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# Analysis of Factoring Business Model Based on Supply Chain Finance

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**Abstract:** As a typical form of supply chain finance, factoring helps solve the financing difficulty of SMEs. With the rapid development of supply chain finance and blockchain, factoring has more development opportunities with constantly emerging innovation models. In summarizing the development of the factoring business in China, this paper focuses on the comparative analysis of the business models of forward factoring, reverse factoring, "1 + N + 1" factoring, and their applicable situations. The main conclusion is that forward factoring is applicable to the backward supply chain, whereas reverse factoring is also applicable to the forward supply chain.

**Keywords:** Reverse factoring; Commercial factoring; Supply chain finance; Business model

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## 1. Introduction

With the rapid development of multinational companies and outsourcing, market competition has focused on the overall supply chain efficiency, which requires the integration and coordination of logistics, capital flow, and information flow, thus resulting in a new research topic of supply chain finance. As a typical form of supply chain finance, some new factoring models backed by blockchain and digital technology are emerging, which require in-depth research.

A factor provides a supplier with more than two comprehensive financial services, including accounts receivable financing, collection, management, and bad debt guarantee. SME suppliers have difficulties in financing due to the lack of real estate collateral. However, accounts receivable of SME suppliers can be bought by factors, which is helpful to solve the financing problems of SME suppliers and thus promote a virtuous cycle of supply chain capital flows.

Factoring has more than 100 years of history abroad, whereas it is still a financial innovation in China. Before 2008, only the Bank of China carried out a small amount of international factoring business in the import and export trade. In 2008, Shenzhen Development Bank took the lead in bank factoring. Since 2012, commercial factoring developed rapidly under the promotion of the Ministry of Commerce. From 2006 to 2019, China became the world's largest factoring country with the global proportion increasing from 1% to 15%.

In just ten years, China's factoring business has developed rapidly from zero to the world's largest. Although belongs to a traditional financing channel, some new business models have been introduced under the supply chain finance development encouraged by the development of blockchain and digital technology. Based on the necessary review of the development of factoring in China, this paper focuses on the comparative analysis of the business models of forward factoring, reverse factoring, and "1 + N + 1" factoring and their applicable situations.

## 2. Literature review

In the past decade, supply chain finance has become a hot area of research and practical innovation. Seifeit believes that reverse factoring makes a positive response between supply chains, which enables both parties to complete the capital chain and enrich the content of trade and financial transactions [1]. Tanrisever et al. found that reverse factoring will be beneficial if the spread of deadweight financing costs is high and the nominal payment period and demand fluctuate significantly [2]. Lekkakos and Serrano believe that reverse factoring focused on the core enterprise to finance its many SME suppliers will greatly expand supply chain finance and promote the overall development of the supply chain, which further puts forward the conditions that factoring needs to satisfy to prevent the increase of financing cost and the decrease of profit [3]. Rumeysa proposes that when a company reaches the limits of the bank credit, factoring can effectively whitewash its balance sheet. Factoring allows the leverage ratio on the balance sheet to remain constant as the liabilities increase [4].

Similar to the development phases of factoring in China, the relevant theoretical research has also evolved from international factoring to banking and commercial factoring. Yu Hui and Ma Yunlin point out that the order-to-factoring model can improve the overall efficiency of the supply chain and achieve win-win benefits for multiple parties [5]. Chen Zhongjie and Yu Hui proposed that reverse factoring can mitigate the financing difficulty problem of SME suppliers, proving that reverse factoring can improve the overall efficiency of the supply chain when suppliers are constrained by capital, especially beneficial to core enterprises [6]. Chen Zhongjie and Yu Hui further point out that robust decision-making can reduce the risk of credit default and provide effective decision-making for supply chains with information missing [7]. Yang Ruilin et al. constructed a retailer's competitive decision model under two cases of no financing and order-to-factoring, which proved that the order-to-factoring model can improve the overall efficiency of the supply chain [8]. Li Haihang and Hu Xialian proposed that besides providing financing services, the factor can also help enterprises manage and collect accounts receivable, investigate commercial credit, and guarantee credit risk [9].

## 3. Current development of factoring business in China

Europe in the 16th century was the earliest birthplace of commercial factoring, while factoring was only a collection of receivables for suppliers. As shown in **Figure 1**, the global factoring experienced an overall upward trend except for a brief decline during the epidemic. In 2022, the global factoring amounted to 3.66 trillion euros, representing an annual growth rate of 18.3%. As shown in **Figure 2**, the total factoring in Europe in 2022 was approximately 2.50 trillion euros, accounting for the largest share of the global factoring market. The total factoring in Asia-Pacific accounts for 24.08%, among which China accounts for 65.46%.

