



ISSN: 2617-6548

URL: [www.ijirss.com](http://www.ijirss.com)



## Factors affecting the competitiveness of logistics enterprises: Empirical evidence in Vietnam

 Nam Danh Nguyen

*Thanh Dong University, Hai Phong City, Vietnam.*

*(Email: [namnd@thanhdong.edu.vn](mailto:namnd@thanhdong.edu.vn))*

### Abstract

The study aims to identify the factors affecting the competitiveness of Vietnamese logistics enterprises. Data for the research was collected from 274 logistics enterprises. The data analysis methods utilized include scale reliability testing, exploratory factor analysis, measurement model analysis, and linear structure modeling (PLS-SEM). The research findings indicate that financial capacity, competitive pricing, service quality, connection capacity and relationship building, human resources, marketing capacity, management capacity, government policies, international integration, science and technology, economic and social factors, and social responsibility positively influence the competitiveness of Vietnamese logistics enterprises. The research focuses exclusively on analyzing the external and internal environments of small and medium-sized logistics enterprises in three major cities in Vietnam. The results provide theoretical and practical management implications, aiding Vietnamese logistics enterprises in enhancing their competitiveness in the market. The conducted empirical study is the first of its kind among Vietnamese logistics enterprises and provides unique data that can be used to enhance the competitiveness of these enterprises.

**Keywords:** Competitiveness, Logistics enterprises, Vietnam.

**DOI:** 10.53894/ijirss.v8i4.8446

**Funding:** This study received no specific financial support.

**History:** Received: 29 May 2025 / Revised: 2 July 2025 / Accepted: 4 July 2025 / Published: 10 July 2025

**Copyright:** © 2025 by the author. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

**Competing Interests:** The author declares that there are no conflicts of interests regarding the publication of this paper.

**Transparency:** The author confirms that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

**Publisher:** Innovative Research Publishing

### 1. Introduction

Logistics is an activity related to the distribution and circulation of goods in the market, serving as the backbone of the economy and continually adding value. In today's extensive context, the logistics service business market is considered a key economic sector, fostering the development of other sectors, creating more jobs, and enhancing people's living standards. Currently, in the competitive landscape of goods distribution, the role of logistics enterprises is becoming increasingly significant, especially for countries and regions that primarily depend on logistics activities [1]. According to Maksimchuk et al. [2], logistics enterprises must compete fiercely in terms of market presence, pricing, and service costs, technological capabilities, digital transformation, network reach, transportation capacity, delivery times, service quality, and more.

Situated in the center of the Asia-Pacific region, along the international maritime route, Vietnam boasts a long coastline and numerous locations suitable for deep-water ports. Opportunities for international economic integration are expanding, bolstered by the numerous free trade agreements (FTAs) that have been signed. Vietnam is recognized as a promising market for the logistics service industry. According to the Vietnam Association of Logistics Service Enterprises, Vietnam's logistics services have a relatively high growth rate, achieving about 14%-16%. Approximately 60%-70% of enterprises outsource logistics services, contributing about 4-5% of GDP [2]. Vietnam's logistics industry has been enhancing the competitiveness of businesses while supporting, connecting, and promoting the country's economic development. Currently, Vietnam has over 30,000 registered enterprises operating in the logistics sector. The logistics market includes more than 5,000 businesses offering 3PL logistics services. Of these, domestic companies represent 89%, joint ventures account for 10%, and 1% are 100% foreign-owned enterprises providing transnational logistics services, featuring major companies such as DHL, Kuehne+Nagel, DSV, and DB Schenker.

In the trend of developing the digital economy, competition among logistics businesses is becoming increasingly fierce, particularly due to the effects of the COVID-19 pandemic and global economic and political risks and instability, which have disrupted and upended supply chains. Many logistics companies find themselves in a difficult position, significantly impacting Vietnam's economy. Furthermore, although domestic logistics enterprises represent a large portion of the industry, they only hold about 30% of the market share, while 70% is dominated by foreign logistics companies, attributed to the low competitiveness and limited scale of Vietnamese logistics enterprises.

So far, numerous studies have examined the factors influencing the competitiveness of logistics businesses, including references [3]. The findings indicate that the competitiveness of logistics enterprises is shaped by a variety of external and internal factors. Additionally, the extent and direction of these factors' impacts on competitiveness vary depending on the research context. Thus, this study proposes the following research questions:

- What factors influence the competitiveness of logistics enterprises in Vietnam?
- How does this research support Vietnamese logistics enterprises to improve their competitiveness?

In Vietnam, there is currently limited research on the competitiveness of domestic logistics enterprises. Moreover, studies on competitiveness mainly generalize the current situation of logistics enterprises in Vietnam without conducting an in-depth analysis of the internal and external factors affecting their competitiveness. Using quantitative research methods based on survey data from 274 logistics enterprises, this study examines the factors that determine the competitiveness of Vietnamese logistics enterprises. The results not only identify significant factors that impact competitiveness but also provide a foundation for recommendations to enhance the competitiveness of these enterprises, contributing to the growth of the logistics industry in an emerging economy like Vietnam.

The article is organized into six sections. Section 1 is the introduction. Section 2 covers the literature review, analytical framework, and research model. Section 3 describes the research methods. Section 4 presents research results. Section 5 discusses the findings and implications. Finally, Section 6 provides the conclusion and notes some limitations of the study.

## **2. Literature Review and Research Model**

### **2.1. Competitiveness of Enterprises**

Competitiveness is crucial for enterprises and managers. Porter [4], Nguyen, et al. [5] and Nguyen [6] highlight that enterprise competitiveness is vital for future studies; sector and country competitiveness are assessed through enterprises. This study examines how businesses can leverage unique advantages against competitors in the target market to enhance competitiveness. Porter [7] defined enterprise competitiveness as maintaining position, growing market share, and achieving high profits. Successful competition requires a unique advantage, through lower production costs or product differentiation for higher prices. Nguyen [6] emphasized that competitiveness involves maintaining and enhancing advantages in consumption, expanding networks, attracting production factors, and achieving economic benefits for sustainable development. In summary, enterprise competitiveness refers to its ability to maintain and expand market presence, increase profits, gain market share, diversify consumption networks, and effectively utilize production factors, aiming for optimal costs and sustainable economic development.

