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MANAGEMENT CONTROL STRATEGY AND GOAL ACHIEVEMENT OF ELECTRONIC PRODUCT EXPORT BUSINESSES IN THAILAND: MEDIATING INFLUENCES OF BUSINESS EXCELLENCE

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ABSTRACT

This article is about the effects of management control strategy on goal achievement. The study examines the relationships among management control strategy and business excellence. Business excellence is also taken as the mediator, whereas learning orientation, as well as a competitive advantage is taken as the moderators, and goal achievement is taken as the dependent variable. The results indicate that lean, the Theory of Constraints, and Six-Sigma have positive influences on business excellence. However, only Theory of Constraints does not have a positive influence on business excellence under learning orientation as a moderator. At the same time, business excellence is related to goal achievement within a competitive advantage as a moderator. Moreover, previous research has examined the relationship between business excellence and goal achievement via a competitive advantage as a mediator. This research shows that the impact of business excellence is not directly related to a competitive advantage. And then, a competitive advantage is not positively influenced by goal achievement. Finally, the contributions and suggestions for further research are provided.

Keywords: Lean; Theory of Constraints; and Six-Sigma; Learning orientation; Business excellence; Competitive advantage; and Goal achievement.

1. INTRODUCTION

Due to its outstanding importance, uncertainty is one of the most widely researched aspects of the environment of organizations in management control contingency-based research (Yang, 2010). The current business environment is characterized by fast changes in customers, technologies, and competition. Thus, organizations need to continuously renew themselves to survive and prosper with management control strategy. However, uncertainty and risk have an enormous influence on many companies, which has forced firms to adapt their management control strategy to the changing environment (Li and Tan, 2010). Therefore, knowledge about the reactions of firms to changing environments is of great importance to the management control strategy, as overreactions could severely affect key performance indicators of impacted firms (Filipse, van der Sanden, 2013).

Management control strategy is a useful integrative tool for organizing, explaining, and understanding the concepts of a performance management system. It can help make sense of the criteria by providing a way of organizing and remembering the criteria and concepts (Broadbent and Laughlin, 2009). A good place to start in understanding the relationship between the criteria and management control strategy is with the stated objectives of the criteria. They provide an adequate basis for responsible decision making by contractor management. Internal management control strategy must provide data which indicate work progress, properly related cost, and schedule and technical accomplishments that are valid, timely, auditable, and supply managers with information at a practical level of summarization (Changchit, Holsapple, 2001).

Management control strategies are the important principles, methods, and ways of operational decision management that are used to guide and direct the behavior of staff members and management in order to achieve a company's goals (Dănescu, Prozan, 2012). A management control system may use a variety of techniques to evaluate various areas to improve performance and productivity. Some areas addressed by management control strategy may include continuous improvement, reduced conflict, and zero defects (Feng, Li, 2009). A company's department directors may benefit from the organization provided by management control strategy. Directors often are responsible for coordinating activities with firm resources to create employee incentives and to hire upper-level managers. Under a management control strategy, directors can better analyze production progress, provide appropriate job assignments, and more effectively communicate with all company resources (Harvey, 1996).
Management control strategy is an ongoing effort to improve products, services, or processes. These efforts can seek incremental improvement over time or breakthrough improvement all at once. Other widely used methods of management control strategies may be operational efficiency, policy execution; staff quality; appropriate system design; careful and flexible planning to emphasize employee involvement and team work; measuring and systematizing processes; and reducing variation, defects and cycle times. Finally, management control strategy influences the behavior of organizational resources to implement organizational strategies (Geurts, Duke, 2007). Measuring performance is an important component of management control strategies. Directors and upper-level managers generally aim to provide fair and effective performance evaluations. Control systems help reviewers develop performance evaluations that provide useful and encouraging employee insight and accurate productivity analysis; these evaluations may even be used as an opportunity to provide performance-based incentives. Thus the management control strategy used in this research consists of lean, Theory of Constraints, and Six-Sigma (Rahani and al-Ashraf, 2012).

The management control strategy includes lean, Theory of Constraints, and Six-Sigma. These factors are improving performance by becoming better, faster, cheaper and more effective. Successful organizations seek business excellence in every area of their work. The management control strategy emphasizes and encourages the use of business excellence into areas where their effect will be most beneficial under learning orientation (Kennedy and Widener, 2008). However, the criteria of business excellence can clearly identify strong and weak areas of management practice to identify competitive advantage and to enable the gaps to be closed (Treville and Antonakis, 2008). Moreover, both business excellence and competitive advantage can be the implementation of solutions to problems in order to attain goal achievement.

The consequences of management control strategy were developed to assist export businesses in establishing or enhancing an export management program. The relationship promotes good export practices. Lean, Theory of Constraints, and Six-Sigma recommend principal components of a comprehensive and provide information, tools, and templates to help companies develop an electronic export management program. A company will be able to develop an operational program that will manage a company's electronic export decisions and export transactions in compliance. It will also develop to ensure consistent instruction and operational application of a company's export policies, procedures, decisions, and transactions.

