Supply Chain Financing--A Recipe to Ease SMEs' Financing

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Abstract

Purpose and Research Questions: This thesis mainly aims at outlining the importance of Supply Chain Financing to SMEs, specifically in times of global economic recession and credit squeeze. Supply Chain Financing (SCF) is a rising concept based on supply chain management. While the knowledge of the concept is rather limited, the purpose of the thesis is to explore the concept of SCF and to illustrate its application in two case companies. The focus is on SMEs, which have limited financial resources, and to whom SCF might be a solution to manage financial problems. The research questions concern: What is supply chain financing? What role do banks have in supply chain financing programs? What does supply chain financing mean to SMEs? What are the current and underlying risks of implementation the SCF programs and how to deal with the risks?

Design/methodology/approach: The thesis explores literature on supply chain management, supply chain financing and how the new financial instrument helps the SME financing problem. The empirical study is based on a case study of Shenzen Development Bank. E-mail and telephone interviews have been used to collect information from two companies provided by the interviewee's.

Findings: 1. SCF as a new financial innovation really can help SME's financing problem through SME's strong partners, but also includes a number of certain and uncertain risks. The case study show how the two SMEs deal with the different kinds of financing problem. Their strong trading relationship with top floor company also provides an example to other SMEs that meet similar problems. 2. Supply chain financing could be regarded as a process of business activities, which is a service only professional financial institutions can provide and not any corporate enterprise who has strong financial resources.

Originality/value: This study provides an example on how SCF may ease SME's financing problem by offering a SME a new way of debt financing.

Keywords: supply chain financing, supply chain management, SME
# Content

Abstract

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List of Abbreviations

ARIF     Accounts Receivable and Inventory Financing
OEM      Original Equipment Manufacturer
SCF      Supply Chain Financing
SCM      Supply Chain Management
SDB      Shenzhen Development Bank
SME      Small and medium enterprises
1. Background

In many countries, SMEs have been an important part in national economy, yet their financing difficulties have become the common problem all over the world especially in China. In the case of the global economic downturn, a lot of Chinese medium-sized and small enterprises from Yangtze River Delta and Pearl River Delta suffer from big economic pressure of subprime crisis, most of them stopped production even went to bankrupt due to this crisis. And major financial institutions were involved in this crisis, had financial loss in unwise and unexpected investment, so for self-protection to deduce the financial loss and risk and make the economics healthy, the state's economic policy lead a direction to tighten credit, this made the situation more serious to SMEs, they would die without finance blood transfusion. In the economical area, the SMEs as the global suppliers, traditional economic structure and OEM (Original Equipment Manufacturer) determined the main kind of labor force. The employee of those SMEs in Yangtze River Delta and Pearl River Delta mostly are rural migrant workers, there are about 130 million rural people working out, about 20 million of the migrant workers, 15.3% of the total rural migrant workers, lost their jobs because of the economic downturn, or have yet to find work on returning home (Chen Xiwen, 2009) "Euromoney" magazine referred to the supply chain finance is “one of the hottest topics in banking transactions and trade finance" (http://www.euromoney.com/Article/1900347/Supply-chain-management-Towards-fewer-stronger-chains.html) in the past few years. In the year of 2008 financial crisis caused by the subprime mortgage problem, Supply Chain Finance thrived with high-speed growth trend in the background of credit crunch. At the same time, supply chain innovation in China domestic banking financial sector is also ascendant. From domestic visible information, supply chain finance first appeared in 2003, Shenzhen Development Bank launched the "1 + N" Supply Chain Finance services in July, 2003. And in 2005, the bank initiated supply chain financial services “for small businesses, for trade financing," develop the company's business as the development strategy. Subsequently, due to the needs of the supply chain financing in SMEs, many
domestic commercial banks began to follow and start to develop” supply chain financing", "Trade Finance", "logistics financing" and other names of similar services with different name. Meanwhile, with foreign banks spread of business in China, Standard Chartered, HSBC and other traditional trade finance known for commercial banks, have also joined the internal supply chain, competition from financial markets. So Supply Chain Finance Facility as a new financing facility helps company broaden new financing channels.

Financing difficulties problem of SMEs has been troubled for a long time, supply chain financing as an innovative financing instrument has been used not long time, many financing institutions provide this service, but in the academic SCM literature, the financial flows of supply chain between upstream companies and downstream companies were often neglected and have only recently found greater attention. So there is a need to do research on the two parts.

2. Purpose

Supply Chain Financing (SCF) is a rising concept based on supply chain management. While the knowledge of the concept is rather limited, the purpose of the thesis is to explore the concept of SCF and to illustrate its application in two case companies. The focus is on SMEs, which have limited financial resources, and to whom SCF might be a solution to manage the financial problems. The empirical study focuses on the Shenzhen Development Bank, who is a typical finance institution that provides this kind service. Supply chain financing reduces the credit risk, but it may increase operational risk and other risks if the bank cannot prevent the financial risks.

3. Research Questions

3.1 What is supply chain financing? What is its structure? How does it work? How do banks as one kind of financial institution act in supply chain financing programs?"

3.2 What are the roles of supply chain financing to the SMEs?

3.3 What are the current challenges, obstacles and risks of SCF ?
4. Theoretical framework

4.1 Supply Chain Management & Supply Chain Financing

Supply chain management is defined as "design, planning, execution, control, and monitoring of supply chain activities with the objective of creating net value, building a competitive infrastructure, leveraging worldwide logistics, synchronizing supply with demand, and measuring performance globally (APICS Dictionary). Throughout the 1990s, supply chain management has been regarded as a key focus of manufacturing industry extra locality of profit. In recent years, globalized supply chain has taken the advantage of sourcing from lower cost economies, have reached the most universal initiative (DEMICA, 2008) so the organizations are searching the elsewhere of the supply chain to find the potential or further possible streamlining. They move the management pressure to the suppliers, but many OEM--most of them are SMEs that are operating at thin margins, if they deduce the prices, will possibly bring risk in future. The cooperator should work with its suppliers and buyers with trade bank in export or import business. So merging the flows of the financial supply chain with the physical supply chain is the direction of next steps. Supply chain financing appeared in this case. Stemmer and Seuring are amongst the first authors to use the term of "supply chain finance". Their views are control and optimization of financial flows induced by logistics (Pfohl & Gomm, 2009) Erik Hofmann (2005) referred that Supply Chain Finance (SCF) is an approach that focuses upon theses questions from a collaborative viewpoint. Wesley S. and M. Theodore (2009) provide tools, methods that supply chain partners may adapt to their situation and improvement of their profitability.

