

# Research on the Innovation Model of E-commerce Platform Supply Chain Finance Based on Stablecoins: A Case Study of JD.com

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## Abstract

In the context of the implementation of Hong Kong's stablecoin policy and the slowdown in industry growth, this paper takes JD.com as an example to study the innovative model of e-commerce supply chain finance based on stablecoins to solve the problems of inefficient cross-border settlement and financing difficulties for small and medium-sized enterprises. Through the precise identification of JD.com's business pain points via case studies, the quantitative alignment of "internal capabilities-external demands" using the SWOT-PEST analysis method, and the integration of key data at both the industry and enterprise levels, this study fully demonstrates the feasibility of the stablecoin-based innovative model for e-commerce supply chain finance at JD.com. It provides empirical support for the subsequent model design and industry-wide promotion. This study designs a stablecoin application model driven by blockchain and smart contracts, which can significantly reduce costs and increase efficiency and strengthen risk control in cross-border settlement and financing scenarios. This model provides a replicable innovation template for the industry, which has important theoretical and practical significance for promoting the digitalization and globalization of supply chain finance.

**Keywords:** stablecoin; JD.com; supply chain finance; Innovative model

## 1. Introduction

### 1.1 Research background and significance

#### 1.1.1 Research background

(1) Dual drive between policy and enterprise: The entry into force of Hong Kong's Stablecoin Ordinance and the application of stablecoin licenses by giants such as JD.com provide a policy basis and industry benchmark for the application of stablecoins in financial scenarios, aiming to reshape the efficiency pattern of cross-border payments and supply chain settlements.

(2) Industry bottlenecks force innovation: Although the scale of supply chain finance continues to grow, its growth rate has been decreasing year by year since 2021, and the pain points of traditional models in terms of efficiency, cost and cross-border settlement have been highlighted. Under the challenge of slowing growth, the integration of stablecoins and supply chain finance has become an important direction for innovation and breakthrough. As shown in Figure 1, the growth rate of China's SCF industry has been declining steadily since 2021, despite an expanding overall balance, highlighting the urgency for efficiency-driven innovation rather than mere scale expansion [1]. Figure 2 further illustrates the slowdown in asset scale growth, which underscores the market's need for new models like stablecoin integration to reinvigorate development."

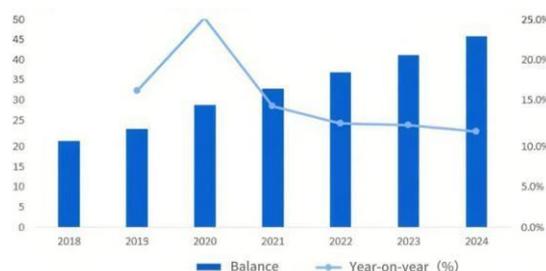


Figure 1 Analysis of the balance and growth rate of China's supply chain finance industry from 2018 to 2024 (unit: trillion yuan, %)

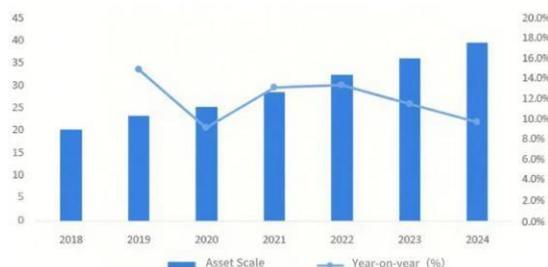


Figure 2 Asset scale and growth rate of China's supply chain finance industry from 2018 to 2024 (unit: trillion yuan, %)

### 1.1.2 Research significance

(1) Theoretical significance: It fills the gap in the cross-research of stablecoins and supply chain finance at the micro application level, and provides an empirical case from the field of e-commerce for the theory of "blockchain + stablecoin" to drive financial innovation.

(2) Practical significance: It provides specific solutions for platforms such as JD.com to solve the problems of cross-border settlement and financing of small and medium-sized enterprises, which has reference value for improving their ecological competitiveness.

