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THE ROLE OF SUPPLY CHAIN DYNAMIC CAPABILITIES AND SUSTAINABLE SUPPLY CHAIN MANAGEMENT PRACTICES ON SUSTAINABLE DEVELOPMENT OF EXPORT ENTERPRISES

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Abstract: Research on supply chain sustainability is important for exporters. Sustainable supply chain management (SSCM) as well as good use of supply chain dynamics will help enterprise adapt to changes in the business environment. This study analyzes the impact of SSCM, supply chain dynamic capabilities on the sustainable development of exporting enterprises in Vietnam. Analyzing with 185 samples, SEM structure model analysis techniques have shown that supply chain dynamic capabilities, SSCM all have positive effects on the sustainable development of businesses (sustainable development is measured by distribution: measuring economic efficiency, social efficiency, and environmental performance). From the results of this study, the authors also made a number of recommendations to help export enterprises to develop sustainably based on the factors of SSCM and supply chain dynamic capabilities.

1 Introduction

Vietnam's participation in the WTO and the opportunity to join CPTPP is not only an opportunity, but also a great challenge for companies. Especially with exporting enterprises, it is considered that they are most affected by joining the economic union. Therefore, the development of export enterprises in Vietnam plays an important role in Vietnam's economy. However, The businesses still face difficulties in developing, and managing supply chains [1]. Supply chain management has become one of the main means for companies to control costs, and improve economic efficiency in the face of increasingly competitive markets [1,2].

Hanifan et al found that by setting the enterprise supply chain, not only to cut costs and improve risk management, but also create new sources of income and increase brand value [3]. In effective supply chain implementation, supply chain dynamics, and supply chain capacity play an important role in increasing competitiveness and firm's the traditional supply performance [4]. With chain capabilities, tangible resources (products, technology) are becoming familiar to all companies. Supply chain resources are easy to spot and evaluate, so they are easy to catch first, leading to a loss of value due to their popularity and visibility.

Besides, existing in the enterprise intangible resources (knowledge, leadership art) is difficult to detect and imitate

[1]. That is the source of enterprise dynamics [5]. With the development of science and technology, products launched with shorter life cycles have led to businesses needing continuous product innovation [1]. At the same time, tangible changes or supply chain capabilities are easily duplicated. Therefore, dynamic factors become more necessary to create competitive advantage and bring enterprises efficiency[1,6]. Therefore, enterprises must always make efforts to identify, nurture develop and use dynamic competencies effectively and adapt to changes of business environment.

Many studies have been conducted to evaluate the supply chain, and enterprises performance. In particular, Liao et al (2018) conducted an assessment of the impact of supply chain capacity on competitive advantages for manufacturing enterprises; Hong et al. (2018) study the impact of supply chain dynamics, supply chain management practices on the development of businesses; Zott (2003), Griffith et al. (2006) and Eriksson (2014) both studies that the impact of supply chain dynamics has a positive impact on enterprises performance [7,8]. Although studies in the world are carried out on the above issues, in the environment of Vietnamese enterprises, according to the author's study, there has not been any study to assess the supply chain dynamics, sustainable supply chain management practices and the sustainable development of the enterprises. Therefore, the author assesses the role of supply chain



dynamics, sustainable supply chain management practices to the sustainable development of export enterprises.

2. Literature review

2.1 Sustainable supply chain management practices

Sustainable supply chain management (SSCM) is a supply chain management (SCM) focused on environmental, economic and social protection issues for long-term sustainable enterprises development [9-12]. SSCM is the management of input materials, capital issues, cooperation between companies in supply chain operations to achieve sustainable development goals (economic, social and environmental) (Seuring & Müller, 2008). SSCM can be divided into two main categories: SSCM as a management philosophy & SSCM as a set of management processes [10]. SCM's activities in addition to bringing about economic benefits for businesses, creating jobs for workers, need to make sure that the whole society is concerned about the environment [10,13].

SSCM practices in enterprises are the implementation of SCM measures inside and outside the enterprise to achieve three sustainable development goals [14]. SSCM practics is divided into five components: strategic collaboration, supply chain continuity, orientation, risk management and pro-activity for sustainability [9]. Some studies have divided SSCM practices into other aspects: incorporating sustainable product design, process design, and sustainability collaboration with suppliers as well as customers [14]. In addition, there are also researches on SSCM practices into 4 elements: sustainable production, sustainable design, Sustainable distribution and return on investment [15]. It can be seen that there are different results of SSCM practices in each field or research environment. The main components of SSCM practices in the environment of export enterprises in Vietnam.

