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A COMPARATIVE STUDY BETWEEN THAI WAREHOUSING AND STORAGE BUSINESS AND FOREIGN FIRMS: STRATEGIC AND ADAPTABILITY VIEW IN DYNAMIC ENVIRONMENTAL CHANGES

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Abstract

Nowadays, global logistics service industry is increasingly playing an important role to international trade and investment. Effective logistics system reduces total costs and also improves service level that products can sell with competitive prices in global market. Warehouse plays critical role for supporting logistics activity. The study's objective is to assess a capability of Thai storage and warehousing firms, including examining their readiness and competitive level. It also examines problematic issues how to enhance competitive advantage to Thai storage and warehousing firms. To examine above issues, questionnaire survey was conducted through 70 samplings and 50 returned with response rate at 71.5 percent. Also, in-depth interview was conducted through 20 respondents. The results show that most of them still lack understanding and effects of opening logistics service liberalization. Their competitive capabilities are rather in medium to low levels. They have a lesser degree of readiness and adaptability to logistics service liberalization. To assess benefits and costs if opening the warehouse liberalization, Thai SMEs firms have mostly potential adversely effects. On the other hand, logistics users will get higher benefits for gaining higher responsiveness and lower cost reduction. It also provides recommendations based on how to facilitate Thai SWSPs to adjust and respond to rapid changes in case of opening logistics liberalization.

Keywords: Trade Potential, Adaptability, Warehousing, Storage, Thailand

1. Introduction

In recent years, Thailand's government has placed a high priority on the logistics services industry, identifying it as a driving force for improving service levels and reducing the costs of international trade and investment. This priority has come about due to the current atmosphere of intense competition among Thai and foreign warehouse services providers within local markets.

The objective of this study is to explore the current capabilities and competitive positioning of Thai warehouse providers, including an assessment of their adaptability to services liberalization with dynamic changes. This study also examines issues related to the benefits and impacts of opening logistics services liberalization, especially storage and warehouse sector in 2013.

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2. Literature Review

The global logistics service industry is increasingly playing an important role to international trade and investment (5). Effective logistics systems can reduce total costs and improve service levels so that products can be sold with lower prices and higher responsiveness to global markets (8, 9). Logistics services involve a complex web of activities designed to ensure the efficient movement of materials, intermediate inputs, finished goods and reversed products between exporters and importers (1).

This paper reviews roles of warehouse as strategic tool in logistics systems. It points out how to reduce total logistics costs through effectively managing warehousing system, including how to improve customer satisfaction and to increase profitability. Further, type of warehouses is reviewed in order to generate understanding to warehouse businesses. The literature reveals that warehouses are categorized in different types, in countries. For example, some countries divide in 2 types, that are, dry warehouse or cold warehouse. On the one hand, some divides in 4 types, that are agriculture, industrial, chemical and hazardous and general products. The key issue is which one would be most appropriate for categorizing type of warehousing system in Thailand.

It also reviews factors influence to future development and enhancing competitive advantage to Thai warehousing system. The literature points out that changing customer behavior with more focus on cost, time and speed, applying in logistics techniques (e.g., JIT, Postponement, Milk-Run) change working patterns of warehouse operations and management, and more intense competition in this industry. These factors increasingly pressure to warehouse owner for changing the way of doing their business.

To maintain and improve competitive advantage of warehouse businesses, it reviews how to measure warehouse effectiveness and efficiency. The literature shows that warehouse managers have knowledge and but lack of understanding how to effectively apply to their operations and how to translate information to strategic actions. Finally, opening service liberalization, especially warehouse sector, is increasingly pressuring and suffering to domestic warehouse owners. The industry becomes intense competition from foreign warehouse providers. It recommends that domestic warehouse firms would evaluate competitive position of domestic warehouse and scan internal and external environments, and then define strategy and action plan.

The literature also points to the conclusion that a preparatory evaluation of the readiness of stakeholders within the warehouse industry is essential before government agency considers or negotiates to establish warehouses liberalization. The potential success of logistics liberalization is based on a win-win approach to negotiations that always takes into consideration the readiness and adaptability of stakeholders, especially SME firms.

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3. Research Methodology

To achieve the research objective, this study developed its research data through two sources. First, a literature review was conducted. The literature reviewed was related to logistics management, storage and warehouse management system, and global trade and services liberalization. This data source provided broad and deep view about competitive positioning of Thai storage and warehouse service providers in next five years.