Developing models for the effects of a management control strategy on goal achievement via business excellence as a mediator is a challenge as the literature on management control strategy is vast, varied, and evolving. Yet, there has been no systematic testing about the effects of management control strategy on goal achievement via business excellence as a mediator within Thailand and abroad. This factor has motivated researchers to continue developing improved models with the appropriate research questions.

The purpose of this study is to test the effects of management control strategy on goal achievement via business excellence as a mediator. This research is extended from previous research and includes lean, Theory of Constraints, and Six-Sigma which will help researchers better understand the scope and the activities associated with management control strategy, and allow researchers to test the consequences of management control strategy. Secondly, this research tests business excellence, which is the mediating effect of the relationship between management control strategy and goal achievement. Thirdly, this research tests learning orientation, which is the moderating effect of the relationship between management control strategy and business excellence. Fourth, this research tests competitive advantage, which is the moderating effect of the relationship between business excellence and goal achievement. Fifthly, this research tests competitive advantage, which is the mediating effect of the relationship between business excellence and goal achievement. Lastly, this study offers a validated instrument to measure management control strategy by providing empirical evidence of the importance of management control strategy on business excellence via learning orientation as a mediator.

This research will offer useful guidance for measuring and implementing management control strategy and facilitate further research in this area. The research questions of this work are as follows. How does management control strategy affect goal achievement via business excellence as a mediator? How does examine the relationship between management control strategies affect goal achievement?
How does investigate the mediating effect of business excellence effect the relationship between management control strategy and goal achievement? How does the moderating effect of learning orientation affect the relationship between management control strategy and business excellence? How do we determine a competitive advantage, which is a moderating effect of the relationship between business excellence and goal achievement? How does the mediating effect of a competitive advantage affect the relationship between business excellence and goal achievement?

The remaining part of this study is structured as follows: 1) The relevant literature on management control strategy is reviewed. 2) The research method of the study is described, followed by a discussion of the empirical results. 3) The study ends with theoretical and managerial contributions, suggestions for further research, and the conclusion.

2. RELEVANT LITERATURE REVIEWS

The research model of this study is illustrated in Fig. 1. It shows the effects of management control strategy and goal achievement of electronic export businesses in Thailand: mediating influences of business excellence.

![Figure 1: Management Control Strategy and Goal Achievement](image)

Management Control Strategy includes lean, Theory of Constraints, and Six-Sigma. The lean manufacturing strategy can design for manufacturing and plant managers, production control managers and supervisors, materials managers and analysts, manufacturing and industrial engineers, industrial managers, operations engineers, purchasing personnel, and anyone involved in the changeover to a lean operation (Houshmand and Jamshidnezhad, 2006). The Theory of Constraints suggests that managers should focus on effectively managing the capacity and capability of these constraints, if they are to improve the performance of their organization (Watson, Blackstone, 2007). This study focuses on Six-Sigma's continuous improvement program, and the extent to which an organization's management control system supports this new corporate strategy (Chakravorty, 2009). Thus, the three factors include lean, Theory of Constraints, and Six-Sigma. These are the key factors of management control strategy.

Management control strategy can help task complexity on the accuracy of business excellence. And then management control strategy may be affected by several external and internal environmental factors which influence its operations and practices such as learning orientation into business excellence (Jankalova, 2012). However, the effects of business excellence are directly related to goal achievement. Moreover, business excellence affects goal achievement under a competitive advantage. And then, a competitive advantage is positively influenced by goal achievement.

2.1 Lean

Lean is one of the key components of management control strategy, and is an essential element to operational efficiency. It can be applied to customer satisfaction and company success because of the vital role it plays within organizations. For example, employers seek employees with an abundance of lean skills and knowledge (Dombrowski and Mielke, 2013). Lean is very important because of the flow of goods from one destination to another with cost effectiveness and the timely delivery of goods for
the business needs and giving the profit to the organization. Lean consists of many trading partners, from raw materials to finished products. Each party consists of five logistics activities, namely, customer service, production planning, purchasing, warehousing, and transportation. Lean focuses on the relationship between each department and the company (Holweg, 2007). It is important because of this relationship between each party. If every party joins hands and works together, it will create cost savings and time to market reduction, so everyone will enjoy the benefits.

Lean refers to the tools and methods whose purpose is to improve and automate the supply through the reduction of stock and delivery times. The term just-in-time production characterizes the concept of minimizing stock throughout the entire production chain (McIvor, 2001). Lean is based on production capacity information that is present in the information system of the enterprise to automatically place orders. Finally, a Lean makes it possible to track the passage of pieces between less different parties of the supply chain (Melton, 2005).

Lean is the principle, method, and guideline of the management control process to maximize customer value and achieve a sustainable competitive advantage. It represents a conscious effort by the continuous production to develop and run flow manufacturing in the most effective and efficient ways possible (Yang, Hong, 2011). Lean strategy covers everything from product development, sourcing, production, and logistics, as well as the information systems needed to coordinate these activities. Lean includes all the activities that must take place to get the right product into the right consumer's hands in the right quantity and at the right time from raw materials extraction to consumer purchase (Geurts, Duke, 2007). Lean focuses on planning and forecasting, purchasing, product assembly, moving, storage, distribution, sales, and customer service.