In the past, suppliers often reacted to long payment delays by factoring¹ (selling factoring receivables for immediate cash). Because the receivables are sold rather than pledged, factoring is different from borrowing – there are no liabilities on the

¹ Factoring is a financial transaction whereby a business sells its accounts receivable (i.e., invoices) to a third party (called a factor) at a discount in exchange for immediate money with which to finance continued business
suppliers’ balance sheet. Typically, suppliers sell receivables which are from more than one buyer, making it necessary for factors to evaluate buyer portfolios before entering an agreement. This has made factoring an expensive source of finance in emerging markets. Today some buyers are recognizing suppliers' difficulties in accessing finance and instead of taking a "no tolerance" approach have started to implement a collaborative approach termed Reverse Factoring or Supply Chain Finance.

Supply chain financing is innovative financial service which was developed by commercial banking enterprise based on supply chain management. The core is cooperator linkages with its supply chain upstream and downstream business, that is supplier and buyer, combined with personal property, the provision of targeted credit enhancement, financing, security, billing, accounts receivable management, risk participation and risk aversion, and other financial products and portfolio service, for the enterprise improving supply chain management, quality and efficiency from capital flows. Hartley-Urquhart (1998) and Myers (2002) had their own patent related to supply chain financing.

Aberdeen Group defines supply chain finance as "a combination of trade financing provided by a financial institution, a third party vendor, or a corporation itself, and a technology platform that unites trading partner and financial institutions electronically and provides the financing triggers based on the occurrence of one or several supply chain events"(Aberdeen Group, 2006) And what is the task of SCF? To save capital cost by the way of better mutual adjustment or completely new financing concepts within the supply chain (Gomm, 2009) The DEMICA (2007) research report shows the top 9 industry under pressure to extend payment terms with suppliers are Automotive, Food and Drink, Retail Multiples, Hi-tech, Manufacturing Industry, Logistics, Heavy Plant, Electronics, Pharmaceuticals.

The structure of supply chain financing is based on the physical supply chain.
In the picture, we can see the simple relationship of the three companies; bank can help the middle company with its upstream and the downstream. For example, if the middle company is an import company that buy goods from China, but this company must pay for the goods prior to leaving China and the ocean container from China to its own country distribution center takes 30 to 45 days, and has the delay risk. On the other hand, the middle company must distribute the goods to the customers with standard 30 days payment terms for customers, in this example, shows each company of the supply chain can be the weaker one that needs finance help from bank, logistics capital department and other finance institutions.

The huge market demand is another reason why need supply chain financing, first, because the majority of small and medium enterprises’ credit rating and bank credit is insufficient to directly obtain financing from commercial banks. For historical reasons, domestic commercial banks, mainly state-owned enterprises and services in large enterprises with high credit ratings. This led to the bank credit showed a typical distribution of 80/20, that is 80% of the loans concentrated in the basic facilities on large SOEs, while the SME loan market was extremely underdeveloped; Secondly, as the market supply and demand imbalance and inequality between the enterprises, resulting in the supply chain exists between the upstream and downstream businesses strong and disadvantaged businesses. Disadvantaged business enterprises in a strong
advance, settlement cycles, balance due to pay and so delay the negotiation of commercial terms, to grasp the initiative. This situation affects the strength of financial imbalances in the supply chain and smooth flow between the upstream and downstream enterprises. Proved by a third party logistics companies and commercial banks work together, through good supply chain core business credit, make the supply chain upstream and downstream enterprises to better credit support, thereby reducing the risk of supply chain financing, to speed up the supply chain upstream and downstream business goods and capital between the flow rate, and ultimately third-party logistics companies, commercial banks and the supply chain upstream and downstream enterprises, forms a multi-win situation.

Who participate in and promote? Active agents of the financial supply chain include commercial banks, third party logistics and supply chain core business. For commercial banks, financial services through the supply chain can significantly increase cross-selling opportunities to commercial banks, effectively driving the middle of business, settlement and clearing of low-cost deposits in the development, optimizing business structure will help promote China's Bank borrowing business from the traditional transnational-based bank to bank restructuring to achieve this important goal; for logistics, the supply chain through the use of financial services, logistics services from a simple supply chain development to settlement support services and agency procurement, marketing support, supply chain management, including full-service, and then a solid customer relationships, enhance customer value; for the core supply chain business, supply chain is through participation in the financial service to enhance the supply chain upstream and downstream the leading enterprise capabilities and control, training and optimize supplier teams to enhance the competitiveness of the entire supply chain, to further strengthen the brand value. In these three parties work together to promote, the supply chain and related financial services business in the past few years have made rapid development.

Supply chain financing solution as a new method of financing, banks use it as a tool to help their customers' and its suppliers or buyers' finance, this can ease the SME
financing problems, SMEs in China Yangtze River Delta and Pearl River Delta are regarded as the global suppliers, how to help them win purchase orders is urgent task. Supply chain financing is an innovative financing instrument, has its practical value.

