

DETERMINANTS AFFECTING THE SUPPLY CHAIN MANAGEMENT: A CASE OF SOUTH-EASTERN REGION IN VIETNAM

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ABSTRACT: *Supply chain management is the link between companies to bring products/services into the market. Supply chain as well as supply chain management play an important role in determining the success of the brand in the current period. In this article, the researchers need to study the external-internal environment affecting logistics and supply chain management. The researchers surveyed 450 enterprise managers who are using the logistics services and answered 15 questions but 409 samples processed (41 samples lacked information) from December 2017 to May 2018 in Ho Chi Minh city, Dong Nai province and Ba Ria-Vung Tau province. The researchers analyzed Cronbach's Alpha, the exploratory factor analysis (EFA) and EFA results used for Structural Equation Modelling (SEM) technique and using partial least squares method. The finding is to the external-internal environment affecting logistics with significance level 0.01.*

Keywords: Determinant; supply chain; management and Tay Do University.

INTRODUCTION

Vietnam joins global markets that are developing with technological advances, especially the opening up of markets in developed and underdeveloped countries. Logistics services are considered by managers as tools. This is a means of linking different areas of business strategy. Logistics creates the usefulness of time and place for the operations of the business. Logistics services and supply chain management contribute significantly to the process of distributing goods from place of production to consumers and is a bridge to global trade. Today's logistics activities are not only associated with logistics, freight forwarding, but also planning and arranging raw material flows from suppliers to manufacturers. Besides, the production process will be carried out to the end-user, creating a connection in the whole society in the form of optimization, reducing the cost of rotation and storage (Carter, 2008). In 2017, Vietnam logistics services had the scale of 20-22 billion USD/year, accounting for 20.9% of GDP. This shows that the logistics service sector is playing an important role in the process of economic integration and development in Vietnam. According to the Association of Enterprises, there are about 1.200 logistics service providers in the whole country, mainly in transportation services, warehousing, loading and unloading, transport agents... Moreover, Information technology applied in the logistics services and supply chain management that are commercial activities whereby traders organize one or more jobs including receiving, transporting, warehousing, warehousing, customs clearance, procedures, other documents, customer consultation, packing, marking, delivery, handling damaged goods or other services related to the goods as agreed with customers to enjoy the remuneration (Burgess, K., Singh, P.J. and Koroglu, R, 2006). Good logistics and supply chain management will ensure

better services, lower cost but more effective for both business and economy. Above-mentioned things, the researchers chosen topic **“Determinants affecting the supply chain management: a case of South-Eastern Region in Vietnam”** as an article. This paper helps the Vietnam managers who apply the research results for improving policy on the management of the logistics and supply chain management better in the future.

LITERATURE REVIEW

Concept of Logistics

Logistics covers the total concept of planning and organizing the supply and circulation of materials and supplies from the original source through the stages of production, assembly, packaging, storage, handling and distribution to the final consumer (Frankel, R., Naslund, D., & Bolumole, Y., 2005). Logistics by definition refers to a wide variety of things, even in a business context. In general, logistics simply means coordinating the movement of people and items so that everything flows smoothly (Khan, O. and Burnes, B., 2007). However, the most common use of the word logistics in the business world today has to do with the movement of merchandise from one place to another. A business that sells products, for instance, will usually contract with a third-party logistics services provider that ensures that those products get from the manufacturer to the retailer, where customers can purchase them (Frankel, R., Naslund, D., & Bolumole, Y., 2005). Logistics is generally the detailed organization and implementation of a complex operation. In a general business sense, logistics is the management of the flow of things between the point of origin and the point of consumption in order to meet requirements of customers or corporations (Casson, 2013). The resources managed in logistics can include physical items such as food, materials, animals, equipment, and liquids; as well as intangible items such as time and information. The logistics of physical items usually involves the integration of information flow, materials handling, production, packaging, inventory, transportation, warehousing and often security (Aktas, E., Agaran, B., Ulengin, F., & Onsel, S., 2011).

Concept of Supply Chain Management

The supply chain: It is a system of organizations, people, activities, information and resources related to the transfer of products or services from the supply level (supply chain) to customers (*Bruque-Cámara, 2016*). The major role of the supply chain is to assure the demand of customers that is met with the supply of the products. It has to be assured that the companies never produce extra or insufficient products. Here we have everything you should know about the supply chain roles and responsibilities (*Croom, 2000*).