## 1.2 Research status at home and abroad

At present, the research on stablecoins and supply chain finance at home and abroad is still in a state of fragmentation. Foreign studies mostly focus on the monetary attributes, efficiency improvement, and potential systemic risks of stablecoins<sup>[1-2]</sup>. Domestic research focuses on the model innovation of supply chain finance and its enabling role in small and medium-sized enterprises<sup>[3-5]</sup>, although some scholars have recently begun to pay attention to the infrastructure trend of stablecoins<sup>[6]</sup> and their application in cross-border scenarios<sup>[7-8]</sup>. In-depth research on micro business scenarios of e-commerce platforms is still insufficient. This study aims to bridge this gap.

## 1.3 Research ideas and methods

### 1.3.1 Literature research method

This paper collects relevant literature on stablecoins, supply chain finance and the implementation effect of supply chain finance through CNKI, Google Scholar and other network knowledge databases for systematic research, and determines the research idea of this paper based on this.

### 1.3.2 Case analysis method

This paper selects JD Technology, a subsidiary of JD Group, which is a representative enterprise in the wave of financial technology development, to analyze supply chain finance, through the introduction of JD Technology's supply chain finance platform, the introduction of its operation mode and the analysis of the implementation effect, sort out its existing competitive advantages and development limitations, put forward feasible suggestions for the existing shortcomings, and obtain universal research enlightenment.

### 1.3.3 SWOT-PEST analysis

With the PEST-SWOT model as the core analysis framework, this paper comprehensively considers the four macro dimensions of politics, economy, society and technology, and deeply analyzes the internal advantages, potential disadvantages, external opportunities and possible external threats of JD Supply Chain Finance's introduction of stablecoins. This multi-dimensional, internal and external analysis method can provide a comprehensive insight into the adaptability of the internal and external environment of JD.com's supply chain finance to introduce stablecoins, and provide a scientific basis for judging the feasibility of stablecoin applications by systematically sorting out the correlation and impact between various factors, thereby laying the foundation for the subsequent innovation model design and risk prevention and control strategy formulation.

## 2. Relevant concepts and theoretical foundations

### 2.1 Stablecoins

#### 2.1.1 Definitions

Stablecoins are cryptocurrencies designed to be pegged to the value of specific assets (usually fiat currencies), reducing price fluctuations through anchoring mechanisms, combining the digital circulation characteristics of cryptocurrencies with the value stability of traditional assets.

It is mainly divided into four categories: fiat currency collateral, which is collateralized by 1:1 fiat currency reserves, with high stability but relying on centralized institutional endorsement; Crypto asset collateralization, which maintains prices by over-collateralizing other cryptocurrencies and combining smart contracts, has a high degree of decentralization but needs to cope with the price fluctuations of collateral assets. Algorithmic stablecoins, which rely on algorithms to regulate supply and demand to maintain prices, have no physical collateral and have high risks. A hybrid stablecoin that combines collateral and algorithmic mechanisms to balance stability and decentralization.

#### 2.1.2 Characteristics

(1) Price stability: The value of stablecoins is usually pegged to specific assets such as fiat currencies (such as the US dollar) or gold, making the currency value relatively constant through an anchor mechanism with minimal fluctuations.

(2) High liquidity: Stablecoins are based on blockchain technology, with low transaction costs and fast speed, and can circulate without barriers across borders, and are widely used on major exchanges and DeFi (decentralized finance) platforms, achieving transaction confirmation from seconds to minutes, supporting 24/7 uninterrupted trading, regardless of traditional financial institutions' working days and time zones.

(3) Programmability: Stablecoins support smart contracts, which allows it to automate transactions and actions based on preset rules. For example, in supply chain finance, smart contracts can be used to achieve automated settlement of "goods rights transfer as payment" to improve the efficiency and accuracy of business processes.

(4) High transaction transparency: Stablecoin transaction records are stored on the blockchain, and on-chain data is transparent and immutable, which not only reduces the trust cost of both parties to the transaction but also facilitates regulatory supervision and improves transaction transparency and security.

