

# Cross-border E-commerce Third-Party Logistics Selection Risk Analysis

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**Abstract:** *With the rapid development and extensive penetration of the Internet, cross-border e-commerce has shown vigorous vitality, continuously deepening the international division of labor, changing transaction methods, and reshaping the trade pattern, playing an increasingly important role in the global trade system. The rapid development of cross-border e-commerce has put forward higher requirements for cross-border logistics services. Due to the international nature of the cross-border logistics environment and the complexity of the process, small and medium-sized enterprises often entrust logistics to third-party logistics companies in engaging in cross-border e-commerce activities to reduce logistics costs, improve logistics service quality and enhance logistics core competitiveness. However, the practice has proved that while third-party logistics bring benefits to enterprises, it will also bring financial and information risks to enterprises, which will affect the development of enterprises and become one of the bottlenecks in the development of cross-border e-commerce.*

**Keywords:** cross-border e-commerce, third-party logistics, third-party logistics, risk management

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## 1. Introduction

### 1.1 Definition of cross-border e-commerce

Cross-border e-commerce, the full name of cross-border e-commerce, refers to sellers and buyers in different countries and regions who conduct transactions and complete online payments through e-commerce platforms, and deliver goods or provide services through international logistics to complete a transnational transaction. Business activities (Yan Fuhai, Dang Xing, & Yan Wenhui, 2007). Different from the traditional form of foreign trade, the transaction form adopted by cross-border e-commerce is based on the construction of the Internet, and mainly completes commodity transactions and cash transactions on the Internet (Xu Juan, 2007). In 1995, Amazon, the first e-commerce company, was established in the United States. With the expansion of its overseas business, cross-border e-commerce has gradually become a major development hotspot for e-commerce companies, and cross-border e-commerce has also become a hot spot of global attention. They began to enter the cross-border e-commerce industry one after another (Zou Xiao, 2013).

### 1.2 Definition of third-party logistics

Third-party logistics is an innovative logistics management model and the direction of future logistics development (Cheng Detong, 2001). The essence of third-party logistics is a

"principal-agent" relationship between enterprises and logistics service providers. Due to the information asymmetry and information distortion between the entrusting party and the agent, as well as the uncertainty of changes in the market environment, there are various risks in the process of implementing third-party logistics in the enterprise. To study the risks of third-party logistics and formulate the enterprise's first corresponding policies of three-party logistics (Ju Yongmei, 2020).

## **2. Risk identification of cross-border e-commerce third-party logistics selection**

The risk of third-party logistics selection by cross-border e-commerce can be divided into internal risk and external risk, of which internal risk is mainly divided into four categories: strategic risk and supply risk, and external risk is divided into five categories: storage risk, packaging, and transportation risk (Zheng Xiaohong, 2017). Internal risks mainly refer to strategic risks, supply risks, cooperation risks, and information risks, all of which are risks faced by cross-border e-commerce internally and in cooperation (Huang Xilun, 2016). Among them, strategic risk means that the logistics business of cross-border e-commerce involves many different regions. Cross-border e-commerce companies often choose local high-quality logistics companies in different regions (Xiong Hui, 2014), and multiple logistics companies have formed in the logistics chain of cross-border e-commerce, the lack of cultural quality of employees of these different logistics companies and the differences in corporate culture may bring risks to the logistics chain of cross-border e-commerce. In addition, the differences in the strategic goals of these logistics companies will also cause certain risks. Supply risk refers to the risk of untimely product supply and substandard product quality in cross-border e-commerce (He Chunyan, & Liu Wei, 2012). Cooperation risk refers to the risks that cross-border e-commerce companies may face due to market information asymmetry when selecting partners. "Runaway" risk and the risk arising from the self-interested behavior of "economic man". Information risk refers to the risk caused by poor information communication between cross-border e-commerce and third-party logistics companies, the risk of leakage of business secrets in cooperation between the two parties, and the risk of information brain drain (Lee HL, & Whang S., 2011).

External risks mainly include transportation risks, packaging and warehousing risks, environmental risks, loading and unloading risks, and customs risks, mainly involving risks that may exist in third-party logistics companies (Menon, McGinnis, & Ackerman. 1998). Transportation risk refers to third-party logistics companies' risks in product transportation, mainly including unscientific transportation system risks, transportation accident risks, commodity damage risks during transportation, and transportation delay risks (Luo Xuan, 2013). Packaging and warehousing risk refers to product packaging risk and warehousing risk. Packaging risk is mainly divided into packaging equipment risk, packaging accident risk, packaging employee safety awareness risk, and packaging material substandard risk (Zhang Fang, 2012).

Environmental risk can be divided into natural environmental risk and political and economic environmental risk. Natural environmental risk mainly refers to the risk of natural disasters, and political and economic environmental risk refers to the risk of changes in the international situation, government policy changes, and laws and regulations (Boyson, Corsi, & Dresner, 1999). Loading and unloading risks refer to the risks that may exist during the loading and unloading of products, mainly involving the risks of loading and unloading equipment, the risks of weak risk awareness of loading and unloading personnel, and the risks of loading and unloading accidents. Cross-border e-commerce inevitably has more contact with customs, and

may face certain customs risks, mainly including weak risk awareness of customs personnel, risk of the imperfect customs monitoring system, and risk of customs product quality inspection (Zhang Duo, 2000).

#### **4. Cross-border e-commerce third-party logistics selection risk assessment**

##### **4.1 Questionnaire design and description**

Through literature review and research on the third-party logistics risk in the cross-border e-commerce environment and interviews with logistics experts, the third-party logistics risk factors of cross-border e-commerce are identified, and finally, the risk dimension and its risk variables are obtained.