Supply Chain Management: having the systematic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole (Beske-Janssen, P., Johnson, M. P., & Schaltegger, S, 2015). Supply Chain Management (SCM): SCM requires traditionally separate material functions to report to an executive who is responsible for coordinating the entire materials process. It also requires joint relationships with suppliers across

multiple tiers (Croom, 2000). SCM is a concept, whose primary objective is to integrate and manage the sourcing, flow, and control of materials using a total systems perspective across multiple functions and multiple tiers of suppliers (Blos, M.F., Quaddus, M. and Wee, H.M. and Watanabe, K., 2009).

External environment

Analysis of the external environment of the enterprise is the study of the factors of the enterprise itself to identify the threats and opportunities of enterprises, become the basis for the construction of analytical elements of the environment within the enterprise. This analysis improves the effective and sustainable development of enterprises, the level of achievement of the strategic objectives of each business depends on the business environment and the adaptability of the business to the circumstances of the business environment (Doorey, D. J., 2011). External environment plays an important role in reforming the growth model and restructure the economy. In addition, it is necessary to study and discuss ways to further strengthen the coordination of construction, improvement of transport infrastructure, logistics centers. It is assumed that the business environment is a combination of factors, conditions directly or indirectly affect business activities of enterprises (Zhang, C. and Dhaliwal, J., 2009).

The factors and conditions that constitute the business environment are interrelated with each other and at the same time affect the business activities of the enterprises. But the level and direction of the impact of factors and conditions are different. At the same time, with the same object has a favorable impact factor forming opportunities, but also factors that impede the development of enterprises - the formation of risks for enterprises (Bruque-Cámara, 2016).

Another problem is that the factors, conditions affecting the business activities of the enterprise is not fixed static that it regularly changes. Therefore, in order to improve the efficiency of its operations, enterprises must analyze the business environment, be aware of the sensitivity and predict the correctness of the business environment. Which factors have a positive or negative impact on the production and business activities of enterprises. When designing the strategy, managers must be fully aware of these environmental factors (Blos, M.F., Quaddus, M. and Wee, H.M. and Watanabe, K., 2009).

Political stability will have a great impact on business operations, and the risks posed by the political environment are often very large, leading to bankruptcy (Mentzer, J.T., 2001). Changing the human resources in the government can lead to significant changes in economic policy, such as the government can nationalize enterprises according to the policy, confiscate assets, prohibit foreign transfers currency or intervention or adjustment of national monetary and fiscal policies (Beske-Janssen, P., Johnson, M. P., & Schaltegger, S., 2015). The economic environment has a great influence on the business activities of enterprises. The main factors affecting enterprises are interest rates, bank balance, payment and monetary policy, inflation rate economy, tax policy, foreign exchange rates and unemployment rate, gross domestic product (Fayezi, 2012). In today's competitive environment, any enterprises have technical and technological conditions and soon applies it to production and business, has a great advantage in terms of quality and speed of production. and develop (Barney, J.B., 2012). Almost every product of the modern world is created

based on achievements or inventions of science-technology. It can be said that the higher the storage capacity, the higher the value of the product (Wuttke, D., Blome, C., Henke, M., 2013).

Environment of natural conditions are related natural factors such as: natural resources, land, climate.... affected businesses, if the natural factors change, often seek to cope with these changes in their own way, paying environmental taxes is contributing to the stability of self-sufficiency. Many businesses are actively seeking to replace clean-energy materials or research and manufacture, applying advanced techniques to handle waste (Barney, J.B., 2012). The social and cultural environment of an enterprise is the social and cultural factors taking place in the area in which the enterprise operates affecting the performance of the enterprise (Linton, J. D., Klassen, R., & Jayaraman, V., 2007). Besides, enterprises must deal with many competitors at the same time. Enterprises must not underestimate any competitor and must also meet the competitive culture (Sayogo, D. S., 2015). Choosing the best way to behave in addition to looking at the direct competitors, the enterprises should choose the medium to determine, leading the market, consulting, just to dominate the support from customers (Banomyong, R., Cook, P., & Kent, P., 2008). The above-mentioned external environment, the researchers had hypotheses 1 and 2 following:

Hypothesis 1 (H1): The external environment had positive relation to the logistics.

Hypothesis 2 (H2): The external environment had positive relation to the supply chain management.