Supply chain management has been defined as "the integration of key business processes from end user through original suppliers that provides products, services, and information that adds value for customers and other stakeholders" (Lambert et al., 1998, p. 1). There are several reasons as to why a buying firm should consider developing long-term relationships with suppliers, the chief motive being that by cooperating over time, an increased ratio between value and price can be achieved (Gadde and Hakansson, 2001). In the 1980s, constrained by high transaction cost in the market, vertical integration inside of the enterprises was the main mode of organization of manufacturing, the most part of value chain was concentrated in the company, except the raw materials purchasing, producing, processing, warehousing storage and transport of the product, and even selling were through the inside management and integration. But the organization mode of manufacturing has changed since 1980s, more and more companies turned from the internal division of labor to external division of labor among enterprises. In this case, competition presses the company to reduce the cost in each link. Company focuses more on its core products and business. Throughout the world, technology and economic had developed, the degree of global integration is increasing, international business is increasingly common. Terms of manufacturing, product design may be in Japan, and the procurement of raw materials may be in China or Brazil, parts of the production may in Taiwan or Indonesia at the same time, and then assembled in China, and finally sold around the world. Before this product entering the consumer market, a significant number of companies actually are involved in the manufacture of products, but also due to different geographical location, production level, management capability, thus form a complex network of supply chain. Such a supply chain in the face of fluctuations in market demand, once system is lack of effective management, "Bullwhip effect" is bound to be magnified in all links of the supply chain, which
seriously affect the value of output of the entire supply chain. The industrial revolution, the growing wealth of the world production, the product has more and more consumers choose the product scope, and technological advances will bring some of the products (such as electronic products) and with the updates. Shortening of product life cycle has led to increased product demand fluctuations. Market supply and demand patterns on supply chain capabilities to adapt to the requirements to achieve an unprecedented level, in production management, demand-driven "pull" production theory, JIT (just-in-time) manufacturing theory, flexible production theories have been proposed, and have entered a practical stage. The four flows in supply chain

![Figure 2: flows in the supply chain. Source: (Pfohl, 2000)](image)

In most case, flow of information, flow of goods are done well, the financial flow should be paid more attention. Supply chain management (SCM) is used widely in nowadays' business to optimize the flows of goods, information, rights and the financial flows within and between companies. Most research of SCM in academic papers focused on the flows of goods and information, the financial flows between companies of supply chain, however were often neglected and only in recent time which was draw attention. (Poll & Gomm, 2009)
Supply chain financing sometimes is called as financial supply chain management.

Figure 3: classification of SCF in the Value-Oriented Frame, Source :( Pfohl et al., 2007)

If compare supply chain financing to systems integration, self-liquidating trade finance (SDB, 2003) includes freight charges, the first votes goods financing, accounts receivable financing--is a variety of components. Therefore, supply chain financing is a variety of self-liquidating trade finance products with the use of organic composition, form integrated solutions. Classification in accordance with Shenzhen Development Bank, difference from the risk control systems and solutions of problem-oriented dimension, supply chain financing covered the basis of self-liquidating trade finance products can be divided into inventory financing, prepayments and receivables financing. Including inventory financing and accounts receivable financing is a widely accepted international financing product, with a mature legal framework and practical foundation. The advance funding can be
considered a "future inventory financing", whose risk control techniques are mainly embodied in transferring from the delivery of the goods from the drawn right to actual movable control, and in-transit control in transport process.

Accounts receivable and inventory financing (ARIF) are mainly divided into four kinds ----- asset based loan, secured lending, blanket receivable lending, factoringAdvance financing, as previously stated. From a risk control perspective, the advance payment under the guarantee is based on prepayment customers' drawn right from the vendor, or after the draw right has realized, the in-transit inventory and inventory stock.

Then come to the financial module, is a combination of the product components, which is used in trade among the chain segments, and forms a combination of financing options in which is several companies involved, such as inventory financing items of the redemption goods under the accounts receivable system, Letters of credit under the credit pledge of the future right to transfer goods violence, Commercial Acceptance Discount tickets to open letters of credit after the transfer.

There is an organic integration of supply chain finance products---module and components, forms systematic solutions serviced for supply chain and Transaction chain firms in cluster, and this is the process of forming financial products.

Widely used in industry product supply chain systems integration is so-called "1 +N" model, which proposed by Shenzhen Development Bank, with the co-ordination arrangements of commercial banks and the core company (i.e. "1"), to against the transaction structure of different supply chain fragments, and financing derivatives' financing needs of key nodes, selective to provide credit to upstream suppliers and downstream distributors of the core enterprise of and (i.e. "N").This financing is oriented to enhance the entire supply chain financing facilitated and reduce the overall cost- financing.

Product segmentation ---

A, stock products: credit with collateral static and dynamic credit with collateral, the
standard warehouse receipt collateral loan, general warehouse receipt collateral loan

B. pre-paid products: the first vote / post-shipment credit shall, guarantees delivery (Confirmation position) credit, import letters of credit rights under the pledge of future goods credit, domestic credit, with a posted letter commercial acceptance bill

C. accounts receivable financing: domestic factoring out, domestic secretly factoring, domestic factoring pool financing, Notes pool financing, export receivables pool financing, export credit insurance under the credit.

But in nowadays, there are several problems. In the whole supply chain, there are Corporate Barriers between each supply chain node, Information Sharing and Trust may be another problem of supply chain financing. Common or Interoperable Standards could be another requirement for supply chain financing (Martin R. Fellenz etc., 2009)

4.2 Basic Knowledge of SME

Small to medium-sized enterprises (SMEs) and new businesses have become increasingly important for economic development (e.g. Denis, 2004). Compared with major company, SMEs has its limitation and special characteristics in marketing. It is well documented that SMEs have unique characteristics that differentiate them from conventional marketing in large organizations (e.g. Carson, 1990). Temtime and Pansiri (2006) pointed the perceived managerial problems in SMEs: Managerial actions issues, Human resources development issues, Organizational development issues, Managerial background issues. Gilmore, Carson & Grant (2001) advocates that networking is an inherent tool of marketing which is wholly compatible with SME decision-making characteristics in relation to marketing activities, try to find a way for SMEs dealing with those limitations.

The New Basel Capital Accord (Basel II) was published in June 2004. This modification of the regulatory framework for banking institutions raises the question to what extent real estate financing will be impacted and how market participants can
be adequately prepared. (Pitschke & Bone-Winkel, 2005) Which is a great impact on SMEs? And St-Pierre and Bahri (2006) did research on the accounting beta, the finding showed show that accounting beta does not seem to constitute a global measure of SMEs’ risk, being explained mostly by financial risk and not by commercial, technological, management and entrepreneurial risks components. SME exporters in the transitional economy encountered export problems related to product quality acceptance and logistics management. In comparison, SME exporters in the developed economy faced issues such as country differences, general business risk, and logistics (Neupert, Baughn & Thi Thanh Lam Dao, 2006)

Next we should know the Chinese SMEs' situation, what are the specific characteristics of SME and the financing problem of them?

