ISCTE Business School
Instituto Universitário de Lisboa

The Occurrence Mechanism and Avoidance of Risk in Medical Equipment Finance Lease

Zhong Hao

Thesis submitted as partial requirement for the conferral of the degree of

Doctor of Management

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July, 2015

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I declare that this thesis does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any university and that to the best of my knowledge it does not contain any material previously published or written by another person except where due reference is made in the text.

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Abstract

Financial leasing is one kind of leasing in which all risk and return that are relevant to the ownership of assets can be transferred. It is a new type of transaction mode that combines credit and loan, trade and technology together. Financial leasing, in which fund raising is realized through "financing goods", now has become one of the five pillars in global financial market, together with bank, insurance, trust and security. With the deepening reform of medical system and the rapid development of medical industry, the introduction and upgrading of medical equipment in medical institutions bring huge market space for the development of financial leasing in China. However, as the financial leasing business in China's medical industry develops, the risks of it also increase. The risks existing in the development of financial leasing in China's medical industry, such as the lack of an effective risk prevention mechanism, might evolve into systematic financial risks and further impact the orderly development of medical industry itself. Therefore, through the analysis of literature both home and abroad and expert interviews, the theoretical concept and classification of financial leasing are analyzed in this research. What's more, the operating pr ocedure and risk category of financial leasing in medical industry are also explored. In the end of this research, by using CAMEL and SWOT, a thorough analysis on risk occurrence system in medical equipment financial leasing from the perspective of lessor is carried out. Besides, specific countermeasures and strategies for the improvement of internal risk management and the optimization of external support for risk management in financial leasing companies have also been put forward.

Key words: Medical Equipment; Financial Leasing; Risk Control

Jel: G320; I100

Resumo

O *leasing* financeiro é um tipo de *leasing* em que todo o risco e retorno que é relevante para a propriedade dos activos pode ser transferido. É um novo tipo de operação que combina crédito e empréstimo, negócio e tecnologia. O *leasing* financeiro, em que a angariação de fundos é realizada através de "bens de financiamento", tornou-se ultimamente num dos cinco pilares do mercado financeiro global, em conjunto com o banco, o seguro, os fundos e os títulos. Devido a reformas mais profundas do sistema de saúde e do rápido desenvolvimento da indústria médica, a introdução e a modernização de equipamentos médicos em instituições médicas, geraram um enorme espaço no mercado para o desenvolvimento de *leasing* financeiro na China. No entanto, como consequência imediata do desenvolvimento do *leasing* financeiro na indústria médica da China, os riscos começaram a aumentar. Os riscos existentes no desenvolvimento do *leasing* financeiro na indústria médica de China, tais como a falta de um mecanismo de prevenção de riscos eficaz, pode evoluir para riscos financeiros sistemáticos e ter impactos futuros no desenvolvimento da própria indústria médica. Sendo assim, com base na literatura nacional e internacional e nas entrevistas com especialistas, o conceito teórico e a classificação do *leasing* financeiro são analisadas nesta dissertação. Também são explorados o processo operacional e as categorias de risco do *leasing* financeiro na indústria médica. No final desta pesquisa, usando CAMEL e SWOT, vai ser realizada uma análise exaustiva sobre o sistema de ocorrência de riscos no *leasing* financeiro de equipamentos médicos a partir da perspectiva do locador. Além disso, contra-medidas e estratégias específicas para a melhoria da gestão de risco interno e para a optimização do apoio externo para a gestão de risco em empresas de *leasing* financeiro também são apresentadas.

Palavras-chave: Equipamento Medical; *Leasing* Financeiro; Controle de Risco

Jel: G320; I100

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Chapter 1 Introduction

1.1 Research Background and Objectives

Although finance lease is still an emerging business in China, it has experienced rapid development in the past years. Based on the analysis of the *status quo* of finance lease, this research explores the problems in the field and proposes the research background and objectives, which will be elaborated on as follows:

1.1.1 Research Background

Finance lease is a new form of trade in a market economy in which credit commerce and technology are integrated together. In this form of lease, the lessor, in accordance with the requirements of the lessee, purchases the required asset from the supplier, rents it to the lessee and charges rentals from the lessee. In such a special trade mode, the financing of funds can be achieved by financing assets (Sun, 2007; Bai, 2010a). On one hand, finance lease can help the lessee to simplify financing formalities, reduce the cost of fixed assets and improve assets liquidity; on the other hand, it enables the lessor to invest in specific assets and make a profit while promoting products and expanding the market share. With all the advantages, finance lease has witnessed rapid growth across the globe, especially in the developing world since its first appearance in the U.S in 1952. At present, it stands as one of the five leading businesses in the global financial market, together with banking, insurance, trust and securities (Zhang, 2010).

Because the U.S. experienced a surplus in its industrial production after World War II, American manufacturers, in order to sell their equipment, began to provide clients with financial services, namely selling products by resorting to installments, consignment, and selling on credit. As the ownership and use right were transferred simultaneously, there existed a huge risk in the recovery of capital. Therefore, some people turned to the practices in traditional lease and made provisions that the ownership should be kept by the seller while the use right should be enjoyed by the buyer. The seller will transfer the ownership to the buyer at a certain price after the whole financing capital has been got back through rents. In 1952, the first lease finance company in the world, now called International Lease Finance Corporation (ILFC), was established in America, which is a starting point of the modern lease (Amembal & Lowder, 2000). This financing approach (so called finance lease) enjoyed a rapid development from 1960s to 1970s around the world. With a history of only 50 years in the West, finance lease, known as a “sunrise industry” (meaning an emerging industry), has become the second most-used financing approach second only to bank loans in the capital market of debt financing (Zhu, 2007; Liu, 2001).

With the acceleration of economic globalization and the development of China’s economy, the industry of finance lease in China has enjoyed rapid expansion and displayed huge potential for further growth during the past 30 years (Mo, 2014). It has become an important approach for China to attract foreign funds, bring in equipment and promote investment and exports. Up to now, the industry has covered a wide range of areas including aviation, transportation, manufacturing, communication, infrastructure construction and resource development with diversified lease objects ranging from airplanes, ships, automobiles and industrial facilities to office equipment, medical appliances and public facilities (Diao, 2006; Huang, 2013; Wang, 2012; Wu, 2013; Di, 2011). The recent years, in particular, has seen a rapid and steady expansion of finance lease into the areas of engineering machinery and heavy equipment, greatly strengthening the market competitiveness of the related companies and accelerating the internationalization of them. However, due to the complexity of transaction structure, relations and environment involved in finance lease, the industry is still confronted with the influences of various risks in its growth phase, namely, the credit risk, inherent business risk, financial risk, market risk, technical risk, operational risk, trade risk and force majeure. Thus, in order to ensure a sound growth of the lease finance companies, the focus of the current study on the practices and theories of risk management in finance lease is on how to identify, prevent and control the finance lease risks, which also stands as a difficult point in the study.

1.1.2 Research Objectives

As the industry of finance lease of medical equipment in China is still in a fledging period, many companies in the industry have not established their own risk control standards. Thus, these companies have no choice but to copy the risk control measures of their foreign counterparts, most of which are often incompatible with their own business operations. Therefore, it is crucial for the Chinese lease finance companies to understand the risk occurrence mechanism in finance lease and find out effective risk control measures so as to build up a healthy and well-organized industry. From the perspective of the lease finance companies or the lessors, the study will give a comprehensive analysis of the occurrence mechanism and potential consequences of the risks in the finance lease of medical equipment. Based on real cases and practices, the study， in combination with the medical reform in China, is aimed to provide practical guidance and references for the medical equipment lease companies by giving basic ideas in building a risk control system of medical equipment finance lease, analyzing the key risks with real cases and exploring the ways to effectively control the risks with the risk identification, assessment and management strategies.

1.2 Research Situation

In terms of the research on finance lease, scholars in the western countries have taken the first step and conducted a more comprehensive and systematic study than their Chinese counterparts. By analyzing the previous research outcomes, we can not only know about the current research breakthroughs but also find out the problems in the research while exploring new research fields. Besides, by learning from the conclusions and methods of other scholars, we are able to develop new thoughts for the research concerned. Now, we will give a systematic review and analysis of the research situation of finance lease in China and other representative countries while elaborating on the relevant theories involved in the research.

1.2.1 Foreign Research Situation

T. M. Clerk, the first scholar that studied on the origin of lease, is recognized as the founder of finance lease. Clerk (1984) regards hire purchase, which took shape in the 1930s in Britain, as the earliest form of finance lease. His classic work on finance lease, *Lease*, mainly focuses on the problems relevant to finance lease such as the operating process of lease and the comparison of costs between finance lease and lending (Schallheim, 1994). This work has also pointed out that the international finance lease is a natural result of the development of modern lease (Amembal & Lowder, 2000). Largely in agreement with Clerk *et al*. (1992) propose, that it was during World War II, that finance lease came into being in the United States, with the manufacturers facing funds shortage leasing machinery from the American government as the starting point. The aircraft lease brokered by P&C, an American lease finance company, marks the first international finance lease operation in the world (Amembal & Lowder, 2000). From the perspective of the finance lease market, James Schallheim, an American scholar, has analyzed the principles, features and influences of the international finance lease on the financial structure of an enterprise (Chris Boobyer, 2003). Amembal holds that any differences among laws, taxation, accounting and supervision can exert a significant impact on the scope, growth and market penetration rate of the finance lease industry (Amembal & Lowder, 2000). Among all the theories, the most representative one is the Theory of Four Pillars (referring to the trade rules, accounting standards, industry regulation and tax policies), which not only summarizes in detail the connotation and denotation of the development of the finance lease industry but also studies the issues like the development stages and five driving forces of finance lease, providing systematic references for different countries in formulating and implementing the policies, laws and regulations of finance lease (Grenadier, 1996; Chen, 2009).With focus on the classification, features and advantages of finance lease, Kamath (Kamath & Kerkar, 1990), a British scholar on lease, has studied different trade modes of international finance lease such as joint lease, sublease, vendor lease and leveraged lease. Kamath has also classified finance lease into traditional lease and financial lease, laying a firm theoretic foundation for later studies on the evolution, development and trends of the international finance lease (Kamath & Kerkar, 1990). Laurenee and Yoshihiko attach great significance to the study on the underdevelopment of international finance lease industry in the developing world, which can be seen from poor business performance and limited business environment in the developing countries. (Schimit, 2004) They believe that developing countries can make finance lease a powerful driving force for their economic trade and improve international status by adopting effective measures and policies in terms of the laws, taxation, accounting and supervision, so as to support the development of the finance lease industry and build up a favorable environment to facilitate the innovation of the trade modes in the industry (Schmit, 2004).Since the middle of the 1990s, the international finance lease has witnessed continuous innovation in terms of the development mode while the studies on it tend to be increasingly specific. With the emergence of the new modes of finance lease, the ensuing risks have become more complex and unpredictable. From the perspective of credit risk of lease, Grenadier (1996) proposes a theoretical risk framework which can be applied to determine the balanced distribution of credit (Portman, 2004). Schmit (2004) analyze the credit risk of the retail lease of thousands of finance lease products in a certain financial institution by using a portfolio of samples and estimate the loss probability through density function. Based on the study, they conclude that finance lease can play a crucial role in reducing the credit risk of a portfolio in security guarantee (Lu, 2005). With a special emphasis on the functional features of finance lease, Portman and Steingold (2004) clarify the features and advantages of finance lease credit, which are quite different from that of bank credit and other kinds of credit. They also analyze the credit risk of the international lease (Liang, 2005). Based on the study of capital withdrawal mechanism in the international finance lease, Boobyer (2003) regards lease securitization as an ideal way to withdraw capitals (Qu, 2007). As lease securitization serves as an integral part of credit assets securitization, the securitization of the international finance lease proves to be both a new capital withdrawal mechanism and a representation of financial innovation, to which full support should be given.

Nowadays, the study on finance lease in the international academic circles mainly includes the analysis of the business chain and the research on relevant financial and economic issues. With comprehensive reviews of the related representative documents and in-depth research on the field, the study on finance lease has been relatively well-established. Thanks to an early start, the study in the field has not only come to maturity but also enjoyed extensive research on credit risk and financial market risk. Besides, as increasing econometric prediction models targeted at specific potential problems are being proposed by some scholars, the risk control has also seen constant innovation in terms of concrete methods. The risk control in finance lease, in effect, is breaking away from the simple asset risk control and turning to the more complex risk control of asset portfolio. Up to now, the forefront of the study on the risk control lies in credit risk (which can be controlled through methods like expert solutions, rating evaluation and credit scoring models), financial market risks (including the risks brought by changes in interest rates, exchange rates and securities prices) and other financial risks consisting of operational, settlement and electronic risks.

1.2.2 Domestic Research Situation

With respect to the study on finance lease, Qiu Qiyang can be regarded as one of the most influential Chinese scholars in the field, who has conducted an in-depth and systematic study on the accounting issues, legal definition and economic properties concerning finance lease and has been committed to translating the latest foreign academic works to Chinese, providing a comprehensive and useful model for finance lease practices in China. (Wang, 2005) Up to now, his representative work entitled *Theories and Practices of Finance Lease* is recognized as one of the most comprehensive and systematic works on the modern lease in China (Wang, 2005). Presently, the domestic research on finance lease is mainly conducted from two perspectives. One is the theoretical research with special focus on basic issues and sometimes on qualitative analysis in combination with practices. The book of *An Introduction to the Rules of Finance Lease*s was written from this perspective. With an in-depth analysis of the development, evolution and classification of finance lease and an introduction to other forms of lease, this book has become one of the most comprehensive and enlightening works on the rules and practices of finance lease in China (Shi, 2012). However, the empirical research aimed at special issues, especially at the risks and specific problems of finance lease are almost absent in the book. In fact, the emphasis of the study on the finance lease risks should be laid upon an analysis of risk classification, which is elaborated in detail in the work of Zhang Wu, *Risk control mechanism of finance lease*. In this study, Zhang Wu identifies the mechanisms that can induce risks based on the internal and external environments of finance lease and provides certain countermeasures against different risks from the aspect of laws and regulations (Zhang & He, 2001). But up to now, similar studies can be rarely seen. The other perspective is the empirical research on the basis of econometric models to identify and prevent the lease risks. Many Chinese scholars have conducted their studies from this perspective. For example, Xu, Wang and Huang analyze the causes of the lease risks based on the information asymmetry between lease companies and lessees (Xu *et al.*, 2004); Zhang, on the basis of the features of finance lease contracts, sets up a comprehensive risk assessment model through the methods of fuzzy analytical hierarchy process and fuzzy comprehensive evaluation (Zhang, 2003).

There are still some limitations of China's scholars in terms of research in finance lease. First, research are mainly on the macro-level. Often, the works are comprehensive and report-like, such as *The Status Quo and Development Strategy of Finance lease in China* written by Gao and Qian (2012) and *Questions and Answers of Finance lease in China* written by Jiang (2008). Only a few scholars have conducted in-depth research on a particular aspect, such as, *Supervision of Finance lease* (Li & Zhang, 2007) and *Legal Issues in International Finance lease Deals* (Li & Zhang, 2007). Possibly it is because China has only introduced modern leasing not long ago. Many scholars mainly focus on the study of foreign literature, lacking conditions and opportunities to combine the theories with practices in China. Consequently, they mainly study the financing function of leasing, seldom touching upon other functions of leasing such as the function of promotion. As there are few empirical cases for analysis, most of the research are not innovative and fail to put forward new roles and functions of finance lease.

Nowadays, as the finance lease of medical equipment in China is still in the fledging period, the relevant studies are relatively insufficient. But on account of the actual situation in China, certain achievements have been made in the field. With respect to the comprehensive introduction, Qian (2009) believes that lack of subsidies from the national government for medical institutions has already exerted serious impact on the proper functioning and further development of them, most of which are faced with the bottleneck of insufficient funds; Sun Xueqin, Ye Ting and Zhang Liang claim that finance lease can enable medical institutions to make full use of the idle funds in the society to purchase essential medical equipment. Such a relatively low cost of the funds at the disposal of the medical institutions is not only of great practical significance for them to provide quality medical services but also serving to maximize the economic value of social funds (Sun *et al.*, 2009a).

In addition, some scholars have provided specific suggestions for the development of the finance lease of medical equipment in their works. For example, Zou and Wang (2006) advocate the innovation in the finance lease of medical equipment and call on the society to pay more attention to training professional talents and perfecting the laws and regulations in the field. Chen (2008) is convinced that the government should devote itself to strengthening the support for finance lease, changing the traditional concept of finance lease and building a diversified finance lease industry. Gao and Yu (2010) hold that more efforts should be made to strengthen the government supervision and make it easier for companies to enter the sector.

Based on the various publications mentioned above, it can be concluded that the international academic circles have attached great importance to the finance lease of medical equipment. On China’s part, there are still some limitations of the study on the field, which can be summarized as follows: (1) The theoretical research is not comprehensive and in-depth enough; (2) The academic documents are dominated by introductory works and lacking in practical solutions; (3) Most of the studies are fragmentary and lacking in systematic generalization; (4) There are few specialized documents on the risk control of the medical equipment finance lease since little attention has been paid to the field.