As shown in **Figure 3** and **Figure 4**, the total factoring in China continued to increase from 2016 to 2022. The factoring of China Factoring Association reached 3.56 trillion RMB in 2021, representing an annual growth rate of 42.97%. Among them, domestic factoring amounted to 3.25 trillion RMB, accounting for 91.29% of the total, while commercial factoring is growing particularly fast. There were about 4,000 factoring companies in China in 2019, of which 33% were listed companies, 53.7% were private enterprises, 2.5% were policy enterprises, and 10.7% were non-listed other factoring companies. In 2020, there were 58 state-owned factoring companies in China, which were located in major domestic commercial centers such as Beijing, Shanghai, and Guangzhou. The overall scale of the factoring industry continues to expand, and the healthy competition among the major factors has accumulated much experience in improving the market trading environment and risk prevention and control capabilities.

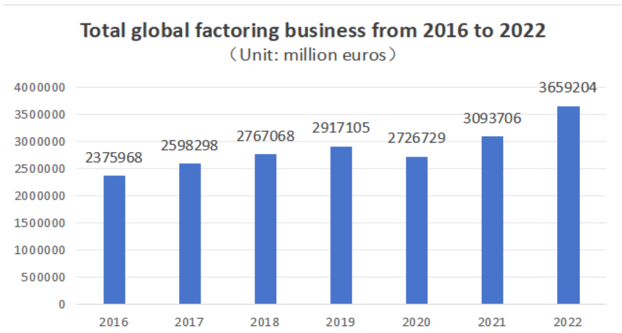


**Figure 1**. Total global factoring business 2016–2022; source: FCI Statistics

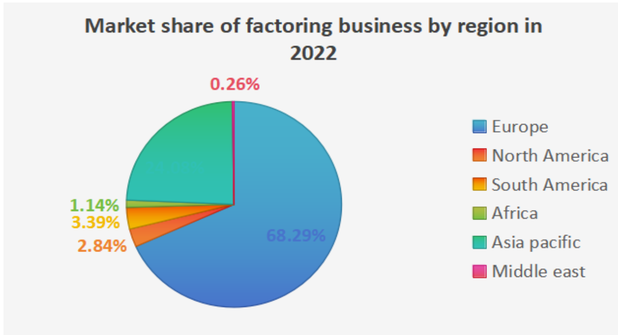


**Figure 2**. Market share of factoring business by region 2022; source: FCI Statistics

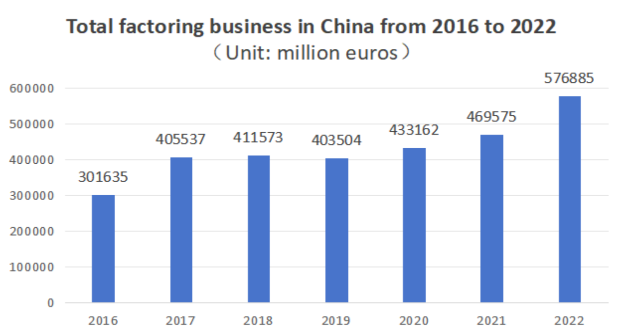


**Figure 3**. Factoring business in China 2016–2022; source: FCI Statistics

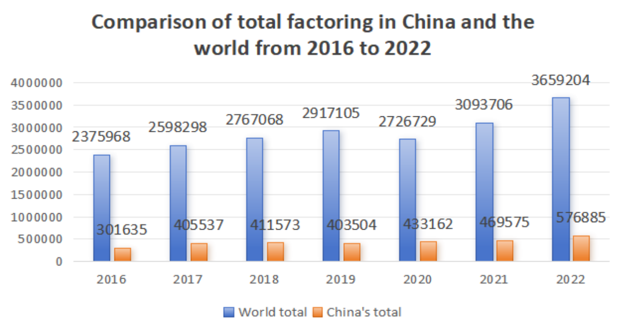


**Figure 4**. Factoring in China to the world 2016–2022; source: FCI Statistics

## 4. Factoring business model

Commercial factoring is a financing activity carried out by non-bank financial institutions. It is a financial product designed to help enterprises alleviate the liquidity problem of accounts receivable. It usually involves a three-party relationship to maintain the steady operation of the corporate capital chain and the normal capital flow of the entire supply chain. Factoring has experienced a long period of evolution and development, from its initial application focusing on cross-border trade to domestic trade, from initially only providing financing and payment collection services to sellers, to providing capital flows for the overall efficiency of the supply chain. At present, many countries and regions have begun to support and promote commercial factoring. The regulations, policies, and financing guarantee of factoring have been continuously improved to provide more financing channels and development opportunities for supply chain enterprises. With the continuous development of factoring, the factoring model is becoming abundant under the promotion of supply chain finance and blockchain technology.