### 2.2 Supply chain finance

#### 2.2.1 Concept

Supply chain finance is a model that provides financial services such as financing, settlement, and risk management for small and medium-sized enterprises in the upstream and downstream of the supply chain, relying on the credit and real trade background of core enterprises. Its core is to transform the uncontrollable risks of a single enterprise into the controllable risk of the entire supply chain by integrating transaction data, logistics information and capital flow in the industrial chain, so as to solve the financing problems caused by insufficient credit and lack of collateral for small and medium-sized enterprises, and ultimately improve the overall capital operation efficiency of the industrial chain.

#### 2.2.2 Traditional model

The traditional supply chain finance model mainly focuses on the design of assets and rights in the trade link, and common types include:

(1) Accounts receivable financing, that is, the upstream supplier pledges or transfers the accounts receivable documents of the core enterprise to financial institutions to obtain payment in advance;

(2) Inventory financing, in which enterprises use their own or third-party supervised inventory as collateral to obtain funds, is suitable for industries with slow inventory turnover;

(3) In prepayment financing, downstream dealers obtain funds through financial institutions to pay advance payments to core enterprises, and core enterprises use goods or warehouse receipts as repayment guarantees.

#### 2.2.3 Existing pain points

There are many pain points in traditional supply chain finance:

- (1) The problem of information asymmetry is prominent, the data of various participants in the supply chain is fragmented, and it is difficult for financial institutions to verify the authenticity of transactions, which can easily lead to risks such as false trade and repeated pledges.
- (2) Settlement efficiency is low, especially in cross-border scenarios, relying on the SWIFT system, involving multiple intermediaries, accounting periods of up to 3-7 days, and high handling fees.
- (3) The risk control method is single, overly dependent on the credit of core enterprises, and the financing approval rate of small and medium-sized enterprises is only about 30%; The low degree of process digitization, the slow circulation of paper documents and easy tampering with lead to a financing approval cycle of 15-30 days, making it difficult to match the rapid turnover needs of the supply chain

### 2.3 JD.com supply chain finance

#### 2.3.1 Business scope

Relying on JD.com's huge e-commerce ecology and logistics system, JD Supply Chain Finance provides diversified financial services for upstream and downstream enterprises in the industrial chain, covering the whole process from raw material procurement, product production, commodity circulation to terminal sales. In the procurement process, provide procurement financing services for downstream dealers to help them obtain sufficient funds for stockpiling; In the production and sales stage, for upstream suppliers, based on their transaction data with JD.com, provide services such as accounts receivable financing.

#### 2.3.2 Existing model

Relying on its own e-commerce platform, JD.com's main service objects are small and medium-sized enterprises on the platform, and it has mainly experienced three models so far, namely the bank-enterprise cooperation model, the platform self-operated model and the characteristic small and micro model.

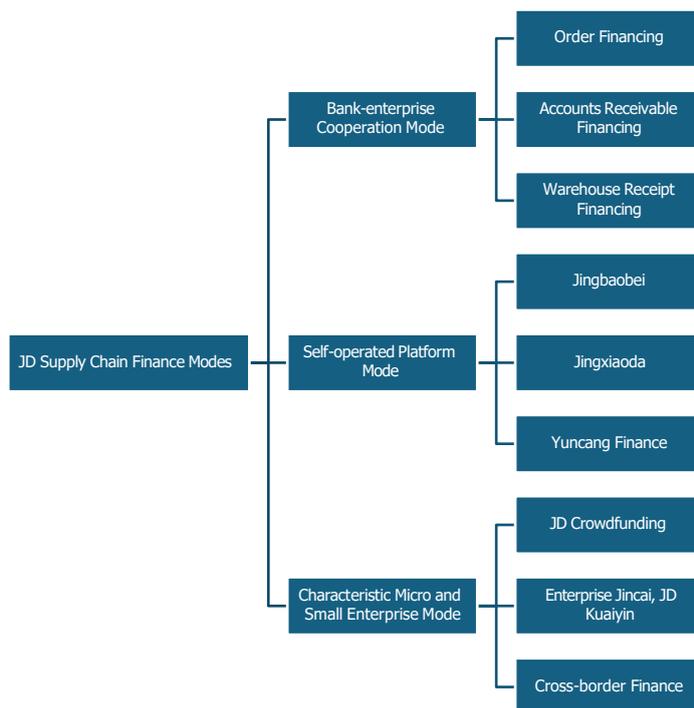


Figure 3 Classification and specific products of JD.com's current supply chain finance business models

JD.com has built a financial service system covering the entire supply chain through three dimensions, which has alleviated the pressure on enterprise capital turnover to a certain extent, but there are still obvious pain points in the specific model, as shown in Figure 3.

