ข้อได้เปรียบในการแข่งขันของบริษัทโลจิสติกส์ในประเทศไทย
การวิเคราะห์ผลการดำเนินงานที่ไม่ใช่การเงิน

THE COMPETITIVE ADVANTAGES OF LOGISTICS FIRMS IN THAILAND
A NON-FINANCIAL PERFORMANCE ANALYSIS

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บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อวิเคราะห์ความได้เปรียบในการแข่งขันเชิงกลยุทธ์และผลการดำเนินงานที่ไม่ใช่การเงินของบริษัทที่ดำเนินกิจการทางโลจิสติกส์ในประเทศไทย โดยมีทฤษฎีหลักที่เกี่ยวข้องกับการสร้างแนวคิดมุมมองที่ครอบคลุมของข้อได้เปรียบเชิงกลยุทธ์ในการแข่งขันได้แก่ การขับเคลื่อนนวัตกรรม การขับเคลื่อนองค์ความรู้ นวัตกรรมกับผู้ประกอบการ และการประยุกต์ใช้เทคโนโลยี ที่มีต่อประสิทธิภาพของการดำเนินงานที่ไม่ใช่การเงิน ที่มีกระบวนการในการอธิบายที่เชื่อมโยงของกรอบแนวคิดอยู่บนพื้นฐานสองเรื่องคือ แนวคิดความได้เปรียบในการแข่งขันเชิงกลยุทธ์และการประเมินผลองค์กรแบบสมดุลโดยเป็นการเก็บแบบสอบถามทางไปรษณีย์เพื่อสำรวจความคิดเห็นจากผู้ประกอบการ กรรมการผู้จัดการหรือผู้บริหารของบริษัทโลจิสติกส์ในประเทศไทย จำนวน 84 คน ผลการวิจัยเชิงประจักษ์นี้สามารถอธิบายแนวคิดที่เกี่ยวข้องกับวิธีการที่บริษัทโลจิสติกส์ในประเทศไทยเพื่อให้บรรลุเป้าหมายและสามารถรักษาความได้เปรียบในการแข่งขันของบริษัทได้อย่างยั่งยืนและมีประสิทธิภาพที่ดีขึ้นในสภาพแวดล้อมทางธุรกิจที่มีการแข่งขันรุนแรงได้

คำสำคัญ: ข้อได้เปรียบในการแข่งขัน การประเมินแบบสมดุล โลจิสติกส์

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Abstract

This research aims to analyze the strategic competitive advantages and the firms' non-financial performance on the participants' perceptions within the logistics firms. The core theoretical contribution relates to conceptualizing the comprehensive view of strategic competitive advantages as a multidimensional constructs, which are innovation drives, knowledge drives, innovation and entrepreneurship, and technological application, and firms' non-financial performance. The processes of clarifying the linkage of the conceptual framework were based on two concepts, strategic competitive advantages and the balanced scorecard. With regard to the questionnaire mailing, the surveys completed and returned, 84 were usable form key informants as entrepreneurs, managing directors or executive officers of each logistics firms in Thailand. This empirical research explains concepts associated with how a logistics firm achieves and fulfills its goal and maintain its sustained competitive advantage and greater performance in a radical business environment. It clarifies the nature of strategic competitive advantages for future investigation.

Keywords: Competitive Advantages, Balanced Scorecard, Logistics

Introduction

Thailand is a regional manufacturing powerhouse country with ability to successful meet rising demand for cross-border logistics services has resulted in the country having a promotion in Association of South East Asia Nations (ASEAN)'s regional supply chain (BOI, 2016). The logistics sector is thriving of extensive multimodal transport networks – networks that involve the efficient transportation of goods by at least two different modes of transport (road, rail, air, or sea), resulting in significant savings in fixed costs, operational costs and time. Thailand's ongoing efforts to develop these multimodal transport networks and associated infrastructure, logistics costs in Thailand have been steadily decreasing over time.

Thailand's focus in shifting to multimodal transport, Thailand Board of Investment (BOI) is actively promoting logistics systems development in the country. The government's policy aims to develop border areas and improve Thailand's connectivity with its neighboring countries. The logistics infrastructure development also contributes to an increasingly integrated sub-region, in terms of business networking, supply chain and raw material linkages, and greater access to domestic consumer markets, following the creation of the ASEAN Economic Community (AEC).

Thailand's strategic location in the heart of Southeast Asia plays a crucial role in the government's development of major economic corridors in Thailand, namely the East-West Economic Corridor linking Myanmar, Thailand, Laos and Vietnam, and the North-South Economic Corridor covering the land areas of Thailand, China, Myanmar and Laos. Once completed, these transport links will connect the regional centers of economic activities,

providing better connection to remote and landlocked locations in the Greater Mekong Sub-region (GMS). To strengthen Thailand's position as a leading Multimodal Transport Operators (MTO) in the region, a combination of coordinated development efforts is being promoted, involving the improvement of infrastructure, laws and regulations, customs systems, and both domestic and international transport networks. All of these efforts will help increase Thailand's competitiveness, vastly enhancing the country's investment landscape.