According to different principles of factoring, factoring can be divided into forward factoring and reverse factoring. The transaction process of these two types of factoring is the same: the seller and the buyer have real commodity transactions and use credit sales in the supply chain. The consignee does not pay the goods to the supplier until a certain period, and the supplier packages and sells the accounts receivable to the factor to cover the fund gap. The factor pays the amount to the supplier in advance after deducting certain fees and recovers the amount from the consignee after the due date. The main difference between forward factoring and reverse factoring is that the originator of the factoring business is different, on which the factor needs to conduct credit evaluation.

## 4.1. Forward factoring

As shown in **Figure 5**, the operation mechanism of factoring involves three parties: the supplier is the seller (an enterprise that sells goods or provides services), the receiver is the buyer (an enterprise that purchases goods or services), and the factor (a financial institution that provides financing and risk management services). Forward factoring is a financing product in which the supplier obtains funds in advance by selling the accounts receivable to the factor in packages. Forward factoring can provide financing for suppliers with funding gaps due to selling on credit. It is initiated by the supplier on its interest and focuses on the credit evaluation of the supplier. This is the most traditional factoring model, which can be divided into two categories: recourse factoring and non-recourse factoring. Most forward factoring business is non-recourse.

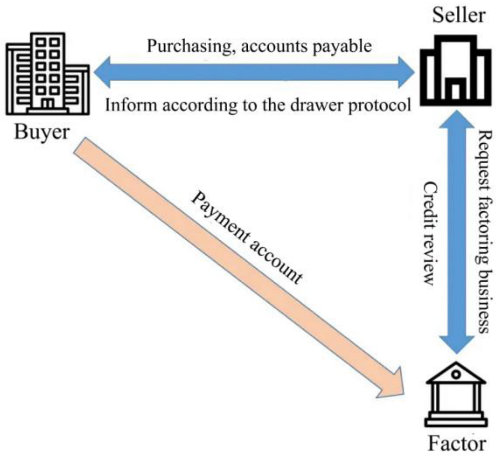

**Figure 5**. Forward factoring

## 4.2. Reverse factoring

As shown in **Figure 6**, unlike forward factoring, reverse factoring is an emerging factoring business in which the consignee applies for factoring. The credit evaluation of the factor focuses on the downstream core enterprise rather than the upstream supplier. Reverse factoring can effectively identify and control the credit risk of core enterprises, making it easier to confirm accounts receivable and control the authenticity of transactions. In reverse factoring, the core enterprise actively applies financing to small-scale suppliers with its reputation for the overall efficiency of the supply chain. As for the characteristics of SME suppliers including low credit limit and small financing scale, replacing the credit of SME suppliers with the higher credit level of the core enterprises can obtain financing for SME suppliers under more favorable loan conditions, and can also obtain more favorable capital inflow for the whole supply chain. Reverse factoring can also provide long-term assistance for the strategic cooperation between upstream and downstream enterprises in the supply chain, to realize the unification of logistics and capital flows and improve the overall efficiency of the supply chain.

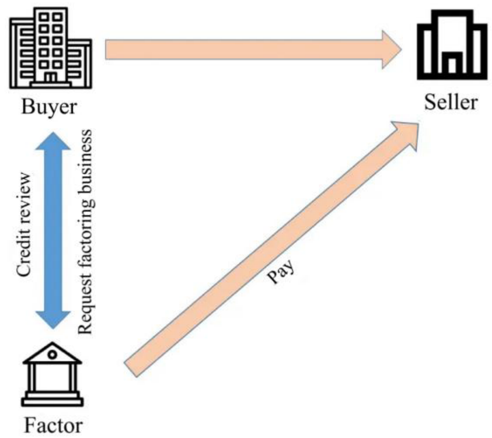


**Figure 6**. Reverse factoring

### 4.3. "1 + N + 1" factoring

In the supply chain, the core enterprises manipulate contracts for the trade between SME suppliers and core enterprises. Therefore, the SME suppliers are deeply influenced by the core enterprise in terms of the transaction price, credit terms, and terms of payments. The core enterprise often makes use of its advantages in transactions to unilaterally extend the time of payment and adopt more favorable terms of payment, which leads to tight liquidity for SME suppliers. Because modern market competition has changed from inter-enterprise competition to whole supply chain competition, the financial dilemma of SME suppliers will inevitably affect their supply price and supply capacity, thus affecting the overall efficiency of the supply chain.