Internal environment

Analysis of the internal environment of the enterprise is the study of the factors of the enterprise itself to identify the strengths and weaknesses of enterprises. This becomes the basis for the construction of analytical matrix, composite prices on the elements of the environment within the enterprise (Seuring, S., & Muller, M., 2008). Factors for conducting internal environmental analysis include: human resources that is the first element of the human organization that the administrator needs to analyze and evaluate. Human resources play an important role in an enterprise to manage the development (Adobor, H., McMullen, S., 2014). Senior management: When analyzing senior managers, we need to analyze in three basic aspects: Basic skills (technical skills, human resources, teamwork skills...) and capacity of thinking. Professional ethics such as motivation, commitment to work, responsibility in work, honesty in behavior, self-discipline and self-discipline. The results and the benefits that the administrator will bring to the business (Aktas, E., Agaran, B., Ulengin, F., & Onsel, S., 2011). Followers: Analyze executives based on professional skills, professional ethics and achievements in the work process. Objectively analyzing and evaluating human resources helps enterprises to be proactive in the personnel plan, implementing training and retraining for members, from senior executives to executives. Ensure successful implementation of sustainable strategies (Giménez, C. and Tachizawa, E.M, 2012). Physical resources: Physical resources are financial, factory, equipment, materials, management technology, business environment information. Proper analysis and evaluation of material resources will provide an important basis for managers to understand the potential material resources, strengths and weaknesses of competing firms in the same industry (Beske-Janssen, P., Johnson, M. P., & Schaltegger, S, 2015). Intangible resources: The invisible resources of the business are mainly the idea of directing through the business philosophy, good working spirit of

the team. Business strategy are suitable with the environment inside and outside the enterprise. The prestige of the enterprise, the effective organizational structure, the prestige of senior management, prestige brand and market share of products dominate the market. Creativity of employees and support of customers help enterprises develop in logistics services (Hofmann, E., 2014).

Financial sources: Decide whether or not to perform any investment, procurement or distribution activity of the business (Papert, M., Rimpler, P. & Pflaum, A., 2016). Enterprises with financial potential will have many favorable conditions in technological renewal, equipment investment, quality improvement, lowering costs in order to maintain and enhance their competitive strengths. Trying to position her in the market (Awaysheh, A., & Klassen, R. D., 2010). **Machinery and equipment:** The state of the machinery and technology have a profound effect on the competitiveness of the business. It is the most important material element that shows the production capacity of each enterprise and directly affects the quality of products, price and selling price (Sarkis, J., Zhu, Q. H., & Lai, K. H., 2011). It can be said that a business with a system of machinery and equipment and advanced technology plus good management ability will produce products with high quality and lower prices thereby enhancing competitiveness. In contrast, none of the businesses that are considered highly competitive in their hands is a system of old machinery and equipment with backward technology (Canavari, Maurizio, 2010).

The above-mentioned internal environment, the researchers had hypotheses 3 and 4 following:

Hypothesis 3 (H3): The internal environment had positive relation to the logistics.

Hypothesis 4 (H4): The internal environment had positive relation to the supply chain management.

Hypothesis 5 (H5): The logistics had positive relation to the supply chain management.

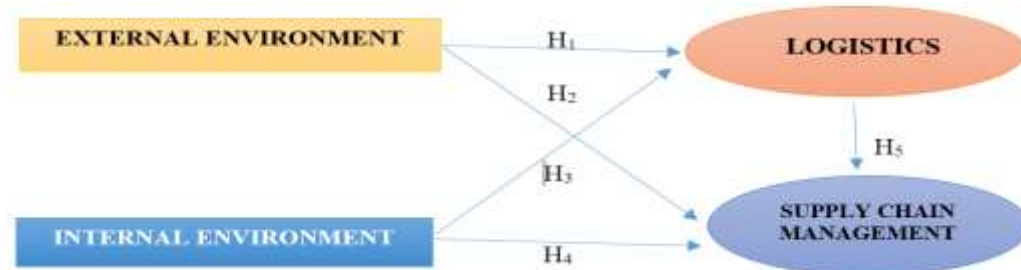


Figure 1: Research model for the external - internal environment affecting the logistics and supply chain management

METHODS OF RESEARCH

In this paper, the researchers applied both qualitative and quantitative approaches that are in practice logistics into the research process. The process has three phases following.

Phase 1: The researchers applied the expert methodology and based on 30 experts' consultation (10 experts of Dong Nai province, 10 experts of Ba Ria – Vung Tau province and 10 experts of Ho Chi Minh city) related to logistics as group discussions are to improve the scale and design of the questionnaire. The results of surveying 30 experts showed that external-internal environment affecting the logistics and supply chain management. If external - internal environment improved, logistics and supply chain management will increase. This article conducted in the first phase, the researchers created a list of possible factors gathered from the literature reviews as mentioned in the above studies (Hair, Anderson, Tatham, & Black, 1998).