### **2.2. Logistics Services**

In 1998, the Council of Logistics Management modified its definition of logistics as the process of planning, implementing, and controlling the efficient and cost-effective flow and storage of raw materials, inventory, finished products, and related information from the point of origin to the point of consumption to satisfy customers' needs. According to the Commercial Law of Vietnam [8] logistics is an organized commercial activity where enterprises perform one or more tasks such as receiving, transporting, warehousing, completing customs procedures, handling paperwork, providing customer consultation, packaging, recording symbols, delivery, or any other services directly related to the delivery and receipt of goods as agreed with customers in order to earn profits. Logistics is the process of optimizing location and timing, transporting, and storing resources from the initial point of the supply chain through the stages of production to the transportation of goods to the final consumer through economic activities [9]. Thus, logistics involves the organized and scientifically managed distribution and circulation of goods through the planning, organizing, implementation, and control of the flow of goods and services, from the production site to the final customer, at the lowest cost. This ensures that the social production process proceeds smoothly, continuously, and meets the requirements set by customers to the greatest extent possible.

### 2.3. Analytical Framework

The fundamental theories that examine enterprises' competitiveness include value chain, competition, resource, market-oriented, and competency theories [10]. They serve as the foundation for research related to competitiveness at the enterprise level. Thompson and Strickland [11] affirm that the internal factors of the enterprise are viewed as internal resources and essential to the enterprise's competitiveness. However, Porter [7] emphasizes that the true essence of achieving success in business strategy lies in enterprises actively engaging with their environment. Therefore, Aguilar's macro environmental model [12] and the competitive theory Porter [7] have been employed to incorporate several external factors affecting enterprises' competitiveness. These theories aim to verify the significance of the external environment in shaping development strategies, which will assist enterprises in enhancing their competitiveness in the market.

The macroenvironmental model (PEST) identifies four external factors: Politics (P), Economics (E), Social (S), and Technology (T). These factors directly impact economic development, and enterprises often face them as unavoidable challenges. Therefore, companies operating in this environment must develop specific and appropriate policies, strategies, and plans. Enterprises can enhance their competitiveness by successfully managing fluctuations and reducing reliance on these four factors.

The competition theory has a narrower scope than the PEST model. It primarily focuses on identifying and thoroughly analyzing the factors affecting the competitiveness of enterprises operating in the same economic sector. This theory has gained support from various researchers. It has enabled managers to evaluate their competitiveness in the market through the five forces: new entrants, existing competitors, buyers, suppliers, and substitutes.

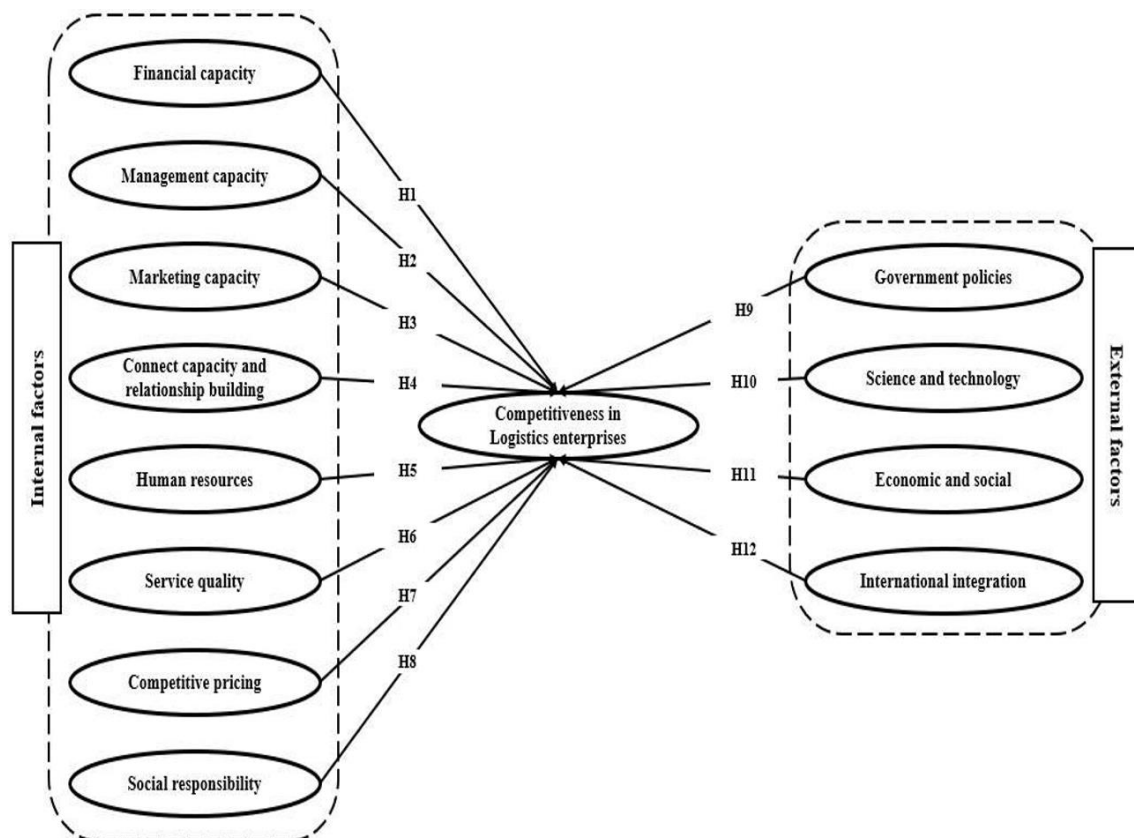
Previous studies have explored the factors influencing a business's competitiveness across various sectors. However, each study highlights different critical success factors relevant to firms' competitiveness [13, 14]. Table 1 displays the factors determining the competitiveness of enterprises as mentioned in the research papers by scholars.