In addition, most research on the risk of medical equipment finance lease are conducted from the perspective of hospital development, and few of them have an in-depth study on the risk assessment and control of companies involved in this field. As China's medical equipment finance lease is in full swing, this research mainly focuses on finding out how to evaluate and avoid risks in finance lease projects and how to expand the medical equipment lease business of the lease companies. The research will lay emphasis upon historical analysis with a study based on the specific operation of finance lease companies. The foreign finance lease theories will be combined with the national conditions of China in this research, so as to find out the existing risks and risk occurrence mechanism of Chinese lease finance companies, explore the assessment methods of risk and further put forward a solution for avoiding risk. In this research, we try to provide some guidance for China's lease finance companies, give references for their decision-making as well as help to promote the steady growth of their business.

1.2.3 Research Situation of Relevant Policies and Theories

In China, public hospitals dominate the health service system and provide a large market for the sales of medical equipment, so the finance lease of medical equipment is always closely related to the reform of public hospitals. In other words, finance lease of medical equipment in China is always connected with the reform of public hospitals. Therefore, in the study of risk of medical equipment finance lease, we should not only analyze the risk of medical equipment finance lease, but also understand the background and development of the public hospital reform.

(1) Diversification of Investors in Medical Service

China's medical reform, starting from the Third Plenary Session of the 11th Central Committee of the Chinese Communist Party, has gone through 6 phases before the release of new medical reform plan. The new medical reform begins with Opinions on Deepening the Health Care System Reform in 2009 issued by the CPC Central Committee and the State Council, which makes it clear to encourage and guide the social capital to develop health care industry. This document states that the government should actively promote the development of non-public medical institution, form a medical system featuring diversification of investors and investment methods and actively guide social capital to participate in restructuring of some public hospitals in a variety of ways (the State Council, 2009a). In the same year, the state council issued The Key Implementation Plan for the Medical Health System Reform (2009-2011), and made it clear that public hospital reform is one of the five important contents of the new medical reform. It encouraged the government to use social capital for investment and develop multi-level and diversified medical service. In this way, health resources in the whole society can be fully utilized and service quality can be improved, so as to meet people's diversified medical needs (the State Council, 2009b). In 2010, in order to implement ideas in the two above documents, Guiding Opinions on Pilot Public Hospital Reform was released (http://www.gov.cn/, 2010). The document requires a diversified pattern of medical institutions by encouraging and guiding the social capital to come into the medical service industry.

These measures and policies make it possible for the social capital to come into public hospitals and provide more policy guarantee to the finance lease of medical equipment. According to Li (2008), medical equipment in the majority of China’s hospitals need upgrading, and purchase of some high-end medical equipment is considered to be the key to enhancing the overall competitiveness of hospitals. However, the high price is making the purchase impossible. Qian (2009) finds that with severe shortage of fiscal subsidy, many hospitals cannot afford to purchase medical equipment, which affects their operation and development. Sun *et al.* (2007) argue that finance lease is an effective method to broaden the financing channels and to ease the capital shortage of hospitals. Under this method, hospitals only have to pay a small amount of money to obtain the use right, operation right and income right and ultimately the ownership of the equipment. This is a new financing channel for the hospital apart from the traditional ones, and it fully eases the capital pressure of hospitals on equipment investment, which is favorable to the financial restructuring and control of asset-liability ratio (Sun, 2007; Bao & Yang, 2010; Sun *et al.*, 2009b; Xue & Gao, 2009; Yin, 2010; Zheng, 2009). Therefore, it can be seen that finance lease plays a significant role in the development of hospitals, helping them to obtain financing and reduce the capital burden. However, uncertainty in the recovery of capital in finance lease also makes it highly risky. Therefore, an explanation of the influence of diversified investor in medical capital on the risk of medical equipment finance lease under the new medical reform plan and relevant laws and regulations will be the theoretical analysis basis of the research.

(2) Relevant Research on the Theories of the Finance Lease Risks

An in-depth research on the risk control mechanism of finance lease in China is of great practical significance. However, due to the differences in the operation mechanism, market environment and supervision authorities of finance lease in different countries, the relevant studies have different focuses. Most of the relevant foreign studies, which are often case studies presented in different academic papers or books, are conducted based on the concrete risks involved in the selected cases of finance lease. For instance, when the credit risk is involved in the selected case, the study will be carried out from the perspective of the credit risk control accordingly. In terms of risk control, the domestic research on the finance lease risk control of medical equipment, mostly found in different newspapers, is rather limited for lack of deepness and systematicness. On the contrary, the studies on risk control of the finance lease industry as a whole are relatively large in number. For example, by analyzing the features of finance lease in detail, Sha (2010) has explained the market risk, financial risk, technical risk, trade risk and other risks brought by force majeure like environmental pollution and proposed the establishment of the credit key mechanism in order to avoid the failure to recover the leased assets. Qiu (2005), in his work entitled *Risks and Risk Control of Lease Finance Companies* released in a seminar, classifies the risks faced by the financial lease companies into 6 types, namely, the industry risk, market risk, credit risk, financial risk, policy risk and management risk. Besides, he has also discussed the properties and preventive measures of these risks respectively. In terms of empirical analysis, Xu *et al.* (2003) associates the real option risk with the securities portfolio in the financial market through the Black-Scholes model and the contrastive analysis of the net present value. They also calculate the option value of the aircraft finance lease to provide references for drawing up lease strategies; Xu *et al*. (2004), from the perspective of the information asymmetry between lease companies and lessees, makes evaluation on the credit of lessees with the credit assessment model so as to effectively control the risks accordingly.

Although there are specialized studies on the finance lease risks in China, most of these studies only focus on the risks involved in a single type of finance lease, such as studies on how to control the risks in the aircraft or shipping finance lease (Du, 2011; Xia, 2004; Zhan, 2012; Li, 2012;Xu*et al*., 2003). Other domestic studies tend to explore the risks from the perspective of the whole finance lease business, which is similar to the perspective of project risk control (Lu, 2005; Zhang & He, 2001; Li & Zhang, 2007; Gong, 2007; Wang, 2009; Zhou, 2004). Most of the domestic research are carried out based on the concrete risks involved in the practices of the researchers with no clear definition of the research perspective in terms of the relevant parties in a finance lease deal. Therefore, this research will elaborate on the risk management mechanism of finance lease based on the analysis of the various risks involved in the relations established between lessors and other relevant parties in the finance lease deals from the perspective of the lessors. As far as the lease finance companies are concerned, the finance lease projects of medical equipment are, to a large extent, represent as a kind of financial investment risks in light of the features of finance lease. In Cheng's work (2006, 2004), *Risk Management of Finance Lease*, together with his doctoral dissertation, an objective review of the finance lease risks in China is made with a basic introduction to the calculation and management methods of the credit risk, interest rate risk, exchange rate risk and operational risk. Besides, Cheng also provides some suggestions for risk management to the lease finance companies and supervision authorities.

The studies mentioned above not only serve as important references for the research concerned here but also leave room for a further study on the field. Instead of only focusing on the collection and collation of materials, this research, based on the existing materials, will pay more attention to the exploration and study on the existing risks in the deals of the medical equipment finance lease, a sub-industry of the whole finance lease business. From the perspective of the lessors, the research will make an analysis of the feasible measures in the risk management on the basis of the corporate practices.

1.3 Research Problem and Methods

On the basis of the previous studies, we believe that there are still too few studies on the medical equipment finance lease that are conducted from the perspective of lease companies. In light of that, in this research, we try to conduct a basic study on the risk occurrence mechanism and avoidance measures in the finance lease deals by using the methods as follows.

1.3.1 Research Problem

Based on the current domestic research on financing lease, the thesis mainly focuses on the following questions. First, the definition of finance lease is given and a systematic review of its development in the world is made in this research. And then an analysis on the difference between financing leases at home and abroad is given. Second, based on research on the types of finance lease risks and relevant theories, an analysis of the risks occurred in the finance lease deals of China’s medical equipment is made from the perspective of the lessors. Also, the features of the risks are elaborated on. Third, based on the similarity of the lease finance companies with banks, the research draws on the latest domestic research accomplishment in the field, that is, to assess the risk indexes of the lease finance companies with the internationally recognized system of CAMELS, in order to prove the effectiveness of these indexes with real cases. And suggestions are given to prevent the finance lease risks for the Chinese companies from a macro-perspective.

1.3.2 Data Collection

This study mainly discusses the risk avoidance of medical equipment finance lease. Combining with the characteristics and process of medical equipment finance lease, the study employs the method of qualitativeanalysis to explore the risk factors and avoidance measures from the perspective of the emergence and development of finance lease and the main content, element and business process it contains. According to the business process of medical equipment finance lease, we has an in-depth analysis of risk avoidance in the project evaluation decision phase and project implementation phase, with a focus on the risk assessment of the lessee hospitals in the decision evaluation phase. Meanwhile, attention is also paid to the market risks of the project. The specific methods are as follows:

(1) Historical Analysis

The historical analysis refers to a scientific analysis of the historical documents related to the study objects with an aim to explain the emergence and development of the objects concerned (MBAlib, 2013a). By analyzing the published documents and successful cases of lease finance companies, the research aims to have a better understanding of the main causes of the finance lease risks of medical equipment. Meanwhile, the research will analyze the development of finance lease with respect to the policies and legal environment so as to make estimation on the development trends of the policy environment in the future.

(2) Observational Method and Interviews

In order to have a close understanding of finance lease projects of some lease companies, we has visited some relevant institutions for observation and interviewed the supervisors of the main projects to know more about the operational process of the medical equipment finance lease and obtain first-hand information. Through close observation and interviews, the various factors influencing the medical equipment finance lease can be revealed, which include the operation status, financial status, willingness to pay rent, credit status, government support, contract terms and allocation of risks.

As for the financial status of the hospital, the items to be investigated include the total bank deposits of the hospital, asset-liability ratio, short-term and long-term liabilities, major projects under construction, accounts receivable turnover ratio, total asset turnover rate. When the hospital financial and accounting reports are the normal, the risk is small.

1.3.3 Data Analysis Method

The data in the research mainly adopts descriptive statistical analysis charts and tables. Complex statistical analysis or hypothesis testing are not involved.

1.3.4 Related Theories

The analysis in the research mainly refers to two theories, which are CAMELS risk analysis and SWOT analysis.

(1) Introduction to CAMELS Rating System and Its Applicability

CAMELS(C=Capital adequacy, A=Asset quality, M=Management quality, E=Earnings, L=Liquidity, S=Sensitivity to market risk)rating system, as a comprehensive rating system featured by standardization, institutionalization and indexation, has been adopted by the US financial regulatory authorities to rate commercial banks and other financial institutions based on their business operation and credit status. The CAMELS rating system adheres to the guideline of evaluating risk management capacity, gives adequate consideration to the scale, complexity and level of risks facing the financial institution, combines each individual score and the composite score together and adopts both qualitative and quantitative analysis. It has become the most effective and basic analytical model to judge whether a financial institution and the like is under sound operation or faced with any major risks.

a. Introduction to CAMELS Rating System

In 1914, the US Federal Reserve System was established, and the Federal Reserve was endowed by law with the function of financial supervision to reduce financial risks and safeguard the sound and steady development of the financial industry. CAMEL rating (Li, 2012; Li, 2011; Zhang, 2010; Zheng, 2011) has been adopted by the three US federal regulatory authorities on financial institutions, namely the Federal Reserve, the Office of Comptroller of Currency(OCC) and the Federal Deposit Insurance Corporation(FDIC), as an analytical tool to evaluate the overall operation status of financial institutions. This system, set up in 1979, is not restricted to the supervision on financial institutions in America but widely followed by financial regulatory authorities in other countries. The CAMEL rating system adopts five indexes including capital adequacy, asset quality, management, earnings and liquidity to comprehensively reflect and measure the business operation status in the financial institution. The US Federal Financial Institutions Examination Council (FFIEC) improved the CAMEL rating system and issued the revised Uniform Financial Institutions Rating System (UFIRS) in January, 1997, which marked the launch of CAMELS rating system (Cheng, 2004). In comparison with CAMEL rating system, the CAMELS rating system highlights the importance of risk supervision and risk management. The new rating system also adjusted and redefined rating items in both individual and composite ratings and added the index of market-risk sensitivity.

ⅰ. Capital Adequacy

The major measurement index for capital adequacy is capital adequacy ratio. According to Basel Accords, the required minimum capital adequacy ratio is 8% (Suzhou Trust and Investment Limited Co., Ltd., 2004). Capital adequacy ratio is a prerequisite capital ratio to ensure financial institutions like the bank to operate and develop normally. It is also a basic need to ensure adequate capital and a reasonable capital structure in financial institutions so as to maintain the public confidence in the bank. Adequate capital and a reasonable capital structure can also serve as the buffer when the bank is suffering from various losses and risks. Therefore, almost all financial regulatory authorities in each country will regulate the capital adequacy ratio in commercial banks so as to monitor the bank's capacity to defend against risks. According to Basel Accords, capital consists of core capital and supplementary capital.

Besides, in Basel Accords, it is set that the volume of supplementary capital should not be more than that of the core capital. Core capital consists of capital stock (paid-up capital), disclosed reserve and undisclosed reserve (retained income or other surpluses like share premium).

ⅱ. Asset Quality

Asset quality rating reflects the status of assets, potential credit risks related to various assets and the ability of an institution to identify, measure, manage and control credit risks. The quality of a bank's assets reflects directly the degree of safety in its operation, and exerts a direct influence on the earnings of the bank. Chinese commercial banks have a long way to go before catching up with banks in the West in asset quality. The non-performing asset ratio in Chinese commercial banks is higher than the international average, and there is severe inadequacy in the draw of bad debt reserve in Chinese banking industry. Actually, inferior asset quality has become the major reason of the unsatisfactory financial status and low profitability in Chinese banks.

ⅲ. Management

Management in a bank covers extensive areas such as the diversification and risk level of its investment portfolio, management skills, science and technology competitiveness, leadership, capability to abide by the existing regulations and ability to adapt to the changing environment. Since 1996, the US Federal Reserve has begun to rate the capability of the management in a bank to identify, measure and monitor risks so as to define the level of their management. In this process, the Federal Reserve has talks with members of the board in the bank to get informed of its management status and checks its internal control system as well as its compliance with laws, especially the procedure or process of operating assets. The real management status in a bank is reflected in the seniority, experience, capacity and confidence of the administrative staff, the soundness and implementation of the internal control system, the staff training, the capacity to cope with emergencies, the compliance with financial regulations and laws in business operation and the compliance with law of the mid-and-senior level administrative staff as well as the general staff.

ⅳ. Earnings

The focus of this index is to inspect the net income of the bank in past one or two years. The rating of earnings should not only reflect the volume and trend of income but also reflect the factors that influence the continuity and quality of income. Excessive and inappropriate credit risks not only influence the quantity and quality of income but also lead to credit losses and incur extra loss reserves. And the earnings of the bank will also fluctuate due to market risks. Thus, earnings and risk management are closely related.

ⅴ. Liquidity

The inspection concerning liquidity covers the change of bank deposit, the dependence of the bank on borrowing money, the volume of liquid asset that can be liquidated at any time, the management and control of assets and liabilities, the frequency of borrowing money and the ability to finance in short time. In rating the liquidity of bank asset, some major factors are inspected, including the match of the term structure of loans with the structure of liabilities, the fluctuation of bank deposit, the stability of core deposit, the dependence of the bank on borrowing money, the ratio of asset that can be liquidated timely to the total asset, the management of assets and liabilities and the ability of the bank in borrowing money. The rank and standard adopted by regulatory authorities in rating liquidity of banks are as follows:

The first rank: with good liquidity, strong cashability and solvency;

The second rank: with relatively good liquidity;

The third rank: with the capacity to satisfy its financial need at any time even though its liquid capital is not enough sometimes;

The forth rank: in obvious short of liquid capital;

The fifth rank: with bad liquidity and it has shadowed the safety of deposit and operation of the bank.