Risk Assessment Scale. The questionnaire study has three main parts:

- i. Conduct a survey on the "Cross-border E-commerce Logistics Risk Factor Questionnaire" issued by third-party cross-border logistics companies. The purpose is to score the cross-border logistics risks of the third-party logistics companies identified above. The data provide a realistic basis for subsequent statistical analysis.
- ii. Use the data collected in the first step of the questionnaire, and then use factor analysis to screen the indicators of the initial identification model of third-party cross-border logistics risks, rename and explain the factor variables, and then analyze the screened factors. Reliability and validity tests, and finally get the key factors of the third-party logistics risk of cross-border e-commerce.
- iii. Through the first two steps, obtain the key factors of the third-party logistics risk of cross-border e-commerce after the screening, and finally calculate each risk factor and the weight of each risk factor based on the factor analysis in the previous step, and then evaluate the third-party logistics risk of cross-border e-commerce.

The questionnaire is divided into three parts: the first part mainly understands the basic information of the respondents; the second part mainly understands the basic situation of the logistics risk of the surveyed company and investigates the management problems of the third-party logistics companies; the third part is the core part of the questionnaire, mainly for the identified risk indicators.

Carry out scoring evaluation. This part uses a five-level Likert scale to positively score all the identified logistics risk factors. All measurement indicators are scored on a 5-point scale: 1—low risk, 2—low risk, 3—average risk, 4—high risk, and 5—high risk.

##### **4.2 Reliability analysis**

The reliability test is mainly used to verify whether the third-party logistics risk assessment index system of cross-border e-commerce is stable, consistent, and reliable. In this paper, the reliability coefficient test and half reliability test are mainly used to test the collected questionnaire sample data to further verify the credibility of the collected sample data. In this study, the intra-group consistency test is carried out on the risk factors under each logistics risk factor, and the Cronbach reliability coefficient of the intra-group consistency test is required to be as large as possible.

Then conduct an overall consistency test on all cross-border logistics risk factors under all risk factors to verify the overall reliability of the risk indicators identified by the third-party logistics risk of cross-border e-commerce. According to the general reliability requirements, the larger the value of the Cronbach reliability coefficient, the higher the reliability, and the general

minimum requirement for reliability testing is that the Cronbach value is not less than 0.7. In the reliability analysis of the reliability test in this study, when the Cronbach value is greater than 0.7, the reliability test is passed, and it is considered that the factor analysis can be continued for the next step of the validity test.

## 5. Conclusions and Policy Recommendations

Overall, both literature and practice acknowledge that cross-border e-commerce is risky. Most of the time, companies must estimate many variables, including market demand, exchange rates, and future economic and political conditions in new markets. At the same time, information scarcity and high uncertainty make risk prediction more difficult to execute. Logistics risk is an area of much debate in the current literature. The basic conclusions are as follows:

Insignificant business risk challenges in the process of their transnational operations, including political risks, natural risks, infrastructure risks, and industrial chain risks induced by cross-border e-commerce transnational operations, human resource risk, service supply chain risk, tax risk, consumer legal dispute risk, government department data collection, and regulatory failure risk, etc. However, there are a few controversial studies on the risk management of cross-border e-commerce logistics and third-party logistics options.

There are many studies on the risk identification of third-party logistics in the existing literature, but there is not enough research on the prevention and control of third-party logistics risks, and there is a lack of effective methods for risk analysis and control. Guide to risk management theory.

On the issue of third-party logistics risk prevention and risk control, it tends to put forward policy suggestions from the perspective of management but does not trace back to the root causes of third-party logistics risks and does not provide an operable solution from the essence and source. To reduce the risk of third-party logistics to a minimum, there is a lack of deeper, detailed research such as cross-border e-commerce third-party logistics contract design and other aspects to discuss. Therefore, it is necessary to conduct systematic research on the formation process of third-party logistics risks, to propose more effective methods or strategies for controlling or avoiding risks.

Although there are various risks in third-party logistics, we cannot be afraid and avoid 3PL just because of the risks. Since the 1980s, the wave of outsourcing has become a hot spot in the global economy (Zhong Yuliang, 2014). This undoubtedly shows that outsourcing is the requirement of the economy of the times for the development of enterprises. It is a management model that enterprises have to adopt in order to adapt to market changes and maintain their competitive advantages in products or services. It is an enterprise that integrates and utilizes the best external professional resources to reduce It is a management model that improves cost, improves productivity, increases capital utilization efficiency, and enhances the enterprise's ability to respond quickly to the environment. In order to achieve win-win cooperation between enterprises and logistics service providers, both parties should take certain measures to avoid risks (Qian Qiong, 2015).

Enterprises should carefully choose whether they are 3PL or self-operated logistics enterprises. When making logistics decisions, they should comprehensively consider the following main factors according to their own needs and resource conditions: (1) The degree of influence of

logistics on the success of enterprises and the impact of enterprises on logistics (2) The enterprise's requirements for logistics control; (3) The logistics characteristics of the enterprise's products; (4) The scale and strength of the enterprise; (5) The customer service ability of the third-party logistics (Lin Jia, 2014).

Track and evaluate the operation of logistics service providers, establish a monitoring mechanism to analyze the operation and existing problems of important logistics service providers, and analyze their performance, equipment management, human resource development, quality control, cost control, and technology development, customer satisfaction, delivery agreement, and other aspects to conduct timely investigations, and carry out scientific evaluation and monitoring.

Formulate emergency measures for risks and implement risk management. Firstly, through various risk control tools, try to eliminate various hidden risks and reduce risks before risks occur. However, logistics is a complex system with multiple links and channels, and avoiding some risky events is often difficult. Therefore, supply chain companies must be fully prepared for the occurrence of risk events, predict the degree of loss of various risks in advance, formulate contingency measures, and timely compensation for the consequences of losses.

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