Lean is a successful tool that could be employed for business excellence. Business excellence offers products and services conducive to improving organizational efficiency and effectiveness in the electronic export business. Lean process is the newest and best approach to increasing speed and simplifying and optimizing business processes in every conceivable area from manufacturing (Powell, Alfnes, 2013). Moreover, learning orientation about continuous planning, developing, controlling, informing and monitoring of actions within and between parties links so that an integrated manufacturing process results which meets overall business excellence. Firms can learn which actions to take when confronted by almost any situation (Pamfilie, Pecou, 2012). Firms are able to understand all the necessary elements to fulfill the requirements of a formal continuous production beginning with developing long-range production, sales, and capacity plans and ending with planning, implementing, and controlling daily manufacturing schedules (Dües, Tan, 2013). Thus, an increase of lean seems to have a positive relationship with business excellence, and firms with an increase of lean tend to gain superior business excellence via learning orientation as a moderator. Therefore, we posit the hypothesis as follows:

H1a: The higher the lean of management control strategy is, the more likely that firms will achieve greater business excellence.

H2a: Learning orientation will positively moderate the lean of management control strategy to business excellence.

2.2 Theory of Constraints
The Theory of Constraints is an important tool for improving process flows and a management approach that emphasizes the importance of managing constraints. The implications of the theory are far reaching in terms of understanding bottlenecks to a process and better managing these bottlenecks to create an efficient process flow. Manufacturers need to be able to improve plant performance by eliminating bottlenecks one constraint at a time. By focusing directly on true constraints, manufacturing operations can significantly improve efficiency on the plant floor (Hansen and Prescott, 2005). An effective way of doing this is to identify and eliminate bottlenecks or things that are holding firms back. One approach is to use the Theory of Constraints. This helps firm identify the most important bottleneck in a firm's processes and systems, so that the firm can deal with it and improve performance (Li and Dressler, 2011).

The Theory of Constraints refers to a philosophy that accepts the existence of a constraint, at least temporarily, and focuses the improvement effort on the constraint and related workstations. The Theory of Constraints is a comprehensive technique for identifying and managing an organization's
constraints for obtaining maximum output from a process (Meh, 2008). The Theory of Constraints aims to identify and resolve internal conflicts. Firms need to ensure that the result of resolved conflicts is a win-win situation for all involved parties. If firms use the Theory of Constraints for command to find out which processes and managers, firms will see it quickly fade away.

The Theory of Constraints is a management philosophy that focuses the resources of an organization on improving the performance of the constraint that directly affects management control. The Theory of Constraints states that the step that determines the maximum capacity has typical characteristics, like high levels of material waiting to be processed there, and very high equipment utilization rates (Thong, 2001). The capacity model will identify the production constraint. It is an approach to solve constraints and problems in a logical way by building a logic chart of the problem, finding its roots and developing steps to remove the root of the problem. The theories of constraints methods are used by managers and sales personnel to improve the management and sales of their companies. The Theory of Constraints involves adoption of special thinking processes which, in most cases, are different than the current thinking, but are logically accepted and used (Watson, Blackstone, 2007). The constraint is identified in order to focus on how to get more production within the existing capacity limitations, known as exploiting the constraint (Chow and Fung, 2000).

The Theory of Constraints is a powerful business excellence method that focuses the resources of a company where firm are needed most at the constraint. The Theory of Constraints is a key strategy enabling competitiveness and as an operational (Coad, 2010). The Theory of constraint is viewed as a whole, and work activities are directed so that the whole system performance measures are improved. The Theory of Constraints' main concept can be bringing operational excellence and quality to its clients. However, the Theory of Constraints is based upon the learning orientation that for any system there is a constraint when firms can operate and improve the manufacturing systems, so firms must understand and control that constraint (Thong, 2001). The use of this theory as a management control strategy based on learning orientation, can provide assistance in understanding and communicating constraints until achieving in business excellence (Watson, Blackstone, 2007). Thus, an increase in the use of the Theory of Constraints seems to have a positive relationship with business excellence, and firms with an increase in this theory use tend to gain superior business excellence via learning orientation as a moderator. Therefore, we posit the hypotheses as follows:

H1b: The higher the Theory of Constraints of management control strategy is, the more likely that firms will achieve greater business excellence.

H2b: Learning orientation will positively moderate the Theory of Constraints of management control strategy to business excellence.

2.3 Six-Sigma

Six-Sigma is the modern concept and process plan in manufacturing systems of perfection within a business organization. The importance of Six-Sigma is that it shows the competencies of an individual in a particular or specific subject (Chabukswar, Jagdale, 2011). However, the Six-Sigma is used to evaluate and recognize proficiency in manufacturing as the production of goods for use or sale using material, labor, and manufacturing overhead cost. Six-Sigma refers to designing pointing out that preventing defect in the planning stages of a production process (Cournoyer, Nobille, 2013). A company can consistently manufacture a defect-free product with clearing from the beginning 3.4 defects per million opportunities, allowing for a 1.5 sigma process shift.