ⅵ. Market-Risk Sensitivity

It refers to the bank's sensitivity to market risks, including its sensitivity to such phenomenon that the bank's earnings and interest rate are changing in opposite directions. In the rating of a bank's sensitivity, such capabilities are mainly inspected, like its capacity to monitor and manage market risks, its ability to respond to market risks and especially its management on the interest rate risk. Management on the interest rate risk requires the bank to categorize its assets and liabilities into those with the interest rate matching the term, variable rate assets and liabilities and fixed rate assets and liabilities. According to the structure of risk premium as well as assets and liabilities in different banks, a bank should research the trend of market interest rate, constantly adjust the structure of both variable and fixed rate assets and liabilities and expand or narrow the financing gap so as to increase the interest margin. At the same time, the bank also resorts to dynamic management on the term of assets and liabilities through a correlation analysis on interest-rate-sensitive assets (IRSA) and rate-sensitive liabilities (RSL).

b. Analysis of the Applicability of CAMELS

Initially, the CAMELS rating system was employed by US regulators to evaluate and supervise the risks in American banking industry. However, the finance lease business shares some common characters with the long-term loan business in banks, and in the academic community of China, scholars represented by Mr. Qiu Qiyang treat the finance lease business as the financial business (Qiu, 1996, 2004). Nowadays, the Chinese lease finance company especially those in the banking industry are mainly engaged in the sale-leaseback business which accounts for more than half of their lease business. What is more, compared with direct lease business, the sale-leaseback business shares more characters of the long-term loan business. In practice, besides of those lease finance companies that come from the banking system, there are also a number of well-developed lease finance companies outside the banking system. Those companies also adhere to the regulations set by the Ministry of Commerce and the CBRC (China Banking Regulatory Commission) in operation so as to take the high standard in managing risks. They have followed the risk management system in commercial banks and achieved good results in risk management after establishing a comprehensive risk management system. Therefore, the six indexes in CAMELS rating system, used initially to evaluate the operation and management risks in the banking industry, can be well borrowed by lease finance companies in China to manage their risks. The key feature of CAMELS rating system lies in its combination of individual analysis with composite analysis as well as qualitative analysis with quantitative analysis. On the basis of the evaluation of risk management capacity, this system can reveal the level of risks facing a financial institution. Since the lease finance company engaged in medical equipment can be treated as a financial institution, the CAMELS rating system can be reasonably borrowed to evaluate those companies. Besides, the company can also use the six indexes in the CAMELS rating system to manage and avoid risks. Therefore, in this dissertation, the CAMELS rating system is adopted to evaluate the risks facing the medical equipment lease finance company.

(2) SWOT Analysis

SWOT analysis (alternatively SWOT Matrix), proposed by a professor of management from University of San Francisco in the 1980s, is a structured planning method used to evaluate the Strengths, Weaknesses, Opportunities, and Threats involved in a project or in a business venture (MBAlib, 2013b). With this method, it is possible to conduct a comprehensive, systemic and accurate research on the situation of companies in the business of finance lease, and therefore it is possible to identify the risks and avoidance measures based on the results. As this method gives an analysis of both the internal and external influencing factors, it will be more scientific and comprehensive to use it to analyze finance lease business. Therefore, it is among the most often used methods of corporate strategy analysis.

SWOT analysis, actually, refers to the conclusion and summarization of the internal and external conditions of the company, which helps to analyze the strength and weakness of an organization, and opportunities and threats faced by it. It combines the strategy of the company and the internal resources with the external environment. Among those analyses, the strength and weakness analysis will focus on the change of external environment and its possible impact on a company. But it should be recognized that the opportunities and threats brought by the change of external environment may vary among companies of different resources and capabilities. Therefore, these two kinds of analysis are closely related. When a company plans to expand its business in a field, make new investments or make a marketing plan, one of the strategies the company adopts is SWOT analysis. This strategy ultimately aims at comparing the strengths, weaknesses, opportunities and threats of a company with those of its rivals. Then the company will decide whether a new business or investment is feasible. By taking SWOT analysis, a company can take full advantage of the strength and avoid its weakness, to turn its weakness into strength and challenges into opportunities. At the same time, the company should also know what to learn to catch the business opportunities. That is so called to know one's rival in every way, so that one can win every time. Having a better understanding of its rival will help a company to reduce the risk of running the business and make investments. To conclude, it is paramount to know the strength and weakness of resources owned by a company as well as opportunities and threats faced by it, which is significant to working out the future development strategy of a company.

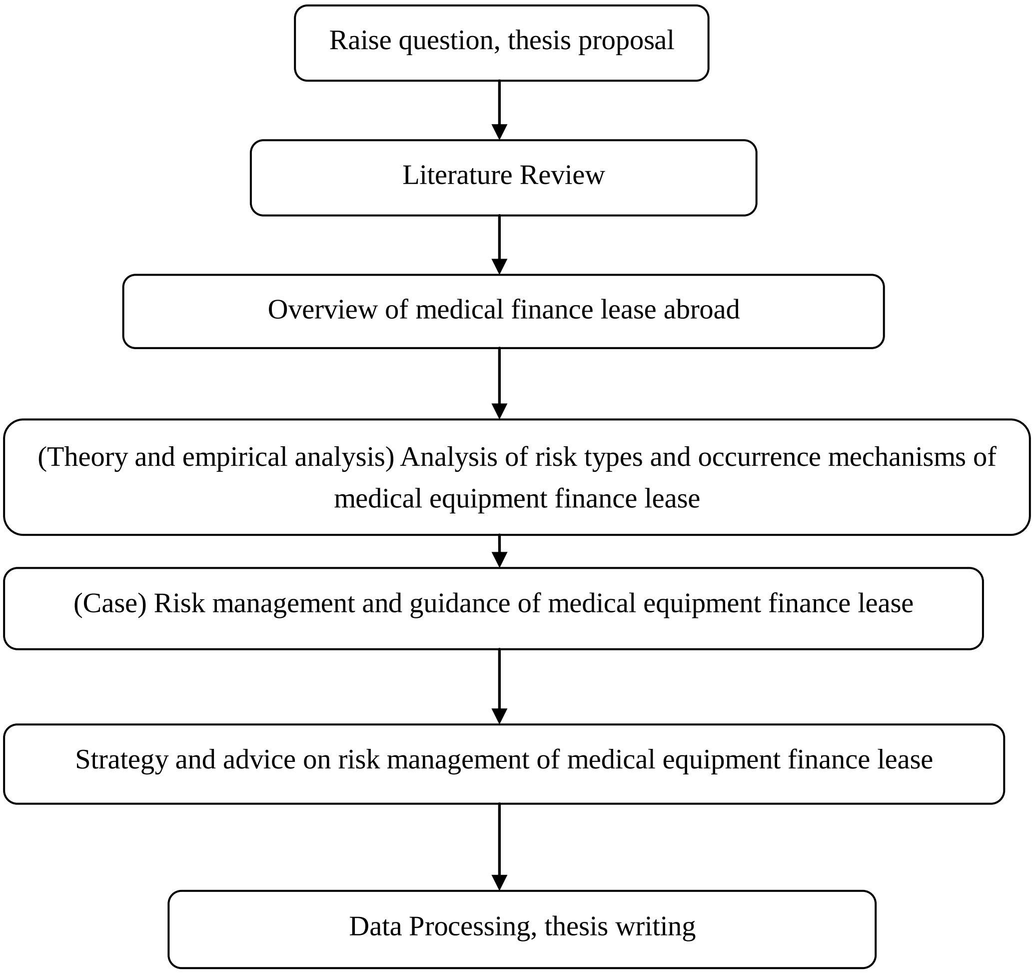
Since its emergence, SWOT analysis has been wildly applied in strategy study and competition analysis, becoming an important analyzing tool of strategy management and competition intelligence. Directness in analysis and simplicity to use are the important advantages of it. Without exact statistics and professional analyzing tools, it can still be used to drawn persuasive conclusion. However, it is the simple and direct way of concluding that makes the lack of enough exactness an inevitable flaw of SWOT. SWOT adopts a qualitative approach and forms a vague description of the position of the company by listing S, W, O, and T of it. Since the decision is made based on SWOT analysis, it is inevitable that the decision, to some extent, is subjective. Therefore, when applying the SWOT analysis, one must be aware of the limits of the method. The facts that are listed as the basis for making decisions should be as real, objective and exact as possible. Some quantitative statistics should be provided to make up for the weakness of SWOT analysis and better form the basis for high-level qualitative analysis.

1.3.5 Research Roadmap

In this thesis, we analyze the formation, development history and *status quo* of finance lease of medical equipment both home and abroad so as to have a deeper understanding of the types, features and advantages of medical equipment finance lease. On the basis of the above analysis, we put forward some risk avoidance strategies in this field from the perspective of lease companies. Next, we explore the occurrence mechanism of risks in finance lease through observations, interviews and analysis of specific projects. Finally, we present the mode of medical equipment finance lease suitable for Chinese companies and put forward reasonable risk avoidance strategies targeted at the risk occurrence mechanism so as to offer useful advice for the development of China's finance lease of medical equipment.

Specific steps (see Figure 1-1): 1, Analyze the problems existed in the development of Chinese enterprises of medical equipment finance leasing industry and make project design and imitation accordingly. 2, Make a literature review on the relevant domestic and foreign documentations. 3, Collect data and make comparison between China and other countries' medical equipment finance leasing industry and therefore figure out the similarities and differences. 4, Combine relative theory and practical conduction of medical equipment finance leasing business, analyze types of risk and generating mechanism of medical equipment finance leasing business. 5, To avoid risk through proposing recommendations and measures accordingly. 6, Analyze data and write thesis.

Figure 1-1 Research Flow



Source: The author.

Chapter 2 Finance Lease and China's Medical Industry

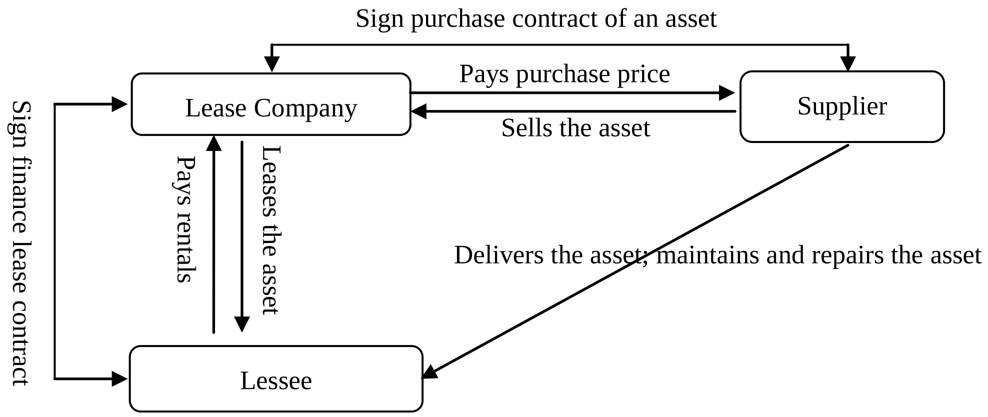
2.1 The Development of Finance Lease

Although finance lease is no longer a novelty in China, systematic expositions of its development and revolution are not often seen. Understanding the connotation and denotation of finance lease and its evolutionary process is the prerequisite and foundation to grasp its characteristics and future development trend. Therefore, before analyzing the occurrence mechanism of risks in finance lease, we will have a systematic exposition on the definition, characteristics, classification, general operation process of finance lease and its revolution and development in China's medical industry.

2.1.1 Nature of Finance Lease

Finance lease, translated into Chinese as"融资租赁" or "金融租赁", refers to a type of lease in which the whole or the majority of risks and rewards related to ownership of an assets are in substance transferred. In the end, the ownership of the assets can either be transferred or not. Emerged in the 1950s, finance lease can also be called modern lease (Tang *et al.*, 2006). In this form of lease, the lessor, in accordance with the requirements and demands of the lessee, signs purchase contracts with the supplier, buys in the equipment needed by the lessee, signs lease contracts with the lessee, delivers the leased equipment to the lessee within the contracted period, and recovers the payment for the equipment, interests and other costs via rentals paid by the lessee by installments (Bai, 2010b; Wang, 2012; Xiao, 2002; Zhang, 2013).

Figure 2-1 Flow Chart of a Typical Finance Lease



Source: The author.

The operating procedures of a typical finance lease are as follows: ① According to his need for equipment production and business, tenant signs a financial leasing contract with finance leasing company. ② According to the terms of the financial leasing contract with tenant, finance leasing company signs a sale and purchase contract with equipment suppliers. ③ According to the terms of the sale and purchase contract, supplier provides equipment and maintenance services to the lease. Specific processes are shown in Figure 2-1.

According to the definition in International Accounting Standards (IAS17) made by the International Accounting Standards Committee, "finance lease is a kind of lease in which all the risks and rewards related to the ownership of an asset are transferred. The ownership may or may not eventually be transferred." This definition emphasizes that a finance lease only transfers the economic ownership of an asset to the lessee (Xu, 2006; Xue, 2007).

In the Accounting Standard for Business Enterprises No.21 - Leases issued by the Ministry of Finance on February 15, 2006, "The 'finance lease' shall refer to a lease that has transferred in substance all the risks and rewards related to the ownership of an asset." Meanwhile, more specific provisions are provided. If a lease satisfies one or more of the following criteria, it shall be recognized as a finance lease:

(1) The ownership of the leased assets is transferred to the lessee when the term of

lease expires;

(2) The lessee has the option to buy the leased asset at a price which is expected to be far lower than the fair value of the leased asset at the date when the option becomes exercisable. Thus, on the lease beginning date, it can be reasonably determined that the option will be exercised;

(3) Even if the ownership of the asset is not transferred, the lease term covers the major part of the use life of the leased asset;

(4) On the lease beginning date, the present value of the minimum lease payments amounts to substantially all of the fair value of the leased asset;

(5) The leased assets are of a specialized nature that only the lessee can use them without making major modifications.

2.1.2 Features of Finance Lease

Bonding with capital, a finance lease is exercised in the form of financing assets and characterized by financing funds, in which credit handling ways of financing assets and financing funds are integrated together (Zhang, 2010; Xu, 2006). More specifically, in a finance lease, the ownership of the leased asset belongs to the lessor, the usufruct of the asset belongs to the lessee who shoulders the risks and enjoys the rewards brought by the asset. Correspondingly, the lessor charges rent according to the agreement. Finance lease is also characterized by full settlement, that is to say, the lessee repays the finance lease company through rentals to cover reasonable investment return and all the money the company previously paid for the equipment bought for the lessee, including relevant fees and financing cost of advancement. Finance lease has the following characteristics.

(1) The lessee of a finance lease carries out the lease for the purpose of financing. The nature of finance lease is manifested in financing, which is the most distinctive function of finance lease (Li, 2006). To achieve that purpose, the lessor of a finance lease shoulders the responsibility of providing financing. Therefore, finance lease is an activity in which financial factors predominate.

(2) In finance lease, the lessee enjoys the right to and bears the responsibility of

selecting the supplier and equipment. The lessor shall not intervene, unless the lessee needs technical support from the lessor.

(3) During the term of a finance lease, the lessor bears the responsibility of the repair and maintenance of the leased equipment and enjoys ownership of it.

(4) Finance lease usually has a long lease term.

(5) The lessees of finance lease are in most cases corporations or other for-profit business organizations and citizens. Therefore, finance lease is regarded as a commercial activity instead of a consumptive activity, and the leased asset is in most cases a chattel.

(6) When the lease term expires, there are usually three kinds of outcomes: the asset being purchased by the lessee, the lease term being extended, or the asset being sent back.

2.1.3 Procedure of Finance Lease

In accordance with the lessee's specific requirements for the leased asset, the lessor buys the leased asset from the supplier selected by the lessee and leases the asset to the lessee. The lessee pays a series of installments to the lessor. During the term of lease, the lessor is the legal owner of the asset, while the lessee enjoys the use right, possession and usufruct of the asset. Generally speaking, the lessor will not interfere with the normal operation of the lessee. At the end of the lease term, when the lessee has paid all the rentals and performed all the duties in accordance with the finance lease contract, the ownership of the asset is transferred to the lessee.

2.1.4 Main Types of Finance Lease

(1) Sub-finance-lease

In a sub-finance-lease, the lessor leases equipment from another finance lease company and sub-leases it to the lessee. In this case, the second lessor, which acts as a finance lease agent, can make profits without spending its own money and reduce the financing cost. Besides, the second lessor can also enjoy the tax reference in the country of the first lessor. Sub-finance-lease usually occurs when the finance lease is carried out across nations.

(2) Sale and leaseback finance lease

Sale and leaseback finance lease is usually called leaseback for short. In leaseback, an equipment user first sells the equipment to a finance lease company (lessor) which then leases the equipment back to the original equipment user (lessee). Through leaseback leases, enterprises can improve their financial condition (balance sheet), liquidize the idle assets by selling equipment and continue to use the equipment at a relatively low rent by sharing government investment incentives of tax deductions with finance release companies. In short, leaseback enables an asset (equipment) owner to transfer materialized capital into money capital without compromising the use of the asset.

(3) Leveraged finance lease

International leveraged finance lease works in a very complex way, involving many parties, for example, lessee, manufacturer, owner and lessor, owner's trustee, creditor and broker. The finance lease company (lessor) only bears a fraction of the cost of the equipment, typically 20-40% of the total, and use it as a "lever". Most of the cost is funded by bank, syndicate, or other financial institutions. The lessor transfers or mortgages the ownership of the leased asset, guaranteed usufruct of the finance lease contract, insurance beneficiary interest of the leased asset and usufruct of the finance lease contract to the lender. The lender has no recourse to the lessor. The leased assets of such leases are mostly large equipment of huge acquisition cost, such as aircrafts, steamships and satellites.

(4) Entrusted finance lease

There are two sub-types of entrusted finance lease. In the first sub-type, someone who owns capital or equipment entrusts a non-bank financial institution to engage in a finance lease. Therefore the first and the second lessor of the lease are also trustor and trustee respectively. In the second sub-type, the lessor entrusts the lessee or a third party to purchase the leased asset and pays payment according to the contract. This type of entrusted finance lease is also called entrusted purchase finance lease.