The logistics sector is a large industry in Thailand. The country is making significant progress in further developing this sector. According to the Office of the National Economic and Social Development Board (NESDB), logistics costs as a percentage of GDP in Thailand have declined significantly over the past 10 years, from 18% in 2007 to about 14% currently. In terms of Thailand's transportation structure, domestic transport relies on roads while international transport relies on waterways. According to the Ministry of Transport, the total volume for the domestic transport of goods as of 2015 was 494 million tons, of which 97.68% accounted for road transport, with 2.30% and 0.02% from rail and air routes. As for the international transport of goods, the total volume as of 2015 stood at 235 million tons, of which 86% accounted for waterways, 13% for road transport, with the rest accounting for rail and 9 air routes (BOI, 2016).

This advantage along with the establishment of the AEC gives rise to both strategic and lucrative opportunities in cross-border trade. According to the Bank of Thailand, the Thai border trade reached THB 12 billion (USD 354 million) at the end of 2015, an increase of 30% from 2014. In addition to increased cross-border trade, there is another significant trend in logistics that is happening globally, especially in the Asia-Pacific region. Thai government has approved the Ministry of Transport's Infrastructure Development Plan (2015-2022) which calls for an investment of at least THB 1.8 trillion (USD 51 billion) for 20 mega-projects in all modes of transportation, covering roads, rail, air transport and ports throughout Thailand. The plan will cover three motorway projects, five dual track rail system development projects (meter gauge), five dual track rail system development projects (standard gauge), expansion of mass rapid transit networks, and an expansion of capacity for air and maritime transport both at Suvarnabhumi Airport and Lam Chabang Port. In addition, the government is taking further steps to increase the efficiency of Thai logistics operations by incorporating e-logistics, paperless customs procedures across the borders of the Greater Mekong Sub-region to reduce the time required to obtain export documentation and consultations.

In investigating the strategic competitive advantages in the logistics firms in Thailand: a non-financial performance, the main research question is raised on which this research needs to find the answers. This question is oriented on insights about the existence of how strategic competitive advantages impact to performance of the logistics firms in Thailand.

Research Objective

The key question of this research is, "How do the strategic competitive advantages impact to a non-financial performance of the logistics firms in Thailand?" Thus, the main purpose of this research is to examine the strategic competitive advantages in the logistics firms in Thailand on the non-financial performance.

Literature Review

This research experimentally examines the favorableness of firm's non-financial performance. The analysts increasingly face firms performing unfavorably. Separately, firms traditionally describe their performances through the lens of financial measures such as earnings per share, net income, sale, and profit, which are criticized for being short term oriented and disconnected with firm's long term goals (Lev, 2001; Ittner & Larcker, 2001). Ittner and Larcker (2001) state that only the financial report is inadequate in meeting the informational needs of investors and executives that investors and executives need more information to assess the long term prospects of a firm via the disclosure of a firm's key nonfinancial measures; consequently, firms are periodically called to disclose more of their nonfinancial measures (Lev, 2001). There is 86% of the CEO around the US believe that companies should supplement their financial statements with non-financial measures (Ghosh & Wu, 2012). Thus, non-financial measures are useful because they reflect and affect to the financial value to link executives' actions to firm's financial results (Epstein & Palepu, 1999) and future earnings estimates (Vanstraelen, Zarzeski, & Robb, 2003), influence firm's fundamental value (Dhaliwal, Li, Tsang, & Yang, 2010), and are positively associated with analysts' forecast accuracy (Orens & Lybaert, 2007; Vanstraelen et al., 2003). Maines, Bartov, Fairfield, & Hirst (2002) suggest that the value of the financial measures is increased by their interaction with non-financial measures and, more importantly, it is the nature of the firm's financial measures which determines the extent to which non-financial measures affect analysts' decisions.

In terms of the objectives pursued, this aims to provide assurances that the examined non-financial measurement are complete and accurately prepared and that the economic operations were conducted in accordance with the legal regulations. The audit of the good non-financial management or the value for not a money audit examines the economy, efficiency and effectiveness with which a public entity, a program, a project, a process or an activity uses the non-financial resources assigned for the objectives set.

Strategic Competitive Advantages

The rationale for firms to join a business network is to share information and other complementary resources to get rid of obstacle to the enhancement of firm's capabilities. Information sharing has three dimension performances which are 1) sharing information with its business partners not only enhance an organization's capabilities but also improves its

comparability with its partners, 2) information sharing between purchasers and suppliers can help the latter to not only solve technical problems, but also to better fulfill the requirements of the former, and 3) information sharing can reduce information asymmetry and the potential for opportunism.