**Table 1.**  
Summary of literature describing factors affecting the competitiveness of enterprises.

Dimension		Method	Related studies
<ul style="list-style-type: none"> <li>Internal factors (financial capacity, human resources and technology, productivity, innovation, quality, organizational structure and systems, image and reputation, culture, product diversity, services and customers)</li> <li>External factors (political, economic, socio-cultural, scientific)</li> <li>Enterprise owner's capacity factors (experience, knowledge, skills, goal orientation)</li> </ul>		Qualitative	Man, et al. [13]
<ul style="list-style-type: none"> <li>Assets (human resources, technological level of the enterprise)</li> <li>Processes (management process, technology process, marketing process)</li> <li>Performance (cost, new product development)</li> </ul>		Qualitative	Ajitabh and Momaya [15]
<ul style="list-style-type: none"> <li>Financial capacity</li> <li>Human resources</li> <li>Customer service</li> </ul>	<ul style="list-style-type: none"> <li>Technological capabilities</li> <li>Distribution network</li> <li>Product development and innovation capabilities</li> </ul>	Quantitative	Thompson, et al. [16]
<ul style="list-style-type: none"> <li>Environmental factors (industry uncertainty, industry generosity, irreversibility, research and development)</li> <li>Firm-related factors (performance, formalization, degree of decentralization, size, research and development intensity, concentration, founder's properties, chief executive officer duality, inside ownership, number of large blockholders, prior experience, multinationality)</li> </ul>		Quantitative	Çevik Onar and Polat [17]
<ul style="list-style-type: none"> <li>Physical resources</li> <li>Human resources</li> <li>Information resources</li> </ul>	<ul style="list-style-type: none"> <li>Knowledge resources</li> <li>Relational resources</li> </ul>	Quantitative	Wong and Karia [18]
<ul style="list-style-type: none"> <li>Innovation</li> <li>Leadership</li> <li>Factor conditions</li> <li>Quality focus</li> </ul>	<ul style="list-style-type: none"> <li>Industry knowledge</li> <li>International benchmarking</li> <li>Responsiveness to competition</li> </ul>	Quantitative	Williams and Hare [19]
<ul style="list-style-type: none"> <li>Involvement in risk-taking behavior</li> <li>More extensive use of networking channels</li> </ul>	<ul style="list-style-type: none"> <li>Efficient use of various business strategies</li> </ul>	Quantitative	Sauka [20]
<ul style="list-style-type: none"> <li>Price</li> <li>Promptness</li> <li>Reliability</li> </ul>	<ul style="list-style-type: none"> <li>Convenience</li> <li>Sociality</li> </ul>	Quantitative	Yoon and Park [21]
<ul style="list-style-type: none"> <li>Building relationships</li> <li>Marketing capacity</li> <li>Human resources</li> </ul>	<ul style="list-style-type: none"> <li>Management capacity</li> <li>Financial capacity</li> <li>Research and development of products</li> </ul>	Quantitative	Huynh and La [22]
<ul style="list-style-type: none"> <li>Human resources</li> <li>Product quality</li> <li>Environmental conditions</li> </ul>	<ul style="list-style-type: none"> <li>Organizational and management capabilities</li> <li>Marketing capability</li> <li>Brand name</li> <li>Social responsibility</li> </ul>	Quantitative	Nguyen [23]

Dimension		Method	Related studies
<ul style="list-style-type: none"> <li>Price competition</li> <li>Marketing capability</li> <li>Beand</li> <li>Technology application capacity</li> <li>Management capacity</li> <li>Social responsibility</li> </ul>	<ul style="list-style-type: none"> <li>Quality of products and services</li> <li>Human resources</li> <li>Financial capacity and infrastructure</li> <li>Pricing strategy</li> <li>Corporate strategy</li> </ul>	Quantitative	Pham, et al. [24]
<ul style="list-style-type: none"> <li>Production capacity</li> <li>Marketing capacity</li> <li>The capacity to link and create relationships</li> <li>Market entry capacity</li> <li>Enterprise management organization capacity</li> </ul>	<ul style="list-style-type: none"> <li>Financial capacity</li> <li>Institutional policy</li> <li>Human resources</li> <li>Technology and innovation capacity</li> <li>Corporate social responsibility</li> </ul>	Quantitative	Nguyen [10]
<ul style="list-style-type: none"> <li>Strategic vision</li> <li>Market research</li> <li>Human resource management</li> <li>Customer satisfaction</li> <li>Technology application</li> </ul>	<ul style="list-style-type: none"> <li>Products</li> <li>Financial capacity</li> <li>Production capacity</li> <li>Brand building</li> </ul>	Quantitative	Nguyen and Luu [14]

The study identifies the factors impacting the competitiveness of logistics enterprises by utilizing theories related to enterprise competitiveness to develop factors suited to the objectives, context, and area of study. It combines verification results from domestic and international studies to create a ranked list of factors influencing the competitiveness of enterprises from high to low. Next, the study employs the Delphi method [25] to conduct face-to-face interviews with several experts and researchers in the logistics field, along with group discussions involving middle managers and above or owners of businesses operating in logistics. Finally, after considerable discussions to evaluate and select each factor affecting the competitiveness of logistics enterprises based on the highest consensus from the participating members, the research model is proposed as follows:



**Figure 1.**  
Research model.

Table 2 describes the scales and research hypotheses:

**Table 2.**

Hypothesis description and supporting literature.

<b>Factor</b>	<b>Dimension</b>	<b>Description</b>	<b>Supported literature</b>
Internal factors	Financial capacity	H1: Financial capacity will be positively associated with competitiveness in logistics enterprises	Lin and Lu [25]
	Management capacity	H2: Management capacity will be positively associated with competitiveness in logistics enterprises	Pham, et al. [24]
	Marketing capability	H3: Marketing capacity will be positively associated with competitiveness in logistics businesses.	Çevik Onar and Polat [17]
	Connect capacity and relationship building	H4: Connecting capacity and relationship building will be positively associated with competitiveness in logistics businesses	Huynh and La [22]
	Human resources	H5: Human resources will be positively associated with competitiveness in logistics enterprises.	Nguyen [23]
	Service quality	H6: Service quality will be positively associated with competitiveness in logistics enterprises.	Williams and Hare [19]
	Competitive pricing	H7: Competitive pricing will be positively associated with competitiveness in logistics businesses.	Yoon and Park [21]
	Social responsibility	H8: Social responsibility will be positively associated with competitiveness in logistics enterprises.	Nguyen [10]
External factors	Government policies	H9: The government's policy will be positively associated with competitiveness in logistics enterprises.	Sauka [20]
	Science and technology	H10: Science and technology will be positively associated with competitiveness in logistics enterprises.	Man, et al. [13]
	Economic and social	H11: Economic and social factors will be positively associated with competitiveness in logistics enterprises.	Man, et al. [13]
	International integration	H12: International integration will be positively associated with competitiveness in logistics enterprises.	Williams and Hare [19]