(5) Project finance lease

In project finance lease, the signing of contract is guaranteed by the assets and benefits of the lessee's project. The lessor has no recourse to the assets and benefits of the lessee other than that of the project, and the rent shall be determined by the cash flow and efficiency of the project. By taking this approach, a seller can promote its products and expand its market share via a lease company in which it has holdings. This approach can be used in leasing communications equipment, large medical equipment, transportation equipment and even operate right of highways.

(6) Firm lease

Firm lease is also a sales promotion method. It is taken by manufactures or circulation departments via lease companies in which they have holdings or which they belong to. Those lease companies can provide customers with repair, maintenance and many other services with the support of their parent companies. In this case, the seller and lessor actually belong to the same company but are two independent legal entities. In firm lease, the lease company acts as a finance, trade and credit agent and bears the risk of rental collecting independently. By adopting this approach of finance lease, manufacturers can promote their products via a comprehensive or specialized lease company and therefore avoid receivable and debt default. In this way, bank risks can be diversified and the circulation of commodities can also be enhanced.

(7) Share finance lease

Share finance lease is also called percentage finance lease. This lease is guaranteed by the usufruct of the leased asset and the lessor enjoys a percentage of the revenue earned from the asset. This approach is suitable for projects featuring long payoff period, stable cash flow and a certain extent of monopoly. In this approach, the rent is not fixed, but determined by the profitability of the lessee, generally consisting of a basic rental and a percentage of the lessee's revenues. The percentage, decided by the lessee and lessor together, varies according to the actual production situation.

(8) Venture finance lease

In venture finance lease, the lessor, both a creditor and an investor, leases equipment to the lessee to obtain rentals and shareholder’s equity and earning as investment returns. Among the returns, the major part is the rentals, usually 50% of the total. The secondary part is the scrap value of the equipment, usually not higher than 25%. Apart from these two parts that are relatively safe and reliable, the rest depends on the common equity which the lessor buys within a certain time and at a set price agreed upon between the two sides. This approach opens up a new channel for attracting investments in the high-tech and high-risk industries.

(9) Structured participation finance lease

A structured participation finance lease consists of three phases: fund pouring, rent paying, and reward gaining. The fund pouring phase is the same with that of other normal finance leases. In the rent paying phase, the liquid capital of the project is allocated to the lessor and lessee at a certain proportion. For example, 70% goes to the lessor as rent and 30% is left to the lessee. The reward gaining phase refers to the limited years when the lessor still enjoys a percentage of the liquid capital of the project after all the leasing cost has been paid back with rentals. When the reward gaining phase comes to an end, the ownership of the leased asset is transferred from the lessor to the lessee, which marks the end of the whole project finance lease. Structured participation finance lease has the same effect with the Build-Operate-Transfer (BOT) approach which we are more familiar with.

(10) Bundle finance lease

Bundle finance lease is also called “San-san Rongzi Zulin” in China (thirty-thirty finance lease). In bundle finance lease, the lessee pays a down payment (deposit) that is not below 30% of the purchase price of the leased asset, and the equipment manufacture does not receive the full purchase price but, in general, about 30% of the full price on delivery. The rest is paid back through installments within the mid-term of the lease. Thus the financing intensity the lease company has to bear is only about 30 percent of the full. In this approach, the manufacturer, the lessor, and the lessee are bundled together, sharing risks and benefits, which changes the situation in the past when the lessor took all the risks alone.

(11) Comprehensive lease

In comprehensive lease, lease and trade are combined together. According to different combining approaches, comprehensive lease can be divided into several sub-types. The first approach is to combine lease with compensation trade. That is to say, the lessee does not pay rent in cash, but offset the rent with products directly manufactured with the leased equipment after it goes into operation. The second approach is to combine lease with processing and assembling trade. In this approach, the lessor provides the lessee not only with equipment, but also with raw materials or components. Then the lessee processes and assembles the raw materials or components and delivers the products to the lessor or a third party appointed by the lessor as a way of paying rent. The third approach is a combination of lease and underwriting. In this approach the lessee uses the leased equipment to manufacture products, and the lessor underwrites all the products, sets the price of the products and deducts rent from the price.

(12) Master lease

Master lease is a lease that has an open-ended contract. The contract not only allows the lessee to lease the needed equipment at present, but also, according to future needs, lease new equipment later with the same terms and conditions of the lease (excluding rent) without signing a new contract. During the entire lease term, the lease company is responsible for providing the most advanced equipment. The number of equipment can vary according to season or the requirements of the lessee. The lease term is usually more or less the same with the service life of the equipment. This form of lease is actually equal to the lease company offering a line of credit to the lessee. Master Lease is usually used in leasing trucks, computers and their auxiliary devices.

2.2 Characteristics of Medical Equipment Finance Lease

For medical institutions, medical equipment is the most dynamic physical means of providing medical service. Especially with the development of medical science and biological engineering technology, hospital’s needs for high-tech imaging equipment and radiation therapy equipment such as MRI, CT, PET, and Gamma Knife increased sharply. The frequency of installing, supplementing and updating advanced medical equipment determines the coverage and quality of the medical services in a medical institution. The constant use of advanced medical equipment in hospitals opens a wide scope for hospitals to improve the efficiency and coverage of diagnosis and treatment and reduce the misdiagnosis rate, so that hospitals can build a good image and attract more patients. Today, the increase in the number of medical equipment and the continued emergence of newer and better equipment have greatly facilitated the development of hospitals at all levels. However, traditional financing means can no longer meet the various capital needs of medical institutions as they invest in infrastructure construction and new equipment. To address this problem, new financing approaches must be adopted. Fortunately, this problem is accentuated by an increasing number of hospital researchers and decision makers (Peng, 2005; Zhou, 2013; Nie, 2013).

On one hand, manufacturers or distributors of medical devices seek to sell the product and get the reflow of sales income; on the other hand, medical equipment users try to introduce technologically advanced medical equipment to create some expected social and economic benefits with a relatively small investment. As for financial institutions or individuals who are in surplus, investing in the health care industry is a good way to gain considerable returns. This fully reflects the refinement and maturity of market division under market economy. Meanwhile, thanks to the development of this promising medical device industry, various stakeholders are drawn together, sharing risks and taking what they need.

Medical equipment finance lease refers to a type of financial service for hospitals provided by lease companies. In medical equipment finance lease, the lease company buys medical equipment from a supplier (equipment and supplier are both selected by the hospital) for the purpose of providing financing to the hospital. The lease company signs a finance lease contract with the hospital, and then leases the equipment to the hospital, who pays rentals for the use of the equipment. Judging from the form, medical equipment finance lease is a branch of finance lease. Therefore it bears the general characteristics of finance lease. However, as a financing method newly introduced into the health care industry, it has its own characteristics.

2.2.1 Long Lease Period

In some cases the lease term may cover over 75% of the leased asset's service life; the longest may even cover the whole service life. Most of the lease terms last more than 10 years.

2.2.2 Risks and Benefits Transferred in Advance

In medical equipment finance lease, the risks and rewards involved are relatively great . However, all the risks and rewards related to the ownership of the assets are in substance transferred to the lessee to facilitate the transfer of ownership at the end of the lease term. When hospitals cannot pay the rentals regularly, they will face the risk of losing both money and assets.

2.2.3 Frequent Government Intervention

Medical equipment finance lease is susceptible to government intervention. Since the majority of Chinese hospitals are public hospitals, finance leases of medical equipment need to be carried out in accordance with relevant provisions of the nation's health resource allocation regulation. With absolute control over public hospitals, government often intervenes in the development of hospitals. Consequently, medical equipment finance lease involves relatively great policy risks.

2.2.4 High Requirements for Market Access

The medical industry is of a quasi-monopoly nature. The investment return on medical equipment finance lease is only slightly influenced by market fluctuations. Moreover, medical industry is characterized by high access threshold, stable business income, and good cash flow. All the above guarantees a stable return on medical equipment finance lease.

2.2.5 Good Market Prospect

With the improvement of living standards, people have never cherished their bodies and lives so much. This steps up the demand for healthcare equipment and brings unlimited business opportunities to the rental market. Meanwhile, the development of medical technology continues to accelerate the upgrading of medical equipment. However, as the government introduces the "separation of clinic from pharmacy" policy and other policies to strictly curb the practice of "covering hospital expenses with medicine revenue", hospital's cash flow distribution is significantly affected. Therefore, the Chinese hospitals' demand for medical equipment finance lease will increase rapidly in the future.

2.2.6 A Win-win Outcome

As regards the lease companies, finance lease is very suitable for medical equipment, for not only can it be used universally and defined easily in shape, it can also bring capital quickly in large volume. As regards the hospitals, finance lease fulfills their purpose of financing via financing assets, allowing them to accelerate equipment updating and enhance their core competitiveness popularity. As for medical equipment suppliers, finance lease is a good promotion means to broaden the market and improve the market share of expensive medical equipment.

2.3 Development of Medical Equipment Finance Lease in China

Due to the special health system in China, it is impossible to discuss the evolution of hospital financing without mentioning medical reform. Under the original universal health care system, the government and the hospital itself bore all the costs of the hospital, while social capitals were isolated from the system. It is only after medical reforms, especially the reform of public hospitals, were carried out that medical equipment finance lease appeared. Therefore, to analyze in depth the background and policy environment of medical equipment finance lease, it is helpful for us to have an understanding of the historical course and future direction of health reforms in China.

2.3.1 Medical Reform and Financing in China

The medical reform in China has gone through 6 phases, spanning from 1978 when the third plenary session of the 11th central committee of the Chinese Communist Party was held to the release of the new medical reform plan. Although every reform differs in background, mission, difficulty and impact, all of them, more or less, involve inviting social capital to participate in the development of public health. In 1979 when the medical reform was still an emerging undertaking, Qian Xinzhong, the then minister of health, said in an interview that economic means must be used to manage health undertaking. In 1980, the State Council approved a report from the Ministry of Health entitled Request for Instruction on Allowing Individuals to Practice as Doctors (Ministry of Health, 1980), and terminated the monopoly of state-owned hospitals.

The year 1985 is the first year of China's medical reform, as the Ministry of Health announced that "we must conduct reforms, relax policies, streamline and decentralize, raise fund from multiple channels, and try various approaches so as to do health work better." In 1989, the Ministry of Health, Ministry of Finance, and the State Bureau of Commodity Prices jointly issued a document, suggesting that a contract system will be fully implemented in the medical institutions, medical institutions will be allowed to have independent management and operation and financial freedom, and medical staff and medical institutions will be allowed to provide various kinds of for-profit services. In the same year, the State Council approved the report from the Ministry of Health entitled Opinions on Issues about Expanding Medical Service (Ministry of Health, 1989), which stated that "provided the normal medical workload is met, hospitals can set up some special clinic rooms equipped with high-level medical staff and high-quality service, open the clinic rooms to the public, and charge high fees (reimbursement and medical insurance rejected)". Thus, medical reform moved further amid controversies. In 1992, the trend was to make medical industry more market-oriented. The State Council released the Opinions on Deepening the Health Reform, requiring hospitals to scale new achievements by engaging in industrial production or other subsidiary undertakings. In 2000, property rights of public hospitals became sellable. Suqian, a city in Jiangsu Province, is the first city to fully adopt the market-oriented approach by selling public hospitals. This is because at that time, the

State Council released the Guidance on the Urban and Township Medical System Reform (State Commission for Restructuring, 2014). This document puts into practice the separation of clinic from pharmacy along with some other principles. Besides, some of the contents, such as encouraging medical institutions of different types to cooperate and merge, building medical service groups or for-profit medical institutions, making the price of medical service transparent, and operating independently and paying taxes according to relevant laws and regulations, were interpreted as a go-ahead signal to the market-oriented medical reform. In 2003, as SARS epidemic spread across the country, China began to reflect on the loopholes of its public health system, which then was turned into an overall review of the whole health industry. In 2005, health care reform in China suffered from a setback. Liu Xinming, the then directive of the Policy and Regulation Department of the Ministry of Health, said that market-oriented medical reform was not a correct direction. Meanwhile, research institutions of the State Council concluded that China’s medical reform was basically a failure. Once again, China’s medical reform became a hot topic. The year 2007 and 2008 witnessed the final sprint of China’s medical reform, with a latest medical reform proposal submitted in the two sessions in March, 2008. In 2009, the State Council released the Key Programs to Be Implemented for the Latest Medical Reform (2009-2011). In this document, five reform undertakings were emphasized. First, accelerating the building of the guarantee system for fundamental medical care; second, establishing a preliminary national system for essential drugs; third, improving grassroots medical and health service systems; fourth, gradually promoting the equality in basic public health services; fifth, carrying forward pilot reforms in public hospitals. The five reform undertakings were aimed at solving the much complained problem of “inadequate and unaffordable access to medical services”. On the basis of the gains and losses of the past five medical reforms, now the medical reform in China is more oriented. As the government streamlines administration and delegates power to the medical and health care industry, medical institutions have more freedom and the tendency of social capital pouring into the medical industry becomes increasingly obvious. Moreover, a diversified pattern of medical services is gradually coming into existence and policy obstacles are diminishing.

2.3.2 Medical Equipment Finance Lease and Public Hospital Reform

For public medical institutions, financing is an important means for capital management. It refers to the economic activity in which a public medical institution, taking into account its current situation of medical service and capital utilization, basing its actions on future development need and scientific prediction and decision-making, gathers funds through certain channels with certain approaches from internal accumulation or from investors and creditors, then utilizes the fund to meet the needs of developing medical service. Among China's medical institutions, above 90% of total are public, therefore the development of medical institutions influences directly the health of the people in the region or even the whole country (Sun *et al.*, 2009a). However, in recent years, the development of public medical institutions has been bottlenecked by capital shortage. The traditional mode of financing for hospitals is to combine government compensation and operating revenue. However, it has been a plain truth that the former is shrinking year by year. Moreover, the increase of the latter is becoming difficult as it causes social antipathy to depend excessively on medicine and check-up charge of medical equipment. Bank loans once became a major way for hospitals to ease their financial burden. But again, due to criticisms of hospitals' default on loans and blind expansion in recent years, hospitals have to resort to other financing channels (Zhang, 2009). From 2002 to 2007, the total revenue, financial subsidy and business income of public hospitals had been on the increase as a whole. But among the total revenue, the proportion of financial subsidy had been fluctuating between 6% and 7.5% and was on the decline year by year. In some hospitals, the number even fell to 1-2%, which was far away from that in the developed countries. Medicine income accounted for 50% of the business income in public hospitals. But in the new round of medical reform, the practice of drug price addition was canceled and replaced by addition of medicine service fee, improvement of medical technology and increase of government input. However, it remains unknown whether these three methods are effective in making up the shortfall of drug income. What's worse, there is no clear policy when it comes to the question that whether a diversified property rights ownership is allowed for public nonprofit hospitals. Therefore, financing approaches like equity financing or internal financing through a transformation into joint-stock system are still full of uncertainties for public nonprofit hospitals. However, due to a new round of expansion, reform and technology updating, hospitals have an increasing demand on large and newly designed medical equipment. But medical equipment, especially large high-tech imaging equipment and radiation therapy equipment like magnetic resonance imaging (MRI) equipment, computed tomography (CT), Gamma knife, proton knife, Color Doppler Ultrasound, digital subtraction angiography and digital gastrointestinal machine, costs several million or even several hundred million, which is a huge sum of money for most hospitals and can not be raised within a short period of time through channels other than finance lease. Finance lease has various advantages. For example, it can broaden the financing channels for enterprises, revitalize the stock assets, facilitate flexible arrangements of capital expenditures, transform the nature of bank credit funds (i.e. change the use of credit funds), realize accelerated depreciation to improve profitability, and promote technological innovation and industrial upgrading. In addition, finance lease is both an effective platform for transferring resources between different capital markets and an effective mechanism for transforming capitals (Wang, 2012). Therefore finance lease has not only greatly contributed to the popularization of new medical technologies and equipment as a useful financing supplement when existing financing channels like grants and bank loans are inadequate, but also helped medical equipment supplier promote their products and increase their market share.

Although medical equipment finance lease has won a huge market in China thanks to the medical reforms, it is still full of uncertainties due to the huge transaction volume of medical equipment and the specialty of laws and regulations concerning the medical industry. Therefore, research on this respect will be beneficial not only to China's medical reform, but also to the sound development of this industry.

Chapter 3 Risk Analysis of Medical Equipment Financial Leasing in China

Just like those in other investment activities, risks of finance lease are positively correlated to its return. While given opportunities of gaining huge returns, enterprises are faced with various risks in conducting medical equipment financing businesses. An analysis based on features of finance lease from the perspectives of the general definition, classification and components of risks can contribute to a more in-depth understanding on the mechanism of risk generation in finance lease.

