater than 0.70 (Nunnally and Bernstein, 1994). The scales of all measures appear to produce internally consistent results; thus, these measures are deemed appropriate for further analysis as they express an accepted validity and reliability in this study. Table 1 presents the results for factor loadings, item-total correlation and Cronbach alpha for multiple-item scales used in this study.

Table 1: Results of Measure Validation

Items	Factor Loadings	Item-total Correlation	Cronbach Alpha
Firm Profitability (FP)	0.86-0.93	0.85-0.93	0.90
Target Costing (TC)	0.61-0.85	0.74-0.78	0.82
Cost Accuracy (CA)	0.89-0.93	0.89-0.94	0.90
Cost Reduction (CR)	0.91-0.95	0.91-0.95	0.92
Cost Efficiency (CE)	0.87-0.89	0.88-0.89	0.86
Cost Competitiveness (CC)	0.85-0.90	0.84-0.91	0.85
Business Vision (BV)	0.77-0.87	0.75-0.87	0.83
Competitive Force (CF)	0.73-0.89	0.71-0.88	0.84

For investigating the aforementioned research relationships, hierarchical multiple regression analysis is conducted because all variables in this study were neither nominal data nor categorical data. The results of this study are presented in the next section.

4. Results and Discussion

Table 2: Descriptive Statistics and Correlation Matrix

Variables	FP	CC	CA	CR	CE	TC	BV	CF
Mean	3.87	4.10	4.25	3.97	4.11	4.50	4.23	4.24
Standard Deviation	0.74	0.57	0.57	0.76	0.60	0.39	0.54	0.56
Firm Profitability (FP)								
Cost Competitiveness (CC)	0.69***							
Cost Accuracy (CA)	0.49***	0.54***						
Cost Reduction (CR)	0.64***	0.46**	0.62***					
Cost Efficiency (CE)	0.69***	0.49**	0.65***	0.62***				
Target Costing (TC)	0.23	0.45**	0.45***	0.37**	0.37**			
Business Vision (BV)	0.55***	0.59***	0.43**	0.53***	0.59***	0.38**		
Competitive Force (CF)	0.39**	0.41**	0.33**	0.18	0.35**	0.42**	0.44**	

**p<.05, ***p<.01

Table 2 shows the descriptive statistics and correlation matrix for all variables. Multicollinearity might occur when inter-correlation in each predict variable is more than 0.80, which is a high relationship (Hair et al., 2010). The correlations ranging from 0.33 to 0.69 at the $p < 0.05$ level, which means that the possible relationships of the variables in the conceptual model could be tested. Likewise, variance inflation factors (VIFs) were used to provide information on the extent to which non-orthogonality among independent variables inflates standard errors. The VIFs range from 1.13 to 1.78, well below the cut-off value of 10 as recommended by Neter, Wasserman and Kutner (1985), means that the independent variables are not correlated with each other. Thus, there are no substantial multicollinearity problems encountered in this study.

Table 3: Results of Hierarchical Regression Analysis[a]

Independent Variables	Dependent Variables									
	CA	CA	CR	CR	CE	CE	CC	CC	FP	FP
TC		0.33*** (0.11)		0.26** (0.11)		0.14 (0.11)		0.28** (0.12)		0.02 (0.11)
FA	-0.17 (0.14)	-0.17 (0.14)	-0.13 (0.14)	-0.12 (0.14)	-0.16 (0.13)	-0.16 (0.14)	-0.19 (0.12)	-0.18 (0.11)	0.21 (0.14)	0.24 (0.14)
FS	-0.04 (0.10)	-0.04 (0.10)	0.04 (0.10)	0.04 (0.10)	-0.07 (0.10)	-0.07 (0.10)	-0.07 (0.11)	-0.05 (0.11)	0.02 (0.10)	0.03 (0.10)
FC	0.17 (0.10)	0.17 (0.10)	0.02 (0.10)	0.01 (0.10)	0.12 (0.09)	0.12 (0.10)	0.13 (0.10)	0.10 (0.10)	0.02 (0.10)	0.01 (0.10)
Adjusted R^2	0.25	0.26	0.27	0.28	0.32	0.32	0.33	0.32	0.29	0.30

