

## STUDY ON CROSS-BORDER E-COMMERCE FINANCIAL SERVICES IN LIAONING FREE TRADE AREA OF DALIAN

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**ABSTRACT.** *The development of cross-border e-commerce is synchronized with the world in the Dalian area of the Liaoning Free Trade Area. It has initially formed a new format, but its financial services are relatively backward. This paper studies the cross-border e-commerce financial services, and it is based on the analysis of supply chain finance in combination with the existing financial services in Dalian Free Trade Area of Liaoning. Under the background of the free trade area, this paper analyzes the financial problems of four cross-border e-commerce businesses, that is, e-commerce enterprise financing, cross-border payment, insurance service and exchange rate. It is actively expanding cross-border e-commerce financial solutions to provide cross-border e-commerce businesses with better financial services.*

**Keywords:** Cross-border e-commerce, Financial services, Free trade area, Dalian area

**1. Introduction.** Global information technology is developing rapidly, the cross-border e-commerce industry is showing increasingly notable features such as rapid development and frequent international exchanges. Regional economic cooperation and electronic information technology reform have made cross-border e-commerce a new impetus for international trade. The demand of domestic and international markets has shrunk after 2008, and great changes have taken place in the economic environment of China and abroad. In the case of weak traditional trade, Dalian area must seize the opportunity of cross-border e-commerce. Cross-border e-commerce is the key to realize the development of Dalian FTA in Liaoning. How to provide the financial services of cross-border e-commerce has become the top priority.

A large number of scholars have studied cross-border e-commerce financial services. These studies focus on the following four areas: financing, cross-border payment, insurance service and exchange rate. In financing, Ying and Zhu proposed to focus on cross-border e-commerce financial services in bonded zones, and they embedded cross-border warehouses in supply chain finance [1]. In payment methods, Gao analyzed the current status of RMB payment channel, and then he put forward improvement suggestions for cooperation among regulatory agencies, cooperative banks and third-party payment agencies [2]. Hu explored the international settlement method, and he emphasized the solution of risk [3]. In insurance, Xiong explored the postal business innovation in the e-commerce area and he proposed a new strategy for postal insurance business [4]. In exchange rates, Dong and Zhu encouraged companies to hedge currency risk by establishing a cross-border RMB payment system [5]. Liu et al. also discussed the cross-border e-commerce business risks, and these risks arised from exchange rate changes [6]. They proposed that cross-border

e-commerce companies should establish a foreign exchange risk management system. In conclusion, the existing literature explores financial services, but few studies are conducted in conjunction with free trade area. This is the problem that the paper wants to solve, and it is also an innovation point of this paper. This paper studies the cross-border e-commerce financial services in Dalian District of Liaoning Free Trade Area.

**2. Theoretical Foundation.** This paper is based on the ordinal utility theory, and it constructs an analysis framework for cross-border e-commerce financial services innovation in the Dalian area of Liaoning Free Trade Area. This model cites Wang Yong and others' analysis of the financial system innovation theory in the free trade area. The four factors in the article were obtained through field investigations of cross-border e-commerce enterprises in the Dalian area of the Liaoning Free Trade Area. In this paper,  $N$  represents the total level of cross-border e-commerce financial services in the Dalian area of Liaoning Free Trade Area ( $N > 0$ ).  $D$  indicates the amount of enterprise financing services, and  $a$  indicates the unit cost for enterprise financing services.  $P$  indicates the number of payment methods, and  $b$  indicates the unit cost for the payment methods.  $I$  indicates the number of insurance services, and  $c$  indicates the unit cost of insurance services.  $E$  represents the number of exchange rate regimes and  $d$  represents the unit cost of the exchange rate regime. The level of enterprise financing service can be expressed as  $aD$ , the service level of payment method can be expressed as  $bP$ , the level of insurance service can be expressed as  $cI$ , and the level of exchange rate system can be expressed as  $dE$  ( $a, b, c, d > 0$ ).