From Chen Jia (2006), SME can be divided roughly into three development phases in the past 30 years in China. The first phase was from 1978 to 1992, characterized by the expansion of SMEs in number and scale. The second phase was from 1992 to 2002. During this period, the emphasis was reform of state-owned SMEs and the development of non-public sectors. The third phase began with 2002. In June 2002, China promulgated the small and medium-sized enterprises promotion law, which symbolized that the development of SMEs has ushered in a new era.

"Chinese SMEs Yearbook (2007)", close by the end of October 2006, the number of SMEs has reached more than 4200 million in China, accounting for 99.8% of total number of enterprises; Created the value of final goods and services accounted for 58% of GDP, manufacturing products accounted for 59% of the community sales, paid taxes accounted for 50.2% of total, solve a national urban employment for more than 75% of total employment, and 68% of China's import and export volume. But the financing problem of SMEs is a more than 20 years of platitudes. Before the advent of supply chain financing, despite the financial authorities earnest urged. Banks were pledged, but in practice never see a viable systemic solution.

Why Chinese SMEs have to face this problem, this is the SMEs' relative position in
Credit markets.

![Diagram showing profitability and risk of commercial banking business]

Figure 4: Comparison in Profitability and risk of commercial banking business, sources (supply chain financing, 2009) A-Intermediary Business, B-retail loan, C-big enterprise loan, D-consumer loans, E-SME loan

From the figure, the SME is the high-risk group, but high yield. And in theory, high risk does not mean hard to get the finance, if loan interest can make up for the cost of risk, merchant bank can control high risk. But practically, because asymmetric information makes the SME hard to get the loan, there is a gap between theory and
practice, even the Adverse Selection\textsuperscript{1} is existent in credit market.

Traditionally, technique level to overcome the credit risk is the requirement that creditors provide assets to bank which is stable but difficult and easy to realize but hard to transferor, it is better if the company takes stronger corporate with much lower level of risk as guarantees. However, SMEs often lack mortgage assets that the commercial banks want it ; at the same time, due to asymmetric information and uncertain business prospects, they are difficult to get commercial guarantees from others. Therefore, the traditional credit risk control techniques are often useless for SMEs.

The ways of financing are divided into debt financing and equity financing. The debt financing take less time than equity financing.(Andreas A. Jobst,2006) Supply chain financing is one of debt financing. And in the supply chain, most SME plays important role in it, for example, OEM is the way of large-scale social production and a trend of great cooperation, is also an effective way to rationalize resources, and which is the result of social production. In this case, supply side, compared with the purchaser, is in a relatively passive position, and most of the supplies are SMEs, the purchaser press the cost as they for the reason of competition, so they discuss with the suppliers about the price of what they purchase, purchaser is in the strong price position. Extended to the general trade, most suppliers and the distributor do not have too much right of discussing the price and the payment days, so turnover time of circulating funds will be long, then liquidity problems would arise, on the one hand, SME is not easy to get loan, on the other hand, they suffer financing problem from their partners. Reducing costs causes the core business and extend the credit period of upstream firm, overstock downstream enterprises, make its partners' especially SMEs' financing problem more austere. Effective implementation of these strategies must constantly improve the cost-based upstream and downstream, so there are plans to

\textsuperscript{1} Adverse Selection, Adverse selection, anti-selection, or negative selection is a term used in economics, insurance, statistics, and risk management. It refers to a market process in which "bad" results occur when buyers and sellers have asymmetric information (i.e. access to different information): the "bad" products or customers are more likely to be selected. A bank that sets one price for all its checking account customers runs the risk of being adversely selected against by its low-balance, high-activity (and hence least profitable) customers. Two ways to model adverse selection are with signaling games and screening games.
provide supply chain finance that would be a good choice.

5. Methodology

The overall approach is mainly case study. Walliman & Baiche (2001) introduced us how to write a scientific research by steps. Case study (Yin, 1994) is an empirical inquiry, in which focus is on a contemporary phenomenon within its real-life context & boundaries between phenomenon and its context are not clearly evident. And be suitable for studying complex social phenomena. Procedural characteristics in the situation include: Many variables of interest; multiple sources of evidence; theoretical propositions to guide the collection and analysis of data. The Types of case studies might be: explanatory; exploratory; descriptive. The type of my study should be descriptive. The Designs can be single- or multiple-case studies. Used methods of case study can be qualitative, quantitative, or both. Central components of a case study design & their functions:

A study's questions – "how", "why"

Study's (theoretical) propositions – pointing attention, limiting scope, suggesting possible links between phenomena

Study's units of analysis – main units must be at the same level as the study questions & typically comparable to those previously studied.

Logic linking the data to the propositions – matching pieces of information to rival patterns that can be derived from the propositions

Criteria for interpreting the findings – iteration between propositions and data, matching sufficiently contrasting rival patterns to data; there is no precise way of setting the criteria.