The role of Six-Sigma refers to six steps needed for operating the manufacturing process. Firstly, continuous efforts to achieve stable and predictable process results are of vital importance to business success (Goel and Chen, 2008). Secondly, manufacturing and business processes have characteristics that can be defined, measured, analyzed, controlled, and improved. Thirdly, achieving sustained quality improvement requires commitment from the entire organization as well as particularly from top-level management (Gowen III and Tallon, 2005). Fourthly, there is a clear focus on achieving measurable and quantifiable financial returns. Fifthly, firms place an increased emphasis on strong and passionate management leadership and support. Finally, firms must show a clear commitment to making decisions on the basis of verifiable data and statistical methods, rather than assumptions and guesswork (Jin, Janamanchi, 2011).
The mean of Six-Sigma is a quality improvement program. The goal of Six-Sigma is to reduce the number of defects or errors to zero. Defining, measuring, analyzing, improving, and controlling processes in Six-Sigma will create a repeatable and reliable process with quantifiable results. Six-Sigma is a system of management that results in approved manufacturing projects that are ready for improvement (Johnston, Maquire, 2009). It provides guidelines to help select the right projects at the right time, and is simply a process for solving a problem. It consists of five basic phases which are define, measure, analyze, improve, and control. It helps firms to better understand the process and provides with insight that can be used to easily apply the methodology to an existing problem within organization (Cournoyer, Noble, 2013).

The effect of Six-Sigma are valuable because it creates an environment for improving productivity and efficiency for business excellence. It gives everyone an opportunity to make improvements to traditional processes (Kumar, Nowicki, 2008). Moreover, learning orientation as a knowledge-based approach is designed to enhance customer satisfaction and build a customer culture that embraces innovative approaches to technology and business development (Swink and Jacobs, 2012). Overall, it is a highly structured strategy for acquiring, assessing, and applying customer expectations with manageable solutions for the purposes of product, system, or enterprise innovation and design.

Thus, Six-Sigma seems to have a positive relationship with business excellence, and firms with Six-Sigma tend to gain superior business excellence via learning orientation. Therefore, we posit the hypothesis as follows:

H1c: The higher the Six-Sigma of management control strategy is the more likely that firms will achieve greater business excellence.

H2c: Learning orientation will positively moderate the Six-Sigma of management control strategy to business excellence.

2.5 Business excellence and Goal achievement

Business excellence definitions often focus on the ability of a method or process to consistently show superior results. Business excellence is about using approaches that not only deliver superior results but that also consider the sustainability and ongoing development of the approach (Clutterbuck and Hirst, 2002).

Business excellence involves conducting systematic reviews that use explicit methods aimed at using of quality management principles, methods, and regulations in business management control. Business excellence is generally considered an ongoing and effective use of practices from managers that improve and refine all aspects of the business. It includes ongoing improvements, extensive beneficial research, and the prevention of future conflicts or problems within the business (Clutterbuck and Hirst, 2002). However, the principles of business excellence include customer satisfaction, system improvements, leadership and community building, ethics, adaptability, and sustainability. Key practices in business excellence are applied across functional areas in an enterprise including continuous and breakthrough improvement, preventative management, and cost management by facts (Lee, McInerney, 2010). Business excellence is about offering products and services conducive to improving organizational efficiency and effectiveness via goal setting based on feedback from chief executive officer's management which plays a crucial role in improving goal achievement.

Goal achievement proposes an optimal deployment pattern to achieve both sustainable and profitable returns on investment and social goals. On the other hand, firms need to be founded to take on a brand new entrepreneurial challenge (Thomas, 2011). Firms believe strongly in the power of free enterprise to enable sustainable, positive change. Most especially, business excellence forced by a competitive advantage, has the great expansion of total power was driven by continuous improvements in more goal achievement (Lee, McInerney, 2010). This is because the goal is to be constantly seeking the most efficient and effective ways to make profit for the business as goal achievement.

Thus, the electronic product export businesses' greater business excellence shows that they have greater goal achievement. This leads to the following hypotheses:
H3: The higher the business excellence is, the more likely that firms will achieve greater goal achievement.

H4: Competitive advantage will positively moderate business excellence to goal achievement.

2.6 The mediating role of competitive advantage in business excellence and goal achievement

Business excellence in the manufacturing process and customer service is critical to gaining a competitive advantage. Organizations make business excellence for each other in an efficient way in order to reduce all difficulties of purchasing, marketing, and distribution (Abu-Hamateh, Al-Azab, 2003). These actions can lead to two generic strategies for achieving above average performance in an industry that consists of cost leadership and differentiation as a competitive advantage (Ackroyd, Tilmash, 2008). Competitive advantage is defined as an outcome of the firms’ successful strategy implementation. It can be obtained by offering superior value to the customer through unique benefits that offset a higher or lower price than the competitors for equivalent benefits (Broadbent and Laughlin, 2009). To achieve a competitive advantage, firms need to create positive value which equals or exceeds their competitors and outperforms other competitors. Thus, they have taken their competitive advantages for supporting goal achievement (Clutterbuck and Hirzt, 2002).