Information sharing can lead to unexpected spillovers or leaks that work against exchange partners. However, problems can be dealt with effectively by social capital. Social network can minimize the opportunistic behavior of exchange partners and encourage information sharing which leads to improve in firm competitiveness.

The balanced scorecard (BSC)

This is a strategic planning and management (Kaplan & Norton, 1992). It is used to communicate what employees are trying to accomplish, align the daily work that everyone is doing with strategy, prioritize projects, productions and services, and measure and monitor progress towards strategic targets of the firms. The BSC connects between firms' strategic elements such as mission, visions, core values, processes, measures, targets, and initiatives. Thus, the BSC elements (financial perspective, customer perspective, internal business processes, and learning and growth) are chosen to explain the firm performance. The original four perspectives proposed by Kaplan and Norton (1992) are as follows:

- *Customer:* encourages the identification of the percent of sales from new products, on time delivery, share of important customers' purchases, and ranking by important customers.
- *Internal business processes:* encourages the identification of cycle time, unit cost, yield, and new product introductions.
- *Financial:* encourages the identification of a relevant high-level financial measure. In particular, the firm is encouraged to choose measures that help inform firm cash flow, sales growth, operating income, and return on equity.
- *Learning and growth:* encourages the identification of measures of the time to develop each new generation of products, life cycle to product maturity, and time to market versus competition.

The BSC provides entrepreneurs/owners/managers as a tool to achieve the future competitive success. Today, firms are competing in turbulent environment. That means firms should have an accurate understanding of their goals and methods for achieving their goals. The BSC transforms firms' missions and strategies into a comprehensive set of performance measurement that provides the framework for a strategic measurement and management system (Kapland & Norton, 1996).

In conclusion, the BSC concept has been applied to view of firms' performance from four perspectives (customer perspective, internal business process, financial perspective, and learning and growth). The BSC can develop objectives, measures, targets, and actions relative to each point of views. The BSC also can tell the story of past events in order to guide

and/or evaluate the journey of firms to create future value through investment in customers, suppliers, employees, processes, technology, and innovation. As discussed above, this research focuses only the non-financial performance thus the financal element is not including in the research framework. Thus the variables are combined in the following framework (Figure 1).
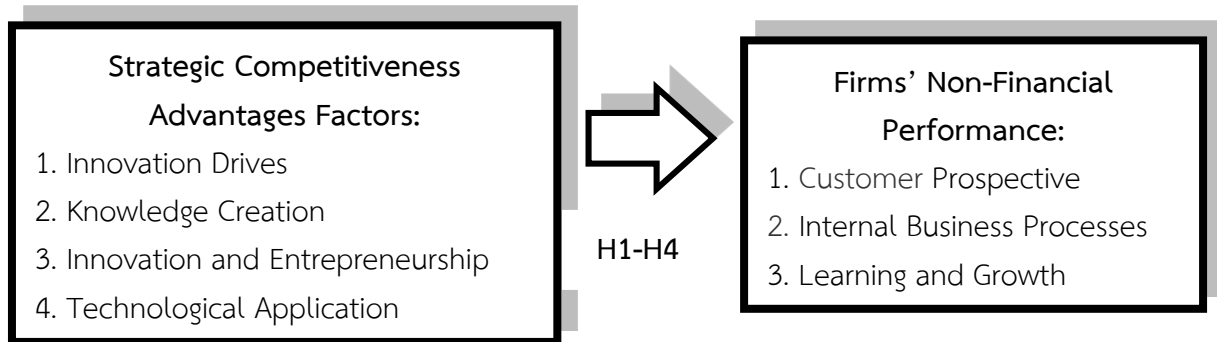
Figure 1 Research Framework

Innovation Drives (ID) refers to ability of the executives to formulate principles and guidelines for supporting work processes to achieve innovativeness (Elkins & Keller, 2003). This includes the task of all government policy makers, managers, and employees to improve their operations. It is not to follow the same pattern as operating routines. But it is to cope with various unpredictable circumstances. The management capability needs a wide range of employees' skills that should be flexibly applied in problem solving. This is not only a dynamic to concern with the maintenance of administrative structures but also with the improvement of resources coordination and use. Thus, this can be combined continuity with innovation of the firms (Zawislak, Alves, Tello-Gamarra, Barbieux, & Reichert, 2013). Innovation leaders tend to be motivated more by what can happen for the benefit of others and of their firms. The main advantage of the firm's characteristics is the ability to combine the productive capabilities of human and physical resources. It can contribute to the firm's capability to achieve higher levels of resource utilization and the ability to anticipate shortage. Overall, the purpose of innovation drives is to maintain a smooth flow of information and outputs to achieve higher rates of efficiency and effectiveness of the firms (Zawislak et al., 2013). Therefore, the hypothesis is provided as follows:

Hypothesis 1: Innovation drives positively affect firms' non-financial performance.