**p<.05, ***p<.01, [a]Beta coefficients with standard errors in parenthesis.

Table 3 presents the results of hierarchical regression analysis of the relationships among target costing, cost accuracy, cost reduction, cost efficiency, and cost competitiveness. Target costing has an important positive influence on cost accuracy ($b = 0.33$, $p < 0.01$), cost reduction ($b = 0.26$, $p < 0.04$) and cost competitiveness ($b = 0.28$, $p < 0.02$). With regard to the research results, target costing definitely helps firms achieve cost advantages and benefits. Firms have explicitly attempted to implement target costing in the organizations in order to gain cost accuracy, cost reduction and cost competitiveness. They need to be sure that a product launched with

specified functionality, quality, lead time, and sales price can be produced at a life-cycle cost that generates the desired level of profitability and to encourage firms to determine best price strategy for competing the volatile markets and environments (Cooper and Slagmulder, 1997). Accordingly, target costing is a key driver in determining and explaining cost accuracy, cost reduction and cost competitiveness in the complex competitions. *Therefore, Hypotheses 1a, 1b and 1d are supported.*

Surprisingly, target costing is not related to cost efficiency ($b = 0.14$, $p < 0.19$). While target costing is an approach for the development of new products aimed at reducing their life-cycle costs while ensuring quality, reliability and other consumer requirements, by examining all possible ideas for cost reduction at the product planning, research and development and prototyping phases (Nicolini et al., 2000), it tends to emphasize only cost reduction as an outcome of its implementation. However, target costing does not show the existing evidence of benefiting cost efficiency. Target costing in firms may not affect cost efficiency in their organizations. They are likely to implement target costing for gaining cost accuracy, cost reduction and cost competitiveness, not cost efficiency. Hence, target costing could not help them achieve cost efficiency in the competitive markets and environments. Similarly, target costing has no relationship with firm profitability ($b = 0.02$, $p < 0.11$). Even though target costing is a primary technique for profit management through ensuring that future products generate sufficient profits to enable firms to achieve their long term profit plans (Ebuk and Balcioglu, 2011), firms with target costing implementation tend to earn more profitability in the competitive environments. Here, target costing does not directly affect firm profitability. Firms may need to use mediators in order to help them indirectly link to firm profitability, such as cost accuracy, cost reduction and cost competitiveness. Thus, target costing is not an important determinant of explaining firm profitability. *Therefore, Hypotheses 1c and 1e are not supported.*

For the control variable of the study, there are no effects on the research relationships. All firm age, firm size and firm capital do not play any role in explaining cost accuracy, cost reduction, cost efficiency, cost competitiveness, and firm profitability. Then, the changes of those variables come from only target costing.

Table 4: Results of Hierarchical Regression Analysis[a]

Independent Variables	Dependent Variables						
	CC	CC	CC	FP	FP	TC	TC
TC			0.12 (0.01)				
CA		0.37*** (0.01)	0.18* (0.03)				
CR		0.38*** (0.01)	0.37*** (0.04)				
CE		0.39*** (0.01)	0.54*** (0.04)				
CC					0.68*** (0.08)		
BV							0.22* (0.13)
CF							0.33** (0.13)
FA	-0.18 (0.13)	-0.17 (0.13)	-0.10 (0.02)	0.16 (0.11)	0.17 (0.11)	0.08 (0.13)	0.09 (0.13)
FS	-0.03 (0.10)	-0.03 (0.10)	-0.13 (0.01)	0.02 (0.08)	0.03 (0.08)	0.11 (0.09)	0.14 (0.10)
FC	0.12 (0.09)	0.11 (0.09)	0.09 (0.03)	-0.07 (0.08)	-0.07 (0.08)	-0.10 (0.11)	-0.09 (0.10)
Adjusted R^2	0.37	0.37	0.59	0.51	0.52	0.30	0.33

*p<.10, **p<.05, ***p<.01, [a]Beta coefficients with standard errors in parenthesis.