However, business excellence is likely to reinforce itself and enhance a competitive advantage (MacPherson and Howard, 2011). Creating a competitive advantage as a mediating effect of the appropriate business excellence could be used for goal achievement. It is logical to posit that by linking the relationship between business excellence and competitive advantage, the result is that a competitive advantage will enhance goal achievement (Masli, Richardson, 2011). Therefore, we posit the hypothesis as follows:

H5: The higher the business excellence is, the more likely that firms will achieve a greater competitive advantage.

H6: The higher the competitive advantage is, the more likely that firms will achieve greater goal achievement.

3. RESEARCH METHODS

3.1 Sample
For this research, the sample was selected from export businesses. A mailed survey was used for data collection. A database of 822 names and addresses was obtained from the website of Thailand’s exports directory (http://application.ditp.go.th). The questionnaire was sent to 822 electronic export businesses. The electronic export businesses in Thailand included electrical products/ electrical appliances (607 companies) and electronic products (275 companies). The key participants in this study were Chief Executive Officers (CEO). With regard to the questionnaire mailing, 51 surveys were undeliverable because some firms were no longer in business or had moved to unknown locations. Deducting the undeliverable from the original 822 mailed, the valid mailing was 771 surveys, from which 256 responses were received. Of the surveys completed and returned, only 253 were usable. The effective response rate was approximately 33%. According to Aaker, Kumar, and Day (2001), the response rate for a mail survey without an appropriate follow-up procedure, if less than 20% is unacceptable. The means of the demographic variable, firm size, and two waves were tested by a t-test to compare whether the means are different; however, its results were not significant. Thus, the response rate of this study is considered acceptable.

To detect for possible problems with non-response errors, e-commerce firms specific T-tests between early and late respondents showed no statistically significant differences according to the test for non-response bias by Armstrong and Overton (1977), and special efforts were made to increase the response rate. Using a T-test comparison of the means of all variables for the random sample versus all other respondents, there was no statistically significant difference. Hence, a non-response bias did not appear to be a problem in the study on an overall basis.
3.2 Measurements
Goal achievement is a dependent variable. It refers to sales growth, profit increase, increased customer acceptance, return on investment to satisfy, and the market value of the firm’s common stock. Goal achievement is measured by five items, as well as this construct was measured using a 5-point Likert scale (e.g., 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree). The scale items were introduced by Thomas (2011).

All variables were obtained from the survey. The independent variables include lean measured by five items, Theory of Constraints measured by five items, and Six-Sigma measured by five items. Management control strategy was measured on a 5-point Likert scale (e.g., 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree). Most of the scales employed were adopted from the existing and validated scales used in the extant literature to fit the current situation (Houssmand and Jamshednezhad, 2006).

The moderators' variables are learning orientation and a competitive advantage. Learning orientation was operationalized as an item instrument using a 5-point Likert scale response measure (Bierstaker and Wright, 2001). The four items measured the enhancement of acquiring new, or modifying and reinforcing existing, knowledge, behaviors, skills, values, or preferences and may involve synthesizing different types of information (Powell, Aftnes, 2013). A competitive advantage was operationalized as an item instrument using a 5-point Likert scale response measure (Liu, Fraser, 2003). The four items measured the enhancement of an advantage over competitors gained by offering consumers greater value, either by means of lower prices or by providing greater benefits and service that justify higher prices. On the other hand, the strategies relate to the extent to which the scope of a business' activities are narrow versus broad, and the extent to which a business seeks to differentiate its products (Broadbent and Langhlin, 2009).

The mediator variable is business excellence. The five items of business excellence were developed based on the concepts of DeFond, Wong et al., (1999). Business excellence was measured using a 5-point Likert scale (e.g., 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree). Business excellence is generally considered an ongoing, effective use of practices from managers that improve and refine all aspects of the business. Business excellence includes ongoing improvements, extensive beneficial research, and the prevention of future conflicts or problems within the business (Abu-Hanhatteh, Al-Azab, 2003). However, the principles of business excellence include customer satisfaction, system improvements, leadership and community building, ethics, adaptability, and sustainability.

The control variables are firm age and size. Firm age was measured by the number of years a firm has been in existence with dummy variables (e.g., number of years in business from 1 – 10 = 1, other = 0) (Zahra, Ireland and Hitt, 2000). The firm’s size was measured by the number of employees in a firm with dummy variables (e.g., number of employees from 1 to 500 = 1, others = 0) (Arora and Fosfuri, 2000).