Knowledge Creation (KC) refers to the firms focus on the creations, collections, exchanges, and application of information in the systematic ways for leading to effective information management to increase the level of innovation higher than competitors (Beccera-Fernandez, Gonzalez, & Sabherwal, 2004). Knowledge helps to recognize and analyze data into valuable information (Sirmon, Hitt, & Ireland, 2007). The use of the knowledge that flexibility would help strategic competitive advantages development of the firms. Moreover,

Yu, Zhuang, Yuan, Qi, Wang, Wang, & Tan (2013) find that the uses of knowledge management system and firms' learning are the process of converting strategy into innovative capabilities of the firms. Consistent with Psomas and Java (2016) state that knowledge management can generate strategic competitive advantages for firms. Park, Change, and Park (2015) indicate that knowledge management and information capability can create the process of strategic competitive advantages and develop strategic competitive advantages capability. Also, the strategic competitive advantages are influenced by the firm's remaining resources, especially knowledge skill (Garcia & Calantone, 2002). Therefore, the development of strategic competitive advantages firms will involve the integration of knowledge. The knowledge creation will develop strategic competitive advantages of the firms (Yu et al., 2013). Therefore, the hypothesis is proposed as follows:

Hypothesis 2: Knowledge creation positively affects firms' non-financial performance.

Innovation and Entrepreneurship (IE) refers to the capabilities and intention to initiate new product and services. Mbizi, Hove, Thondhlana, & Kakava (2013) define innovation and entrepreneurship as the capabilities to harness creativity and to execute those creativities in the face of challenges during the course of improving processes, procedures and products. As innovation can be described as creative application of traits held suitable in action to business development (Wang, Hermens, Hung, & Cheliah, 2015). The strategic competitive advantages are the processes of generating original concepts by using methodologies that are generally used to place creative ideas in actions. Roberts (1999) proves that there is a relationship between strategic competitive advantages and profitability and non-profitability. It has been confirmed that the early and fast introduction of strategic competitive advantages in the firm brings in highest. Nieto, Santamaria, and Fernandez (2013) also suggested that entrepreneurs can drive the strategic competitive advantages since logistics firms tend to start strategic competitive procedures to meet the customers or markets' needs. Therefore, the hypothesis is proposed as follows:

Hypothesis 3: Innovation and entrepreneurship positively affect firms' non-financial performance.

Application (AP) refers to "the ability or proficiency to make effective use of technological knowledge" (Westphal, Kim, & Dahlman, 1985, p.171) and as the capabilities needed to create and accomplish technical changes (Bell & Pravitt, 1995). This affects to the firm performances and the causes of the new business practices (Tutar, Nart, & Bingol, 2015). This research, the application is necessary to make effective use of the technology and the technological capability used to manage and generate technological change for strategic purposes. This is to create new methods, processes and techniques to offer new product development (Park et al., 2015). The former will be called technological capabilities, while the latter, the technology development capability or application. The executives with focusing on technology would intend to create and invent new techniques, technologies and methods to

generate the firms' strategies and activities. Hence, the application has a potential to positively affect strategic competitive advantages. Therefore, the hypothesis is proposed as follows:

Hypothesis 4: Technological application positively affects firms' non-financial performance.

Research Methodology

Data Collection

The number of 89 logistics firms in Thailand (TIFFA, 2017) with regard to population and samples for this research. Data were collected from 89 logistics firms in Thailand who registered as the member of the Thai International Freight Forwarders Association (TIFFA). This database is a good source to provide all completed addresses because the TIFFA is responsible for the Thailand's import and export sectors. The automotive industry is set as a part and material arriving from overseas, with complete vehicles being assembled in Thailand and sent throughout the country and to ports for overseas shipment (TIFFA, 2017). The logistics Thai firms have six main points to choose as it is the main country economic development, low entry and turnover rate, policy makers' attention, larger share of their investment and working capital, foster the country economic growth with higher productivity, and higher rate of ROI to develop their new products/services. Moreover, the logistics firms do not aware about strategic competitive advantages and strategic management framework (Israr & Gangele, 2014). Most of the employees in the logistics firms are contract basis, due to that, employees involve for good quality products/services or better performance improvement. The logistics firms organize very well training program for employees. Moreover, the logistics firms are always update technology all the time, they work with automatic equipment, and high flexible to solve any problems immediately. Thus the logistics firms may change product quickly with no policy, procedure and discipline in their firms (Israr & Gangele, 2014). Therefore, the logistics firms were chosen to be the population and sample for this research. The selected logistics Thai firms have the potential to investigate the impact of strategic competitive advantages on firms' non-financial performance.

The key informants were the entrepreneur, managing director or executive officer of each logistics firms in Thailand. The questionnaire mail survey was used to collect data in this research. The questionnaires were directly distributed to each logistics firm in Thailand by mail during September–October, 2017. There were 57 returned questionnaires then three assistant researchers made appointments to meet the managers or CEOs for 32 logistics firms (of which has no return questionnaires) in November, 2017.