2.2 Supply chain capacity

Supply chain capacity is the construction of a closed cycle of supply chain strategy to help supply chain development as well as enterprises development [16]. Supply chain capacity can be divided into several aspects: the ability to handle supply-oriented processing and the ability to create value-added value according to demand. Supply-driven processing capabilities that use standardized and standardized supply chain business processes for extensive, in-depth analysis, distribution to create a more efficient delivery of products and services and reduce total costs [1]. The ability to create value-added on demand to meet customer needs for special products or customized services, designed to create value-added customers and maximize customer satisfaction customers and continuous improvement.

2.3 Supply chain dynamic capacity

Supply chain dynamic capacity is built on general dynamics and applications in supply chain operations [1]. Supply chain dynamic capacity is a new concept in Vietnam and is considered a complex process [9]. Supply chain dynamics is the supply chain capability that can cope with changes in the enterprises environment [1]. Dynamic supply chain dynamics help organizations to be more creative, more flexible with business situations [17].

3. Method

3.1 Research model

The framework for selection theory research is Hong et al. (2018); Esfabbodi et al. (2016) and Suhaiza et al. (2012) with the impact of supply chain dynamic capacity, Sustainable supply chain management on sustainable development of export enterprises. The author's research model is as follows (Figure 1).





Hypothesis:

SSCM practices can enhance the enterprises results when activities in the purchase of environmentally friendly materials, or how sustainable products have a positive impact on economic and social enterprises [18]. Also, according to Wang and Sarkis (2013), SSCM practices have a positive effect on financial performance through ROE (return on equity) and ROA (return on assets), and this effect can last up to 2 years [19]. In addition, several studies have shown that the green supply chain has a positive effect environmental performance, economic performance, social and operational performance [20]

Therefore, the research hypothesis is given as follows: H1a: SSCM practice has a positive impact on economic performance.

H1b: SSCM practice has a positive impact on environmental performance.

H1c: SSCM practice has a positive impact on social performance.

Zott (2003), Griffith et al. (2006) and Eriksson (2013) confirm that dynamic capacity allows a company to gain competitive advantage and thus improve

the efficiency of enterprises. Menguc and Barker (2005) find similar results for the dynamics of economic performance. In addition, enterprises with good motivations show the ability to acquire knowledge as well as knowledge of good society. This will make enterprises more aware of social or environmental issues. Business ethics is also highly appreciated by the community for businesses operating not only for economic purposes but also for social and environmental goals. This will make the business more sustainable. Therefore the theory is published as follows:

H2a: SC dynamic capabilities has a positive impact on economic performance.

H2b: SC dynamic capabilities has a positive impact on environmental performance.

H2c: SC dynamic capabilities has a positive impact on social performance.

3.2 Design and sample

The author used the scale of Hong et al (2018) and Liao et al (2017) to build the survey with the set of scales using Likert 5 points with point 1 – disagree strongly and 5 agree strongly, the survey is summarized in the following table 1.

	Table 1 Survey			
Code	Content	Reference		
Ι	Supply chain dynamic capacity			
SCDC1	Enterprises are capable of acquiring knowledge about supply chains			
SCDC2	Enterprises are aware of market-oriented supply chains			
SCDC3	Enterprises with supply chain creativity	Hong et al (2018)		
SCDC4	Enterprises have the ability to re-establish supply chains			
II	SSCM practics			
SSCM1	Supply chain coordination and trust			
SSCM2	Supply chain learning			
SSCM3	Supply chain strategic orientation	Hong et al (2018)		
SSCM4	Supply chain risk management			
SSCM5	Supply chain continuity			
III	Economic performance			
EP1	Business operations are always favorable			
EP2	Market of large enterprises	Hong et al (2018) ;		
EP3	Enterprises are financially effective			
IV	Environmental performance			
ENP1	Enterprises have good control over environmental pollution			
ENP2	Resource utilization	Hong et al (2018)		
V	Social performance			
SP1	Enterprise perspective	Hong et al (2018)		



Code Content	D C
	Reference
SP2 Employee perspective	

Source: References from previous studies

Research samples were collected with exporters in Vietnam. Forms of direct and online are based on Google Docs. The survey period is from 10/2019 to 02/2020. With the number of sample collected is 185 samples to ensure reliability for data analysis when the conditions of minimum sample size are satisfied: According to Hair et al (2006) the number of good samples is over 100 [21]; or according to Tabachnick and Fidell (2007) with the number of samples calculated as 50 + 8*p = 66 (with p = 2-independent variable) [22]. After the data was collected, the author continued to encode and put into SPSS, AMOS 20 software for analysis. The analytical techniques are detailed in the next section.