3.3 Method
Factor analysis was firstly used to investigate the underlying relationships of a large number of items and to determine whether they can be reduced to a smaller set of factors. The factor analysis conducted was done separately on each set of items representing a particular scale due to few observations. With respect to the confirmatory factor analysis, this analysis has a high potential to raise the component loadings. Thus, as a higher rule-of-thumb, a cut-off value of 0.40 was adopted (Nunnally and Berstein, 1994). All factor loadings are greater than the 0.40 cut-off and are statistically significant. The reliability of the measurements was evaluated by Cronbach alpha coefficients. In the scale's reliability, Cronbach alpha coefficients are greater than 0.70 (Nunnally and Berstein, 1994). The scales of all measures appear to produce internally consistent results; thus, these measures are deemed appropriate for further analysis because they express an accepted validity and reliability in this study. Table 1 shows the results for both factor loadings and Cronbach alpha coefficients for multiple-item scales used in this study.
<table>
<thead>
<tr>
<th>Items</th>
<th>Factor Loadings</th>
<th>Cronbach Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal Achievement (GA)</td>
<td>.68 - .84</td>
<td>0.87</td>
</tr>
<tr>
<td>Business Excellence (BE)</td>
<td>.78 - .82</td>
<td>0.89</td>
</tr>
<tr>
<td>Learning Orientation (LO)</td>
<td>.76 - .89</td>
<td>0.84</td>
</tr>
<tr>
<td>Competitive Advantage (CA)</td>
<td>.87 - .91</td>
<td>0.78</td>
</tr>
<tr>
<td>Lean (LN)</td>
<td>.75 - .86</td>
<td>0.88</td>
</tr>
<tr>
<td>Theory of Constraints (TOC)</td>
<td>.88 - .82</td>
<td>0.85</td>
</tr>
<tr>
<td>Six-Sigma (SS)</td>
<td>.82 - .88</td>
<td>0.81</td>
</tr>
</tbody>
</table>

### 3.4 Validity and Reliability
Nomological net involves demonstrating that the pattern of correlations with other measures of other constructs adheres to theoretical expectations. Table 2 shows the correlation matrix for all the focal measures used in this study. The correlations between the constructs provide strong support for the specified nomological network, thereby establishing nomological validity of the constructs.

In addition, examining the correlation matrix can assess the constructs' discriminant validity. Zero order correlations between variables indicate a high level of discriminant validity. However, as shown in Table 2, the correlations among management control strategy can be as high as 0.88. Discriminant validity may be a concern among some of the perceived management control strategies. Such a high correlation is not unexpected.

With respect to potential problems relating to multicollinearity, variance inflation factors (VIF) were used to provide information on the extent to which non-orthogonality among independent and mediating variables inflate standard errors. The VIFs range from 1.58 to 2.78 in the case of the relationship between independent variables and business excellence and 1.42 to 2.85 in the case of the relationship between business excellence and goal achievement. Moreover, the VIFs range from 1.54 to 2.47 in the case of the relationship between business excellence and competitive advantage. 1.56 to 2.87 in case of relationship between competitive advantage and goal achievement. All cases are well below the cut-off value of 10 recommended by Neter, Wasserman, and Kutner (1985), meaning that the independent or mediating variables are not correlated with each other; therefore, there are no substantial multicollinearity problems encountered in this study.

### 3.5 Statistical Techniques
The Ordinary Least Squares (OLS) regression analysis is used to test the hypothesized relationships and estimates factors affecting goal achievement. Because both the dependent and independent variables in this study were neither nominal data nor categorical data, OLS is an appropriate method for examining the hypothesized relationships (Aulakh, Kotabe and Teegen, 2000). In this study, the model of the aforementioned relationships is as follows:

**Equation 1: BE**

\[
\beta_{01} + \beta_1 \text{LN} + \beta_2 \text{TOC} + \beta_3 \text{SS} + \beta_4 \text{LO} + \beta_5 \text{LN}^*\text{LO} + \beta_6 \text{TOC}^*\text{LO} + \\
\beta_7 \text{SS}^*\text{LO} + \beta_8 \text{FS} + \beta_9 \text{FA} + \epsilon
\]

**Equation 2: GA**

\[
\beta_{02} + \beta_{10} \text{BE} + \beta_{11} \text{CA} + \beta_{12} \text{BE}^*\text{CA} + \beta_{13} \text{FS} + \beta_{14} \text{FA} + \epsilon
\]

**Equation 3: CA**

\[
\beta_{03} + \beta_{15} \text{BE} + \beta_{16} \text{FS} + \beta_{17} \text{FA} + \epsilon
\]

**Equation 4: GA**

\[
\beta_{04} + \beta_{18} \text{CA} + \beta_{19} \text{FS} + \beta_{20} \text{FA} + \epsilon
\]

Where LN is lean; TOC is Theory of Constraints; SS is Six-Sigma; GA is goal achievement; BE is business excellence; LO is learning orientation; CA is competitive advantage; FS is firm size; FA is firm age; and \( \epsilon \) is error term.
TABLE 2
DESCRIPTIVE STATISTICS AND CORRELATION MATRIX