### 3. Research Methods

#### 3.1. Measurement Scales

During interviews and group discussions, the authors suggested creating a preliminary scale based on domestic and international research concerning the competitiveness of enterprises in various fields. The research objectives are defined to ensure alignment between theory and reality, focusing on subjects and contexts pertinent to Vietnamese logistics enterprises today. Consequently, the preliminary scale has been refined to add or remove certain observation variables, alongside wording corrections, to make the content straightforward, easy to comprehend, and free from duplication that might confuse survey participants. It is conducted in January 2025, and the final scale was established based on feedback that garners the highest consensus and the voting outcome from the participating members. The end result will be an official scale consisting of 12 independent factors and one dependent factor, corresponding to 48 observed variables, measured on a 5-point Likert scale ranging from Level 1 (Strongly Disagree) to Level 5 (Strongly Agree).

#### 3.2. Sample Collection and Data Analysis

The survey process is conducted online, utilizing a Google Form link that is easily sent to middle managers and owners of logistics enterprises in three major cities of Vietnam: Hanoi, Hai Phong, and Ho Chi Minh. This outreach is performed through online chat applications or personal emails, employing a convenient non-probability sampling method to achieve data saturation quickly, from February 2025 to March 2025, and at the lowest possible cost. The collected data will initially be analyzed using SPSS 26 software, followed by research with PLS-SEM 3.0 software employing the Partial Least Squares-Structural Equation Model to verify and confirm the proposed research model's hypotheses through the measurement and structural models. The sample size needed for this study corresponds to the number of questionnaires,

which should range between 100 and 200, based on the recommendations when analyzed with data collected by SmartPLS software Hoyle [26] and combined with the minimum sample size formula for performing the PLS-SEM analysis as recommended by Hair, et al. [27]. Therefore, the study distributed 400 questionnaires, and the results yielded 274 valid responses, resulting in a response rate of approximately 68.5%. Among the 274 valid survey responses, notable gender differences were observed: men accounted for 82%, while women comprised 18%. All respondents were of working age, with an average age range of 36 to 45 years, representing 36%. This was followed by individuals aged 46 to 55 years, who accounted for 42%, and those over 55 years, making up 18%. All respondents were married. Additionally, all participants held a university degree, accounting for 100%, and 53% had an income of 20 million VND or more. Regarding work experience, 26% had been working for 5 to 10 years, 53% for 10 to 20 years, and 21% for over 20 years. These results are consistent with the respondents, who are managers at the middle level and above, as well as enterprise owners in the field. The demographic profile aligns with the overall research sample from Hanoi, Hai Phong, and Ho Chi Minh City.

The PLS-SEM technique is advantageous because it can perform analyses with small sample sizes, typically between 100 and 300 samples Hoyle [26], making it suitable for this study. The relevance estimation in SEM is based on covariance [28]. PLS-SEM will be implemented in two phases. The first phase involves measuring the model to assess the reliability of the study structure [29] and the discriminant validity [30]. The next phase focuses on validating the research hypotheses [28].

## 4. Findings

### 4.1. Testing the Reliability of the Scale

Before undertaking Structural Equation Modeling (SEM) analysis to enhance the integrity, reliability, and accuracy of the scale verification process, Churchill [31] advocated for the execution of Cronbach's Alpha analysis and Exploratory Factor Analysis (EFA). Accordingly, this study employed Cronbach's Alpha and EFA analyses using SPSS 26 software to ensure that the formal scale was appropriately calibrated by excluding inadequate observational variables prior to conducting a linear structural model analysis.

**Table 3.**  
Cronbach's Alpha and EFA.

Measurement scale	Sign	No.	Cronbach's Alpha	Smallest factor loading	Eigenvalue
Financial capacity	FC	4	0.895	0.788	12.891
Management capacity	MC	4	0.882	0.780	4.782
Marketing capability	Mar	4	0.879	0.753	3.356
Connect capacity and relationship building	CN	5	0.887	0.731	2.573
Human resources	HR	4	0.876	0.773	1.968
Service quality	SQ	5	0.868	0.746	1.754
Competitive pricing	CP	4	0.875	0.765	1.567
Social responsibility	SR	4	0.873	0.774	1.429
Government policies	GP	3	0.889	0.796	1.356
Science and technology	ST	3	0.884	0.784	1.235
Economic and social	ES	3	0.869	0.779	1.192
International integration	II	3	0.891	0.782	1.066
KMO = 0.755					
% variance = 81.4%					
Bartlett's Test	Approx. Chi-Square			8432.153	
	df			408	
	Sig			0.000	
Competitiveness in logistics enterprises	Com p	3	0.903	0.751	2.087
KMO = 0.789					
% variance = 79.6%					
Bartlett's Test	Approx. Chi-Square			158.536	
	df			3	
	Sig			0.000	

The results in Table 3 indicate that independent factors have a Cronbach's Alpha coefficient greater than 0.8 and a Corrected Item-Total Correlation exceeding 0.4, so no observed variables are excluded from the scale. Additionally, the factor loadings of the observed variables are above 0.7, which confirms that all observed variables meet quality standards. Furthermore, the Eigenvalue coefficients greater than 1 suggest that 12 independent factors were extracted in line with the initial proposal, yielding a total variance coefficient of 81.4%, indicating that these 12 independent factors account for 81.4% of the data variability of the observed variables during exploratory factor analysis (EFA). Finally, the KMO coefficient exceeding 0.7 and the significance coefficient of Bartlett's test being less than 0.05 indicate that the observed variables are closely correlated within the same factor.

The results in Table 3 show that the dependent factor has a Cronbach's Alpha coefficient greater than 0.8, a Corrected Item-Total Correlation, and a factor loading exceeding 0.4 and 0.8, demonstrating that no observed variable is excluded from the scale. Furthermore, the KMO coefficient exceeds 0.5, with the significance of Bartlett's test reaching 0.000, and the Eigenvalue is greater than 2, confirming that the three observed variables of the scale were consolidated into a single factor with a total variance of 79.6%. In summary, the scale meets the reliability and discriminant standards recommended by Hair, et al. [32] and remains unchanged. Thus, there is no alteration in the relevant observed variables for further analysis.