In Table 4, the results of hierarchical regression analysis of the research relationships are presented. Cost competitiveness is a key consequence of target costing through cost accuracy, cost reduction and cost efficiency. Cost accuracy has a significant positive impact on cost competitiveness ($b = 0.37$, $p < 0.01$). It is a faithful cost measurement or representation of the truth, correctness and precision of product costs (Edwards & Bozarth, 1998). It is a potential outcome of target costing and encourages firms to gain cost advantage in the competitive situations. Firms with an accuracy of product costs are likely to earn superior cost competitiveness. Thus, cost accuracy is a main driver of determining cost competitiveness in the complex markets. *Therefore, Hypothesis 2 is supported.*

Cost reduction is another outcome of target costing implementation. It definitely enhances firms to achieve cost competitiveness ($b = 0.38$, $p < 0.01$). It is the process of looking for, finding and removing unwarranted expenses from an organization to increase profits without having a negative impact on product quality (Milic, 2010). Firms have critically used cost reduction as a basic strategy of business survival via cost competitiveness. They are likely to make their business operations more efficient and boost firm profitability more effectively. Hence, cost reduction seems to have a positive effect on cost competitiveness. Firms have diminished operational costs and expenses in business activities and operations in order to have cost competitiveness in the uncertain environments. *Therefore, Hypothesis 4 is supported.*

Cost efficiency is also a critical driver in changing the level of cost competitiveness. It explicitly enhances firms to have cost competitiveness in the rigorous competitions ($b = 0.39$, $p < 0.01$). Firms with cost efficiency tend to have more cost competitiveness for succeeding in operational and competitive activities and gaining business survival and sustainability. Besides, cost efficiency means that the use of the real costs could be managed in such a way that the actual cost may be lower than previously budgeted (Octavia and Mariyani, 2013). It presents how much of the resources is used efficiently and potentially to produce a set of product results. Then, cost efficiency has a potential positive influence on cost competitiveness. *Therefore, Hypothesis 6 is supported.*

To empirically verify the implementation of target costing system, cost competitiveness is a significant consequence of this system. It helps firms outstandingly earn organizational performance, business survival and firm sustainability. Accordingly, cost competitiveness is an advantage of firms' business operations that occur from a success of cost management compared with their competitors (Santana, 2009). It helps firms achieve competitive advantage and business performance through the effectiveness and potentiality of cost position. It explicitly promotes them to focus on business results. Firms with more cost competitiveness are likely to have greater profitability. Thus, cost competitiveness has an important positive impact on operational success and profitability in the competitive markets and environments ($b = 0.68$, $p < 0.01$). *Therefore, Hypothesis 8 is supported.*

For the antecedents of target costing, both business vision and competitive force encourage firms to successfully implement target costing. Great business vision is likely to affect more success of target costing. Business vision is positively related to target costing ($b = 0.22$, $p < 0.10$). It is a concrete idea that represents idealized future states for the organization (James and Lahti, 2011). It provides a sense of meaning to employees that motivates them to accept and implement the organization's goals and is a guide to what needs to be achieved by the organization's members and how the organization should run. Clear business vision in firms tends to help them smoothly run their operational activities and practices and critically get organizational profitability. Thus,

business vision has a positive relationship with the success of target costing. *Therefore, Hypothesis 9 is supported.*

Interestingly, competitive force is an external factor of determining a success of target costing. It has a significant positive impact on target costing ($b = 0.33$, $p < 0.02$). Competitive force is also a business environment that influences firms' capabilities, competencies, strategies, practices, and operations in an organization. It shapes the state of competition in an industry and provides a complete picture of what constitutes the competitive environment for firms (Hoque and Chia, 2012). Firms with a best deal in competitive force are likely to achieve target costing success. They tend to manage business environments potentially, efficiently and effectively in order to gain outstanding values of target costing. Thus, competitive force definitely enhances firms to have more needs for successfully implementing target costing. *Therefore, Hypothesis 10 is supported.*