3.1 The Definition of Risk

The word “risk” is by no means an objective concept since the very first day of its coming into being in the human society. Instead, it is connected with subjective feelings of human beings, which contribute to the distinctiveness and complexity of the risk theory. Resulting from uncertainty, risk refers to the possibility that certain losses occur within a particular period of time under a particular context (Zhang, 2012; Cao, 2011; Shuai, 2013; Zhao, 2013). Its distinctiveness is shown in that data used in risk analysis and assessment is mainly probability, mostly subjective probability, the accuracy of which is often doubted. So conclusions thus drawn are often believed unreliable. In its early application, risk is also understood as objective dangers, which are represented by natural phenomena or accidents such as rocks and storms encountered in sailing. The modern definition of the word risk has gone far beyond the narrow implication of encountering dangers.

In recent years, risk has become a hot topic of many disciplines in the academia and some research results have been achieved on this basis. However, in spite of its widely application, there is no consensus reached in the academia in terms of the proper definition of the word risk. The first definition was given by the US scholar Alan

Herbert Willett (1901): risk is the objective manifestation of uncertainty of events that people are unwilling to encounter. In this definition, objectivity and uncertainty of the nature of risk is firstly pointed out; in *Risk, Uncertainty and Profit*, Frank H. Knight (1921) makes a clear distinction between risk and uncertainty, pointing out that risk is uncertainty that is able to be measured through probabilities while the probability of uncertainty is undeterminable; in 1964, the American scholar Chester Arthur Williams (1964) included subjective factors of human beings into risk analysis in Risk Management and Insurance, holding that although risk is objective and exists for everyone to a same degree, uncertainty is the subjective judgment of risk analysts and different people may have distinct opinions over the same risk; Crane (1980) believes that risk means the uncertainty of future losses; and Collins & Ruefli (1995) defines risk as the chance that adverse events or event sets happen.

On the one hand, due to a lack of a general definition of risk in theory, various connotations and denotations of the risk concept occur accordingly and cause troubles and confusions in practice. On the other hand, the development of science and information as well as modernization has accelerated the complexity of business operation and financial handling, resulting in the exponential growth of the amount and complexity of risks. Consequently, companies are faced with risks of more varieties, of a larger quantity and with more interaction in risk management. Meanwhile, connotations and denotations of risk have changed quietly accordingly, though new research on the definition, features and nature of risk are seldom seen. As a result, it is believed in this thesis that it is of great significance for both the theory and practice of risk management to form a universal definition of risk. In this thesis, risk is believed to refer to the uncertain impact of current behavioral strategies on the target value due to the uncertain cognition of behavioral agents on objective things.

3.2 Components of Risk

Like all things, risk presents an objective existence. Understanding the factors of risk is the basis of risk management. Through observation and study on risk events, it was found that risk is generally constituted of the following sections:

3.2.1 Behavioral Agent

Behavioral agent refers to people or organizations closely linked with risk phenomena and related activities. First, risk, including risk simply resulting from natural disasters, is a concept in social sciences and is closely related to actors. It is understandable that earthquakes, floods and avalanches in depopulated areas can only be regarded as natural phenomena rather than natural disasters. And it is unnecessary to consider the risk under such contexts. Moreover, one event is of distinct significance to different behavioral agents and causes different impacts and consequences.

3.2.2 Behavioral Strategy

Behavioral strategy is the integration of a series of countermeasures, methods and planning adopted by behavioral agents in face of risks. The generation, development and removal of risks form a dynamic process, so it is far from enough to understand the concept of risk from the perspective of phenomenal objects. Instead, it is necessary to take into consideration the characteristic that agents and objects are correlated with one another in the concept of risk. As a result, in understanding the concept of risk, apart from normal behaviors involving risks, related risk management activities have to be included, such as observation on risk phenomenon, risk identification, risk categorization, risk measurement and risk treatment.

Besides, what calls for special attention is that behavioral strategies are the reason why risks are partially controllable. In turn, it is because risks are partially controllable that risk management is of practical significance. Thus, correct methods are necessary in face of risks: before risks actually occur, risk management actions should be taken actively to constantly improve risk-involving behaviors of agents, so that risks will finally be influenced and corrected.

3.2.3 Target Value

In risk management activities, a lot of seemingly contradictory and complex problems derive from a lack of a strict definition of the target of discussion. As the point of strength of risk phenomenon, target value refers to specific and measurable indicators that behavioral agents are concerned about and focus on in stages. The word *risk* in itself includes certain judgments on value and a tendency of seeking advantages and avoiding disadvantages. When studying risks: first, in analyzing targets, a company has to be regarded as an organic whole and an integral target, so that the target value has to be established on the basis of the overall interests of the company. Risks have to be treated from a comprehensive perspective, which serves as a prerequisite to the formulation of systematic and consistent risk management strategies. Second, target values for one risk phenomena can be diversified. For instance, nowadays, the operation concept of company value maximization has been widely accepted while the word value has included many factors such as time, risks and social effects. So it is fair to say that information included is rather complete. However, recent research show that value maximization has its essential limitation, for that it indicates how to evaluate the achievement of an intention and the success of strategy implementation without pointing out the way of achieving a target or the action plan for a strategy. No matter it is conducted through the discount cash flow model or the utility model, the attempt to establish an absolute value target function fails. Therefore, value maximization is nothing but a correct concept, which has to be integrated with structured and multilayered company targets to direct companies effectively in practical operation. Lastly, target value has to be measurable. As an abstract concept, target value should be materialized through scientific ways of thinking and coordinated with goals of a company, so as to form measurable indicators, such as net present value, economic value added, return on investment, market share and risk-adjusted returns on investment.

3.3 Nature of Risk

Risk is not a tangible thing, but it is found everywhere in our life and work. It has many unique properties compared with other things. We make analysis on the characteristics of risk and arrive at the following summary and sum up from different perspective:

3.3.1 Endogeneity and Exogeneity

For an economy, risks can be endogenous and exogenous. Namely, risks can be generated from both the economy system itself and the outside of the economy. Endogeneity of risk can mutually covert with exogeneity to a certain extent. For instance, in a planned economy, possible uncertainties within the national economic system are tried to be removed through such measures as a fixed price system, economic and social development plans and enterprise nationalization, so that the planned economic system can display a feature of being risk-proof in essence. At least in theory, risks should not be internal factors of a planned economy. Instead, risks mainly come from the outside of the economic system, such as natural disasters, wars, political shifts and foreign economic fluctuations and shocks. However, for individual enterprises, as everything is arranged in accordance with the system, risks mainly come from the outside. On the other hand, in a market economy, enterprises are more independent. Apart from external risks, enterprises are faced with various risks in its internal operation management under the modern business management system. External risks and internal ones can mutually convert with one another by means of merger and acquisition as well as the establishment of transaction rules. For example, credit risks among enterprises can be internalized through merger and acquisition. Exogeneity of risks under the market economic system has revealed two important aspects: first, risk is an internal factor and feature of the market economy, thus it is unavoidable; second, endogenous risks can influence one another, which is demonstrated not only in the inter-transmission and influence among risks of participants of the economic system, but also in the interconnection and mutual influence between risk decisions and investment and financing decisions of economic agents (such as financial institutions and average enterprises).

3.3.2 Bi-directionality and Unidirectionality

As the traditional concept of risk focuses on losses and adverse events, risk is traditionally defined as the possibility that losses or adversity occurs. In such a definition, the possibility of profits and favorable conditions is not included. So the traditional risk is only a unidirectional concept which focuses merely on "bad risks". On the contrary, represented by the definition of volatility, the modern concept of risk emphasizes on the deviation of risk variables as random variables from the aspiration level. And such a deviation includes not only the volatility that variables are lower than the aspiration level (which can be regarded as adverse changes or vice versa), but also the one that variables are higher than the aspiration level (which can be seen as favorable changes or vice versa). Hence the modern concept of risk is a bidirectional one which focuses on both "bad risks" and "good risks". Such a bidirectional risk concept which involves the bidirectional impact of changes on risk agents is reflected particularly in risk measurement methods that the volatility is measured through standard deviation and variance. Obviously, people are more used to the traditional unidirectional definition of risk while it seems difficult to accept and get accustomed to the bidirectional risk concept which regards the possibility of being profitable as risk and takes the increase of profit as the accumulation of risk. However, it is undeniable that although it is hard for people to accept the bidirectional concept of risk subjectively, in modern risk management practices, it is of great significance and more extensive application. It is prominently evidenced by the fact that standard deviation and variance based on the bidirectional risk concept have become the most basic indicators of risk statistical measurement and analysis. As the bidirectional risk concept not only combines losses with risks but also connect generation of profits with risks, it is beneficial for the involvement of profit producers and profitable sectors in the view and scope of risk management as well as the application of risk-adjusted performance measurement (RAPM), which is of modern management features. By contrast, the unidirectional risk concept merely stresses the connection between losses and risks. Thus the internal link between profits and risks are cut, which would easily result in passive risk aversion and be to the disadvantage of active risk management. In a market with fierce competition in particular, it would finally give rise to the loss of competitiveness. Moreover, another advantage of the bidirectional risk concept lies in that it would make it convenient for an objective measurement on risks, so as to make for market pricing as well as trade and transfer of risks. As risk is defined with losses and adverse events, the unidirectional risk concept is of obvious subjectivity. However, in market transactions that risks are traded for earnings, one's loss means another's profits. Thus the directional risk concept can better fit in the principles of fairness and subjectivity in market transactions.

3.3.3 Symmetry and Asymmetry

To define a risk symmetry or asymmetry is an important issue in modern risk measurement and analysis. And the key to answer it depends on the type of risk and the perspective in risk observation. For one single asset or one business case, risks can be symmetric or asymmetric in distribution. Generally speaking, market risks, those in the stock market and the foreign exchange market in particular, are considered symmetric. And a normal distribution assumption is generally adopted in the market risk measurement and pricing model for financial products, such as the parametric method in VAR model. However, for credit risks and operation risks, the asymmetric distribution of losses is often considered as one of the important features. It is because of the asymmetric feature of risk, it is believed that normal distribution and parametric method are hardly be applicable for credit and market risk measurement and analysis. Instead, the historical simulation method and the Monte Carlo Simulation method are adopted. For investment portfolios, especially those made up of a large number of independent products and businesses, under the influence of the law of large numbers, even though risks of individual product and businesses might be asymmetric and non-normal, losses of the whole portfolio tend to be distributed in a symmetric and normal way.

Symmetry of risk is not only crucial to risk measurement and analysis, but it is also of great significance in directing practices in risk management since it involves important risk management philosophies. First, earnings management should be strengthened. Symmetry is displayed in the symmetry between the scale of losses and that of profits (Li, 2009). For risky businesses, it means that more possibly profitable businesses might make you lose more money while the less risky ones usually bring you less money (Li, 2009). As a result, when investing in highly risky businesses for large profits, one has to keep in mind the risk symmetry and recognize the similarly high down risks, so that excess loss, losses beyond the capital limit in particular, out of the pursuit of excess profits can be avoided. Second, the investment strategy of trading limited losses for big profits should be taken rationally. In a market without sufficient competition, such investment chances do exist. But as investment funds constantly pours into the market and competition increases, risks of such investments will soon become symmetric in distribution. Therefore, it is unpractical to try such an investment strategy in an effective financial market, especially for financial institution investors with a huge amount of funds. Lastly, portfolio management should be paid special attention to. In general, it is more difficult to measure and manage asymmetric risks compared with symmetric ones. Therefore, it is an effective way of reducing the difficulty of management to transform asymmetric risks into symmetric ones through portfolio management. The credit business in banks is the most typical example in practice. For one single credit business, the loan business is the typical example of businesses with asymmetric risks. In those businesses, a small amount of money (interests) is usually made while lots of money (principle) is occasionally lost. However, for large loan businesses, especially loan portfolios in the whole bank, risks are much more symmetrically distributed. Besides, under the influence of the law of large numbers, unexpected losses are transformed into expected ones in portfolio investment. Thus the more difficult risk management on unexpected losses can be converted to less difficult cost management on expected losses.

3.3.4 Objectivity and Subjectivity

Essentially, risks are objective. And the objective existence of risks in investment and financial activities is a common consensus. In the financial market, especially in the trading market for financial derivatives and insurance products, the objective existence of risks serves as the premise and foundation of risk measurement, pricing, trading and transfer. The key to understand objectivity of risks is the recognition of objectivity of risk sources. Seeing from predisposing factors, risk is the possibility that losses or profits occur and an objective inherent property of businesses and business environments. On the other hand, from the perspective of financial institutions, not only risks as an intrinsic property of businesses are objective in its existence, but also their degree is independent of the will of financial institutions and can be hardly changed and controlled by financial institutions. It is true to not only systematic market risks and operation risks resulting from external events but also non-systematic credit risks. As credit risks is determined by credit capacities and credit wills of counterparties, although financial institutions can lay certain influence on such capacities and wills via contracts and after-loan supervision, the credit risk level of counterparties is determined by their own factors rather than risk management measures of financial institutions. In this sense, it is difficult or even impossible to manage the risk itself. Risk management of financial institutions is by no means managing the risk itself. Instead, it involves exposure of risk factors in financial institutions by means of such measures as risk aversion, hedging and shifting, or obtaining compensation and returns of risk exposure.

Subjectivity also exists in perceiving risks. For same products and businesses, some investors consider risky while others do not. Under the subjective perspective on risks, the possibility of suffering losses is considered from the viewpoint of risk bearers. And such risks change with information, risk management capabilities and risk appetite of risk bearers. The subjectivity of risks is demonstrated in three aspects: first, the level of recognition of risks is subjective. It is influenced by subjective elements including collection and disposal of related data and materials as well as tools and techniques of risk quantification. Second, the selection of behavioral strategies is subjective. The formation of behavioral strategies is directly affected by risk appetite, leadership features and judgment on situations of behavioral agents. Lastly, the choice of target value is subjective. Risk appetite can impact behavioral agents' judgment on the target value in a certain sense. However, even though risk appetite of one behavioral agent is certain in a given period, his focus in treating risks may change for specific decisions. It means that the target value of agents during risk judgment also changes.

3.3.5 Balance between Risk and Prospective Earnings

Risk is the uncertainty of future results, such as the uncertainty of changes in future earnings (or cash flow and asset value). It includes the uncertainty of both losses and earnings (Ren, 2011). The balance between risk and prospective earnings is one of the basic features of risk. And it is experientially reflected by the long and commonly recognized basic investment law that a high risk means high yield while a low risk means low yield. The capital asset pricing model (CAPM) advocated by Sharpe in 1964 on the basis of the modern portfolio theory of Markowitz offers theoretical explanations for the first time. According to the modern investment theory, risks and prospective earnings are the two most basic features of any investment and financial products. The existent relation between risks and earnings is of great significance to the theory and practice of modern risk management, which is mainly showed in the following three aspects: first, it determines that the balance between risks and earnings is a basic characteristic of financial transactions and risk management behaviors. And such a characteristic is mainly manifested in the pursuit of risk premium. Second, the balance shows that in effective financial markets, earnings can only be obtained by taking risks. In other words, risk is the only source of profits for financial institutions. Thus, the basic property of financial institutions as professional institutions in bearing and managing risks is determined. Third, it determines that financial institutions as economic entities with an essential mission of seeking for profits, their nature lies in bearing and managing risks and trading for risk premium during the process, so as to fulfill its mission. As a result, in face of risks, medical equipment lease finance companies can only manage risks, evaluate the risk tolerance range and decrease the probability that risk occurs. But they can by no means eliminate risks entirely.

3.3.6 Uncertainty and Controllability

Uncertainty is the essential attribute of risks. It is because risks are involved with future or unknown events that risks are hard to predict. Assuming in extreme cases, once the uncertain distribution of risk probability is degraded into certain events, then risks are considered going through qualitative changes and degraded into fixed costs (losses) or earnings.

Uncertainty does not mean that risks are uncontrollable. On the contrary, many risks are controllable and can be well managed. The controllability of risks is demonstrated in two aspects: first, behavioral strategies are controllable. Through effective risk management methods and the establishment of a reasonable risk transfer mechanism, adverse impacts of risks can be minimized and earnings may be acquired at the same time. Second, efforts of risk recognition are controllable. For one thing, a deep understanding of risks can help decision-makers work out business behaviors and avoid risks in a more effective manner. For another, risk cognition activities such as materials acquisition, surveys and analysis and research are part of the cost of risk control. How to balance the relation between cognition costs and the cognition level is one of the issues that risk managers have to settle.

3.4 Types of Financial Leasing Risk

For leasing companies, what they are faced with are actually financial risks to a great extent due to the characteristics of medical equipment financial leasing projects. According to Article 17 in International Financial Reporting Standards (Zhou *et al.*, 2008), risk is defined as including possibility brought about by capacity idleness or technological obsolescence and the possibility of return volatility caused by economic environment changes. As the uncertainty of medical equipment financial leasing businesses may causes losses to earnings of leasing companies, in this thesis, risk is defined as the uncertainty that losses occur in the process of medical equipment financial leasing business. Namely, risk here refers to all possibilities that troubles caused to medical equipment finance lease businesses so that lessors and lessees suffer from losses of profits, including determinable possibilities and undeterminable ones.