#### 4.2. Measurement Model

**Table 4.**  
Results of the reliability and convergent

Measurement scale	Reliability		Convergent	Outer Loadings
	Cronbach's Alpha	CR	AVE	
Financial capacity	0.895	0.947	0.819	0.791 - 0.845
Management capacity	0.882	0.941	0.807	0.786 - 0.837
Marketing capability	0.879	0.926	0.781	0.759 - 0.820
Connect capacity and relationship building	0.887	0.934	0.802	0.747 - 0.832
Human resources	0.876	0.922	0.789	0.778 - 0.814
Service quality	0.868	0.917	0.773	0.756 - 0.825
Competitive pricing	0.875	0.929	0.794	0.770 - 0.839
Social responsibility	0.873	0.919	0.778	0.785 - 0.841
Government policies	0.889	0.938	0.805	0.802 - 0.859
Science and technology	0.884	0.944	0.817	0.789 - 0.851
Economic and social	0.869	0.912	0.776	0.783 - 0.829
International integration	0.891	0.946	0.815	0.777 - 0.816
Competitiveness in logistics enterprises	0.903	0.955	0.823	0.763 - 0.804

The results in Table 4 indicate that the scales have a Cronbach's Alpha coefficient exceeding 0.8 and a composite reliability coefficient above 0.9. It confirms that the scale fully meets the intrinsic consistency reliability recommended by Hair, et al. [29]. Additionally, a scale with an average variance extracted coefficient greater than 0.7 demonstrates the associative value that the scale achieves, in line with the recommendations of Hair, et al. [29]. The outer loadings of the observed variables range from 0.7 to 0.9, ensuring that no observed variables are excluded from the scale. This further affirms the high quality of the observed variables, as recommended by Hair et al. [30], making them suitable for further analysis.

The results in Table 5 demonstrate that the correlation coefficients of the identical factor pairs, as well as the square root of the AVE coefficient (the diagonal correlation coefficient), are the largest within the same column when compared to the correlation coefficients of different factor pairs, which have a statistical significance level of less than 0.05. Additionally, the correlation coefficients between the pairs of factors are smaller than the composite reliability coefficient, indicating that the factors in the scale fully achieve discriminant validity according to the criteria established by Fornell and Lacker [33]. However, Hair, et al. [29] proposed that to achieve the discriminant validity between the scales, it is essential to analyze according to the HTMT criterion, and the results indicate that the correlation coefficients of the factor pairs are all less than 0.85, with a statistical significance level below 0.05. Therefore, the factors ensure the discriminant validity recommended by Hair, et al. [29].

**Table 5.**

Fornell – Lacker and HTMT.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1	0.905												
2	0.722 0.674	0.900											
3	0.386 0.548	0.671 0.348	0.884										
4	0.505 0.291	0.298 0.506	0.273 0.289	0.895									
5	0.641 0.418	0.325 0.474	0.465 0.624	0.564 0.237	0.888								
6	0.323 0.639	0.584 0.249	0.562 0.392	0.667 0.451	0.457 0.361	0.879							
7	0.497 0.256	0.445 0.312	0.499 0.571	0.395 0.327	0.632 0.276	0.705 0.438	0.885						
8	0.613 0.383	0.539 0.605	0.381 0.582	0.321 0.568	0.349 0.339	0.476 0.279	0.527 0.488	0.882					
9	0.559 0.742	0.652 0.744	0.408 0.721	0.283 0.534	0.522 0.615	0.579 0.385	0.382 0.589	0.573 0.800	0.897				
10	0.628 0.599	0.743 0.659	0.718 0.687	0.518 0.682	0.685 0.563	0.821 0.542	0.581 0.393	0.619 0.665	0.586 0.268	0.904			
11	0.709 0.658	0.689 0.703	0.752 0.790	0.647 0.741	0.649 0.724	0.762 0.623	0.629 0.521	0.645 0.439	0.643 0.583	0.459 0.608	0.881		
12	0.594 0.716	0.723 0.729	0.693 0.787	0.592 0.702	0.591 0.637	0.715 0.663	0.607 0.593	0.701 0.544	0.625 0.394	0.536 0.524	0.672 0.694	0.903	
13	0.798 0.801	0.754 0.813	0.732 0.775	0.698 0.726	0.713 0.799	0.811 0.697	0.758 0.675	0.772 0.812	0.803 0.764	0.831 0.769	0.761 0.588	0.822 0.735	0.907

**Note:** Correlation coefficients are less than 0.051 = Financial capacity, 2 = Management capacity, 3 = Marketing capacity, 4 = Connect capacity and relationship building, 5 = Human resources, 6 = Service quality, 7 = Competitive pricing, 8 = Social responsibility, 9 = Government policies, 10 = Science and technology, 11 = Economic and social, 12 = International *integration*



### 4.3. Structural Model Analysis

**Table 6.**  
Saturated model results

	<b>R<sup>2</sup></b>	<b>Adjusted R<sup>2</sup></b>	<b>Q<sup>2</sup></b>
Competitiveness in logistics enterprises	0.757	0.739	0.523
SRMR = 0.074			

The results in Table 6 show that the corrected R<sup>2</sup> coefficient, which is greater than 0.7, demonstrates a high level of explanation for the independent factors in the study model, independent of the dependent factor. It indicates that the independent factors accounted for 73.9% of the variation in the dependent factor. In comparison, 26.1% were errors during the analysis process or other factors not included in the proposed research model [29]. Additionally, a Q<sup>2</sup> coefficient greater than 0.5 for the construct tested confirmed the degree of accurate out-of-sample forecasting of the independent factors affecting the dependent factor in the structural model or the overall structural model, which consists of 12 independent factors and a dependent factor [29]. Furthermore, the SRMR coefficient is less than 0.1, meeting the criteria set by Henseler, et al. [30] regarding the suitability of the structural model with data collected from logistics enterprises in Hanoi, Hai Phong, and Ho Chi Minh Cities.