$$aD + bP + cI + dE = N \quad (1)$$

$$U = U(D, P, I, E) \quad (2)$$

$$U'(D, P, I, E) > 0 \quad (3)$$

Formula (1) indicates: the total level of cross-border e-commerce financial services is equal to the sum of the four levels of financial services in the Dalian area of the Liaoning Free Trade Area. Formula (2) shows the financial service utility of the Dalian area. Formula (3) can be understood as: as each type of financial services increases, the financial effect also increases. The cross-border e-commerce financial service can be transformed into an equilibrium solution when the financial service utility is maximized under the constraint conditions, as shown in Equation (4) and Equation (5):

$$\text{s.t } aD + bP + cI + dE - N = 0 \quad (4)$$

$$U = \text{Max}U(D, P, I, E) \quad (5)$$

We construct a Lagrangian function:

$$L(D, P, I, E, \lambda) = U(D, P, I, E) + \lambda(aD + bP + cI + dE - N) \quad (6)$$

The first-order condition for maximizing is:

$$\frac{\partial L}{\partial D} = U'_D + \lambda a = 0 \quad U'_D = -\lambda a \quad (7)$$

$$\frac{\partial L}{\partial P} = U'_P + \lambda b = 0 \quad U'_P = -\lambda b \quad (8)$$

$$\frac{\partial L}{\partial I} = U'_I + \lambda c = 0 \quad U'_I = -\lambda c \quad (9)$$

$$\frac{\partial L}{\partial E} = U'_E + \lambda d = 0 \quad U'_E = -\lambda d \quad (10)$$

We derive  $D$  and we get Formula (7). In Equation (7),  $U'_D$  is negatively related to  $a$ . It means: the cost of financing reduces, and the utility of financial services increases. We derive  $P$  and we get Formula (8). In Equation (8),  $U'_P$  is negatively related to  $b$ . It means:

the cost of payment reduces, and the utility of financial services increases. We derive  $I$  and we get Formula (9). In Equation (9),  $U'_I$  is negatively related to  $c$ . It means: the cost of insurance services reduces, and the utility of financial services increases. In Equation (10),  $U'_E$  is negatively related to  $d$ . It means: the cost of exchange rate regimes reduces, and the utility of financial services increases. If we can help cross-border e-commerce companies to reduce these four costs, the level of cross-border e-commerce financial services in the Dalian area of Liaoning FTA will be significantly improved.

**3. The Status Quo.** The level of Internet information technology continues to improve, and residents' trading optimization is constantly upgrading. The rapid development of cross-border e-commerce continues, and Dalian's e-commerce development also receives gratifying results. The construction of opening of business channels is more perfect, the growth rate of cross-border e-commerce is obvious. The number of online platform enterprises increased from 38 to 82 in 2017. The number of cross-border e-commerce businesses increased from 400 in 2016 to 800 in 2017. Sales of cross-border e-commerce increased from \$173 million in 2016 to \$240 million in 2017, it is an increase of 38.74% over the same period of last year. However, if we compare with the South, the development of cross-border e-commerce in Dalian FTA is relatively backward in terms of speed and quality. Financial services are not mature enough in theory, and there are some deficiencies.

**3.1. Demanding characteristics of funds.** The major modes of cross-border e-commerce export are Business-to-Business (B2B), Business-to-Customer (B2C) and Customer-to-Customer (C2C) [7]. Whether the enterprises are B2B, B2C or C2C, more than 90% of them are small and medium-sized enterprises (SME). They are characterized by less capital. Traditional trading method has longer period, and it creates a certain financial problem for small and medium-sized cross-border electricity suppliers. They do not have enough fixed assets as pawns. On the one hand, commercial banks have a high cost of providing financing services for small businesses, and the risks are hard to control. On the other hand, the current bank financing management are based on offline transactions. The features of cross-border e-commerce data make it difficult to provide the basic documents for bank loans. Financing difficulties have become an important bottleneck, and it restricts the development of cross-border e-commerce.

**3.2. The deficiencies in payment methods.** Cross-border e-commerce payment is the key of the entire transaction. There are two main types of cross-border electronic payment in our country: the first is the use of third-party payment tools, and the second is the use of offshore electronic payment platform. Most foreign shopping sites only support PayPal, while PayPal cannot withdraw money in China. According to Chinese current policy, foreign buyers only pay through the personal savings account settlement and each person has only 50,000 U.S. dollars per year. It has restricted the further development of cross-border e-commerce.

