

## Chapter 52

# Warehouse Financing Risk Analysis and Measurement with Case Study in Carbon Trading

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### ABSTRACT

*Warehouse financing has been emerged as one of the most effective financing approaches for small and medium-sized enterprises (SME). Its basic working mechanism is to transfer the company's assets to collaterals which are more acceptable by the bank. As a logistics service provider, the 3rd Party Logistics (3PL) coordinates and controls the whole financing process. With the professional 3PL's help, it is easier for SMEs to get loan from the bank. In the meantime, the 3PL's profit margin has also been increased by providing financing service in addition to their traditional logistics based functions. This chapter explains the basic working mechanism of warehouse financing, applies SCOR reference model to identify financing activities and the risks caused by them. Then this chapter synthesizes four relevant risk analysis/management frameworks from previous literatures, and proposes a new risk framework and evaluation measures aimed specifically for warehouse financing. Finally, a case of carbon trading in China is studied using the previous framework.*

### INTRODUCTION

In China, small and medium sized enterprises (SME) have always been facing the difficulty of financing. This difficulty becomes more severe in current economic downturn. Many of these

enterprises sell their products to other larger and wealthier companies. In order to get loans from the bank for their manufacturing or corporate expansion, these SMEs with low credit liability and weak historical records either have to face prohibitive interest rate when borrowing from the bank, or do not borrow at all. When they do borrow, the bank also face the risk of SME's failing to

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pay back the loan. Warehouse financing, however, could both solve the difficulty of SME financing and lower the bank's risk at the same time. Since warehouse financing may involve transaction and management of assets or commodities, 3rd party logistics (3PL) is employed to provide such services. This chapter will examine the risks and the risk measurements of this model of financing.

To clarify some terms, SMEs play different roles under different circumstances. From the supply chain's point of view, SME is the supplier. As for international/domestic trade, SME is the seller/exporter. When applying for loan, SME is the money borrower. Under all three circumstances, 3PL acts as the service provider and coordinator of all other participants.

## **Literature Review**

It is more and more recognized that SMEs are playing an important role in the socio-economic infrastructure, such as providing more jobs for the community, contributing to national tax incomes, and improving the overall economy of the country. In 1979 China, private-owned enterprises only accounted for 1% of the country's total GDP. (Zhang W., 2008) And in the end of 2001, 99% or 2.4 million of the registered enterprises in China are small and medium sized ones. (Gazette on Second National Census of Basic Units, 2003)

However, lack of funds is almost always the common inhibitor for all SMEs' development. Since financing from the stock market is too expensive and thus impossible for SMEs in China, they have to turn to banks for direct loans. The banks have to charge them higher interest rate than that of big or state-owned enterprises with good credits or reliable owner companies. This either leads to the unwillingness of SMEs to borrow, or leads to the possibility of default. As a result of this financing environment in China, SMEs depend less on professional financing institutes for financing. Javed Hussain, Cindy Millan and Harry Matley (Jave H., 2006) did a survey and

found that owners/managers of SMEs running up to 5 years business in China still depend mainly on financial support from their immediate family and to a lesser extent of professional financial institutions; while most of their counterparts in UK rely on borrowing from financial institutions and less on direct family support or savings.

To settle the financing difficulty that SMEs, especially newly start-ups, warehouse financing has emerged as a new approach. Warehouse financing is a kind of asset-based financing, in which SMEs with low cash flows mortgaged their assets (usually their manufactured goods or in-process materials) in a warehouse to the bank. A professional logistics company (3rd Party Logistics) is usually involved for inventory management, transaction and transportation of the assets. HSBC defines warehouse financing as a structured method of financing, wherein funds are extended to manufacturers and processors based primarily on the underlying asset - commodities as identified by a warehouse receipt issued by an independent collateral manager appointed by the Bank (HSBC). Feng Gengzhong, Yu Yang, Zhao Wenyan, Wang Simiao analyzed the 2 business models of warehouse financing in China, which will be discussed later, and their respective business processes in detail (Feng G., 2004). They also gave a list of common risk for all businesses in the market and a list of specific risk regarding to warehouse financing.

There are also many articles discussing financing approaches from the supply chain perspective other than warehouse financing. Nevertheless these other approaches can still give us great insights into what we are going to discuss about warehouse financing. John A. Buzacott and Rachel Q. Zhang tried to incorporate asset-based financing into production decisions. Using a simple deterministic model, they proved that with the SME's assets mortgaged in the warehouse as a security base, both the bank and the SME borrower can expect less risk and bigger gain with lower interest borrowing rate than unsecured financing (John A.,

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