Secondly, relevant data was collected by questionnaire surveys and in-depth interviews. This part of the research focused on exploring the current status and capacity level of Thai warehouse service providers. In-depth-interviews were used specifically to obtain deeper insight into the relevant opinions and concerns of executives and managers at Thai warehouse service providers.

Table 3-1: Numbers of sampling sizes

No	Type of LSPs	Targeting sampling	Actual Sampling	Rate of Response
2	Storage and warehousing services	70	50	71.5

Table 3-1 shows numbers of targets and sampling sizes. After having developed sampling sizes for each logistics sector, this study gathered data by questionnaire survey. The 70 questionnaires were distributed by various methods, e.g., face-to-face, postal and e-mail. The rate of response generated was very good with 50 respondents or 71.5 percent in total. The data collection period took four months.

The study also conducted in-depth interview with 30 respondents. All interviews were conducted in Thai language, using a tape-recorder, in one-to-three-hour sessions. The semi-structured questions were developed based on research questions and these same questions were repeatedly asked of all respondents. After all data from the in-depth interviews was transcribed and tabulated in appropriate formats, content analysis (2) was performed.

Research processes were structured to ensure that validity and reliability were carefully maintained. The research tools, i.e., questionnaires and interview questions, were designed to fit properly with targeting groups. The questionnaires used perceptual Likert scales (1), where targeted samples were asked to rate each item on a five-point scale, ranging from strongly disagree to strongly agree. If a variable was related to a complex concept (2), it was covered by multiple queries and its value corresponded to the mean value of the scale. In determining the measurement properties of the constructs used in the statistical analysis, reliability and validity were assessed respectively (1, 2) using Cronbach’s alpha. The alpha value of overall questionnaire was 0.92. The authors (7)

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suggested that a value of reliability of 0.70 is acceptable, while over 0.80 is considered good (2).

4. Findings and Discussion

This study offers results covering four major issues. First, the demographic data of respondents was utilized to identify targeted groups and their characteristics. Secondly, there was an examination of the competitive positioning and readiness of Thai warehouse service providers (TWSP), as compared with foreign LSPs. Finally, there was an examination of other issues related to strategy formulation to improve competitive advantage.

Table 4-1: Numbers of employees

Number of Employees	Percent
Less than 50 persons	49
51-200 persons	35
201-500 persons	10
More than 501 persons	6
Total	100

Table 4-1 presents number of companies' employees. This study identified companies by size. It revealed that most Thai storage and warehouse companies (84 percent) have less than 200 employees. It also shows that most are small companies (at 49 percent; with medium-sized enterprises at 35 percent). These results also identified the real major players of Thai storage and warehouse companies.

Table 4-2: Value of fixed assets

Value of Assets	Percent
Less than 50 million baht	70
51-200 Million baht	13
101-200 Million baht	7
More than 201 million baht	10
Total	100

Table 4-2 shows value of fixed assets of surveyed companies. When considering size of business firms by value of fixed assets, this study referred to the definitions of Ministry of Industry, Thailand. Firms with fixed assets of less than 50 million baht or 50 employees or less are considered small-sized companies. Firms with fixed assets between 50-200 million baht are defined as medium-sized companies. The results in this area of the study are consistent with the result in Table 4-3, revealing that most Thai storage and warehouse companies have a value of fixed assets at less than 200

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million baht. An overarching conclusion is that most Thai warehouse companies are SMEs.

Table 4-3: Management and shareholders' structure

Shareholders' Structure	Percent
Thai 100%	93
Thai > Foreigner e.g., Thai 51%, Foreigner 49%	6
Foreigner > Thai e.g., Foreigner 51%, Thai 49%	1
Total	100

Table 4-3 presents shareholders' structure of respondents. In considering the shareholder (ownership) structure of respondents, the result revealed that most companies, 93 percent, were Thai-owned companies. This was followed by joint ventures between Thai and foreign companies, at just 6 percent. The low percentage of joint ventures reflects a major problematic issue: foreign logistics service providers have impeded entry into Thai logistics markets because of current Thai laws.