**3.3. Imperfect insurance service.** The process of cross-border e-commerce transaction is complex, and it has multiple risks. The first is credit risk, and there are differences in the credit environment of countries. Some countries lack customer credit awareness, and credit status is not transparent. Second, improper transportation leads the damage of the goods. Traditional insurance only applies to bulk goods, and current insurance products cannot fully satisfy the need of cross-border e-commerce.

**3.4. Exchange rate risk.** A cross-border e-commerce transaction generally includes trading, payment, settlement, logistics, distribution and supervision, and there will be time difference. There will inevitably occur exchange rate fluctuations, and it will have

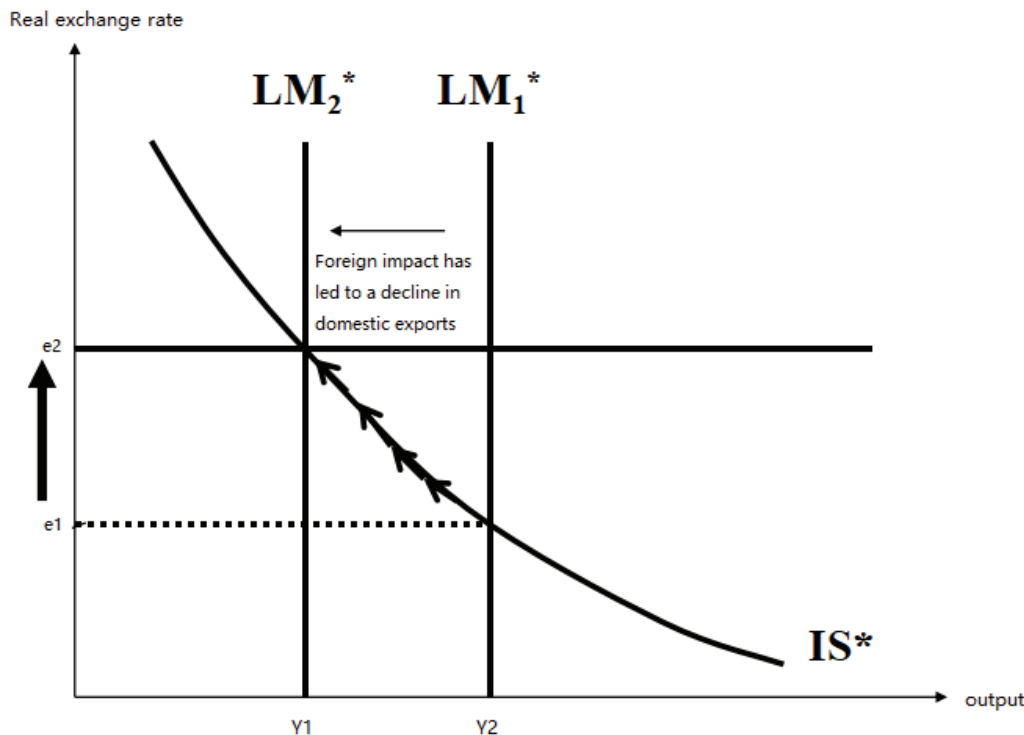


FIGURE 1. The impact of external assault on cross-border e-commerce

an impact on the business. In particular, SMEs are more likely to face the impact of exchange rate. The risk mainly involves the exchange rate risk of payment. We use Mundell Fleming exchange rate model to analyze.

The horizontal axis represents output. The vertical axis represents real exchange rate. The IS\* curve represents the relationship between the output and the real exchange rate in the product market. The LM\* curve represents the relationship between the output and the real exchange rate in the currency market. When there is a negative change in overseas markets, the foreign currency devaluation occurs. The LM\* curve moves to the left. The instability of the exchange rate will affect the export of cross-border e-commerce enterprises. Affected enterprises will reduce the cross-border e-commerce exports.

#### 4. Financial Service Optimization.

**4.1. Financing solving.** Cross-border e-commerce enterprises have the characteristic of light assets. The traditional model of bank loans is not able to solve the financing needs of cross-border e-commerce enterprises. New loan models are conducive to the future development of cross-border e-commerce business. Banks are reluctant to lend money to cross-border e-commerce companies, because banks do not have enough information about the operating conditions of cross-border e-commerce. If banks can integrate financial flows and logistics flows through supply chain finance management, they can transform the uncontrollable risks of e-commerce enterprises into the overall controllable risks. This paper proposes the following three types of loans.