Phase 2: The researchers analyzed descriptive statistics for the data. This phase surveys samples 30 managers related to logistics in order to check the content and form of questionnaire. Hard copies of the refined questionnaires were directly delivered to on-site managers during their working times. Completed questionnaires were directly collected from the surveyed managers because it took them less than 20 minutes to finish the survey. There are 450 managers surveyed by hard copy distributed among 12.000 enterprise managers of three above mentioned provinces, Vietnam. All data collected from the questionnaire are coded, processed by SPSS 20.0. Finally, descriptive statistics analysis used in this article (Hair, J.F., Jr.; Black, W.C.; Babin, B.J.; Anderson, R.E, 2014).

Phase 3: The researchers performed CFA and model testing with Structural Equation Modelling (SEM) analysis. The purpose of CFA helps to clarify: (1) Unilaterality, (2) Reliability of scale, (3) Convergence value, and (4) Difference value. A research model is considered relevant to market data if Chi-square testing is $P\text{-value} > 5\%$; $CMIN/df \leq 2$, some cases $CMIN/df$ may be ≤ 3 or < 5 (Hair, Anderson, Tatham, & Black, 1998); $GFI, TLI, CFI \geq 0.9$ or some cases $GFI, TLI, CFI > 0.85$. However, according to recent researchers' opinion, GFI is still acceptable when it is greater than 0.8; $RMSEA \leq 0.08$. Apart from the above criteria, the test results must also ensure the synthetic reliability > 0.6 ; Average Variance Extracted must be greater than 0.5 (Hair, J.F., Jr.; Black, W.C.; Babin, B.J.; Anderson, R.E, 2014).

RESEARCH RESULTS

Development of Vietnam logistics services in transportation to 2020, Orientation 2030

By 2020, Vietnam has a plan to develop logistic services in the field of transport in order to raise the efficiency of the exploitation and use of the seaport system, especially the national seaports; contributing to the successful implementation of the Vietnam Sea Strategy to 2020. On January 22, 2014, the Prime Minister issued Decision No. 169/QĐ-TTg approving the Project on Development of Logistics Services in the Transport Sector until 2020 with orientation to 2030.

The scale reliability tests for factors**Table 1: The scale reliability testing for the external - internal environment affecting the logistics and SCM**

Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Cronbach's Alpha for external environment (EE)				0.917
Cronbach's Alpha for internal environment (IE)				0.950
Cronbach's Alpha for logistics (LD)				0.935
Cronbach's Alpha for supply chain management (SCM)				0.826
KMO and Bartlett's Test for factors				
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.				0.813
% of Variance				75.827

(Source: Researchers processed by SPSS 20.0)

Table 1 showed that all of 15 variables surveyed Corrected Item-Total Correlation greater than 0.3 and Cronbach's Alpha if Item deleted greater than 0.6 and Cronbach's Alpha is very reliability. Such observations make it eligible for the survey variables after testing scale. This showed that data was suitable and reliability for researching. Table 1 showed that KMO is an index used to examine the appropriateness of factor analysis. KMO value significantly larger factor analysis is appropriate. KMO coefficient is 0.813 and the level of significance (Sig) is 0.000. Besides, table 1 showed that two factors of logistics and the supply chain management.

Besides, results of logistics showed that the results showed that KMO coefficient had: KMO = 0.758 (KMO: Kaiser-Meyer-Olkin). KMO is an index used to examine the appropriateness of factor analysis. KMO value significantly larger factor analysis is appropriate. KMO coefficient of the logistics is 0.758 and the level of significance (Sig) is 0.000. KMO = 0.720 (KMO: Kaiser-Meyer-Olkin). KMO is an index used to examine the appropriateness of factor analysis. KMO value significantly larger factor analysis is appropriate. KMO coefficient of the supply chain management is 0.720 and the level of significance (Sig) is 0.000.

Table 2: Confirmatory factor analysis

Term	Scale	No. of observed variables	Reliability Test		Average Variance Extracted
			Cronbach's Alpha	Composite	
The external - internal environment affecting logistics and supply chain management	The external environment (EE)	5	0.917	0.898	0.644
	The internal environment (IE)	4	0.950	0.944	0.810
Logistics (LD)		3	0.935	0.930	0.816
Supply chain management (SCM)		3	0.826	0.824	0.609

(Source: Researchers processed by SPSS 20.0 and Amos)

Table 2 showed that column "Cronbach's Alpha" > 0.6 with significance level 0.01 and column "Composite and Average Variance Extracted" > 0.5 with significance level 0.01 in the confirmatory factor analysis.