In practical operation, medical equipment finance lease involves a wide range of businesses. When anyone of the three parties (lessor, lessee and supplier) encounters troubles, the others would suffer from losses. This thesis is intended to assess risks in various business processes of medical equipment finance lease projects conducted by leasing companies and offer aversion plans. During the operation of projects of medical equipment finance lease, which serves as a financial service in the medical field, a variety of risks corresponding to the business features exist. From project approval, project appraisal, contract signing and execution to the termination of lease term, risks exist in the whole process of finance lease businesses. Identifying risks in various phases is of great significance to the operation of finance lease businesses by finance companies. How to conduct effective risk control has become a major issue that influences the survival and development of lease companies while risk aversion has become a strategic topic for companies.

According to risk sources, medical equipment financial leasing risks can be divided into risks caused by the mechanism of medical equipment financial leasing businesses and those induced by the operational environment factors of medical equipment financial leasing projects.

3.4.1 Business Risk

Medical equipment financial leasing is a type of financial service with a combination of goods leasing and fund raising. The goal of fund raising is achieved via goods leasing in hospitals. The basis for financial leasing companies to realize cost recovering and earnings is that hospitals have to repay the capital and interests on schedule. Thus the uncertainty of factors including the operation environment, operation capacity and credit and ethics is the major cause of risks. Besides, operation and management of medical equipment suppliers and leasing companies is another important factor triggering risks. Risks caused by the business mechanism include:

(1) Credit risk

For one thing, credit risk of leasing companies lies in that the lessee hospital fails to entirely or partially fulfill its obligations on time. It is mainly manifested as deliberate default risk that hospitals may swindle funds from lease companies intentionally for speculation or other wrongful economic aims. For another, leasing companies may also suffer from possible credit risks caused by medical equipment suppliers. To be specific, product suppliers cannot provide lease subject matters on schedule with good quality and sufficient quantity, so that normal production and operation of the lessee is affected. Consequently, execution of the lease agreement between the lessee hospital and the lease company is impacted and the risk that the lessee hospital refuses to pay the rent or requests goods return and cancels the agreement is caused.

(2) Operation risk

It refers to the possibility that management and operation of the lessee hospital lays an influence on economic benefits of lease companies. It largely depends on the hospital's efficiency in using medical equipment, effectiveness of operation and management and financial status. During the term of lease, the uncertainty of the hospital's solvency will inevitably be generated if medical equipment is destroyed or lost due to force majeure and other events that cannot be attributed to the parties, or the hospital is forced to cease operation, be closed or go bankruptcy. If the hospital misuses its right to select medical equipment or fails to fulfill its obligation of custody and maintenance, the use efficiency of medical equipment will be affected directly. As a result, the hospital's capacity of paying the rent will be weakened or lost, so that the lease company cannot obtain its expected earnings.

(3) Ethical risk

It refers to risks caused by a lack of professional ethics among business personnel of the lease company and negotiators of suppliers and the lessee. Examples of such risks include lowering handling expenses intentionally and taking bribes secretly.

3.4.2 Environment Risk

(1) Market risk

It refers to risks that the expected economic benefits of lease items fail to be realized due to changes in the market price and demands. Factors including social and economic development and changes in the market demand of medical equipment products will lay an influence on the earnings of the hospital gained through lease items.

Thus the hospital's capacity of paying rents to the leasing company will be impacted.

(2) Financial risk

Medical equipment finance lease projects are obviously financial in nature. So risks in financial lease, such as changes in the financial market like those in the exchange rate and interest rate, are also applicable to medical equipment finance lease projects. For Chinese leasing companies, the exchange rate risk mainly occurs when purchasing medical equipment from foreign countries with foreign currency. During this stage, exchange rate fluctuations will directly result in volatility in the purchase price of equipment. Thus corresponding price risks are incurred to leasing companies.

(3) Macroeconomic policy change risk

It mainly includes risks that are resulted from changes in national macro economy as well as laws and regulations, the reform on lease access policies, industry regulation and related lease taxation systems and the national medical insurance policy.

3.4.3 Other Risks

The risks referred here are mainly those caused by force majeure, including the risk that rents cannot be paid in time due to social economic chaos caused by political unrest and military turmoil as well as risks resulting from natural disasters.

To avoid losses of expected earnings caused by the uncertainty of business in practical operation activities of medical equipment lease finance companies, averse controllable risks and the transformation of uncertain risks into certain ones, it is indispensable for the management of lease companies to study and design corresponding business risk control plans. What remains an issue that developing lease finance companies in China have to settle is how to assess risks in the whole process of finance lease businesses from initial project approval and evaluation, contract signing and execution to the termination of the lease term and to establish corresponding risk aversion measures on the basis of root causes of risks.

From the standpoint of lease financial leasing companies, this thesis focuses on evaluating risks from lessee hospitals and the policy environment as well as offering corresponding risk aversion plans, in the expectation of providing guidance for lease companies to make business decisions.

3.5 Generation Mechanism of Risks in Financial Leasing Companies

Finance lease is complex and systematic. For one thing, it involves a wide range of topics, such as finance, international trade, law, transportation, insurance, material supply and enterprise operation and management; for another, finance lease is of features such as a huge one-time investment amount, a long lease period and a lot of unpredictable factors within the investment payback period (Liu, 2012). Meanwhile, finance lease is of a dual function of fund raising and goods leasing, involves at least three parties and is constituted of two or more contracts. Given the abovementioned characteristics, it is necessary to analyze the causes of finance lease risks.

3.5.1 Features of Internal Operation Mechanism in the Financial Leasing Industry can Easily Cause Risks

A typical financial leasing transaction is conducted as follows: first, the lessee negotiates directly with the suppliers on demanded lease items and reaches an initial agreement on key matters including the quantity, specifications, models and the price of lease items. Then the lessee files lease application for lease items to the financial leasing company and enters into a lease agreement upon the review and approval of the financial leasing company. Afterwards, on the basis of the initial agreement reached between the lessee and the supplier, the lease finance company enters into a sales contract with the supplier and makes payment. Meanwhile, the supplier delivers lease items to the lessee as the lease finance company directs. Upon the inspection and acceptance of lease items by the lessee, the lease term begins and the lessee should pay rents on schedule. When the term expires, the lessee can choose on its own or follow the contract to renew the lease, purchase lease items or return to the lease finance company (Chen& Li, 1999).

It is easy to conclude from the above process that among the three parties of finance lease, the lessor (financial leasing companies) is the most vulnerable one to risks and infringement of rights.

1. Lease items and suppliers are chosen by the lessee. While lease equipment cannot be commonly used usually, the lessor is generally a professional company focusing on financing businesses, is by no means familiar with the equipment market and related professional information and does not provide professional services required by equipment and lease related businesses. Therefore, once the lessee breaks the contract, it is difficult for the financial leasing company to effectively dispose equipment and recover losses even through its recall right. Thus rights of the financial leasing company cannot be fully safeguarded.

2. As for the obligation fulfillment period of the three parties, the lessor (financial leasing company) basically finishes its obligations (financing obligations) at the beginning of the transaction. On later stages, apart from the quiet possession guarantee obligation, the rest it shoulders are all negative obligations. On the contrary, after the lessor makes all payments, obligations of the lessee and the supplier are mostly positive ones, including the delivery and goods (lease items) defect guarantee obligation of the supplier and the rent payment obligation of the lessee. As a result, in financial leasing transactions, after the lessor pay off rents, its rights during the contract execution are easily to be infringed upon. The reason lies in that the realization of the lessor's rights on rents depends entirely on the credit and solvency of the lessee.

3. The finance lease usually lasts for three to five years and sometimes even for ten years. Such a long term surely increases risks of financial leasing companies, for that during the term, operation status of the lessee may change or it may go bankruptcy due to bad management. Consequently, rights and interests of financial leasing companies will be impaired.

4. As during the whole lease term, lease items are occupied by the lessee and occupation is better than possession, which is considered disadvantageous for the lessor (Amembal & Lowder, 2000), the financial leasing company cannot know the condition of lease items at any time. If the lessee subleases, transfers or relocates lease equipment without consent of the leasing company, or fails to fulfill its obligation of keeping

equipment in a sound condition, rights and interests of the financial leasing company will be undermined and left in an unsafe status.

3.5.2 External Operation Environment of the Finance Lease Industry can Easily Induce Risks

First, the unreasonable operation mechanism of state-owned public hospitals, major lessees, severely impairs the improvement of operational effectiveness of enterprises and is the most fundamental external factor of risks in finance lease businesses. One important measure of Chinese health system reform is to rationalize the operation and management mechanism via a corporate governance model, so that public hospitals can meet demands of the market as well as residents for health care and become economic entities with orderly and legal management as well as great efficiency. However, since there is a lack of an ideal model for the reform, together with aged equipment, lagging technical updates and insufficient funds in the hospital and increasingly fierce competition in the market, hospitals suffer from low operation effectiveness. Comparatively speaking, although private hospitals enjoy a flexible operation mechanism, most of them fail to obtain a high credit rating in the finance lease market due to the short period of their existence and their limited scale. Thus businesses conducted among financial leasing companies and private hospitals are rather limited. As a result, facing such market demand subjects, lease finance companies have to take great risks in order to further expand their businesses.

Second, the fact that Chinese finance lease industry is still in its infancy and related policies and systems are incomplete and lagging behind is another key external reason that accounts for risks in lease businesses. Up to date, there is no specialized finance lease laws promulgated in China. In practice, the only applicable law is one chapter of the Contract Law (National People’s Congress) while the rest applicable regulations are low-level departmental regulations or internal documents, such as Rules on Issues Concerning the Trial on the Disputed Cases over the Contracts for Financial Leasing passed by the judicial committee of the Supreme People’s Court in 1996 (Supreme People’s Court of PRC), Management Rules on Financial Leasing

Companies issued by the People's Bank of China in 2014 (China Banking Regulatory Commission, 2014), Administrative Rules Governing the Auto Financing Companies issued by China Banking Regulatory Commission in 2008 (China Banking Regulatory Commission, 2008) and Administrative Rules on Foreign Investment in the Lease Industry issued by the Ministry of Commerce in 2005 (Ministry of Commerce, 2005), together with some even lower level internal documents, such as Notice on the Imposition of Business Tax on Finance Lease Businesses by the State Administration on Taxation in 1995 (State Administration of Taxation, 2014) and Trial Measures on Finance Lease of Agricultural Bank of China in 1987 (Head Office of Agricultural Bank of China, 1987).

Third, the financial system reform and changes in the financial market also add to risks in finance lease businesses to different degrees. In previous years, the Chinese capital market was chaotic while the interest rate of funds accommodation among financial institutions remains high. A lot of lease projects are formed with high-cost debt funds raised by financial leasing companies. The lessee of such projects is willing to accept high-cost financing because of a lack of support from banks due to the low operation effectiveness. Meanwhile, the lessee suffers from a heavier burden because of the financial lease with a high interest rate. Recently, although the interest rate in the market is lowered constantly, lease finance companies are still of low competitiveness in the market due to the ever fierce competition in the bank credit market. Meanwhile, international political, economic and military factors as well as frequent fluctuations of the exchange rate in the international financial market also add to the actual payment burden of some lessees that conduct sublease with foreign capital. Thus risks of many lease projects are increased sharply.

Chapter 4 Internal Evaluation Index System of Lease Finance Company

Risks in financial activities exist objectively and are independent of human will. However, human initiative has to be brought into full play to identify those risks. It requires the company to adopt a systematic, global, dynamic and dialectical thinking in identifying those risks so that they can locate the upcoming risks in a comprehensive and precise way and provide a solid foundation for analyzing and decision-making in further research on risk management. For the sake of evaluating risks facing the lease finance company, specific and suitable evaluation index system must be established on the basis of analyzing the factors behind those risks.

4.1 Principles for the Establishment of Index System

In Chapter 3, the mechanism behind the occurrence of risks facing the lease finance company as well as the types of the occurrence of risks are analyzed. It can be inferred from the analysis that risk factors shadowing the financial company are rather complex: some from business itself, some from the external environment, some from lessees and suppliers, some from investors and lessors, some from the fluctuation of market and some from changes in policy, law and taxation. All those factors interweave with each other and become a system with different levels, which poses a threat to the company. Therefore, the lease finance company must adhere to some principles in establishing its evaluation index system so as to make the index system more orderly and effective in evaluating risks facing the company.

4.1.1 Principle of Consistency

In establishing the index system, the selection and scrutinization of all indexes should submit to such a specific goal that the selected indexes should be able to evaluate the risks facing the lease finance company more effectively. By sticking to such a principle, irrelevant indexes can be excluded efficiently so as to improve the effectiveness of the index system and make the evaluation more rational.

4.1.2 Principle of Scientificity

Principle of scientificity refers to that the selected indexes should objectively offer reliable information of the lease finance company in certain aspects. Such indexes should also be explicitly defined and can be explained by some theory or commonsense.

4.1.3 Principle of Systematicness and Comprehensiveness

In establishing the index system, the selected indexes should comprehensively and systematically reflect the features and status of risks that confront the lease finance company. Factors like the capital adequacy, asset quality, liquidity, management quality and other risks within the company should be considered. Moreover, the company's sensitivity to risks caused by fluctuations of the external environment also deserves attention.

4.1.4 Principle of Feasibility

Principle of feasibility means that in the establishment of the lease finance company evaluation index system, the company should, with minimum costs, try to gather the indicator data that is easier for collection, measure and statistical analysis. Thus, the index system can be used effectively and efficiently in rating.

4.1.5 Principle of Comparability

The principle of comparability is crucial in selecting indexes. It refers to that the indexes selected can be compared longitudinally and transversely. That is to say, the selected indexes should be standard and continual.

4.1.6 Principle of Independence

The principle of independence indicates that the selected indexes should maintain independence and the information occupied by each index does not intersect with that by another. If the indexes are not independent from one another, the effectiveness of evaluation will be weakened.

4.2 Selection of Risk Evaluation Index

The evaluation on risks facing the lease finance company is a systematic and complex project since there are many factors that influence risks of the lease finance company. Besides, compared with other financial risks, the finance lease risk has its peculiarity. In the banking industry, capital structure plays a crucial role in determining whether the bank can reach its financial objective and operate soundly or not. The structure determines not only the value and financing cost of the bank but also its capacity to defend against and address risks (Zhao, 2010). Therefore, it has become important for the financial company to optimize its capital structure for the sake of risk aversion. CAMELS rating system is one of the common methods used in assessing capital structure and profitability. At present, such a method has become relatively mature in China in assessing financial risks. The lease finance company is similar to the financial company. Therefore, in this dissertation, the CAMELS rating system is used for reference to evaluate the risks in the industry of medical equipment finance lease.

4.3 Exploration on the Comprehensive Measuring Method of Risk in Medical Equipment Lease Finance Company

In this section, based on the CAMELS rating system, the measurement index and evaluation method concerning the risks facing the lease finance company is explored with reference to the Basel Accords and the latest research in China on finance lease risks (Cheng, 2006). Major evaluation indexes are:

4.3.1 Adequacy of Capital

The volume of entity capital determines the payment capability and risk-resisting ability of a lease finance company. It is also an important sign of the company's operation capacity. Adequate entity capital is the prerequisite to ensure the benefits of debtor and to safeguard the stability of the financial industry.

Capital adequacy ratio is the major index to measure capital adequacy. Capital consists of core capital and supplementary capital. Capital adequacy ratio covers total capital adequacy and core capital adequacy. After studying the Basel Accords and the latest research in China on finance lease, the core capital adequacy ratio is adopted in this thesis to evaluate the capital adequacy in the lease finance company. That is:

Capital adequacy= Core capital/ Total capital

According to the composition of capital and assets in Chinese lease finance companies, the core capital is made up of paid-up capital (capital stock), capital reserves, surplus reserves and undistributed profits. Supplementary capital consists of asset revaluation reserves, general reserves, hybrid capital instruments (such as the cumulative preferred stock) and long-term subordinated debts.

Taking the practical situation in the lease finance company into consideration, the rating on capital adequacy is mainly based on the capital adequacy ratio with the standard below (Cheng, 2006):

The first rank: If the capital adequacy ratio reaches 10% or above in a lease finance company, the management in the company is rather satisfactory with good earnings and adequate capital, which means that it is able to deal with the possible risk losses and free of other potential risks.

The second rank: The capital adequacy ratio in the company is between 8% and 10%. Since the minimum capital adequacy ratio set in the Basel Accords is 8%, the capital adequacy ratio in lease finance company should also be kept above 8%. Such companies have satisfactory capital adequacy with minor risks in assets operation. It is under good management and runs stably.

The third rank: The capital adequacy ratio between 6% and 8% is regarded as low since it is lower than the average. It may be the result of distressed assets or excessive assets operation. It indicates that the company may be unable to deal with possible losses and suffer from more operational risks.

The forth rank: The company is regarded as short of capital if its capital adequacy ratio is between 4% and 6%. It also indicates that there are serious problems in its assets or that its fast business expansion has consumed its capital. This means that the company has poor earnings. Under such circumstances, the normal operation of the company may suffer at any time. Therefore, its shareholders should provide more capital or resort to external financing.

The fifth rank: Obviously, the company is in short of capital if its capital adequacy ratio is below 4%. Such a shortage refers to the low volume of its capital and the low ratio of capital to assets. The survival of the company is under huge risks and it is urgent to get more capital from the shareholders or from other channels.