According to Baron and Kenny (1986)'s study, there are four steps to test the mediating roles of cost accuracy, cost reduction and cost efficiency between target costing and cost competitiveness. Firstly, dependent variable (target costing) is to be regressed on the independent variable (cost competitiveness) to show that both variables have certain associations that may be mediated. Secondly, mediators (cost accuracy, cost reduction and cost efficiency) are to be regressed on the independent variable to show that both variables have certain associations. Thirdly, dependent variable is to be regressed on both the mediators and independent variable to show that mediators have certain associations with dependent variable after controlling for independent variable. Lastly, compete mediations exist only when the beta value of independent variable on dependent variable is zero or non-significant after controlling for the mediators, and if this value is significantly reduced, then partial mediation prevails. For the mediating effects of the study, both cost accuracy and cost reduction explicitly mediate the target costing-cost competitiveness relationships. In Table 3, target costing have significant positive impacts on cost accuracy ($b = 0.33$, $p < 0.01$) and cost reduction ($b = 0.26$, $p < 0.04$) while cost accuracy ($b = 0.18$, $p < 0.10$) and cost reduction ($b = 0.37$, $p < 0.01$) positively affect cost competitiveness, but target costing does not ($b = 0.12$, $p < 0.14$) in Table 4. Thus, both cost accuracy and cost reduction will strongly mediate the relationships between target costing and cost competitiveness. *Therefore, Hypotheses 3 and 5 are supported, Hypothesis 7 is not.* Likewise, all control variables (firm age, firm size and firm capital) do not influence the research relationships. Then, only independent variables have affected the changes of cost competitiveness, firm profitability and target costing.

In a summary of the study, (1) target costing has a main determinant of explaining cost accuracy, cost reduction and cost competiveness, (2) cost accuracy, cost reduction and cost efficiency are also positively related to cost competitiveness, (3) cost competitiveness is likely to affect firm profitability, (4) cost accuracy and cost reduction are the mediators of the target

costing-cost competitiveness relationships, and (5) business vision and competitive force have an impact on target costing. Therefore, firms tend to implement target costing with the antecedents of business vision and competitive force in order to gain cost accuracy, cost efficiency, cost competitiveness, and firm profitability in the competitive markets.

5. Contributions and Directions for Future Research

5.1 Theoretical Contribution and Directions for Future Research

With an empirical verification of the research relationships, this study attempts to conceptualize the antecedents and consequences of target costing. Cost accuracy, cost reduction, cost competitiveness, and firm profitability are the significant outcomes of applying target costing. Likewise, business vision and competitive are the key factors that affect the success of implementing target costing. These research results are confirmed according to prior studies. However, to explicitly expand and increase the benefits and advantages of the study and to systematically prove the generalizability of the study, there is still research room for further studies. Firstly, future research is needed to reconceptualize the relationships between target costing and cost efficiency. If future research could not find an empirical support of this relationship, cost efficiency may be deleted from the existing conceptual research model. Secondly, future research is needed to investigate the generalizability of the study by collecting data from other populations and countries. If results of the future research are different from the existing research, the generalizability of the study could not be found. Lastly, this study used hierarchical regression analysis as the statistical method. To confirm the results of the existing research, future research may apply other statistical methods such as structural equation model, path analysis or partial least squared to verify those results.

5.2 Managerial Contribution

According to the results, target costing becomes a strategic operational tool for helping firms achieve competitive advantage, earn firm performance and gain organizational survival and sustainability. Firms need to implement target costing potentially in order to receive best business outcomes. Likewise, they must concern themselves with the external factors, such as business vision and competitive force and look for how to manage and utilize them successfully. Thus, to improve and increase the benefits and advantages of target costing, managers need to furnish how firms implement target costing in an organization, link this strategic operational tool to cost advantages and firm performance, set and utilize business vision in order to influence a success on target costing, and manage and deal with competitive markets and environments.