3.3. Data analysis

The sample (n = 185) will be put into the analysis and evaluation of reliability through Cronbach's Alpha coefficients, the correlation coefficient of variables with the criteria: Cronbach Alpha coefficient is greater than 0.6 and the correlation of the total variable greater than 0.3 [21], [23]; Next to exploratory factor analysis technique (KMO greater than 0.5, p-value of Bartlet test <0.05, and TVE is greater than 50%).

Next, the research uses confirmatory factor analysis and structural equation model analysis (SEM). Conformity assessment of research scale: validation factor analysis (CFA) is used to converge validity, and discriminant validity. Next, the study uses a structural equation model (SEM) at 5%. CFA models, and SEM is reliable when the conditions Chi-2 / df is less than 3. The value of CFI, TLI, IFI is greater than 0.9; RMSEA is less than 0.05.

4. Result

4.1 Reliability test

To indicate the reliability scales, Cronbach's Alpha and correlation coefficients were used in this verification step. The reliability test results show that factors of supply chain dynamic capabilities, Sustainable supply chain management practices, enterprises performance all achieve reliability (Cronbach's Alpha coefficient is greater than 0.6 and the correlation coefficient of the total variable of The items are bigger than 0.3). The results of CFA (Figure 2). show that: Chi-square / df = 1,842 is less than 3, CFI = 0.914; TLI = 0.902; IFI = 0.915 are greater than 0.9, RMSEA = 0.051 is less than 0.08. This shows that the theoretical model is compatible with market data. The factor load factor is greater than 0.5. the composite reliability of the factors above 0.7 and the Average Variance Extracted (AVE) are greater than 50% compared to see the model of convergence validity (Table 2).

		Factor	λ	Composite Reliability	AVE (%)	Cronbach's Alpha
SCDC2	<	SCDC	0.641			
SCDC1	<	SCDC	0.768	0.010	0.720	0.816
SCDC4	<	SCDC	0.809	0.819	0.730	
SCDC3	<	SCDC	0.693			
SP2	<	SP	0.939	0.972	0.881	0.869
SP1	<	SP	0.819	0.875		
EP1	<	EP	0.862			
EP3	<	EP	0.837	0.902	0.869	0.903
EP2	<	EP	0.908			
SSCM3	<	SSCM	0.663			
SSCM2	<	SSCM	0.801			
SSCM1	<	SSCM	0.619	0.840	0.718	0.848
SSCM5	<	SSCM	0.734			
SSCM4	<	SSCM	0.76			
ENP2	<	ENP	0.794	0.872	0.881	0.865
ENP1	<	ENP	0.961	0.873		

Table 2 Reliability test

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Chi-square/df=2.053 CFI=.939; TLI=.921; IFI=.940; RMSEA=.075 Figure 2 Result of CFA

Factor loading greater than 0.5 in each factor are considered to have convergence validity and the square root of the AVE greater than the correlation between research concepts are concepts with discriminant validity (Table 3).

4.2 Result of SEM

After the CFA model gains aggregate reliability as well as discriminant validity. The structure model will be implemented to find out the effect of supply chain dynamic capabilities, Sustainable supply chain management practices on enterprises performance. The results of the analysis of the structural model are reliable with Chi-square / df = 2.133 is less than 3, CFI = 0.933; TLI = 0.915, IFI = 0.934 is greater than 0.9, RMSEA) = 0.078 less than 0.08.

The analysis of the structural model all indicates that the SCDC, SSCM-sustainable supply chain management practices all have the same effect on the sustainable development of exporting enterprises (p-value is less than 0.05 and the beta is positive). Through standardized beta, SEM model also shows that SCDC has a stronger impact on economic performance than SSCM (SCDC standardized beta is 0.73, while SSCM's standard beta is only 0.18). For Environmental performance most strongly affected by SCDC (standardized beta is 0.40), SSCM has a weaker impact on Environmental performance than SCDC (standardized beta is 0.30). Finally, the Social performance factor was also influenced more strongly by SCDC (standardized beta is 0.78) while SSCM's standardized beta is only 0.21. Detailed statistics are in table 4.