<table>
<thead>
<tr>
<th>Constructs</th>
<th>GA</th>
<th>LN</th>
<th>DAO</th>
<th>SS</th>
<th>BE</th>
<th>LO</th>
<th>CA</th>
<th>FA</th>
<th>FS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>3.52</td>
<td>3.58</td>
<td>3.42</td>
<td>3.51</td>
<td>3.46</td>
<td>3.48</td>
<td>3.57</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>0.56</td>
<td>0.65</td>
<td>0.42</td>
<td>0.54</td>
<td>0.57</td>
<td>0.52</td>
<td>0.49</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Goal achievement (GA)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lean (LN)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.54</td>
</tr>
<tr>
<td>Theory of Constraints (TOC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.57** 0.64***</td>
</tr>
<tr>
<td>Six-Sigma (SS)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.44 0.68** 0.35</td>
</tr>
<tr>
<td>Business excellence (BE)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.53* 0.32 0.51* 0.43</td>
</tr>
<tr>
<td>Learning orientation (LO)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.64* 0.74** 0.34 0.43 0.33</td>
</tr>
<tr>
<td>Competitive advantage (CA)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.68* 0.54 0.52 0.35 0.31 0.41</td>
</tr>
<tr>
<td>Firm age (FA)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.56** 0.29 0.31 0.37** 0.21** 0.34 0.25</td>
</tr>
<tr>
<td>Firm size (FS)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.61** 0.37 0.21 0.28** 0.32** 0.25 0.21</td>
</tr>
</tbody>
</table>

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

4. RESULTS AND DISCUSSION

The main point of this study is to examine the impacts of management control strategy and goal achievement via business excellence as a mediator. Table 2 presents the explored results and finds that all dimensions of management control strategy are significantly and positively correlated to business excellence. Interestingly, there are two dimensions of management control strategy which are lean and Six-Sigma that have an effect on business excellence via learning orientation as a moderator. Indeed, business excellence is significantly and correlated to goal achievement via competitive advantage as a moderator. Furthermore, this research did not have any significant positive effect of business excellence on goal achievement via a competitive advantage as a mediator. However, the exploratory results only correlate between two variables and the expected direction of them so as to conduct hypothesis testing by OLS regression analysis later.

4.1 Impacts of management control strategy on its consequences

Table 3 and Table 4 present the results of OLS regression analysis of the relationship between management control strategy and goal achievement.

Model 1, to inference hypothesis 1a – 1c, examines the relationship between management control strategy (e.g., lean; Theory of Constraints; and Six-Sigma) and business excellence. The results show that all independent variables consisting of lean, Theory of Constraints; and Six-Sigma have a significant positive effect on business excellence (b₁ = .072, P < 0.05; b₂ = .083, P < 0.1; and b₃ = .154, P < 0.01). That is, hypothesis 1a, b, and c are supported. Similarly, to Powell and Alfiness’s (2013) lean; Coad’s (2010) Theory of Constraints; and Kumar and Nowicki’s (2008) Six-Sigma are important factors used to gain operating opportunities in achieving business excellence. Firms with a greater degree of all dimensions in management control strategy appear to have higher business excellence.

Interestingly, Model 2 shows the business excellence is directly related to a competitive advantage. Business excellence is shown to have no significant positive influence on a competitive advantage (b₁₅ = .487, P > 0.15). The results indicate that firms with greater business excellence do not have a higher competitive advantage. This finding is similar to Reed and Lemak (2000) who found that business excellence is not directly and positively related to changes in the level of a competitive advantage. This is because business excellence needs a high investment in manufacturing overhead cost for responding to demands immediately. Moreover, business excellence is just the best sell and operations in the present which firm may be have the development planning of product in the future more than now. Thus, Hypothesis 5 is not supported. Most especially, Model 3 shows that a
competitive advantage is directly related to goal achievement. A competitive advantage is shown to have no significant positive influence on goal achievement ($b_{18} = .237, P > 0.24$). The results indicate that firms with a higher degree of competitive advantage tend not to perform well in their goal achievement. The results of the research equate to Roberts (1998) who found that a competitive advantage is not positively related to improvement and development in the area of goal achievement. A competitive advantage that includes cost leadership and product differentiation does not lead to business success, if a method or technique has not consistently shown results superior to those achieved with other means. Thus, Hypothesis 6 is not supported.

### TABLE 3
RESULTS OF OLS REGRESSION ANALYSIS

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Model 1:BE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lean (LN)</td>
<td>.072**</td>
</tr>
<tr>
<td>Theory of Constraints (TOC)</td>
<td>.063*</td>
</tr>
<tr>
<td>Six-Sigma (SS)</td>
<td>.154***</td>
</tr>
<tr>
<td>Learning orientation (LO)</td>
<td>.521*</td>
</tr>
<tr>
<td>LN*LO</td>
<td>.112*</td>
</tr>
<tr>
<td>TOC*LO</td>
<td>.175</td>
</tr>
<tr>
<td>SS*LO</td>
<td>.064**</td>
</tr>
<tr>
<td>Firm age (FA)</td>
<td>.019</td>
</tr>
<tr>
<td>Firm size (FS)</td>
<td>.015</td>
</tr>
<tr>
<td>Adjusted R-square</td>
<td>0.42</td>
</tr>
</tbody>
</table>

* $p<.10$
** $p<.05$
*** $p<.01$

Beta coefficients with standard errors in parenthesis.