**4.1.1. Inventory financing services.** Cross-border e-commerce businesses usually store their goods in cross-border warehouses. Cross-border warehouses, as an important link in the supply chain, have the unique conditions of supervising, sending and receiving bonded goods. It can serve as an entry point into supply chain finance. Cross-border warehouses can provide two types of information to banks. The first is company's logistics information. It includes the stock of goods, the value of goods and so on. It reflects the size and strength of corporate assets. The second is the flow of information. It

includes stock situation, transaction frequency, and whereabouts of the transaction. It reflects the business turnover situation. Combining two aspects, the bank can grasp the overall strength of enterprises and business operations. Banks and cross-border warehouse companies should reach an agreement. Enterprises will store the goods in the designated warehouse. After that, enterprises apply for loans from banks by the warehouse receipts. The warehouse receipts are provided by cross-border warehouse companies. Banks provide a percentage of their loans based on the value of the good and other relevant factors [8].

4.1.2. *Order financing services.* A large number of cross-border e-commerce businesses have traded through cross-border e-commerce platforms, and cross-border e-commerce platforms have grasped the order information of cross-border e-commerce. The order information can ensure the authenticity of cross-border e-commerce businesses. It can serve as an important guarantee for the ability of cross-border e-commerce future repayment. This makes it possible for banks to carry out unsecured loans. Cross-border e-commerce service platform controls business flow, information flow, logistics and cash flow control [9]. Banks hold a lot of money, e-commerce platforms master the information, and the two can work together to cooperate with the order financing business.

4.1.3. *Tax refund financing services.* In order to encourage the export of cross-border e-commerce enterprises, the government refunds the value-added tax and consumption tax after the cross-border e-commerce enterprises successfully export goods. Cross-border e-commerce tax rebates cannot arrive in time. Banks can use the export tax rebate receivables as a guarantee to provide short-term current loans to cross-border e-commerce enterprises. It can solve the short-term liquidity problems.

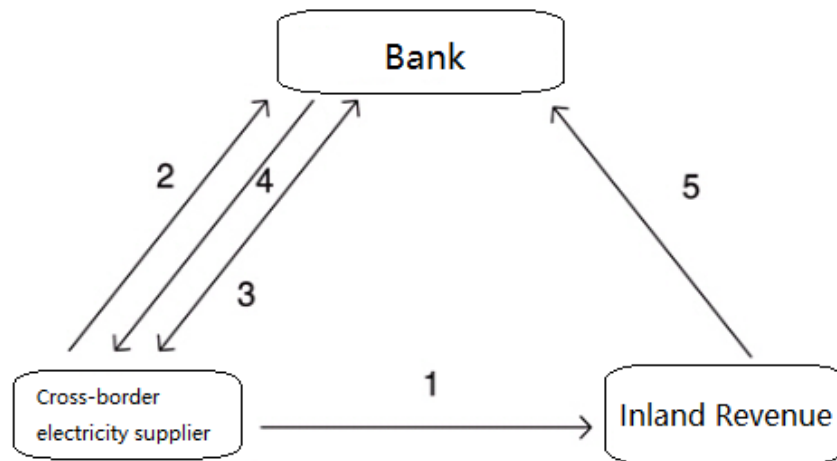


FIGURE 2. Tax refund financing services

1. Cross-border e-commerce enterprises handle the procedures for the export of goods, and then it applies to the tax department for tax rebates.
2. After cross-border e-commerce enterprises get the export records, they carry the materials to the bank to apply for credit.
3. E-commerce enterprises and banks sign an export tax rebate account hosting agreement.
4. After the banks approve the information, they issue the loans to the e-commerce enterprises.
5. When the tax refunds back to the enterprise accounts, the banks deduct money from the accounts.

4.2. **Optimizing settlement methods.** Dalian area should strengthen cross-border electronic payment system. In order to support the development of cross-border electronic payment service enterprises, it can allow cross-border pilot payment enterprises to handle offshore payment and settlement business. The State Administration of Foreign Exchange receives online trading orders, payment records and actual clearance information. After the State Administration of Foreign Exchange verifies the authenticity of the transaction, the foreign exchange amount of the transaction may not be credited to the total amount of individual customer settlement. The State Administration of Foreign Exchange should allow enterprises to focus on handling the payment of foreign exchange.