I started from searching the second hand data, other student diploma thesis, journals and books. But at last I did not find too much materials of this topic in the current research. Supply chain financing is an interesting topic for me, which can be regarded as a financial innovation, which is related to both logistics and innovation, but with
the limitation of current research, case study may be a good choice in this case. Later I found almost each bank provides this kind service, I decided to send mail to several banks, and at last Shenzhen Development Bank gave me feedback. And Shenzhen Development Bank is one of earliest and best banks that provide this service. Even Logistics companies, Finance Company and other financial institutions are also done well in this field, but I chose the Shenzhen Development Bank as the research subject for I got the data easier than others. Take the Shenzhen Development Bank as the successful example in providing supply chain finance solution to help its partners mostly in export business. I contacted Shenzhen Development Bank, account executive from Shenzhen Branch help me, so I also use the telephone and email interviews with this thesis. Gao Li provided me some public information about the bank's customers, I choose two companies of them. I choose company A and B as the case companies, the two companies are small and medium enterprises, needs financing, and its financing problem are typical problem which Chinese SMEs often meet. According Yin's theory, case study is to answer "how” and "why" of what is researched. What I did following is trying to answer it. But unfortunately in current research, I cannot find document about SCF in SME. The research I did has its practical significance, for the all participators in supply chain financing service. But this thesis has its shortages, Bank (only commercial bank) is the corporate body, the pursuit of profit maximization is its objective, it should get profits when providing service and helping SMEs. The limitation is that I only interviewed one worker from Shenzhen Development Bank; this is another insufficient for the thesis. This paper is elaborated on the concept of supply chain financing from the case that how SMEs get loan from institution but they cannot get it before, which gives other SMEs an exemplification know how to get financing when other company meet the same problem, so we can say supply chain financing mitigate financing problem for SMEs from this thesis. Validity has Internal Validity and External Validity. Cohen and Msnion (1994,pp.170-2) list the factors which cause a threat to internal and external validity. Selection is one factor affecting internal validity in my study, bias may occur in the samples due to faulty or inadequate data, it is better I can interview different
staff from different financial institutions. The reliability of my study is depended on the data which are have two sources, scientific documentation and company's documentation. I was alone during the whole interview, even forgot to use a recorder at each interview. The whole interview was carried on intermittently, so it took me time to recall the real meaning of the interviewee.

6. Description

6.1 The introduction of Shenzhen Development Bank (SDB)

Shenzhen Development Bank Co., Ltd. (abbreviation: Shenzhen Development Bank, the stock short: Shenzhen Development Bank A, stock code: 000001) is the first commercial bank public offering of shares for the public and listed. On May 10, 1987 Shenzhen Development started the public offering of ordinary shares of RMB in the form of a free subscription and on December 22, 1987 was officially inaugurated.

Over two decades of years of rapid development, Shenzhen Development Bank increased comprehensive strength and continued to expand its size. It has established over 300 offices in Beijing, Shanghai, Guangzhou, Shenzhen, Hangzhou, Wuhan and other 20 developed cities and established representative office in Beijing, Hong Kong, established correspondent banking relations with the more than 600 banks in many countries and regions outside.

In 2004, Shenzhen Development Bank successfully introduced international strategic investors - Newbridge (Newbridge Asia AIV III, LP), and thus become the first foreign investment as a major shareholder of the Chinese-funded joint-stock commercial banks. The introduction of strategic investors, the international advanced management techniques and effective combination of local experience in the business philosophy, risk management, financial management, and market development across the full range of deep inject new vitality.

In recent years, Shenzhen Development Bank business continued healthy growth, on
good performance. As of the end of 2009, total assets of Shenzhen Development increased by 24% than the previous year to 5,878 billion, total loans (including discounts) increased 27% to 3,595 billion, total deposits increased 26% over the previous year to 4,546 billion, a net annual profit of 5.031 billion Yuan, based on re-enhancing profitability. Asset quality continued to improve, non-performing loan ratio declining to 0.68% end of 2009 a good level. As the bank's good profitability supplement core capital, and effectively the management of risk assets, Shenzhen Development Bank by the end of 2009 the capital adequacy ratio and core capital adequacy ratio was 8.88% and 5.52%.

6.2 Case Company

**Company A:** Mr. Huang is the boss of a wireless electronic products export trade enterprises in Guangdong, the company sales income over 170 million Yuan in 2006, but he also is worried about the financial situation of the enterprise. In 2006, electronic exports grew thin profits, and foreign selling on credit tie up a lot of funds, not only the increased funding pressures, along with the appreciation of the RMB, the company had the losses caused by exchange rate risk. Huang boss had visited some banks, but because many buyers, purchase orders are very scattered, the amount of each single order is not big numbers, probably also 30,000~80,000 dollars, so banks thought the operating costs are too high, not suitable for factoring facilities and financing of export credit insurance.

**Company B:** An auto parts Manufacturer Company that specializes in automotive parts such as procurement, sales, supplier mainly of two leading Sino-Japanese car manufacturers in Guangdong, with long years stable trade relation of cooperation in the downstream manufacturers. In the "auto parts - auto - auto dealers - end-user" of the domestic auto industry supply chain, A company in the supply chain upstream, and the formation of symbiotic development of the automotive industry, automobile industry in China in recent years with the rapid development of B company's business scope has expanded. But this company faces two problems in financing,
(1) Because the more powerful downstream company, B company generally provided 3-6 months depot of account settlement pattern of sales to the Sino-Japanese auto companies, in this way, B company created a large, stable accounts receivable balances generally remaining at 60 million RMB, increasing the occupied rate of current capital, need financing to ease short-term liquidity pressure;

(2) Base on the asset size, as a general overall strength of small and medium auto parts manufacturers, B company cannot get financing support from bank by guarantee, mortgage loans and other traditional credit sources.

From the two case companies, we can see it is really hard for SMEs to secure financing support from banks or financial partners, for they are low credit rating enterprises.

The problem Huang boss met is the universal problem that small and medium export companies often meet. How to solve Mr. Huang's problem? Shenzhen Development Bank did a survey in East China (6 provinces and 1 city) and Guangdong, which found that the majority of small and medium export enterprises face increasingly harsh conditions of collection, credit sales (OA /) instead of L/C as a major export settlement, aging more in the 90-120 of days, although the collection of basic time, the average closing exchange rate at 95%, exports rate of canceling after verification is 100%, but for the RMB appreciation among three or four months, "evaporation" of profits, has been very difficult simply to increase price to make up.

"Seven or eight out of ten in SMEs did not find a suitable way to avoid exchange rate risk," Shenzhen Development Bank's product experts said, "and the prevalence of sell on credit, they need a kind of financial products which can not only solve the problem of financing but also fill the special needs of taking care of exchange-rate risk, we launched a research pool financial products of export account receivables."