Surprisingly, Model 3 indicates that business excellence does not have a significant positive effect on goal achievement ($b_{10} = .251, P = 0.29$). Firms with a greater degree of business excellence appear to have lower goal achievement. These findings are the same as Lee and McInerney (2010) who found that business excellence is not a crucial and direct factor for building goal achievement. Using the power of business excellence for goal achievement, business excellence must operate under the direct influence of the firm's competitive environmental pressures for motivating employees and managers to achieve business success. A competitive advantage is not the most important factor in establishing the credibility of goal achievement. Thus, Hypothesis 3 is not supported.

### 4.2 Moderator effect of learning orientation on management control strategy into business excellence

Model 1, to inference hypothesis 2a – 2c, examines the relationship between management control strategy (e.g., lean; Theory of Constraints; and Six-Sigma) and business excellence via learning orientation as a moderator. The results find that there are only two independent variables consisting of lean and Six-Sigma that have a significant positive effect on business excellence via learning orientation as a moderator ($b_5 = .0112, P < 0.10$ and $b_7 = .064, P < 0.05$). That is, hypothesis 2a and c are supported. Having greater support for Blackstone's (2007) Theory of Constraints, and Swink and Jacobs's (2012) Six-Sigma appears necessary to effectively adjust to changing business excellence. Thus, Hypotheses 2a and c are supported.
However, Model 1 shows simple linear regression analysis in order to inference hypothesis 2b, and to examine the relationship between the Theory of Constraint on business excellence via learning orientation as a moderator. The results find that Theory of Constraints is not significantly and positively related to business excellence via learning orientation as a moderator (b = .175, P > .476). That is, hypothesis 2b is not supported. The Theory of Constraints is both descriptive and prescriptive in nature; it not only describes the cause of system constraints, but provides guidance on how to resolve them more than learning orientation (Pamfilie, Petcu, 2012). Thus, learning orientation on the part of the Theory of Constraints is not essential for steering towards enhanced business excellence. Thus, Hypothesis 2b is not supported.

### TABLE 4
RESULTS OF OLS REGRESSION ANALYSIS

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Model 2:GA</th>
<th>Model 3:GA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business excellence (BE)</td>
<td>.457 (.052)</td>
<td>.251 (.046)</td>
</tr>
<tr>
<td>Competitive advantage (CA)</td>
<td>.237 (.054)</td>
<td></td>
</tr>
<tr>
<td>BE* CA</td>
<td>.348** (.062)</td>
<td></td>
</tr>
<tr>
<td>Firm age (FA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm size (FS)</td>
<td>-.021 (.048)</td>
<td>-.125 (.052)</td>
</tr>
<tr>
<td>Adjusted R-square</td>
<td>0.43</td>
<td>0.58</td>
</tr>
</tbody>
</table>

* p < .10
** p < .05
*** p < .01

* Beta coefficients with standard errors in parenthesis.

4.3 Moderator effect of competitive advantage on goal achievement

However, Model 3 shows that business excellence via a competitive advantage as a moderator can significantly and directly relate to goal achievement (b12 = .348, P < .05). Thus, Hypothesis 4 is supported. These results may have strong effects on business excellence in the present, as firms can more easily increase goal achievement with business excellence. Business excellence must operate under the direct influence of the firm’s competitive environmental pressures for motivating employees and managers to achieve business success (Masli, Richardson, 2011).

5. CONTRIBUTIONS AND FUTURE DIRECTIONS FOR RESEARCH

This study adds to the knowledge and the literature to provide a clearer understanding of the management control strategy that has a significant influence on firms needing to assist business excellence and goal achievement. Particularly, we attempt to integrate management control strategy which includes lean, Theory of Constraints, and Six-Sigma in the same model. In testing, this study investigates management control strategy relative to business excellence via learning orientation as a moderator, and with business excellence relative to goal achievement under a competitive advantage as a moderator. According to the results of this study, the need for further research is apparent. Because this study finds that the management control strategy context has more effects on other consequences (e.g., good governance or firm sustainability), future research is needed to reconceptualize the relationships between management control strategy and goal achievement via business excellence as a mediator in building materials and hardware items. This is because it is not a technology business, and there is more complexity in the manufacturing process than in electrical product exports. These topics need to confirm the data and results from a new population in order to increase the level of reliable results again.
6. CONCLUSION

This study attempts to determine whether management control strategy has relevant significance. It looks at whether management control strategy influences business excellence and goal achievement. In this study, all factors of management control strategy have a greater significance on business excellence. Interestingly, lean and Six-Sigma have a direct effect on business excellence via learning orientation as a moderator. Surprisingly, business excellence is significantly and positively associated with goal achievement within a competitive advantage as a moderator, while business excellence is not directly related to a competitive advantage. And then a competitive advantage is shown to have no significant positive influence on goal achievement. As growth and sustainability necessitate an increased excellent operation, research analyzing this methodology will contribute significantly towards understanding how managers utilize their management control strategy to improve manufacturing operations, gain business excellence, and attain goal achievement via a competitive advantage as a mediator.

7. REFERENCES


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