In practice, besides of factors mentioned above, the factors below should also be considered in the evaluation of capital adequacy ratio:

(1) The return on capital and its quality as well as the rationality in dividend distribution;

(2) Whether the current capital can sustain the plan for growth;

(3) The level and quality of capital and the overall financial status of the institution;

(4) Corresponding losses in leased assets and the reserve for other asset losses;

(5) How easily the institution can enter the capital market and obtain other capital resources, including the support from the parent company and holding company.

4.3.2 Quality of Assets

The quality of assets directly reflects the degree of operation risks in the lease finance company. It is also a crucial factor to measure the overall operation status in the company and exerts a direct influence on the company's further development. The rating of asset quality reflects the status of the current assets and the potential credit risks related to various assets. It can also show the management capacity in identifying, measuring, managing and controlling credit risks. It influences earnings of the lease finance company, losses of equity funds, the liquidity of assets and the reputation of the lease finance company. The main factors considered in rating the quality of assets are as below:

(1) The concentration of assets and the control on risks from the trading partner.

(2) The volume, distribution, seriousness of the problem and trend concerning assets both on and beyond the balance sheet.

(3) The adequacy of reserves for lease losses as well as the effectiveness of the internal control and management information system (MIS).

(4) The applicability of policies, procedures and rules concerning loans and investments on the finance lease business.

(5) The diversification and quality of loans and portfolio investments in the finance lease industry.

(6) The standardization, steadiness and applicability of credit risk management.

In this empirical study, the ratio of non-performing assets (including overdue, idle & bad loans in finance lease businesses, finance lease investments as well as bad investments in the lease finance company) to the total assets is considered as the quantity index to quantify the quality of assets. Surely, various indexes are needed to comprehensively quantify the asset quality of a lease finance company such as the diversification ratio of asset risks, leasing overdue rate and rent collection rate. Due to the limit in data availability, with regard to quantity index, the ratio of non-performing assets will be discussed in a plain manner in this thesis. With reference to the influence factors mentioned above, the non-performing asset ratio is classified into five ranks as below through a combination of both quantitative and qualitative methods:

The first rank: The non-performing asset ratio is below 2%, which means that the company has high quality assets, abundant management experience and a perfect internal control system. And its risk exposure is matched with its capacity to protect and manage capital. Such companies normally need the minimum attention and supervision.

The second rank: The non-performing asset ratio is between 2% and 5%, which indicates that in the company the asset quality and leasing credit management are satisfactory. Risk exposure is compatible with its capacity to protect and manage capital. Such companies need limited supervision on the general level of assets and some distressed assets.

The third rank: The non-performing asset ratio is between 5% and 10%, which indicates that in the company, the management on asset quality and on leasing credit is unsatisfactory, the trend of asset quality may be stable, declining or risks in assets are increasing. Such companies need ungraded supervision. Usually, the company needs to improve its practice in credit management and risk management.

The forth rank: The non-performing asset ratio is between 10% and 20%, which means that in the company, the quality of assets is inferior, leasing credit management is inadequate and the ratio of risk-weighted assets and distressed assets is too high to be under total control. And the lease finance company is likely to fail consequently. Without inspection and adjustment, the survival of the company will be under threat.

The fifth rank: The non-performing asset ratio is above 20%. The threat to the survival of the company is so urgent due to the seriously inferior quality of assets and inadequate leasing credit management.

4.3.3 Management Status

Management factors are internal factors that influence the stability of the lease finance company's operation. Many management factors are taken into consideration to measure the stability of business operation in the lease finance company, such as the role played by the board of directors and the council, the professional proficiency of managers and other staff and the level of internal management. The factors above reflect the ability of the board of directors and the management to identify, measure, manage and control risks in activities of the company, so as to ensure that the company runs safely, steadily and efficiently in compliance with applicable regulations and laws and to formulate proper policies, procedures and rules. Specifically speaking, the management status covers factors below:

(1) The attention paid by the board of directors and the management on activities of the company and the influence exerted by the financial authorities.

(2) The depth and continuity of management and the soundness of audit and internal control.

(3) Adequate, applicable and consistent internal policies and control concerning the operation and risks of major businesses.

(4) Response to the suggestion from audit and regulatory authorities.

(5) An effective management information system (MIS) and risk management system which are matched with the scale, complexity and risks of the company.

(6) The general performance and risk framework in the company.

On the basis of the influence factors above, data about the implementation of the asset liability ratio indexes are adopted in this thesis to evaluate the management level of the lease finance company and classify the risks facing a company into five ranks according to management status (Cheng, 2006):

The first rank: The lease finance company reaches all the indexes on the asset liability ratio with a rather high management level and good performance. There is no problem in management and the administrators are able to deal with the existing or potential problems and take preventative measures to stop or avoid adverse events. They have been effectively identifying, measuring, managing and controlling major risks facing the company.

The second rank: The company fails in only one index on the asset liability ratio. The management status is relatively satisfactory with minor management problems which have no influence on the safety and steadiness of the company. Usually, the management has effectively identified, measured, managed and controlled major risks.

The third rank: The company fails in two indexes on the asset liability ratio. The management status is unsatisfactory. Although there are no major problems, potential risks exist in its management. With the current management level, the company will find it hard to deal with possible risks.

The forth rank: The company fails in three indexes on the asset liability ratio. The management status is poor and the management is unable to make right and scientific decisions. They have failed to address existing problems effectively, and thus the management needs to be adjusted. Problems and major risks in the company have not been identified, measured, managed or controlled effectively.

The fifth rank: The company fails in four indexes on the asset liability ratio. The management status is so poor that the management is unable to change the situation. The management should be displaced as a whole. Problems and major risks in the company have not been identified, measured, managed or controlled effectively. The survival of the company is under threat.

Table 4-1 Index on the Ratio of Assets and Liabilities in Lease Finance Companies Stipulated by China Banking Regulatory Commission (CBRC)

Item	Pointer Type	Standard Value
Deposit Reserve Ratio	Domestic Currency	≧6
Capital Adequacy Ratio	Domestic and Foreign Currency	≧8
Leased Assets Ratio	Domestic and Foreign Currency	≧50
Ratio of Funds Borrowed from Other Financial Institutions	Domestic and Foreign Currency	≦100
Overdue Rate on Rent Payment	Domestic and Foreign Currency	≦5
Rent Collection Ratio	Domestic and Foreign Currency	≦15
Asset Risk Diversification Ratio	Domestic and Foreign Currency	≦30
Ratio of Long-term Investment to Total Capital	Domestic and Foreign Currency	≦20
Financial Ratio Concerning Shareholders	Domestic and Foreign Currency	≦100

Source: The author.

Notes:

(1) Ratio of funds borrowed from other financial institutions= Balance of the borrowed funds/ Paid-in capital

(2) Overdue rate on rent payment= Overdue rent balance within a year/ Receivable rent balance

(3) Rent collection ratio= Overdue rent balance beyond one year/ Receivable rent balance

(4) Asset risk diversification ratio= (Total loan for a single borrower+ rent+ guarantee amount* 50%)/ total assets

(5) Financial ratio concerning shareholders= (Total loan for shareholders + rent+ guarantee amount* 50%)/ total capital

4.3.4 Earnings

Steady and reliable earnings play a crucial role in deciding the company's internal distribution, accumulating level and development capability. Whether the lease finance company can make profits and how to make more profits are the most important indexes to measure its business operation stability. The rating of earnings level and quality should reflect not only the volume and trend of profits but also factors that influence the continuity and quality of earnings. Major indexes reflecting the earnings of the lease finance company include return on assets, return on capital, profit increase rate, interest collection ratio, per capita profit and per capital cost. In this thesis, the return on assets and the return on capital are mainly used to evaluate earnings of the lease finance company with the former as the major index. Besides of the quantitative indexes, other factors should also be considered, including:

(1) The budget system, forecasting procedure and soundness of the general management information system (MIS).

(2) The level of earnings including its trend and stability; the quality and source of earnings.

(3) The influence of market risk exposure such as the interest rate, exchange rate and price on earnings.

(4) The reserves system against loan losses and lease losses.

With consideration to the factors above, earnings of the lease finance company are classified as below (Cheng, 2006):

The first rank: the return on assets is above 1% and the return on capital is more than 10%. The company enjoys strong profitability and its profits considerably exceed costs on operation, maintenance of adequate capital and reserves against various losses.

The second rank: The return on assets is between 0.7% and 1% and that on capital is above 7%. It indicates that the company is profitable with stable profitability, quality earnings as well as satisfactory retained earnings.

The third rank: The return on assets is between 0.3% and 0.7% and that on capital is usually above 3%. It indicates that the company should improve its profitability since its earnings fail to sustain its operation, maintenance of adequate capital or reserves again various losses.

The forth rank: The return on assets is between 0 and 0.3% and deficits occur. Its earnings are unable to sustain its operation, maintenance of adequate capital or reserves against various losses.

The fifth rank: The company is suffering from serious deficits and likely to fail due to the gradual consumption of its capital.

4.3.5 Liquidity

For the lease finance company, asset liquidity is the prerequisite to ensure normal payments from the depositor. It is used to measure the ability of the company to adjust, with reasonable costs, its capital without mandatory liquidation of its operating assets. The requirement for the liquidity of assets in the lease finance company should be stressed so that in pursuing high profits, the company will also be impelled to pay attention to its adaptation to changes in the market under its current assets and liabilities status. Thus, the lease finance company can improve its operation stability. There are many indexes to measure the liquidity of assets such as the ratio of cash (liquid) assets to the total asset, current ratio and quick ratio. In this empirical study, according to the data availability and applicability in the industry and with reference to international standards, the ratio of liquid assets to the total asset is mainly adopted to measure the liquidity of assets with the following influence factors taken into consideration:

(1) Whether the structure of assets is matched with the structure of liabilities or not; the composition of fund sources and stability of capital.

(2) The capability to manage and control its assets and liabilities.

(3) The liquidity position and the volume of the liquid asset that can be liquidated at any time.

(4) The trend of capital demands in the past and the forecast on that in the future.

(5) The overdue receivable rent that has not been collected and the bad debt reserve provision.

After referring to the factors above, the lease finance company could be classified into five ranks according to the liquidity of assets (Cheng, 2006):

The first rank: The ratio of liquid assets is above 25%, which indicates that the company enjoys a high level of asset liquidity, abundant practical experience in capital management and a strong cashability and solvency. The company has enough channels to finance in different terms so as to meet its current and future demand for asset liquidity.

The second rank: The ratio of liquid assets is between 17% and 25%, which indicates that the level of asset liquidity and practical experience in capital management of the company is satisfactory. The company has channels to acquire temporary funds but still has some deficiencies in asset liquidity.

The third rank: The ratio of liquid assets is between 10% and 17%, which indicates that the liquid capital may fail to meet the capital demand and there are some difficulties in urgent financing.

The forth rank: The ratio of liquid assets is between 5% and 10%, which indicates that the asset liquidity is obviously unsatisfactory and it is likely that the company fails to meet the demand for a large number of capital.

The fifth rank: The ratio of liquid assets is lower than 5%, which indicates that the asset liquidity is poor and the company has difficulties in payment. Its survival is under threat and external capital support is needed.

4.3.6 Market-Risk Sensitivity

Market-risk sensitivity mainly refers to the lease finance company's sensitivity to changes in the interest rate, exchange rate, commodity price and security price. It reflects the influence on the company's earnings and cost due to the change of factors above. In the evaluation of the lease finance company's market-risk sensitivity, such factors are mainly inspected like its capability to monitor and control market risks, response to market risks especially its management capacity in the interest rate risk and exchange rate risk. For the lease finance company, in the business of assets and liabilities, long-term capital suffers more interest rate risks or exchange rate risks than short-term capital. Therefore, the greater the portion of long-term assets and liabilities is, the worse the market sensitivity will be. In this thesis, the matching to interest rates is adopted to quantitatively measure the market sensitivity index. The interest rate matching is the percentage of long-term assets minus the percentage of long-term liabilities. According to the availability of data, the ratio of leased assets and long-term investments to the total assets is taken as the ratio of long-term assets. The ratio of the surplus after the total liabilities minus the borrowing capital to the total liabilities is taken as the ratio of long-term liabilities. The greater the interest rate matching is, the worse the market sensitivity will be. According to factors above, the rating of the lease finance company based on its market sensitivity is as below:

The first rank: Interest rate matching is within 10%, which indicates that the company's market sensitivity is under well control and adverse influences due to earnings performance and capital position are unlikely to occur. The company enjoys a strong ability to deal with market risks.

The second rank: Interest rate matching is between 10% and 20%, which means that the company’s market-risk sensitivity is under proper control, the odds of the occurrence of adverse influences due to earnings performance and capital position are neither too high nor too low. The company enjoys relatively strong response abilities to market risks and its risk management is relatively satisfactory.

The third rank: Interest rate matching is between 20% and 30%, which indicates that the company needs to improve its control on market sensitivity and the odds of the occurrence of adverse influences due to earnings performance and capital position are high.

The forth rank: Interest rate matching is between 30% and 40%, which indicates that the company fails to control its market sensitivity. The odds of the occurrence of adverse influences due to earnings performance and capital position are rather high. Its risk management ability is poor.

The fifth rank: Interest rate matching is above 40%, which indicates that the company is unable to control its market sensitivity. Its risk management ability is so poor that the level of market risks has posed a threat to the survival of the company. The company needs external capital to support its survival.

Chapter 5 Empirical Analysis

5.1 Basic Information of Company A

The basic information of company A is the basis of empirical analysis. Company A is a lease finance company similar to a financial one. It was founded recently but enjoys rapid business development. In the following part, the company will be introduced from the perspectives of its capital structure, business scope, department setting and earnings.

5.1.1 Registered Capital and its Composition

The lease limited liability company was founded in 2010 and is an operational lease company in nature. The original registered capital was RMB 6 million, invested together by a medicine company C and a medical equipment company B. After the general meeting of shareholders on the May 26th, 2010, the registered capital was added up to RMB 20 million, with an additional RMB 14 million. The composition of its capital is as follows: 32.5% of the capital was invested by B with RMB 6.5 million; 27.5% by C with RMB 5.5 million; 20% by the other two natural persons respectively with RMB 4 million.

5.1.2 Business Scope of the Company

The business of company A includes: marketing promotion, sales and after-sale service of advanced products like surgical equipment, medical consumables and other equipment for nursing and monitoring. Now the company is mainly engaged in leasing large medical equipment, including sales and maintenance of machines like CT, MRI, B ultrasound, nuclear medical diagnostic equipment, X-ray machine, radiation therapy equipment and electrocardiograph diagnostic units.

5.1.3 Organization Setting and Staff Situation

(1) Three major departments have been set up in the company, including Financial Assets Department, Marketing Department and General Affairs Office.

(2) There are forty eight employees in the company, including thirty sales workers,

ten administrative staff and eight temporary workers.

5.1.4 Situation of Earnings

The profit of the company was RMB 0.903 million in 2010, RMB 5.169 million in 2011 and RMB 9.605 million in 2012.

5.1.5 Share Capital Expansion and Financing of the Company

In the beginning of 2013, the company planned to introduce international investors to found a new foreign-funded lease finance company, whose planned registered capital was RMB 8 million. Among the capital, 51% is held together by company B and C with RMB 40.8 million, 5% by a natural person with RMB 4 million and 44% by foreign investors with RMB 35.2 million.

5.2 Risk Prediction and Analysis after the Share Capital Expansion of Lease Finance Company

After the share expansion of the company in 2013, there are dramatic changes in the assets and business of the company. In this thesis, the CAMELS rating system will be adopted to analyze and predict the risks of company A from the perspectives of capital adequacy, asset quality, management quality, earnings, liquidity and sensitivity to market.

5.2.1 Evaluation on Capital Adequacy Ratio

By the end of 2013, part of the balance sheet of the company is as follows:

Table 5-1 Data of Major Liabilities and Assets of Company A

Current Liabilities	81,358,541
Long-term Liabilities	127,385,000
Owners Equity	32,188,627
Expected Additional Investment	58,000,000
Total Assets	298,932,168

Source: 2013 China Financial Leasing Industry Research Report. www.askci.com.

Therefore: Capital Adequacy Ratio= core capital/ total assets

=(32,188,627+58,000,000)/298,932,168

=30.2%

Assessment: The capital adequacy ratio of the company is above 10%, which indicates that the company has adequate capital to cope with the possible loss caused by risks. No other potential risks exist. Therefore the company is rated Class 1.

5.2.2 Evaluation on Asset Quality

The lease company was founded three years ago and its current business scope is not large. Among the non-performing debt, there is overdue payment of RMB 0.2981 million having not been returned. The overdue payment will be cleared up next year since the lessees are encountering difficulties with inadequate working capital in the short term.

Therefore: Non-performing debt radio= non-performing debt/ total assets

=298100/298,932,168

=0.10%

Assessment: The company has a non-performing debt ratio lower than 2% and is of quality assets. In terms of management, the internal control management needs to be further improved, so that the risk exposure accommodates to the level of protection and management of assets. Additionally, major debts of the company are guaranteed by government departments and public institutions and most clients of it are public hospitals who are above Class Two Type A. The odds of asset deterioration are relatively low. Therefore, the asset quality of the company is classified as Class 1.