Testing relationships for coefficients from the SEM model**Table 3: Coefficients get from the SEM model**

Relationships			Coefficient	Standardized Coefficient	S.E.	C.R.	P	Conclusion
LD	<---	EE	0.565	0.439	0.069	8.208	***	H1: Supported
LD	<---	IE	0.279	0.293	0.049	5.632	***	H3: Supported
SCM	<---	EE	-0.127	-0.127	0.063	-2.030	0.042	H2: Rejected
SCM	<---	IE	0.000	0.000	0.044	0.001	1.000	H4: Rejected
SCM	<---	LD	0.397	0.509	0.052	7.662	***	H5: Supported

*Note: ***Significant at 1 percent (All t-tests are one-tailed)*

(Source: Researchers processed by SPSS 20.0 and Amos)

Table 3 showed that column “P” < 0.01 with significance level 0.01 and column “Conclusion” H1: supported, H3: supported, and H5: supported. This showed that the external - internal environment affecting logistics with significance level 0.01. Besides, the logistics affecting supply chain management with significance level 0.01. However, H2: rejected and H4: rejected with significance level 0.01. This showed that the external-internal environment did not affect the supply chain management with significance level 0.01.

Although the concept of logistics has been clearly defined in Article 133 of the Commercial Law in 2005 of Vietnam, but in fact the logistics need to be aware of it clearly more. It is an important play role in development for an advanced stage of the services of logistics on the basis utilizing the achievements of information technology, coordinating the effectiveness and efficiency of goods and services from pre-production to end-users.

CONCLUSIONS AND MANAGERIAL IMPLICATIONS**Conclusions**

The results showed that the external-internal environment affecting logistics and logistics influencing supply chain management with significance level 0.01. In addition, The Data analyzed Cronbach's Alpha and the exploratory factor analysis (EFA), which used for Structural Equation Modelling (SEM) technique and using partial least squares method. Moreover, logistics helps to solve both input and output for enterprises efficiently, optimizing the process of moving materials, goods, services... Logistics helps reduce costs, increase competitiveness for enterprises. Many enterprises have achieved great success thanks to the right logistics strategy and operation. But also, many businesses have difficulty, even failed because of wrong decisions in logistics activities such as: wrong location, inappropriate storage, inefficient transport organization... Logistics plays a key role in bringing the product to the right place at the right time. Products and services can only satisfy the customer and are valid only if and when it reaches the customer on time and at the designated location.

Managerial implications

In Vietnam, information technology has been put into the digital economy development strategy in the coming time. Thus, Vietnam Government has to develop a policy to apply information technology in logistics services and supply chain management. It is necessary to select foreign investors, create infrastructure and create favorable conditions for investors with prestige and capacity in the field of logistics. Vietnam Government has rapid reform of resources for the industry: ports, airports, inland ports, roads, railways, warehouses, equipment and related institutions such as taxation, insurance, finance goods, environment...

All resources must be streamlined in an integrated planning map capable of interacting and supporting each other effectively. It is necessary to invest in and upgrade the transport infrastructure. The Vietnam Government should promote the transport of containerized railways, to attach importance to the construction of deep-water transshipment ports in the region. Besides, the Vietnam Government should understand the comprehensive development of the logistics model that is a very necessary solution for the transportation business enterprises in Vietnam. The diversification of products and services provided by transport service enterprises should focus on three main stages: Assuring the packing and sorting of goods for import and export enterprises. At the same time, the Vietnam enterprises should improve the service of inventory, distribution of goods to the right place to receive; Finally, the Vietnam Government should improve the investment quality, reasonable construction, effective storage system of the enterprise...

The Vietnam Government should complete the construction of infrastructure (sea, air, railway...). Rearrange port on a long-term basis. Set up logistics centers (distribution centers) in key economic areas to focus on export and distribution of imported or finished products. Establish a distribution network between the owner, the forwarding company, the final distribution. At the same time as distribution centers are the systems of consolidation. Regarding air freight forwarding, the Government should allow the Association to arrange research, investment and construction of areas for collection agents, clearance in the area of international airports such as Ho Chi Minh City, Dong Nai and Ba Ria-Vung Tau province. The Government should complete construction of specialized cargo terminals with delivery areas, receiving, transshipment... according to professional processes such as countries in the region have been doing such as Thailand, Singapore and Malaysia.

The Vietnam Government should adopt policies and measures to guide enterprises to link the logistics services to try to compete with other enterprises of the same type in the area and the world. Besides, Vietnamese enterprises themselves must have the capacity to provide services locally before foreign firms lose their market share. Vietnamese enterprises mainly only participate in some stages (stage) of logistics activities.

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