In Mr. Huang's company, company A, his company's five largest European and American buyers' total accounts receivable are at 150 million dollars in long-term stability, and payment days are normally more than 90 days, the company will transfer
all receivables to the SDB, the Shenzhen Development Bank provide the company a approved a one-year loan quota of 1 million dollars at one time in financing. As long as five buyers of accounts receivable all can be back to SDB, and can be maintained at 1.5 million dollars or more than it, the enterprise can use of these 100 million loan in long-term. Moreover, the SDB specially arranged enterprise settlement of exchange in advance to help businesses avoid exchange rate risk for appreciation of Rimini.

As the procurement of raw materials and accessories are in the local country, Mr. Huang immediately needs the received remittances to form the RMB for the bank use. Because of financial losses caused by exchange rate changes increased in the past two years, the company Chief Financial Officer Mr. Zhang had a headache of how to avoid currency exchange losses brought about by appreciation of Rimini: "We export 70%, account about 15 million U.S. Dollars in 2006." with the SDB's financial service, we can make such an account:

(1) December 15, 2006, the company transferred the 150 million accounts receivable after the recovery in 60-120 days (average 90 days) to the Shenzhen Development Bank, the company amounted to one million U.S. dollars financing after reviewing, with financing period of 90 days;

(2) On 15 December U.S. dollar cash purchasing price of the day was 7.8143, because of the procurement need, the company drew one million U.S. dollars and got this money in bank account at settlement of RMB 7,814,300 Yuan.

(3) March 15, 2007 or so, the receivables were gradually recovered, while the Yuan continues to appreciate in the March 15, 2007, the same day cash purchase price of dollars was 7.7265, as 1 million U.S. dollars financing support of Shenzhen Development Bank, successfully avoid: one million × (7.8143-7.7265), about 87,800 Yuan exchange rate losses.

If the Yuan’s appreciation is stable, this company can reduce exchange losses more than 30 million a year. This kind financial services not only provide financial support
to ease the company's capital pressure, but also to help companies finance, provides a more comprehensive value-added services, this is real help and suitable to SMEs.

In the case company B, we can see this company is downstream, and car company is mighty companies, the settlement pattern of sales is on inferior position, based on the company's itself situation, it is not easy to get financing support from banks.

Based on customer background and business characteristics and financing needs, Shenzhen Development Bank for providing the following supply chain finance solutions. By examining the overall business situation, according to their depot and downstream relationships and details of the transaction, Shenzhen Development Bank accepted company B transferred their accounts receivable in its transaction process, thus giving the company 40 million Yuan factoring amount, to solve the company B working capital is hard up owing to accounts receivable occupation. Take cooperative enterprise car company X as an example, specific operating procedures are as follows:

(1) Company B signed a supply agreement with car company X;

(2) Company B delivered goods, Company X checked goods and signed to confirm the delivery note;

(3) X Company generated a regular electronic receipt (Purchase Order, referred to as PO) depended on the details according to delivery notes, sent to company B and the Shenzhen Development Bank;

(4) company B invoices value-added tax invoices after receiving receipt of PO, and send to the SDB for factoring credit and to receive credit enter an get item of expenditure in the accounts (and give clear indication of assignment of debt in the remarks of value-added tax invoice);

(5) The SDB determine and verify the specific amount of accounts receivable according the PO from the company X and the invoices from company B, and then send the invoice to the company X;

(6) Shenzhen Development Bank verify loan according to the amount of accounts
receivable and grant it to Company B;

(7) Company X pay funds on account on time to the bank account of Company B in the SDB, Company A pay back the factoring credit to the bank.

6.3 SCF at SDB

One. Institutions of providing the SCF service

Generally speaking, supply chain financing is a very broad concept, it should be understood as a series of production activities from a business getting orders from the buyers and sign a contract with them, to the delivery confirmation process and payment as the cycle, banks can conduct business in all aspects of targeted financing. Who do provide this service? In addition to banks, logistics companies (container, etc.), terminal, import and export agents, monitoring companies, insurance companies and other external units.

Two. The general classification of Supply chain finance

Broadly speaking, the context of globalization supply chain solutions include the following key elements:

a. orders, invoices, data management
b. bank credit protection
c. credit settlement
d. the seller financing
e. buyer financing

Three. Differences from the SCF and traditional credit services

A. it is not isolated to access the credit the members of the supply chain. bank will first assess the financial strength of central companies and industry position, and its management efficiency in the entire supply chain, if the condition is met, and that the whole supply chain linked closely enough, banks will provide financing arrangements for the members without doing special assessment. The evaluation of financing access to the members focuses on the importance and its status of the entire supply chain,
past history dealing of core business.

Bathe financing should be strictly limited to members of trade between its core enterprises, strictly control the diversion of funds, and to specific technical measures for the introduction to credit of the core business, as a secondary means of controlling credit risk.

C. Supply chain financing also stresses loan repayment sources self-liquidating, that is to guide the direct sales to repay credit.

**Four. risks and measures for risk control**

First talking about the product segment of supply chain finance program:

first, stock products (static collaterals credit, credit with collateral dynamic, standards, warehouse receipts pledge credit, general warehouse receipt collateral loan);

second, advance products (the first vote / post-shipment credit shall, guarantees delivery (Confirmation warehouse ) credit, import letters of credit rights under the pledge of future goods credit, domestic credit, with a posted letter protection of commercial acceptance bill);

third, accounts receivable financing (factoring out the domestic, the domestic secret factoring, domestic factoring pool financing, pool of credit instruments, export receivables pool financing, export credit under the credit risk)

Off-topic: These are relatively standard supply chain financing products, each of the actual design and practical operation of all the risks are there, and the bank management is risk. If there is a real risk, specific look at banks to control the risks. Specific risk is mainly reflected in: credit risk, operational risk, legal risk.

**Five. Steps to filter target groups (take the SMEs as the example)**

Each bank will have different access standards, this is no way to generalize. Take SMEs as example:

Traditionally, to overcome the main credit risk is to require borrowers to provide
value and stability, hard to transfer and easy realization of assets as collateral required more strength, risk subject to a lower level of security. But SMEs are often identified by the lack of commercial bank mortgage assets; the same time as information asymmetry and business prospects of the problem of uncertainty, it is difficult for the other main commercial security. Therefore, the traditional hard real-depth credit financing small and medium enterprises.