**Table 7.**  
VIF and f<sup>2</sup>.

<b>Hypothesis</b>		<b>VIF</b>	<b>f<sup>2</sup></b>	<b>Effect size</b>
H1	FC → Comp	2.035	0.427	Large
H2	MC → Comp	2.283	0.395	Large
H3	Mar → Comp	1.289	0.412	Large
H4	CN → Comp	1.592	0.286	Medium
H5	HR → Comp	2.855	0.394	Large
H6	SQ → Comp	1.958	0.296	Medium
H7	CP → Comp	2.417	0.458	Large
H8	SR → Comp	1.843	0.235	Medium
H9	GP → Comp	1.776	0.326	Medium
H10	ST → Comp	2.194	0.318	Medium
H11	ES → Comp	2.648	0.309	Medium
H12	II → Comp	2.539	0.344	Medium

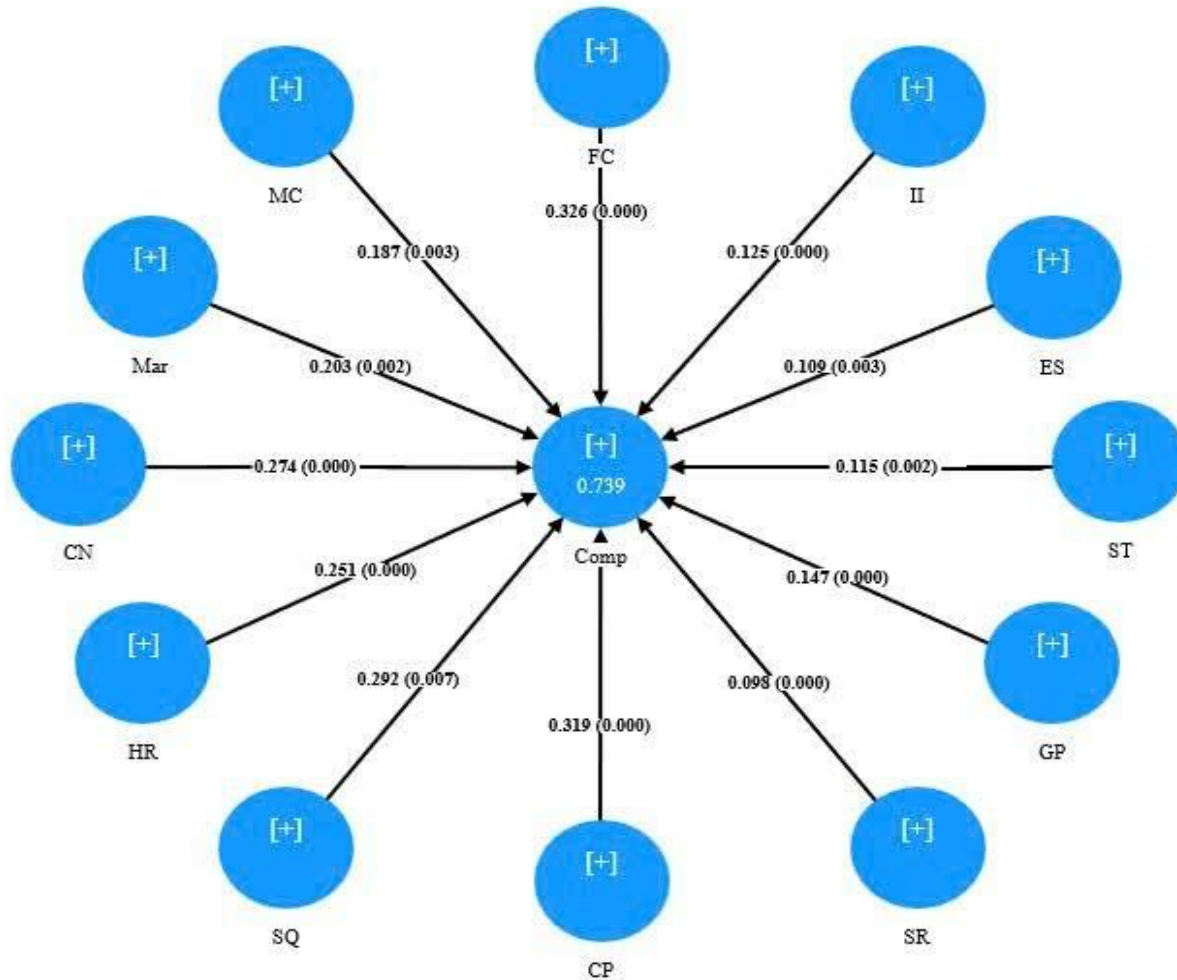
The results presented in Table 7 indicate that the research hypotheses, which possess a variance inflation factor (VIF) coefficient of less than 3, confirm that the model does not exhibit multicollinearity [29] and that there exists a relationship between the independent and dependent variables. Furthermore, the f<sup>2</sup> coefficient, which is greater than 0.2 and less than 0.5, confirms each independent variable's moderate to substantial influence on the dependent variable [29]. It further establishes that the independent variables are strongly correlated with the dependent variable in the research model and are appropriate for testing the research hypotheses within the structural model, utilizing the bootstrapping technique as required by Hair, et al. [29]. This study employed a non-parametric bootstrapping technique, performing 5000 iterations to validate 274 original samples. This approach ensures the reliability of the research model while generalizing the overall findings. Additionally, it assesses the influence of independent variables on the dependent variable, with results considered statistically significant at a p-value of less than 0.05.