With regard to the questionnaire mailing, the valid mailing was 89 surveys, from which 57 responses were received in October, 2017. Of the 32 walk-in surveys completed and returned, 84 were usable. There were 5 denied questionnaires from firms. The effective response rate was 94.38%. According to Aaker, Kumar and Day (2001), 20% response rate for a mail survey, without an appropriate follow-up procedure, is considered sufficient.

Furthermore, the maintaining power at 0.80 in multiple regressions requires preferably observations for most research situations (Hair, Black, Babin, & Anderson, 2010). That means a correlation matrix is provided to test the intercorrelations among variables. If variables are highly correlated, and the correlation coefficient is significant and greater than 0.8, thus the multicollinearity may occur. Table 2 shows the results of correlation matrix is between 0.317 and 0.546. Therefore, the response rate of this research is regarded as acceptable.

Measurement

In this research, the questionnaire consists of three parts. A choice of questionnaire uses closed-ended questions because it is easier and quicker for respondents to answer and easier to code and statistically analyze (Neuman, 2005). Part one asks for key informants' information. Part two asks for general firm information. Part three is related to evaluating each of constructs in the conceptual model which measuring items are anchored by five-point Likert scale from 1= strongly disagree to 5 = strongly agree. The five-point scale was used to measure the amount of each variable in such a way that the mean score could be calculated to determine the amount of strategic competitive advantages and firms' non-financial performance. With a five-point scale the scores falling between the following ranges could be considered as 4.51 – 5.00 = strongly agree, 3.51 – 4.50 = agree, 2.51 – 3.50 = neutral, 1.51 – 2.50 = disagree, and 1.00 – 1.50 = strongly disagree. All of constructs are developed for measuring from the definition of each construct. In part three, all questions deal with the measurement of strategic competitiveness advantages and mom-financial performance focus.

Test of Non-Response Bias

In this research, all 84 received questionnaires of logistics firms are split into two equal groups. The early respondents are the first group and the late are the second. Then, 42 responses from the first group mailing are used to compare with 42 responses received from the second group mailing in terms of their demographic information such as number of employees, total firm's assets excluding land and vessels, firm age, state of major shareholder, and joint venture experience. Number of employees (t=0.133, p > 0.05), total firm's assets excluding land and vessels (t =-0.509, p > 0.05), total firms' assets excluding land (t = -0.668, p > 0.05), firm age (t = -0.668, p > 0.05), firm age (t = -0.668, p > 0.05), state of major shareholder (t = -0.458, p > 0.05), and joint venture experience (t = -0.248, p > 0.05). The results show that no statistically significant difference between early and late respondents of these two samples indicating non-response bias between respondents and non-respondents in terms of demographics. As a result, non-response bias is not a key problem in this research (Armstrong & Overton, 1977).

Methods

In this research, construct validity is illustrated by convergent validity. The results found that each item of all variables is loaded on a single factor and the range of factor

loadings is between 0.422 and 0.726. These values are greater than the cut-off score of 0.40 which indicates acceptable construct validity (Hair et al., 2010).

Consequently, there is the construct validity. The Cronbach's alpha coefficients for all variables expressed between 0.865-0.880. The result are greater than 0.70 as recommended by Hair et al. (2010). However, Hair et al. (2010) further suggest that Cronbach's alpha are greater than 0.6 can acceptable. As a result, the validity and reliability of all variables are adopted.

This research uses a variance inflation factor (VIF) as indicators to indicate a high degree of multicollinearity among the independent variables. A rule of thumb is that when the VIF is equal or greater than 10, problems with multicollinearity are severe (Burns and Burns, 2008; Hair et al., 2010), that is multicollinearity greatly poses a problem for multiple regression such as limit the size of correlation, and increases variances of the regression coefficients. In this research, an analysis of collinearity statistics indicates that the range of VIF values is 1.266-1.717, which indicates that there is no multicollinearity problem (see Table 1).

The Ordinary Least Squares (OLS) regression equation generated is a linear combination of the independent variables that best explains and predicts the dependent variable. Then, the OLS is appropriated to determine the relationships between dependent and independent variables which all variables are categorical and interval data (Gujarati, 2006). Therefore, all hypotheses in this research are transformed to equation for testing as follows:

$$FPT = \alpha + \beta_1 TID + \beta_2 TKC + \beta_3 TIE + \beta_4 TTA + \varepsilon$$

Where,

FPT = The logistics firms' performance; TID = Innovation Drives; TKC = Knowledge Creation; TIE = Innovation and Entrepreneurship; TTA = Technological Application; α = Constant; β = Coefficient; and ε = Error

Research Results

About 64.3% of the respondents are male. The span of age of respondents is 36-40 years old (35.7%). The majority of the education level of respondents is higher than the bachelor degree (41.7%). In addition, 29.8% of respondents have been working 11-15 years, and 46.4% of respondents are department manager in terms of present position. The majority of the firms have more than 200 employees (36.9%). The span of total firms' assets excluding land and vessels is 1,000,000-5,000,000 baht (25.0%). The period of operation is more than 20 years (41.7%). The major number of shareholders of logistics firms are in Asia (22.6%). Finally, the experience of joint venture firms is more than 20 years (36.9%).