Why do we look difficult to break the traditional credit financing problem of SMEs in the supply chain: first, a core business competitive, large scale, and the downstream capacity of SMEs in a strong bargaining negotiations; second, SME assets in China, mainly receivables sections and inventory; third, the financial characteristics of SMEs due to their own characteristics and management reasons, the traditional credit ratings of banks are often classified as low-level types, resulting in higher financing costs.

We look at how to solve the above supply chain financial problems: the use of commercial bank financial services supply chain, relying on the real economy in the supply chain relationship between the real transaction using the transaction generated in accounts receivable, inventory, and the right of future goods as a pledge or collateral, to provide a range of upstream and downstream business financing products, and even on this basis for the entire supply chain (or certain) to all businesses financial solutions packages. It relies on large-scale enterprise development, production and trade activities, the accounts receivable as well as the realization of inventory value of the credit depends on the level of large enterprises, so the supply chain for small and medium level of risk financing products and large enterprises will be reduced to close loans level. One, through the introduction of the core business and logistics regulatory cooperation, to solve the problem of information asymmetry; two, through logistics, capital flow control structure of the profile design, and core enterprise technology, the use of credit tied up, the credit risk of SMEs to effectively isolate and shield; three, through a combination of trade-specific background of the control of funds and subordinated loan from the use of technical means, the problem of poor stability of SMEs operate under control; four,
based on core business through the "buy" sales model, the cost of SME financing resolved.

7. Analysis and Discussion

The cases show the common financing problem that SMEs often meet. All participators can be summarized into three parties, bank, SME and Cooperation Partner, not mentioned the superintendent, this can be discussed deeply in banking system financial regulation part but not here now. And what is the achievement that the bank gets? From the materials that Gao Li provided, since last July, 2005 the company officially confirmed the bank's business "for small and medium enterprises," and "for trade finance," strategic transformation, the bank made efforts to increase trade financing, in the 2005 full year total trade finance in the supply chain was more than 250 billion Yuan, more than 10,000 small and medium enterprises achieved business growth by support. At the same time, supply chain financing services maintained a good asset quality, the overall non-performing rate of 0.57%. From this we can see the two case companies are two examples of the successful stories.

In this part, recall all the research questions through what is said above. Go back to **RQ one**, What is supply chain financing? What is its structure? How does it work? Banks as one kind of the financial institutions, and what does the bank do in the supply chain financing program?

From the literatures and what I got from interviewee, the laconic definition is that Supply Chain Finance (SCF) is an approach that focuses upon theses questions from a collaborative viewpoint (Erik Hofmann, 2005). The case show supply chain financing can really help SMEs ease the financing problem, they can get loan from the bank that they cannot get because their position in credit market (see figure 2). In summary, there are three understanding of supply chain financing from three perspectives, core enterprise, electronic trading platform provider and bank, this is the same explanation of supply chain financing but can make the parties more clear.

From the buyer perspective, Supply Chain Finance is the optimization of both the
availability and cost of capital within a buyer-centric supply chain.

The availability and cost of capital is usually optimized through the aggregation, integration, packaging, and utilization of all the relevant information generated in the supply chain in conjunction with cost analysis, cost management, and various supply chain finance strategies. (Michael Lamoureux, PhD of Sourcing Innovation)

In the two cases, the two small medium enterprises have their strong partners. Mr. Huang's company's five largest European and American buyers' total accounts receivable are at 150 million dollars in long-term stability, and payment days are normally more than 90 days, so the top five buyers are its core enterprise from the perspective. In the case two, the case company is an auto parts manufacturer company that specializes in automotive parts such as procurement, sales, supplier mainly of two leading Sino-Japanese car manufacturers in Guangdong, so the two leading Sino-Japanese car manufacturers are the case company's strong partners, so the two SMEs are fulfilled the basic requirements of Supply Chain Financing. Song Bingfang (2008) defined the concept that is if the supply chain management is a management model to core business for its supply chain network conducted, then the supply chain financing from bank's point of view, is a financial services business model to provide for companies in each node of the core of supply chain. In the two cases, Shenzhen Development Bank is the service provider, figure out the two small medium enterprises' financing problem, and the core company is what I mentioned in the first perspective. The bank provided the service named factoring pool financing to the company A, one of accounts receivable financing, provide the company B accounts receivable financing, the two companies have the same problem, but the service is little different. At last, Bank (only commercial bank) is the corporate body, the pursuit of profit maximization is its objection, and it should get profits when providing service and helping SMEs. Then from electronic trading platform provider view, the core concern of supply chain financing is the cost of financing and settlement embedded in supply chain, and create prioritization scheme of purchase cost of the supply chain process. PrimeRevenue Company is an example to expound from this
perspective, which is founded in 2004, PrimeRevenue has become one of the acknowledged leaders in its space. Its vision is to become the standard global platform for processing Supply Chain Finance transactions (sources: http://www.primerevenue.com/)

In a word, supply chain financing as a new concept, which is also categorized as financial innovation, all the current research are in the exploration stage, and I think theory is slower than the practice. In my opinion, innovative financial instrument is double-edged sword, high potential risk may be brought at the same time but we are not aware of them. And most Financial Crisis is caused by financial instrument. Supervisory system must be sensitive and take precautions before it is too late, such as China Banking Regulatory Commission should pay more attention on it.

**RQ two** is that what are the roles of supply chain financing to the SMEs? From the two companies which are both small medium enterprise and got financing due to supply chain financing, it shows supply chain financing is important to SMEs to a certain extent. Supply chain financing is good for core enterprise, financial institution (bank, logistics company, finance company etc.) and SMEs which are in the supply chain. Erik Hofmann (2005) gives a working definition of Supply Chain Finance can finally be put as follows: Located at the intersection of logistics, supply chain management, collaboration, and finance, Supply Chain Finance is an approach for two or more organizations in a supply chain, including external service providers, to jointly create value through means of planning, steering, and controlling the flow of financial resources on an inter organizational level. From the cases we see that to core enterprise, in company B case, the company can provide stable products to Sino-Japanese car manufacturers after getting loan from Shenzhen Development Bank by supply chain financing service, it can help enhance the market competitiveness of the core business, at the same time also help its supporting enterprises, so could be conducive to enhancing industrial leading competitiveness. To the bank as a representative of financial institutions, supply chain financing may be last resort for them to respond to increasingly intense competition. Supply chain financing is
important means of managing existing customers which is easier that developing new customers; Supply chain finance can effective control corporate credit risk arising from transactions, but from mail interview, Gaoli mentioned that supply chain financing would bring more operational risk. Supply chain financing optimize profit contribution structure of the banking business. To SMEs, go through the case first, and as has been described in the article, the from being hard to financing to supply chain financing as practical solutions to the financing problem, supply chain financing has its practical significance.