In bank-enterprise cooperation financing, relying on JD.com's one-way output data, the data of all parties in the supply chain is not interoperable, and it is difficult for financial institutions to verify the authenticity of transactions, which can easily lead to false financing and repeated pledge risks. Moreover, paper documents and manual review are cumbersome, and financing approval takes more than 15 days, which cannot match the short-term capital needs of enterprises.

Among the platform's self-operated products, although Jingbaobei and Jingxiao Loan rely on big data to improve the efficiency of risk control, the risk control model relies on the data within the platform, which cannot cover the external operating conditions of suppliers, and the financing quota of non-core and newly settled small and micro enterprises is limited; Although the evaluation of movable assets in cloud warehouse finance is digital, the linkage between inventory value and fund transfer still requires manual intervention, and it is difficult to adjust in real time.

In the special scenario services, although cross-border finance is approved online, settlement relies on the SWIFT system, which takes 3-7 days to arrive, and the exchange and handling fees are high. Enterprise Jincai, JD Express and other services are concentrated in mature enterprises with good credit, and the coverage of start-ups and remote small and micro enterprises lacking historical records is insufficient.

Although JD.com's supply chain finance model is relatively mature, it still faces challenges in cross-border settlement efficiency, risk control data collaboration, and service coverage for small and micro suppliers, and it is urgent to introduce new technologies to make breakthroughs.

### **3. SWOT-PEST analysis of JD.com's supply chain finance introduction of stablecoins**

#### **3.1 SWOT-PEST comprehensive analysis**

Table 1 SWOT-PEST analysis matrix of JD Supply Chain Finance's introduction of stablecoins

<b>dimension</b>	<b>Advantages (S)</b>	<b>Disadvantages (W)</b>
Politics (P)	the state supports financial technology innovation; JD.com has rich experience in compliance	The regulatory framework for domestic stablecoins is imperfect, and there is policy uncertainty
Economy (E)	JD.com has strong funds, a wide customer base and sufficient market space	The initial investment is high, and the short-term increases the operating burden
Social (S)	JD.com has high brand awareness, strong user trust, and close cooperation between upstream and downstream enterprises in the supply chain	Some companies lack awareness of stablecoins and their acceptance needs to be improved
Technology (T)	JD.com owns "Zhizhen Chain" and other blockchain technology foundations, with strong big data risk control capabilities	It needs to be further strengthened in terms of stablecoin privacy protection, anti-money laundering and other technologies
<b>dimension</b>	<b>Opportunity (O)</b>	<b>Threat (T)</b>
Politics (P)	Hong Kong's Stablecoin Ordinance comes into effect to provide reference, and domestic regulation may be gradually improved	Cross-border regulatory policies vary greatly, increasing the difficulty of compliance
Economy (E)	The growth of cross-border trade has a large demand for efficient settlement, and the cost advantage is obvious	The market competition is fierce, and other institutions are also laying out related fields
Social (S)	Enterprises have an urgent need for efficient and low-cost settlement and financing methods	There are certain doubts about the trust in stablecoins in society
Technology (T)	Blockchain technology is constantly evolving, and related security technologies are becoming more and more mature	Technology updates and iterations are fast, and there is a risk of technology obsolescence

### 3.2 Feasibility conclusion of introducing stablecoins

Based on the PEST-SWOT analysis, JD.com's introduction of stablecoins in supply chain finance has a phased feasible foundation, which needs to be promoted under the premise of coping with risks and making up for shortcomings.