6. Conclusion

Strategic business tool has definitely promoted firms to have competitive advantage, achieve firm performance and earn organizational survival and sustainability in the complex competitive markets and environments. Several strategic tools have been applied to help them outstandingly achieve those business goals and objectives. In the accounting aspect, target costing that is one of valuable strategic tools enhances firms to determine best price strategy for competing the volatile markets and environments because it is a cost-control tool during product and process design for firms' new product introductions. Accordingly, this study aims at examining the antecedents and consequences of target costing. Its consequences include cost accuracy, cost, reduction, cost efficiency, cost competitiveness, and firm profitability while business vision and competitive force are the antecedents of the study. For the empirical investigation of the research relationships, 189 auto parts businesses in Thailand are the samples of the study. With regard to the results of the study, target costing has a positive effect on cost accuracy, cost reduction and cost competitiveness, but it does not influence cost efficiency and firm profitability. Also, cost accuracy, cost reduction and cost efficiency have a positive effect on competitiveness; cost competitiveness is positively related to firm profitability; and corporate vision and competitive force have a positive influence on target costing. Moreover, both cost accuracy and cost reduction strongly mediate the relationships between target costing and cost competitiveness. To potentially expand and increase the existing research of target costing, the re-conceptualization of target costing, the data collection from other populations and countries and the uses of other valid statistical methods should be investigated for further study. Likewise, executives must pay attention to utilize and manage target costing well in order to achieve superior cost advantages and gain best business outcomes. Business environments such as business vision and competitive force are also important to determine the success of target costing implementation.

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Appendix A: Measurements of All Variables

Items
Firm Profitability (FP)
1. We have achieved the increasing profits from operations.
2. We have gained the growths of market share compared with past years.
3. Our performance has met the organizational objectives and goals.
4. Our new and existing customers accept that we could respond their needs very well.
Target Costing (TC)
1. We have managed the cost and quality of products effectively.
2. We pay attention in efficiently determining product pricing in a competitive environment.
3. We emphasize in critically setting engineering activities in producing products and services.
4. We attempt to link and integrate all activities together started with product and service designs to the delivery to the customers.
5. We focus on controlling all activities' costs from materials to finished goods.
6. We provide the diminishing costs and times of production and transportation and the increasing efficiency and productivity.
7. We develop the coordination and understanding of different enterprises in a cost system through value chain by making long-term commitment and creating joint benefits and advantages.
Cost Accuracy (CA)
1. We could provide the appropriate costs related to the product and service characteristics.
2. We could present the costs that reflect the capabilities and competencies of products and services.
3. We could show the real production process cost of products and services.
Cost Reduction (CR)
1. We could manage the diminishing costs of product life cycle very well.
2. We could gain the effectively cutting costs of operational value chain.
3. We could decrease the non-important operational expenses.
4. We could increase the outstanding cost control efficiency.

Appendix A (Continued)

Items
Cost Efficiency (CE)
1. We could utilize the cost information for achieving decision making success. 2. We could implement the cost data for successfully determining operational plans and policies. 3. We could use the cost evidence for linking operational strategies to best competitive advantages.
Cost Competitiveness (CC)
1. We gain the advantages of the operational costs over the significant competitors and others. 2. We have the costs of products and services being lower than their competitors. 3. We could outstandingly compete the markets and environments in all situations.
Business Vision (BV)
1. We clearly set our business operations' goals and policies. 2. We definitely search for news strategies and guidelines for effective management and administration. 3. We outstandingly support our resources to create continuously organizational innovation. 4. We critically encourage our employees to put the competencies and capabilities in their jobs.
Competitive Force (CF)
1. Recently, new competitors have occurred to the markets. We must provide organizational development continuously. 2. The competitors increasingly have capabilities and competencies in business operations. We need to create dynamic management innovation. 3. The customer tastes and favorites could not exactly predict. We have provided customer database systematically and objectively. 4. Nowadays, technologies in producing goods and services have explicitly changed. We need to monitor technology movements and learn these them effectively.