Table 1 Descriptive Details and Correlations Matrix (n = 84)

Variables	Mean	SD	FPT	TID	TKC	TIE	TTA	VIF
FPT	4.00	0.54	1					
TID	3.48	1.23	.317**	1				1.266
TKC	3.72	0.78	.390**	.449**	1			1.717
TIE	3.85	0.86	.348**	.546**	.393**	1		1.533
TTA	3.86	0.62	.375**	.431**	.370**	.375**	1	1.327

** Correlation is significant at the 0.01 level (2-tailed)

Table 1 shows four factors of strategic competitive advantages have significant positive relationships with firms' non-financial performance (r = 0.317 - 0.390, p < 0.01). The relationships among variables, the correlations among all variables in the framework model are in the range of 0.317 to 0.546 with p < 0.01, which is lower than 0.7 (Hair et al., 2010). Thus, the results indicate no multicollinearity problem in this research.

Table 2, Durbin-Watson found that 1.596 confirms the values of all variables are in an acceptable range from 1.20 to 2.50 (Gujarati, 2006). The correlation matrix shows that the firms' non-financial performance (FPT) has a positive correlation at the 1% level of significant. with TKC (0.390), TTA (0.375), TIE (0.348), and TID (0.317) indicating that as TKC, TTA, TIE, and TID improve the better or higher in logistics firms' non-financial performances.

Table 2 Determinants of the Strategic Competitive Advantages and Firms' Non-Financial Performance of the Logistics Firms

Independent Variables	Coefficients
Constant	2.892***
	(.387)
TID	.009
	(.052)
TKC	.184**
	(.091)
TIE	-.089
	(.082)
TTA	.188**
	(.085)
No. of respondents	84
R^2	.353
R^2Adjusted	.125
F-Statistic	8.815
Durbin-Watson	1.596

***, ** represents statistical significance at 1% and 5% levels, respectively Beta coefficients with standard errors in parentheses

The *F*-statistic failed to accept the null hypothesis. The regression showed the estimated results of the determinants of the strategic competitive advantages and firms' non-financial performance of the logistics firms moderate adjusted R^2 (12.50%). There are two variables which are TKC and TTA positive and significant at the 5% level of significance. This suggests that the strategic competitive advantages and firms' non-financial performance of the logistics firms is significant and positively affected by knowledge creation and technological application factors. The innovation drives (TID) is positive but not significant. The innovation and entrepreneurship (TIE) is negative but not significant. These suggest that the determinants of the strategic competitive advantages and firms' non-financial performance of the logistics firms depend on the employees' individual knowledge and technology to apply to their works to create something new and better work efficiency. This evidence supports hypotheses 2 and 4 at the statistical significance of 5% level of significance. The hypotheses 1 and 3 are not supported at the 1% and 5% levels of significance.

Technological Application. The results illustrate that the application significantly and positively affects to the firm's non-financial performance (β = 0.188, $p < 0.05$). This is about high-tech services, high technology export, sales share of new-to-market products, sales share of new-to-firm products, and employment in medium-high/high-technology business. This is related to the firm performance of the logistics firms. This supports hypothesis 4. The findings imply that logistics firms need to focus or emphasize more on technology through production and operational process. Indeed, despite the social media boom, high-technology performance, much of the growth is from not only what it can be traditionally think of as "high tech" but also a broader realm of industries extending from trading and manufacturing to business services (Aulet & Murray, 2013). The future of logistics firms and their ability to meet major economic, social, and environmental challenges rests largely on how they adapt to and take advantage of changes in technology. There was a time when national economic development programs focused only on implementing big-dollar tax incentives and recruiting huge numbers of employers from other countries and pay them cheaper wage rates. In recent years, growing from within by supporting and expanding young employers and assisting new startups has become a stronger, if not the primary, focus of job-creation efforts. Many firms have moved their strategies for business growth and are now working on the assumption that innovation and technology development drive growth and competitiveness in a 21st-century global economy. Technology entrepreneurship is distinguished from other entrepreneurship types (such as social entrepreneurship, small business management, and self-employment) by collaborative experimentation and production of new products, assets, and their attributes, which can be intricately related to advances in scientific and technological knowledge and the firm's assets ownership rights (Aulet & Murray, 2013). The logistics firms which include a wider universe of entrepreneurial firms whose competitive advantage might be a process, service, or business model, are also an important piece of the puzzle for states wanting to

foster a more competitive economy. The technology-intensive firms are viewed favorably for their potential and disproportionate impact on competitiveness, future economic growth, and prosperity.