Table 4-4: Competitive levels of Thai warehouse providers, compared with foreign warehouse providers in Thailand

Capability levels	Mean
1. Maintaining vision in dynamic business environments	3.70
2. Excellent logistics knowledge and understanding	3.56
3. Effectively managing operating costs	3.48
4. Readiness to access for resources and capital	3.46
5. Providing excellent service quality	3.46
6. Ability to effectively access local target markets	3.44
7. Strong management	3.42
8. Providing services via one-stop service centre	3.32
9. Achieving higher performance through logistics staff	3.20
10. Sufficient resources of information technology (hardware, software and people-ware)	3.18
11. Organizational culture that responds well in a dynamic business environment	3.06
12. Having a strong global business network	2.84
Aver. score	**3.34**

Table 4-4 reveals capability and competitive levels of Thai warehouse companies compared with foreign warehouse companies. The results reveal that most of Thai warehouse providers rated their performance and capacities of conducting businesses

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at higher-than-normal standard level (3.0). They identified that they have strong vision (3.70), and well logistics knowledge 3.56). Further, they identify that they can effectively manage operating costs (3.48), and they have higher service quality than foreign competitors (3.46), with strong capability to locally serve to domestic markets (3.44).

However, some issues are becoming weak points. Those issues include: Providing services via one-stop service (3.32), weak management talents and competencies (3.20), and low availability of IT for logistics (3.18). Particularly telling was the lack of global business networks (2.84).

Table 4-5: Problems, opportunities and challenges in warehousing industry

Problems and Opportunities occurring	**Mean**
1. Having increasingly cut the prices in logistics industry	4.14
2. Having intense competition in logistics industry	4.12
3. Importers and exporters have more alternatives for Thai WSPs	3.82
4. Having higher integration and effectively allocating resources	3.56
5. The WSPs compete to improve higher service quality	3.38
6. Improving higher potential for importing and exporting to foreign markets.	3.38
7. Thai WSPs can expand their business to foreign market	2.56
8. Foreign WSPs increasingly expand the market to Thailand	2.52
Aver. Score	**3.38**

Table 4-5 shows problems, opportunities and challenges in warehousing industry. Most of Thai WSPs identifies that players increasingly cut the prices in logistics industry (4.14) and it increase intense competition in logistics industry (4.12) in next few years. Under the circumstances, Importers and exporters have more alternatives for best services.

However, even though domestic market has intense competition, but Thai WSPs insist that they have not any plan to expand their businesses to other countries (2.56). They also believe that Foreign WSPs increasingly expand their investment in Thailand market (2.52).

Table 4-6: Costs and benefits occur if opening logistics services liberalization

Costs and benefits occur	**Percent**
Thailand received benefits less than costs	67
Thailand received benefits more than costs	21
No different between costs and benefits gain	12
Total	100

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Table 4-6 shows costs and benefits of opening logistics service liberalization, in particular warehouse sector. Because of foreign WSPs have high competencies, strong financial support, and wide global networks, most respondents (67 percent) identifies that it inevitably impacts to Thai WSPs, especially SME firms. Some respondents (12 percent) pointed out that opening liberalization would not be any different for them, in term of operations, since foreign WSPs (e.g., TNT and Linfox) have already established businesses in Thailand. They indicated it might change some business practices. However, a larger percentage (21 percent) identify that they would reap more benefits than costs. Because it would facilitate importers and exporters to professionally sell more products in global markets with lower costs and higher service levels.

Table 4-7: Environmental scanning of Thai warehouse service providers

Strengths	**Weaknesses**
1. Establishing in strategic locations, covering geographical areas. 2. Very close to international airport, main harbor with easily access by roads and rails. 3. Lower labor costs 4. Cheaper price as SME warehouse service providers. 5. Having well knowledge and understanding in Thai rules and regulations.	1. Lack capabilities to supply full ranges of services, because of limitation of capital investment. 2. Lack of knowledge and skill of logistics management. 3. Lack of capital investment. 4. Emphasizing on labor intensive more than capital and technology intensive. 5. Unclear strategic vision 6. Lack of alliance and foreign networks. 7. No integration in term of one-stop service; OSS
Opportunity	**Threats**
1. Rapidly changing of customer behavior 2. Changing a direction to increasingly employ outsourcing companies. 3. Easily access foreign markets because of opening trade liberalization. 4. Warehouse industry in Thailand growths 10-20 percent annually.	1. Having high risk of operations of access, the market. 2. Customers have higher bargaining power. 3. Rapid and continuous change of customer behavior. 4. Nationalism of firms, e.g., Japanese firms. 5. Foreign warehouse providers have stronger financial support. 6. New logistics trends make some changes in the industry.

Table 4-7 shows environmental scanning of Thai warehouse service providers. It reveals the strengths of Thai warehouse firms by most of warehouses always locate closer with customers and central transport hub. They have well knowledge and understanding of local rules and regulations, including operating with lower labor costs. However, Thai firms Lack capabilities to supply full ranges of services, because of limitation of capital investment, including lacking capital investment. It emphasizes on labor intensive more than capital and technology intensive. The key weaken point is

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lacking alliance and foreign networks and no integration in term of one-stop service; OSS.