**Table 8.**  
Structural path significance in bootstrapping and hypothesis testing results.

<b>Relationship</b>		<b>Coefficients</b>	<b>S.D</b>	<b>t</b>	<b>Conclusion</b>
H1	FC → Comp	0.326	0.035	4.258***	Accepted
H2	MC → Comp	0.187	0.031	4.076**	Accepted
H3	Mar → Comp	0.203	0.029	3.862**	Accepted
H4	CN → Comp	0.274	0.037	5.689*	Accepted
H5	HR → Comp	0.251	0.034	2.475*	Accepted
H6	SQ → Comp	0.292	0.036	5.261**	Accepted
H7	CP → Comp	0.319	0.028	2.854***	Accepted
H8	SR → Comp	0.098	0.031	3.228*	Accepted
H9	GP → Comp	0.147	0.033	6.373***	Accepted
H10	ST → Comp	0.115	0.034	6.819**	Accepted
H11	ES → Comp	0.109	0.030	4.805**	Accepted
H12	II → Comp	0.125	0.032	5.534***	Accepted

**Note:** \* significant at p < 0.05; \*\* significant at p < 0.01; \*\*\* significant at p < 0.001.

Table 4 presents the results of hypothesis testing, illuminating the relationships within the structural model. The hypotheses from H1 to H12 are accepted, with a T-statistic exceeding the threshold of 1.96 and a significance level lower than 0.05. Consequently, the estimates presented in the model consistently fulfill the criteria established by Hair, et al. [29]. Additionally, internal factors exert a more significant influence than external factors, particularly financial capacity (coefficient = 0.326, T-statistic = 4.258) and government policies (coefficient = 0.147, T-statistic = 6.373). These factors represent the highest values within both groups concerning the competitiveness of Vietnamese logistics enterprises. Figure 2 provides a structural model result.



**Figure 2.**  
Structural model result.

## 5. Discussion and Implications

The results of the study indicate that twelve factors positively influence the competitiveness of Vietnamese logistics enterprises. The factors, listed in descending order of impact, are financial capacity, competitive pricing, service quality, connection capacity and relationship building, human resources, marketing capacity, management capacity, government policies, international integration, science and technology, economic and social aspects, and social responsibility. This finding shares several similarities with the research results of Williams and Hare [19]. The distinction from prior studies is characterized by the degree of influence exerted by various factors in the present research. In the study conducted by Sauka [21], management capacity emerges as the most significant influence, whereas the investigation by Williams and Hare [19] indicates that creativity and marketing orientation are the predominant factors affecting the competitiveness of enterprises. Furthermore, research conducted by Pham, et al. [24] and Nguyen [10] illustrates that production capacity, marketing capacity, human resources, branding, and the quality of products and services significantly contribute to the competitiveness of enterprises. More importantly, this study presents findings that contrast with the views of the Vietnam Association of Logistics Service Enterprises, which asserts that the competitiveness of Vietnamese logistics enterprises requires enhancement through the promotion of management capacity, marketing capability, and continuous learning. In contrast to the aforementioned assertion, this study diverges, primarily due to the evolving business landscape, particularly in the aftermath of the COVID-19 pandemic. This outcome paves the way for research in a new context aimed at enhancing the competitiveness of logistics enterprises.

The study's results indicate that financial capacity, competitive pricing, and service quality significantly influence the competitiveness of Vietnamese logistics enterprises. Therefore, the authors suggest several governance implications to enhance the competitiveness of logistics enterprises as follows:

In terms of financial capacity, logistics companies must implement various strategies to cultivate financial resources for investment in technological innovation within their business activities. Technological innovation will lead to high-quality services, thereby enhancing the competitiveness of logistics companies in the marketplace.

Regarding competitive pricing, logistics enterprises must establish a competitive pricing strategy by optimizing operating costs through automation technology, which reduces manpower, shortens order processing times, and minimizes operational risks. Moreover, logistics enterprises should adopt a flexible pricing model based on order size, priority, or seasonality to attract diverse customer groups.

For the service quality factor, logistics enterprises must invest in real-time order tracking systems, automated order management, and chatbots to assist customers around the clock. Moreover, logistics companies should enhance the professional skills, foreign language proficiency, and service attitudes of their staff, including drivers and dispatchers. Simultaneously, they should implement quality management systems such as ISO and KPIs to assess the effectiveness of on-time delivery, error rates, and customer satisfaction.

## 6. Conclusions and Limitations of the Study

This study successfully combines value chain theory, resource theory, capacity theory, macro-environment theory, and industry environmental competition theory to analyze the competitiveness of Vietnamese logistics enterprises. In particular, it adds a scale of international integration to the competency theory of enterprises. It indicates that the research findings expand the factors influencing the competitiveness of Vietnamese logistics enterprises.

Although the results of the study have yielded certain outcomes, there are still some unavoidable limitations. The research primarily focuses on small and medium-sized logistics enterprises in three major cities in Vietnam. Future studies could expand the research scope to other regions. Additionally, the study sample size was relatively small compared to the overall population. Furthermore, the proposed research model includes only twelve factors from both the external and internal environments of logistics enterprises. Meanwhile, many other potential factors could affect the competitiveness of Vietnamese logistics companies. Future research should consider more variables, such as strategic business direction and branding.