**RQ three** is what are the current challenges, obstacles and risks of SCF in nowadays?

According to Martin R. Fellenz and etc.(2009),there are three issues to build an Evolving Model of Supply Chain Finance: First, the enduring separation of the physical from the financial. Study participants indicated that a lack of synchronization and integration between the physical and financial flows contribute to inefficiencies in supply chain management. The second main issue the respondents identified is the significant lack of automation in supply chain finance. This lack of widespread automation prevents financial information from flowing freely through the system. The third main issue the respondents highlighted is the institutional arrangements supporting supply chain finance, most notably the banks.

In the case we can see there are several steps in the supply chain financing program, we all know that more steps, more operational risk for bank.

The current challenges and obstacles of supply chain financing is lack of policy and legislation, has no an explicit standard access system, this could be the two current problems. Another challenge is competition, from Gao Li, we know who can provide supply chain financing service. In addition to banks, logistics companies (container, etc.), terminal, import and export agents, monitoring companies, insurance companies and other external units. So many institutions may provide supply chain financing, firms want to get more market share, and they would use unfair way. Regulatory system is a necessary demand now.
And the risk is another problem for banks in line with Basel Capital Accord. Next, focus attention on this issue. From the figure two, it shows the SME is the high-risk group, but high yield. Company A and company B are among them, they can not get finance according the traditional bank business. This service is very easy to have some risk, there is a word in finance market called "no risk, no profit". Here we see three risks, one is that although the supply chain to the same system, but still there is some information asymmetry and distortion; one is moral hazard, whether to perform the contract is not a small risk. There is also a problem, we are experienced property services, namely, and when the contract negotiations and investigation are good, the client needs to use it for some time to know what they buy is good or bad. There is also another risk, company risk preference, and some companies like to take risks, some companies prefer a conservative, and some companies are in the middle. Many companies are willing to take big risks, to seek more benefits as said "more risk, more benefits". They are not in bad faith, but he was adventurous. This phenomenon is very common. This is the endogenous risk. Exogenous risks include political risk, technology risk, economic risk, legal risk. Supply chain is a process, this process will change for a variety of conditions change, will produce risk in changes. If there is no risk of the supply chain, then the risk will not be much in financial services, banking interests will be protected. So how to control risks?

General process of risk prevention, is risk prediction and the business track. Risk prevention measures, first, try to increase the effect of intermediary organizations, the collaborative supply chain companies can get the maximum benefit. Be of great benefit to the future to further expand the strategic cooperation. Now we all speak the supply chain is a strategic partnership, in fact, impossible to achieve such a request. Beginning is the intermediate state, and finally after several years of practice to achieve the ideal partnership, but this partnership will always change. Second, information exchange, resource sharing. Third, flexible design, to reduce uncertainty.

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1 Basel Capital Accord, The Basel Committee is named after the city of Basel, Switzerland. In early publications, the Committee sometimes used the British spelling "Basle" or the French-language spelling "Bâle," names that are sometimes still used in the media. More recently, the Committee has deferred to the predominantly German-speaking population of the region and used the spelling "Basel."
Fourth, the introduction of incentives to increase partner income discount. Fifth, the customization needs, increasing the cost of the transfer of the cooperative enterprise. Sixth, complementary resources, reducing the opportunity cost of the cooperative enterprise. Seventh, strengthen risk of daily management, the establishment of emergency mechanisms.

8. Conclusion

Shenzhen Development Bank use the companies own liquid assets (Accounts Receivable) as to support and enhance corporate credit approach, providing a new financing channel for SMEs to solve the financing difficulties. These programs can also be similarly extended to the iron and steel, nonferrous metals, electronic, energy, household appliances, coal and papermaking industries, the status of upstream suppliers in the industry of such customers to solve their financing needs. Through the two successful case, it show the supply chain financing looked like "production line", compared with traditional service ,the advantages of supply chain financing to SME can be summarized as follows, Increased cash flow, Cheaper financing, Stronger balance sheet, Improved key financial figures, Enhanced customer relations, More effective liquidity planning.

Supply chain financing could be provided by well-capitalized core company, but it is infeasible. Banks, as the representative of financial institutions, have professional knowledge and experience, as a third party in the supply chain, can do better than well-capitalized core company.

Supply chain financing services, first provides solutions for SME in the concept of financing and technical bottlenecks, SME credit market is no longer elusive; Secondly, it provides a new channels to cut over and stabilize high-end customers, equally important, the supply chain has very prominent economic and social benefits, with "group purchase" type of development model and risk controls innovation, SMEs financing income - cost ratio can be improved, and showed significant economies of scale. In China, supply chain financing is doing well, not perfect, China’s supply
chain financing services to do better, there must be two support systems: first, the enterprise credit system. Second, the financial guarantee system for SMEs. In a word, supply chain financing as a new concept, which is also categorized as financial innovation, all the current research are in the exploration stage, and I think theory is slower than the practice. In my opinion, innovative financial instrument is double-edged sword, high potential risk may be brought at the same time but we are not aware of them. And most Financial Crisis is caused by financial instrument. Supervisory system must be sensitive and take precautions before it is too late ,such as China Banking Regulatory Commission should pay more attention on it.

From this study of SCF, the type of research is called descriptive research or exploratory research, the research limitations is that the case is based on one bank and I only interviewed one worker from Shenzhen Development Bank; In the future research ,more researchers can carry on interpretive research, understanding research, and diagnostic studies by more precise way.
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