When considering opportunities in this industry, warehouse industry in Thailand growths 10-20 percent annually. As rapidly changing of customer behavior and changing a direction to increasingly employ outsourcing companies, they would consider a high service quality warehouse. On the other hand, it has high risk of access the market, because of heavily investment. Also, customers have higher bargaining power, especially, nationalism of firms, e.g., Japanese firms always employ Japanese warehouses. Further, new logistics trends make some changes in logistics industry, in particular warehouse operations and practices.

Table 4-8: Strategic factor analysis summary of Thai warehouse service providers

No.	SFAS	Weight	Score	Weighted Score	Comment
S_1	1. Establishing in strategic locations, covering geographical areas.	0.12	4	0.48	Thai Warehouse providers have expertise, but lacking knowledge in Vehicle Routing and Scheduling
S_2	1. Very close to international airport, main harbor with easily access by roads and rails.	0.10	4	0.40	Even though they are SME firms, but lacking effectiveness and productivity.
S_2	2. Having well knowledge and understanding in Thai rules and regulations.	0.08	3	0.24	In near future, this advantage might change by using EDI or internet transmission.
W_3	3. Lack capabilities to supply full ranges of services, because of limitation of capital investment.	0.08	2	0.16	Under intense competition, customers need higher service quality, only cheaper prices cannot respond to customer requirements.
W_2	4. Lack of knowledge and skill of logistics management, including lack of capital investment.	0.12	2	0.24	Limitation of logistics knowledge and skills, management lack creative idea to combine full services for fulfill customer needs.
W_3	5. Lack of alliance and foreign networks and No integration in term of one-stop service; OSS	0.10	2	0.20	Lack global vision and networks. Including no additional investment in related activities.

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O_1	6. Rapidly changing of customer behavior, and easily access foreign markets because of opening trade liberalization.	0.08	3	0.24	Opening trade liberalization encourages national trade and investment. It builds an opportunity to Thai WSPs.
O_2	7. Warehouse industry in Thailand growths 10-20 percent annually. Changing a direction to increasingly employ outsourcing companies.	0.10	3	0.30	Thai firms outsource some non-core activities, especially warehouses and transport.
T_1	8. Having high risk of operations of access, the market. Further, Nationalism of firms, e.g., Japanese firms.	0.12	3	0.36	This sector has heavily investment in hardware, software and peopleware. Japanese firms always commit to Japanese warehouse firms.
T_2	9. Customers have higher bargaining power, and Rapid and continuous change of customer behavior. New logistics trends make some changes in the industry.	0.10	2	0.20	Under circumstances, customers have higher bargaining power. New logistics techniques (e.g., JIT) changes business operations and practices.
		1.00		**2.82**	

Table 4-8 shows strategic factor analysis summary (SFAS) of Thai warehouse service Providers. It identifies that Thai warehouse providers have capacity (at 2.82) lower than average score, compared with foreign warehouse companies. This study points out that most of Thai WSPs are small-to-medium-sized enterprises (SMEs). It identified that their strengths as commitments to: establishing in strategic location with linking multimodal transport. Further, they have well knowledge and understanding in Thai rules and regulations. However, they lack capabilities to supply full ranges of services, because of limitation of capital investment, including lacking knowledge and skill of logistics management, and Lacking of alliance and foreign networks and no integration in term of one-stop service; OSS.

When considering opportunities of Thai warehouse, the study shows that rapidly changing of customer behavior, and easily access foreign markets due to opening trade liberalization, it generates an opportunity to Thai firms to respond to the changes. Further, warehouse industry in Thailand presents 10-20 percent growths annually, including having changing new direction to increasingly employ outsourcing companies.

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On the other hand, some firms are operating businesses with nationalism, e.g., Japanese firms. It reflects to difficulty for penetrating this market. Customers have higher bargaining power, and having rapid and continuous change of customer behavior. In addition, new logistics trends make some changes in the industry, e.g., JIT and postponement techniques.

Thai WSPs have lesser degree of readiness and adaptability to logistics service liberalization. This is particularly true within SME sectors. They need capital, technology and know-how to improve their competitiveness. Accordingly, larger Thai large warehouse service providers have a higher capacity and readiness for opening logistics liberalization.