## References

- [1] L. Y. Alexandrova, L. V. Mikhailova, A. Y. Munshi, N. D. Sorokina, and S. V. Timofeev, *Using the logistics approach to assessing the competitiveness of an enterprise*, In A. V. Bogoviz, A. E. Suglobov, A. N. Maloletko and O. V. Kaurova (eds), *Cooperation and sustainable development. Lecture Notes in Networks and Systems*, vol. 245. Cham: Springer, 2022. [https://doi.org/10.1007/978-3-030-77000-6\\_43](https://doi.org/10.1007/978-3-030-77000-6_43)
- [2] T. V. Nguyen, "Developing Vietnam's logistics service industry in the current context," *Journal of Economics and Forecasting*, vol. 22, 2023.
- [3] Y. Yaxu, "Comprehensive evaluation of logistics enterprise competitiveness based on SEM model," *Journal of Intelligent & Fuzzy Systems*, vol. 40, no. 4, pp. 6469-6479, 2021. <https://doi.org/10.3233/JIFS-189486>
- [4] M. Porter, *The competitive advantage of nations*. New York: Free Press, 1990.
- [5] T. K. H. Nguyen, T. D. C. Pham, T. H. Dang, T. H. H. Ngo, D. T. Nguyen, and X. H. Duong, "Factors affecting customer satisfaction towards service quality of logistics enterprises in Binh Duong province," *Journal of Science of Lac Hong University*, vol. 16, no. 1, pp. 16-22, 2024.
- [6] D. N. Nguyen, "The relationship between internal capacity and competitiveness of small and medium-sized enterprises in Hai Duong province," *Figures and Events Review*, 2025.
- [7] M. E. Porter, "The five competitive forces that shape strategy," *Harvard Business Review*, vol. 86, no. 1, pp. 78-93, 2008.
- [8] National Assembly of the Socialist Republic of Vietnam, "Commercial law (Law No. 36/2005/QH11), promulgated 14 June 2005; Official gazette No. 24-25/2005," National Assembly of the Socialist Republic of Vietnam, 2005.
- [9] D. N. Nguyen and T. H. Le, "Evaluating the satisfaction of customers to logistics services quality of express delivery businesses in Hanoi," *Journal of Science and Technology Hung Vuong University*, vol. 23, no. 2, pp. 11-22, 2021.
- [10] T. H. Nguyen, "Factors affecting the competitiveness of small and medium enterprises: Case of Kien Giang province," *Journal of Economics and Development*, vol. 278, pp. 61-70, 2020.
- [11] A. A. Thompson and A. J. Strickland, *Strategic management: Concepts and cases*, 11th ed. New York, NY, USA: McGraw-Hill, 1998.
- [12] F. J. Aguilar, *Scanning the business environment*. New York, NY, USA: MacMillan Co, 1967.
- [13] T. W. Man, T. Lau, and K. F. Chan, "The competitiveness of small and medium enterprises: A conceptualization with focus on entrepreneurial competencies," *Journal of Business Venturing*, vol. 17, no. 2, pp. 123-142, 2002.
- [14] T. N. Nguyen and T. D. H. Luu, "The competitiveness of shrimp exporting enterprises in Kien Giang province," *Can Tho University Journal of Science*, vol. 59, no. 3D, pp. 236-246, 2023. <https://doi.org/10.22144/ctu.jvn.2023.152>
- [15] A. Ajitabh and K. Momaya, "Competitiveness of firms: Review of theory, frameworks and models," *Singapore Management Review*, vol. 26, no. 1, pp. 45-61, 2004.
- [16] A. Thompson, A. J. Strickland, and J. E. Gamble, *Crafting & executing strategy*, 15th ed. New York: McGraw-Hill Irwin, 2007.
- [17] S. Çevik Onar and S. Polat, *The factors affecting the relationship between strategic options and the competence building process: An empirical examination*, In R. Sanchez, A. Heene and T. Ede Zimmermann (Ed.). *A focussed issue on identifying, building, and linking competences (Research in Competence-Based Management)*, vol. 5. Emerald Group Publishing Limited, Leeds, 2010. [https://doi.org/10.1108/S1744-2117\(2010\)0000005006](https://doi.org/10.1108/S1744-2117(2010)0000005006)

- [18] C. Y. Wong and N. Karia, "Explaining the competitive advantage of logistics service providers: A resource-based view approach," *International Journal of Production Economics*, vol. 128, no. 1, pp. 51-67, 2010. <https://doi.org/10.1016/j.ijpe.2009.08.026>
- [19] D. Williams and L. Hare, "Competitiveness of small hotels in Jamaica: An exploratory analysis," *Journal of Eastern Caribbean Studies*, vol. 37, pp. 71-96, 2012.
- [20] A. Sauka, "Measuring the competitiveness of Latvian companies," *Baltic Journal of Economics*, vol. 14, no. 1+ 2, pp. 140-158, 2014.
- [21] S.-H. Yoon and J.-W. Park, "A study of the competitiveness of airline cargo services departing from Korea: Focusing on the main export routes," *Journal of Air Transport Management*, vol. 42, pp. 232-238, 2015.
- [22] T. Huynh and H. La, "Internal factors affecting the competitiveness of private economic enterprises in Can Tho city," *Can Tho University Journal of Science*, vol. 36, pp. 72-80, 2015.
- [23] T. L. Nguyen, "Study on factors affecting the competitiveness of Ben Tre's tourism businesses," *Ho Chi Minh City Open University Journal of Science*, vol. 12, no. 1, pp. 225-244, 2017.
- [24] V. H. Pham, X. T. Lai, and H. T. Tran, "Factors affecting the competitiveness of tourism enterprises in Quang Ngai province," *Hue university Journal of Science Economics and Development*, vol. 126, no. 5D, pp. 125-137, 2017. <https://doi.org/10.26459/hueuni-jed.v126i5D.4504>
- [25] S. W. Lin and M. T. Lu, "Characterizing disagreement and inconsistency in experts' judgments in the analytic hierarchy process," *Management Decision*, vol. 50, no. 7, pp. 1252-1265, 2012. <https://doi.org/10.1108/00251741211246996>
- [26] R. H. Hoyle, *The structural equation modeling approach: Basic concepts and fundamental issues*, in *Structural Equation Modeling: Concepts, Issues, and Applications*, R. H. Hoyle (Ed.). Thousand Oaks, CA: Sage Publications, 1995.
- [27] J. F. Hair, G. T. M. Hult, C. M. Ringle, and M. Sarstedt, *A primer on partial least squares structural equation modeling (PLS-SEM)*, 3rd ed. Thousand Oaks, CA, USA: Sage, 2022.
- [28] W. W. Chin, *How to write up and report PLS analyses*, In V. Esposito Vinzi, W. W. Chin, J. Henseler, and H. Wang, Eds. *Handbook of partial least squares: Concepts, methods and applications heidelberg, Dordrecht*. London, New York: Springer, 2010.
- [29] J. F. Hair, J. J. Risher, M. Sarstedt, and C. M. Ringle, "When to use and how to report the results of PLS-SEM," *European Business Review*, vol. 31, no. 1, pp. 2-24, 2019. <https://doi.org/10.1108/EBR-11-2018-0203>
- [30] J. Henseler, G. Hubona, and P. A. Ray, "Using PLS path modeling in new technology research: Updated guidelines," *Industrial Management & Data Systems*, vol. 116, no. 1, pp. 2-20, 2016. <https://doi.org/10.1108/IMDS-09-2015-0382>
- [31] J. G. A. Churchill, "A paradigm for developing better measures of marketing constructs," *Journal of Marketing Research*, vol. 16, no. 1, pp. 64-73, 1979. <http://dx.doi.org/10.2307/3150876>
- [32] J. F. Hair, W. C. Black, B. J. Babin, and R. E. Anderson, *Multivariate data analysis*, 7th ed. New York: Pearson, 2010.
- [33] C. Fornell and D. F. Lacker, "Evaluating structural equation models with unobservable variables and measurement error," *Journal of Marketing Research*, vol. 18, no. 1, pp. 39-50, 1981.