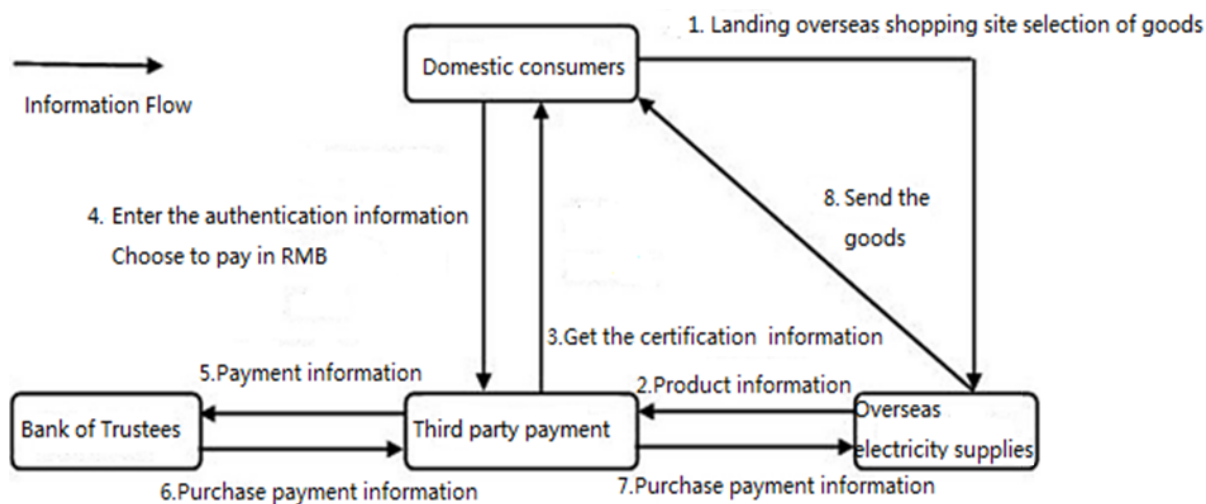


FIGURE 3. Payment process

Payment agencies should be encouraged to provide payment services for cross-border e-commerce. At present, there are few cooperations between Dalian banking institutions and foreign payment agencies, and it is detrimental to the development of cross-border e-commerce enterprises in Dalian. Before the introduction of new policies, the payment agencies apply to the State Administration of Foreign Exchange and the People's Bank of China for implementation [10]. Dalian needs to pay attention to the construction of cross-border electronic payment system. It should encourage and support banking institutions and payment agencies to serve cross-border e-commerce.

4.3. **Establishing new types of insurance business.** Dalian Free Trade Area can take the following measures. The first is making active use of Internet technologies to standardize the development of insurance-based e-commerce platforms. The government needs to support insurance companies to actively expand the development of new businesses such as credit insurance for small and micro enterprises. At the same time, it needs to support the development of insurance products. The second is to expand the scale and coverage of export credit insurance. It needs to cover all aspects of cross-border e-commerce such as cross-border transport insurance and cross-border payment insurance. At the same time, the government needs to encourage insurance companies to expand short-term export credit insurance business. Third, the government needs to support financial institutions to develop more hedging products, and they should be suitable for cross-border e-commerce needs [11].

4.4. **Solving the exchange rate risk.** Dalian Free Trade Area and Dalian Futures Exchange can cooperate with the introduction of foreign exchange futures trading varieties. The international environment is unpredictable. There is an inevitable financial risk under the floating exchange rate system. This exchange rate change will bring about the loss of funds for cross-border e-commerce. It needs a new kind of financial instrument to digest

this risk. Futures varieties can help e-commerce to avoid this loss of future uncertainty. Enterprises can manage their exchange rate risks by using financial instruments and exchange rate management tools in their business activities, and they can avoid fluctuations in exchange rate risk.

5. **Conclusion.** This article synthetically analyzes the development status, existing deficiency and its own advantages of cross-border e-commerce financial services in Dalian area. It puts forward a variety of response measures. Cross-border e-commerce financial services in the Free Trade Area is a new thing. Reform is deepening, and the potential of the free trade area will be further enhanced. The details of the cross-border e-commerce financial services still need further study in the Dalian area of the Liaoning Free Trade Area. How to analyze these issues is still a question for us to consider.

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