Furthermore, this is consistence with Park et al. (2015) who state that technology can create new methods, processes and techniques to offer new product development and thus resulting in the enhancement of firms' performance excellence. Yu et al. (2013), and Omerzel (2015) also agree that technology impacts on organizational learning, and contributes to the development of organizational innovativeness. The technological application is a significant key factor for the firm's strategic competitive advantages. Hence, the technological application has a potential to positively affect strategic competitive advantages for logistics firms. **Therefore, hypothesis 4 is supported**.

Knowledge Creation. The results illustrate that the knowledge creation significantly and positively affects to the organizational performance (β = 0.184, p < 0.05). This is defined as continuous transfer, combination, and conversion of the different types of information, as users practice, interact, and learn (Ciburiene, 2009). The ability to create new knowledge is often at the heart of the firm's strategic competitive advantages. Knowledge creation is an act of knowing through practice, action, and interaction in the creation of new knowledge. Knowledge sharing and knowledge creation can call for collaboration and develop firm's performance. Knowledge is created through practice, collaboration, interaction, and education, as the different knowledge types are shared and converted. Therefore, knowledge creation is also supported by relevant information and data which can improve decisions and serve as building blocks in the creation of new knowledge (Frost, 2014). The logistics firms can enable and encourage knowledge sharing, create a suitable work environment, provide systems that support the work process, provide knowledge workers with timely, relevant information and data by creating interplay between knowledge and knowing. It implies offering relevant courses and education, but most importantly allowing new knowledge to be created through interaction, practice, and experimentation. Thus, knowledge creation depends upon the mechanisms described in the subsection on knowledge sharing, combined with the ability to put knowledge into practice in an environment which supports interaction and experimentation (Park et al., 2015).

In addition, knowledge factor can help firms to convert strategy into innovative capabilities of the firms (Sirmon et al., 2007; Yu et al., 2013). The use of the knowledge that flexibility would help innovativeness development of the firms. This is consistence with Psomas and Java (2016) who suggest that knowledge management can generate innovation capability. Garcia and Calantone (2002) also state that the innovativeness is influenced by the firm's remaining resources, especially knowledge skill. Moreover, Zawislak et al. (2013) suggest that the organizational learning and knowledge management are significant factors in firm performances. The development of strategic competitive advantages in the firms would be

involved by knowledge. Thus, the knowledge creation will develop strategic competitive advantages of the firms (Yu et al., 2013). **Therefore, hypothesis 2 is supported**.

Research Contributions

Firms should focus on the management philosophy that promotes new ideas and proactive working climate. This open working environment helps firms' tune-up with new ideas and innovations that favor firm competitive advantage. It is to enable and maximize working capacity of their subordinates. Strategic competitive advantages and coordinative climates are good examples of supporting working proficiency. And, the award program should be set to motivate employees generate competitiveness. The policy of executives is important to the firms because it is affects firm's success.

Future Research Suggestions

Future research should conduct the survey and include other business types such as service, financial, agricultural and etc. The economic factors such as sources of funds, interest rate, and loan variables can be considered as possibly affecting firm performance. Moreover, the dimensions of strategic competitive advantages may include in the research framework. The variety of industry environment and condition may suit in the research framework as the antecedents. This would be fruitful to the literature to expand this research in future research.

References

Aaker, D. A., Kumar, V., & Day, G. S. (2001). **Marketing Research** (7th ed.). New York: John Wiley and Sons.

Armstrong, J. S., & Overton, T. S. (1977). Estimating nonresponse bias in mail surveys. **Journal of Marketing Research**, **14**(3), 396-402.

Aulet, B., & Murray, F. (2013, May). A tale of two entrepreneurs: understanding differences in the types of entrepreneurship in the economy. **Ewing Marion Kauffman Foundation**, 3-20.

Bell, M., & Pravitt, K. (1995). **The development of technological capabilities. Trade, Technology and International Competitiveness**. New York: Economic Development Institute of the World Bank.

BOI. (2016). **Annual report 2016**. Bangkok: Thailand Board of Investment.

Burns, R. P., & Burns, R. (2008). **Business research methods and statistics using spss**. London: Sage Publications.

Ciburiene, J. (2009). The innovativeness of sme activity in the context of globalization in Lithuania. **Economic & Management**, **14**, 723-730.

Dhaliwal, D. S., Li, O. Z., Tsang, A., & Yang, Y. G. (2010). Voluntary nonfinancial disclosure and the cost of equity capital: the initiation of corporate social responsibility reporting. **Working paper**, The University of Arizona.

Elkins, T., & Keller, R. T. (2003). Leadership in research and development organizations: A literature review and conceptual framework. **The Leadership Quarterly**, **14**(4-5), 587-606.

Epstein, M. J., & Palepu, K. J. (1999). What financial analysts want. **Strategic Finance**, **80**(10), 48–52.