They mostly lack understanding regarding the effects of logistics service liberalization. They capabilities are at relatively medium to low levels. There are other mitigating factors, e.g., outdated national laws and regulations, and unstable political and economic climates, impeding the growth of the Thai logistics service industry. In relation to Thai government agencies and their role in facilitating logistics operations, it is indicated they lack understanding and knowledge on how to effectively encourage, facilitate and offer incentives to Thai LSPs so that they can better contribute and compete in the global logistics markets.

After analyzing the benefits and costs to liberalization, Thai WSPs in SME sectors have the most potential for adverse effects. On the other hand, logistics users (Thai importers and exporters) can reap the greatest benefits through higher responsiveness and lower costs. The study points out problematic issues to growth within Thai warehouse sectors, issues that are impeding international trade flow. It also provides recommendations on how to facilitate Thai LSPs to adapt and respond to the rapid changes of international logistics liberalization.

In summary, the results show that:

- Thai warehouse providers publically serve for agriculture (40 percent), industrial (30 percent) and general products (30 percent).
- Most of warehouse service providers (more than 92 percent) are SMEs.
- They lack a competitive advantage to entry to market in other countries.
- Many warehouse service providers are being acquired by foreign companies.
- Factors (i.e., laws and regulations, incapability of LSPs, culture, and lack of logistics knowledge and best practices) impede to development of warehouse industry in Thailand.

- A role of Thai government agencies is unclear and lack of strategic plan to support the industry. They also act as a regulator, even they would be a facilitator to assist and support to Thai WSPs.
- Logistics users consider for using WSPs in issues of prices, services quality and services minded respectively, as a decisive factor.

6. Conclusion

The study examines the competitive levels of Thai warehouse service providers (WSPs); including an assessment of their readiness and adaptability to opening logistics liberalization between Thailand and trade partners countries. It concludes that Thai WSPs, in particular SMEs, have a lesser degree of capacity and competitive level to compete with foreign WSPs. They also lack readiness to contribute to the establishment of logistics liberalization. A timeframe for developing WSP readiness before opening logistics liberalization would be unique, depending on types and sizes of warehouses, but should range between 3-8 years.

The study led to a conclusion that most of today's Thai players. In the final analysis of the benefits and costs to opening logistics liberalization, growth of international trade within Thailand would certainly expand. The SMEs in the Thai warehouse industry would be adversely affected in term of operations, resource utilization, and capital. Finally, Thai logistics users (importers and exporters) would reap the highest benefits through higher responsiveness and lower costs.

References

1) Banks, R.L., Wheelwright, S.C., 1979, Operations versus Strategy – Trading Tomorrow for today", Harvard University Press, Boston, MA.
2) Beamon, B.M. 1999, Measuring Supply Chain Performance, International Journal of Operations & Production Management, vol. 19, no. 3, pp. 275-292.
3) CARANA Corporation, 2005, the Role of Transportation and Logistics in International Trade: The developing Country Context, Washington, D.C. September 2003.
4) Draft Schedule on Maritime Transport, Job No 1872, 15 April 1996.
5) Hausman, Warren H, Hau L. Lee and Uma Subramanian, Global Logistics Indicators, Supply Chain Metrics, and Bilateral Trade Patters, Stnaford University and World Bank, 2005.
6) Lehmann, Alexander, Natalia T. Tamirisa and Jaroslaw Wieczorek, International Trade in Services: Implications for the IMF, IMF Policy Discussion Paper, December 2003.
7) Sekaran, U., 2000, "Research Methods for Business", 3 edn., John Wiley & Sons, Inc. USA.
8) WTO, Logistics Services: Communication from Australia; Hong Kong, China; Liechetenstein; Mauritius; New Zealand; Nicaragua; Switzerland; and the Separate Customs Territory of Taiwan, Penghu, Kinmen and matsu, Council for Trade in Services, Special Session, TN/S/W/20, June 25, 2004.

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ISSN：1671-5497
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DOI 10.17605/OSF.IO/5HPYB

9) TNT Logistics, Spare Parts Delivery for a North American Car Manufacturer, Case Study Found at http://www.tntlogistics.com/sectors/casestudies/hondasharedchannelasp.retrievedApril.12, 2007.

10) UNCTAD, Trade in Services and Development Implications, TD/B/COM.1/71, Geneva, January 2005.

11) UNCTAD, Review of Maritime Transport, Geneva, 2005.

12) United States International Trade Commission, Logistics Services: An Overview of the Global Market and Potential Effects of Removing Trade Impediments, May 2005.