		CD	FD	END	CCCM	SCDC
		SP	EP	ENP	SSCM	SCDC
SP		0.939				
EP		0.717	0.932			
ENP		0.411	0.436	0.939		
SSCM		0.187	0.169	0.294	0.848	
SCDC		0.634	0.54	0.252	0.01	0.855
		1	Source: Results from A	AMOS software		
			Table 4 Result	of SEM		
	Regression	n Weights	beta	S.E.	C.R.	P-value
EP	<	SCDC	0.730	0.132	7.685	0.000
ENP	<	SCDC	0.404	0.170	4.280	0.000
SP	<	SCDC	0.783	0.118	8.477	0.000
ED	<	SSCM	0.182	0.064	2.657	0.008
LI		bbein				
ENP	<	SSCM	0.304	0.103	3.560	0.000

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Source: Results from AMOS software



Supply chain dynamics positively affects economic performance, which indicates that enterprises prepared supply chain dynamics well will promote economic performance. The ability of enterprises to acquire good knowledge about the supply chain helps the process activities as well as standards be maintained in a sustainable manner. New standards or processes are adopted and updated by businesses that help improve enterprises performance and bring economic value to businesses [2]. In addition to receiving knowledge about the supply chain, the higher the ability of businesses to be creative about the supply chain, the more effective it can improve the supply chain process. This will also bring high economic benefits. At the same time, reestablishing the supply chain with new processes or facilities helps to control supply chain operations better, resources or operating time will be minimized.

Supply chain dynamics also positively affect the environmental performance. This result (Figure 3) is similar to previous studies that also showed the positive effect of supply chain dynamics on environmental performance [24]. It can be seen that enterprises have good supply chain dynamics, leading to increased environmental awareness. The issue of environmental responsibility in production and enterprises activities is paid more attention by the enterprises. Simultaneously with the integration of new technologies or new modern processes, it will improve the efficiency of production and business and reduce the costs that lead to environmental pollution. Energy-efficient production and transport processes help reduce emissions. Streamlining supply chain processes or digitization will help reduce unnecessary steps and waste resources to minimize negative impacts on the surrounding environment.

Social performance is also enhanced when the supply chain dynamics of the enterprises, with the acquisition of knowledge about the supply chain helping to interact with people more. Developing a wider and more effective supply chain makes social issues such as employment and unions better. The always use or creation of supply chain processes makes partners or competitors recognize the success of the business. This makes the social effect increase; businesses or society will consider these as learning things to apply in their production activities.

Sustainable supply chain management practices has a positive impact on economic, social and environmental efficiency in export enterprises. These results point to the importance of Sustainable supply chain management practices in enterprises. A good supply chain operation or management helps promote the overall internal strength of the business and supply chain dynamics in the industry. Good coordination of the supply chain brings smooth operational processes; costs are minimized when there are no problems in the supply chain disruptions. Therefore, economic efficiency is improved. In addition, forecasting or implementing good supply chain risk management will help businesses have a contingency plan when risks in the





supply chain occur will help businesses take initiative in production and business activities.

SSCM also has a positive impact on environmental performance, indicating that businesses with good SSCM will be more likely to use energy-efficient as well as environmentally friendly products. At the same time, the operation and management of the supply chain in strict compliance with environmental protection regulations will help improve the efficiency of enterprises. Besides, supply chain inspection procedures also help to control the quality of products used in the supply chain. All problems that arise affecting the environment will be handled well by the business, so the effective monitoring and supervision of the supply chain.

Finally, SSCM also has a positive relationship with social performance. Better management of the supply chain, control issues during the supply chain implementation helps businesses satisfied with their operations. Businesses think that businesses are operating smoothly through well-functioning supply chains. At the same time, employees are also satisfied with the job when they are managed and cared for scientifically under effective management and supply chain link within the enterprise.

5. Conclusion

From the analysis of over 185 samples on supply chain operations and sustainable development of export enterprises. Research has shown that the positive effects of supply chain dynamics, sustainable supply chain management practices all have a positive effect on the sustainable development of enterprises (the enterprise's sustainable development is measured through three factors: economic performance, environmental performance and social performance, the authors also made some recommendations to help sustainably develop chain-based exporters: (1) Focus on using environmentally friendly products in the supply chain; (2) Work / cooperate with participating partners and supply chains with high social responsibility to ensure products in accordance with the regulations on both economic, social and environment; (3) Regularly updating new supply chain knowledge and processes; (4) Enhancing inspection and monitoring activities of the supply chain; (5) Setting up the system risk management in the supply chain.

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Review process

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