Frost, A. (2014). **A synthesis of knowledge management failure factors**. Retrieved from http://www.knowledge-management-tools.net/knowledge-creation.html

Garcia, R., & Calantone, R. (2002). A critical look at technological innovation typology and innovativeness terminology: a literature review. **Journal of product innovation management**, **19**(2), 110-132.

Ghosh, D., & Wu, A. (2012). The effect of positive and negative financial and nonfinancial performance measures on analysts' recommendations. **Behavioral Research in Accounting**, **24**(2), 47-64.

Gujarati, D. N. (2006). **Essentials of Econometrics**. New York: McGraw-Hill.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). **Multivariate data analysis: a global perspective** (7th ed). Upper Saddle River: Pearson Education.

Israr, M., & Gangele, A. (2014). The effect of benchmarking procurement plan and after sales services on suppliers sales success in western region of Kingdom of Saudi Arabia. **International Journal of Services and Operations Management**, **19**(1), 103-124.

Ittner, C. D., & Larcker, D. F. (2001). Assessing empirical research in managerial accounting: a value based management perspective. **Journal of Accounting and Economics**, **32**(1-3), 349–410.

Kaplan, R. S., & Norton, D. P. (1992). The BSC: measures that drive performance. **Harvard Business Review**, **70**, 71-79.

_____. (1996). Strategic learning & the balanced scorecard. **Strategy & Leadership**, **24**(5), 18-24.

Lev, B. (2001). **Intangibles: management, measurement, and reporting**. Washington, D.C.: Brookings Institute Press.

Maines, L., Bartov, E., Fairfield, P. M., & Hirst, E. (2002, December). Recommendations on disclosure of nonfinancial performance measures. **Accounting Horizons**, 353–362.

Mbizi, R., Hove, L., Thondhlana, A., & Kakava, N. (2013). Innovation in SMEs: A review of its Role to organizational performance and SMEs operations sustainability. **Interdisciplinary Journal of Contemporary Research in Business**, **4**(11), 370-389.

Neuman, W. L. (2005). **Social research methods: quantitative and qualitative approaches**. Boston: Allyn and Bacon.

Nieto, M. J., Santamaria, L., & Fernandez, Z. (2013). Understanding the innovation behavior of family firms. **Journal of Small Business Management**, Article first published online, DOI: 10.111/jsbm.12075.

Omerzel, D. G. (2015). Innovativeness in tourism: model development. **Procedia Economics and Finance**, **23**(4), 750-756.

Orens R., & Lybaert, N. (2007). Does the financial analysts' usage of nonfinancial information influence the analysts' forecast accuracy? Some evidence from the Belgian sell-side financial analysts. **International Journal of Accounting**, **42**(3), 237–271.

Park, H. Y., Change, H., & Park, Y-S. (2015). Firm's knowledge creation structure for new product development. **Cogen Business & Management**, **2**, 2-19.

Psomas, E. L., & Java, C. (2016). The impact of total quality management on service company performance: evidence from Spain. **International Journal of Quality & Reliability Management**, **33**(3), 380-398.

Roberts, P. W. (1999). Product Innovation, Product-Market Competition and Persistent Profitability in the U.S. Pharmaceutical Industry. **Strategic Management Journal**, **20**(7), 655-670.

Sirmon, D. G., Hitt, M. A., & Ireland, R. D. (2007). Managing firm resources in dynamic environments to create value: Looking inside the black box. **Academy of management review**, **32**(1), 273-292.

TIFFA. (2017). **Thai international freight forwarders association**. Bangkok: Thai International Freight Forwarders Association.

Tutar, H., Nart, S., & Bingol, D. (2015). The effects of strategic orientations on innovation capabilities and market performance: The case of ASEM. **Procedia-Social and Behavioral Sciences**, **207**, 709-719.

Vanstraelen, A., Zarzeski, M., & Robb, S. (2003). Corporate nonfinancial disclosure practices and financial analyst behavior across three European countries. **Journal of International Financial Management and Accounting**, **14**(3), 249–278.

Wang, K. Y., Hermens, A., Hung, K-P., & Cheliah, J. (2015). Entrepreneurial orientation and organizational learning on SMEs' innovation. **International Journal of Organizational Innovation**, **7**(4), 71-81.

Westphal, L. E., Kim, L., & Dahlman, C. J. (1985). Reflections on the Republic of Korea's acquisition of technological capability. In Rosenberg, N., & Frischtak, C. **International technology transfer: concepts, measures, and comparisons**. New York: Praeger.

Yu, Q., Zhuang, X., Yuan, Z., Qi, W., Wang, W., Wang, Q., & Tan, X. (2013). Pretreatment of sugarcane bagasse with liquid hot water and aqueous ammonia. **Bioresource technology**, **144**(6), 210-215.

Zawislak, P. A., Alves, A. C., Tello-Gamarra, J., Barbieux, D., & Reichert, F. M. (2013). Influences of the internal capabilities of firms on their innovation performance: a case study investigation in Brazil. **International Journal of Management**, **30**(1/2), 329-348.