Based on the overall efficiency of the supply chain, reverse factoring further evolved into the "1 + N + 1" factoring business model as shown in **Figure 7**, that is the 1 (core enterprise) +N (upstream suppliers) +1 (factor). To improve the overall efficiency of the supply chain, the core enterprise volunteers for reverse factoring to adopt financing for SME suppliers by their reputation, to solve the financial dilemma for the upstream SME suppliers. The "1 + N + 1" factoring business model can effectively help suppliers who have lower credit ratings and have difficulties in obtaining external finance to enhance the availability of funds, thus improving the overall efficiency of the supply chain. As for the core enterprise, it can benefit from the improvement of the overall efficiency of the supply chain, thus having the motivation to actively participate in the reverse factoring business. As for the factor, it provides factoring services to upstream suppliers proposed by the core enterprise, which can effectively identify the authenticity of commodity transactions and the possibility of repayment of receivables by the core enterprise. With the development of digital technology and blockchain technology, the factors can grasp the transaction information of the core enterprise simultaneously and effectively control the risk.

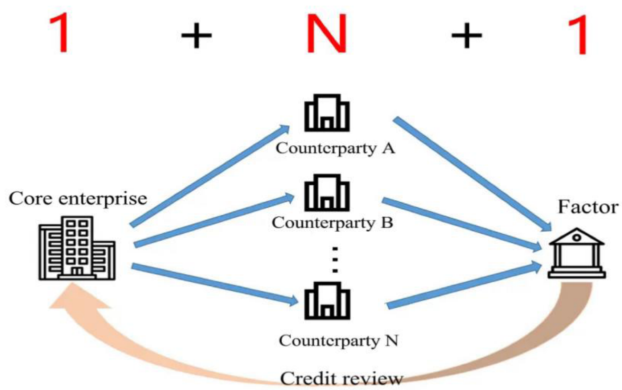


**Figure 7**. "1 + N + 1" factoring business model

## 5. Conclusion

Forward factoring is applicable to the backward supply chain of 1 (manufacturer) +N (distributors) +N (retailers). Distributors and retailers are often small in scale and have high credit risk, which leads to financial difficulties. Through the higher creditworthiness of the manufacturer, the forward factoring is usually initiated by the manufacturer to finance the whole supply chain under more favorable conditions, which is helpful to improve the overall efficiency of the supply chain. At the same time, the factor can provide financing proposed by the manufacturer to minimize the cost of risk identification and risk control. This is the traditional business model of commercial factoring, and most domestic factoring businesses currently belong to this type.

Reverse factoring is applicable to the forward supply chain of N (upstream suppliers) +1 (core enterprise). The upstream suppliers are usually smaller in scale and higher in credit risk, which makes it difficult to obtain finance. The core enterprise is often a leading enterprise with superior assets scale, financial strength, and creditworthiness. Reverse factoring financing is initiated by the core enterprise, which can obtain financing for the whole supply chain under more favorable conditions. It is helpful to improve the overall efficiency of the supply chain. At the same time, the factor provides financing proposed by the core enterprise, which can provide the information on accounts receivables in time and pay directly to the factor, which can also minimize the cost of risk identification and risk control. This is an innovative model of factoring and is currently under rapid development.

Forward factoring applies to backward supply chains and reverse factoring applies to forward supply chains. The “1 + N + 1” factoring business model, as a typical model of reverse factoring, enhances the quality of accounts receivable through the core enterprise’s excellent reputation and can achieve win-win results for all parties. As a typical supply chain financial business model, the “1 + N + 1” factoring business model will inevitably acquire more development opportunities under the promotion of the development of digital technology and blockchain technology.

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## Disclosure statement

The authors declare no conflict of interest.

## Author contributions

Study idea conceptualization: Ping Yu
Experimentation: Jiarui Guan
Data analysis and paper writing: Yuying Li, Bohan Liu

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