From the perspective of feasibility support, external policies support financial innovation, cross-border trade needs efficient settlement, financial technology acceptance and blockchain technology maturity, constituting policy, economic, social and technological opportunities; JD.com's financial strength, customer base, brand trust, and "Zhizhen Chain" technology and risk control capabilities form internal core advantages. The superposition of internal and external conditions not only meets the foundation of "policies can be explored, market demands, technology can be realized, and business scenarios", but also builds resource barriers that are difficult for small and medium-sized platforms to reach, providing guarantee for the implementation of stablecoins.

From the perspective of risk controllability, problems such as unclear regulation, cross-border regulatory differences, high initial investment, low corporate acceptance, and technology to be strengthened can be resolved through strategies: learn from Hong Kong's experience in supervision, and promote compliance pilots before promotion; In terms of cost and acceptance, invest in stages and carry out customer training; Technically, it relies on iteration to strengthen privacy protection and reconciliation capabilities. JD.com has the resources to promote optimization, and shortcomings do not pose a fundamental obstacle.

In summary, the feasibility of introducing stablecoins is established, and it is recommended to promote "compliance first, pilot breakthroughs, and gradual promotion": give priority to small-scale pilots in cross-border trade scenarios, verify efficiency and cost advantages, improve compliance and technical capabilities, and then expand to domestic supply chain financing, and finally realize the whole process application of stablecoins.

#### 4. Design of JD.com's supply chain finance innovation model based on stablecoins

##### 4.1 Core logic of pattern design

With blockchain as the underlying support, stablecoin as the value carrier, and smart contract as the execution tool, this model aims to open up the whole link of "order-logistics-capital-supervision" and achieve the three goals of cost reduction and efficiency increase, risk control compliance and scenario adaptation.

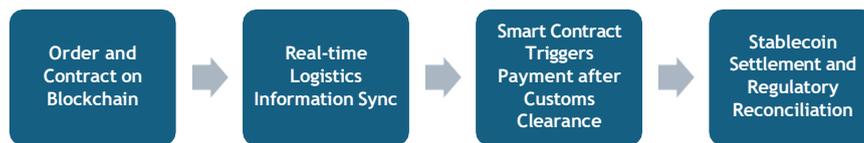
##### 4.2 Design of specific application scenarios

###### 4.2.1 Cross-border supply chain settlement scenarios

In traditional cross-border trade, settlements are plagued by inefficiencies such as multi-intermediary involvement, high fees, and lengthy processing times (typically 3-7 days) through the SWIFT system. The proposed stablecoin-based model, as depicted in Figure 4, aims to revolutionize this process by creating a seamless, automated, and transparent settlement cycle. This model operates through four interconnected steps, leveraging blockchain and smart contracts to ensure security and efficiency.

Figure 4 Operational workflow of the stablecoin-based cross-border supply chain settlement model

###### 4.2.2 Financing scenarios for small and medium-sized suppliers



SMEs often face financing challenges due to a lack of credit history and collateral. The stablecoin-based financing model, illustrated in Figure 5, addresses this by utilizing real-time operational data from the supply chain as digital collateral. This model transforms the traditionally lengthy and manual approval process into a dynamic, data-driven, and automated system, comprising the following key stages:

Figure 5 Operational workflow of the stablecoin-based financing model for SMEs

#### 5. Conclusions and prospects

##### 5.1 Research conclusions



The main conclusions of this study are as follows: First, the innovative model based on stablecoins can significantly improve the efficiency of cross-border settlement and financing, and solve the pain points of the industry. second, the combination of whole-process data chain and intelligent risk control greatly enhances risk management and control capabilities; third, this model is practical and feasible, which will help JD.com expand its service ecology and enhance its competitiveness; Fourth, JD.com's practice provides a replicable innovation template for the e-commerce industry.

##### 5.2 Future Prospects

In the future, the development of this model depends on three key factors: technological innovation (such as cross-chain interoperability and AI risk control), regulatory improvement (learning from Hong Kong's experience to promote

compliance pilots), and ecological collaboration (expanding to insurance, securitization and other scenarios), ultimately promoting the integration of global e-commerce supply chain finance.

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