5.2.3 Evaluation on Management Situation

By the end of 2013, part of the income statement of the company is shown as follows:

Table 5-2 Part of the data of income statement of company A

Major Business Revenue	77,070,564
Major Business Cost	54,585,345
Major Business Profit	18,246,337
Non-business revenue	36,480
Non-business expenditure	26,000
Total Profit	9,394,951
Net Profit	9,394,951

Source: The author.

Therefore:

(1)Rent asset ratio=closing balance of the net value of fixed assets/ the total assets=166,661,493/298,932,168

=55.75%

(2)Overdue lease ratio=overdue balance of lease within a year/ receivable lease balance

(3)Rent collection ratio=overdue balance of lease over a year / receivable lease balance

Since current clients of the company are basically public hospitals and the company was recently founded, there is no overdue rent. It is expected that public hospitals with government departments as guarantees will still account for most of the clients of the company after its expansion. Therefore, there are low or no risks related to indicators (2) and (3) in the company.

Conclusion: all indicators of the company including its rent asset ratio meet all requirements and it has a good business performance. There are no problems in management of the company. All important risks are effectively identified, measured, managed and controlled all the time. Therefore the company is classified as Class 1.

5.2.4 Evaluation on Profitability

From 2011 to the end of 2014, the net revenue, total assets and owners equity of each year are shown as follows:

Table 5-3 Major Data of profit of company A from 2011 to 2014

Year	Net Profit	Owners Equity	Total Asset
2011	5,169,524	20,902,665	104,345,940
2012	9,605,438	26,586,876	248,599,046
2013	9,394,951	30,394,828	298,932,168
2014 (prediction)	15,213,436	90,904,828	335,916,123

Source: The author.

Based on the above table, from 2011 to 2014, return on assets and capital assets of these years are shown as follows:

Table 5-4 Earnings of company A from 2011-2014

Year	Capital Return	Asset Return
2011	0.2473	0.0495
2012	0.3613	0.0386
2013	0.3091	0.0314
2014 (prediction)	0.1674	0.0453

Source: The author.

Conclusion: The capital return of each year is far over 10%, including the predicted figure of 2014. Regarding of the asset return, all(including the predicted ratio of 2014) is more than the standard of 1%, which suggests the strong portability of the company. The profit gained by the company is obviously more than the necessary amount for the operation, capital adequacy and preparation against all kinds of losses of the company. The company is stable in gaining profits with quality revenues and retained earnings. Therefore, the comprehensive rating is Class 1.

5.2.5 Evaluation on liquidity

From 2011 to 2014, the liquid asset and total assets of the company in each year are shown as follows:

Table 5-5 Liquid assets of company A from 2011to 2014

Year	Liquid Asset	Total Asset
2011	23,515,867	104,345,940
2012	37,903,181	248,599,046
2013	39,792,304	298,932,168
2014 (prediction)	51,729,995	335,916,123

Source: The author.

From the above table, it is concluded that the liquidity index from 2011 to 2014 is as follows:

Table 5-6 Liquidity indicators of company A from 2011 to 2014

Year	Liquidity Index
2011	0.2254
2012	0.1525
2013	0.1331
2014 (prediction)	0.1540

Source: The author.

Conclusion: From 2011 to 2014, including the predicted figure in 2014, the liquidity index was between 10% and 17%, except that the index of 2011 was 22%. Therefore, the assessed general level of liquidity is Class 3. This indicates that the liquid assets may not be enough as the capital for running the business. There will be certain difficulties of raising money in real time. The rating accommodates to the *status quo* of the company, judging from the analysis of real circumstances of the company.

5.2.6 Evaluation on Market Sensitiveness

Table 5-7 The long-term investment and liability of company A from 2011 to 2014

Year	Net Value of Fixed Assets	Long-term Investment	Total Asset	Long-term Liability	Total Liability
2011	73,517,393	6,000,000	104，345，940	8,000,000	83,443,275
2012	204,695,865	6,000,000	248，599，046	104,400,000	222,012,169
2013	166,661,493	6,000,000	298，932，168	104,400,000	181,338,343
2014	148,659,940	6,000,000	335，916，123	104,400,000	185,011,295

Source: The author.

As: Long-term asset ratio= (net value of fixed asset+ long-term investment)/ total asset

Long-term liability ratio = long-term liability/ total liability

Interest rate matching= long-term asset ratio - long-term liability ratio

From the table above, it is concluded from calculation that:

Table 5-8 Ratio of long-term assets and liabilities of company A from 2011 to 2014

Year	Long-term Asset Ratio	Long-term Liability Ratio	Interest rate matching
2011	0.7621	0.0767	0.6854
2012	0.8475	0.4200	0.4276
2013	0.5776	0.3492	0.2284
2014	0.4604	0.3108	0.1496

Source: The author.

Conclusion: From the above table, since 2011, the interest rate matching ratio has been declining. In 2013, the ratio was between 20% and 30%. It is estimated that it will be lower than 20% in 2014. Given all factors in a comprehensive way, the company is classified as Class 2. The company properly controls its marketing sensitiveness, with medium possibilities of negative impact from the profit performance and role of assets. And it is capable of reacting to the market risks with satisfied risk control.

5.3 Analysis of the Financing Risk Countermeasures for Company A on the Basis of SWOT

The risk of company A is only analyzed from the perspective of financial risks by taking the CAMELS rating approach. In practice, however, lease finance companies are facing more risks caused by its own conditions of development and the external environment than financial risks.

China's medical equipment finance leasing industry is still in its infancy so there is large market capacity and relatively relaxed internal state of competition, but in the future the competition will become increasingly fierce. A problem has been placed in front of companies about how to achieve good operating results in the intense competition. In this thesis, the SWOT approach is applied to analyze the internal and external environments of company A and relative coping strategies with the risks are offered, in order to have a comprehensive understanding of the development environment of the company, the advantages and disadvantage of development and identify the opportunities and risks in the course of development.

5.3.1 S (Strength) Analysis of SWOT in Company A

(1) Advantage of Company Institution

Company A is a lease finance company approved by the Ministry of Commerce. It is a general business entity, not supervised by China Banking Regulatory Commission(CBRC). The applicable laws and regulations for supervision are Relative Issues on Engagement in the Finance Lease Business by Ministry of Commerce and State Administration of Taxation and Notice on Strengthening the Supervision on the Domestic-Funded Finance lease Pilot Projects by Ministry of Commerce and State Administration of Taxation. Therefore, it is more flexible in choosing clients and determining the business scope and scale. The company is not limited in the concentration of a single type of clients, and its business scale can be amplified to ten times of its capital. At the same time, company A is one of a few leasing companies in China with Licenses both from CBRC and Ministry of Commerce (MOC) and with dual advantages of flexible businesses and low-cost financing.

(2) Advantage of Shareholder Background

Company A was co-invested by medicine company C and medical equipment company B. After share expansion by receiving investment from a large international medical equipment manufacturer, the registered capital of the company is RMB 361 million, ranking above average in the industry in China. All the share holders, medicine company C, medical equipment company B and the large international medical equipment manufacturer have adequate financial resources, ready to inject capital into the company at any time. Additionally, all those companies cover various fields of the medical industry, bringing a large pool of clients for the company and sharing resources in different fields such as clients, talents, and capital.

(3) Advantage of Professionalism

Company A is one of a few domestic lease finance companies that are specialized in financing related to medical equipment. The annual investment in medical equipment in public hospitals in China will still increase on a large scale in the following few years. Nowadays, hospitals are undergoing changes of systems and business, being pushed into the market and entering into the period of changes at a large scale. Because of the expansion of modern medical equipment and the construction of new buildings in the hospital, the market demand for medical equipment in China is surging. Finance lease services are positively supplementary channels for medical institutions when they cannot get adequate financial resources granted by higher departments or from bank loans. Additionally, since the health care industry is unique and sensitive in nature and closely related to the welfare of people, companies of leasing medical equipment must be professional and have a thorough understanding of relative national policies. Both company B and company C, shareholders of company A, have engaged in businesses in the medical system for a long time; thus company A has an exact and differentiated marketing positioning with the advantage of being professional, accommodating to the future of the development of the industry in China and embracing great potential for development.

(4) Advantage of Innovation

The company has a professional team who are experienced in management, capable in risk-control and running business, and sensitive and adaptable to the change of market. It can proactively innovate while cooperating with clients, flexibly design products for lease and customize financing and leasing services that are highly tailored and workable for clients.

5.3.2 W (Weakness) Analysis of SWOT in Company A

(1) Comparatively High Cost of Financing

Based on different backgrounds of shareholders, lease finance companies are categorized into three types: bank type, manufacturer type and independent third party type. Company A belongs to the category of independent third party. Comparing to the bank-type lease finance companies, company A is limited in its business scope, unable to receive deposits and conduct interbank loans. Financial resources of projects are mainly from the capital owned by the company itself, loans from shareholders, bank financing and security market, while the new financing channels such as asset securitization trust as well as lease and investment funds have not been fully utilized. Additionally, its financial resources are not diversified and stable, which results in that its cost of financing is higher than that of companies of the bank type.

(2) Single Mode of Gaining Profit

The main way for company A to gain profit is to obtain interest gaps and rents with its ownership of leased items. The interest gap is unusually 1.5%-2% of the borrowed fund. The income from other ways like lease handling fees, financial consultation fees and trade commission still occupies a small proportion among the total revenue. The profit growth point is singular, not beneficial for the sustainable development of the company.

(3) Lack of Inter-disciplinary Talents

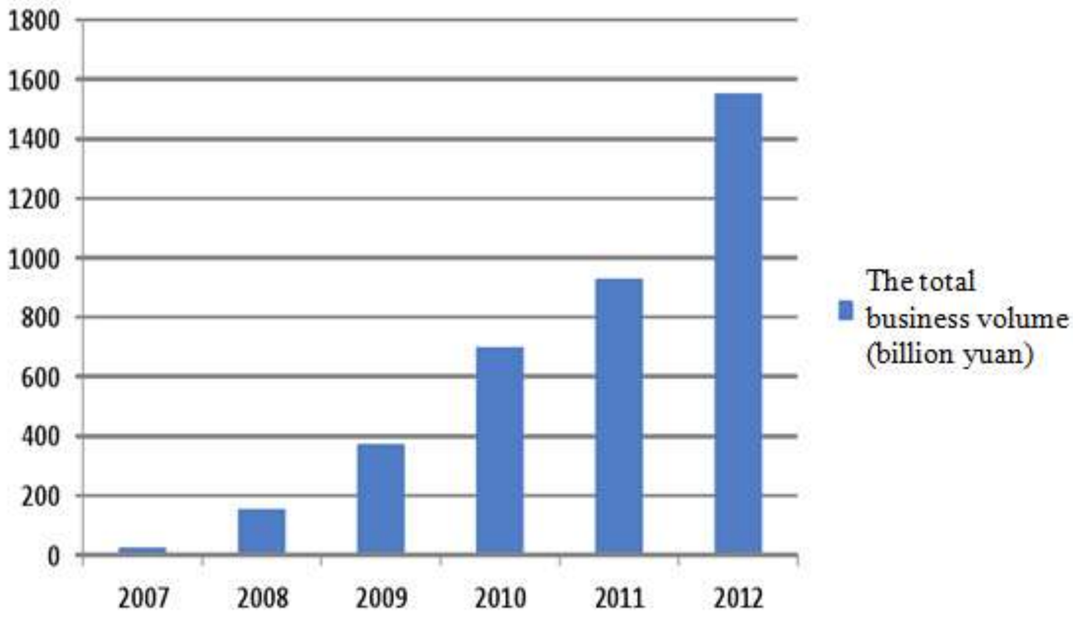
So far, the financing and leasing projects run by the company cover hospitals of different levels and natures and in various regions. It pays attention to the speed of its development and the coordination among its abilities of running business, management, maintaining marketing penetration and equipping professionals. Now the company has a relatively sophisticated management team, but still lacks of versatile talents who are specialized in both the leasing industry and the medical industry, which to some extend limits the future business expansion of the company.

5.3.3 O (Opportunities) Analysis of SWOT in Company

(1) Vast Room for Market Expansion

From 2007 to 2012, China's financial leasing industry has been developed rapidly, which increased from 24 billion yuan in 2007 to 1.55 trillion yuan in 2012, recorded an increase of 64.58 times (see Figure 5-1).The balance volume of leasing contracts in 2010 in China amounted to RMB 700 billion, with the market penetration rate of 6.3%, still lagging behind developed countries such as the USA whose market penetration rate was around 30% (www.flleasing.com, 2013). According to the national twelfth five-year plan, the national annual growth rate of fixed assets is about 20% (China's Finance Lease Research Center, 2012). On such a basis, it is expected that the national investment of fixed assets in 2015 will amount to RMB 7 trillion. If the market penetration rate of 2015 reaches 6%, the size of the leasing market of China in 2015 is expected to be RMB 4.2 trillion. Considering the market will saturate gradually, the size of the market will be around RMB 3 trillion. It is therefore suggested that there is plenty of room for expansion of the financing and leasing market. The market embraces a promising future. Some research indicate that the leasing penetration rate of medical equipment is quite low, even less than one fifth of that of developed European and American countries. Among the billions of procurement of medical equipment in China, only 10-15% is from leasing. It is estimated that the investment in medical equipment leasing in China will amount to around RMB 30 billion, accounting for about 4.3% of the size of financing and leasing in China in 2010 of RMB 700 billion. As a result, there is still plenty of room for development(www.chinairr.org, 2012).

Figure 5-1 The total volume of financing and leasing businesses in China from 2007-2012



Source: China Financial Lease Research Center

(2) Prudent Monetary Policy

On December 31st, 2011, Zhou Xiaochuan, President of People's Bank of China said in his New Year's address that the central bank in 2012 would continue to carry out a prudent monetary policy and maintain the continuity and stability of the policy. Therefore, it is expected that recently the scale of bank loans will now increase dramatically, so that the vigorous demand for loans in the market cannot be satisfied. Such a situation poses opportunities and challenges to company A. When the credit market cannot satisfy the market demand, the financing and leasing market will be turned to. On the other hand, the capital cost of the financing and leasing companies will gradually rise, which definitely drives some small-scale financing and leasing companies with relatively poor anti-risk abilities out of market, so as to realize a new round of market integration. For company A, a large-scale lease finance company with insufficient financial resources and limited risk control abilities, it should pay attention to risk control, catch every opportunity to take the market share and expand its influence on the market.

5.3.4 T (Threats) Analysis of SWOT in Company

(1) Macro Economy in the Downward Chanel

Asian Development Outlook 2014 has been issued to the public. The report estimates that, as the world's second largest economy, China will witness an increase of 7.5% in its GDP in 2014, and 7.4% in 2015(MOC of the PRC, 2014). However, the GDP growth rate in 2013 was 7.7%, same as that of 2012. Generally speaking, the macro economy is going downward. The People's Bank of China (China's Central Bank) should find the appropriate balance between constraining credit growth and supporting economic growth. Drastically slowing down the credit growth may bring more pressure to companies and financial institutions, hence exerting negative impact on all kinds of industries including the financing and leasing industry.

(2) Lack of Effective Protection of Interests and Rights of Both Parties in the Lease

Financing and leasing have been carried out in China for nearly twenty years, though the national Law of Financing and Leasing and the supplementary laws and rules haven't been issued after all the ups and downs. The development of financing and leasing of medical equipment cannot be achieved without the protection of law and support of relevant policies. There are no specific policies, laws and regulations in financing and leasing in China. Nowadays, the business in the financing and leasing industry are only operated in accordance with related regulations and laws, such as General Rule of Civil Law, Law of Contract, Law of Negotiable Instrument, Law of Commercial Banks and regulations of some departments. The laws and rules are general principles and can't satisfy the demand of the development of the leasing industry. The lagging-behind legislation may lead to that there are no relative laws and regulations to follow for some cases concerning with leasing and the trial related to such cases are impeded. The laws and regulations fail to keep abreast with time, which seriously impairs the development of leasing. When the leased assets are transferred, destructed and sold, interests of both parties will be damaged since there is no exact laws to follow.

(3) Increasingly Intense Competition in the Industry

There were 71 financing and leasing institutions in China in 2008, 164 in 2009, 182 in 2010 and 296 in 2011. The average annual growth rate of the number of financing and leasing institutions in China is 68.57%(www.chinairr.org, 2010). The balance of contractual volume of financing and leasing was RMB 370 billion in 2009; RMB 700 billion in 2010; and RMB 930 billion in 2011, with an average annual growth rate of 43.63%(www.flleasing.com, 2013). By the end of 2013, the number of all types of registered financial leasing companies operating nationwide has reached 1026, 466 outnumbered the beginning of the year's record of 560, increased by 83.2%; the entire industry registered capital reached 306 billion yuan, 117 billion yuan more than the previous year's volume of 189 billion yuan, increased by 61.9%. As of the end of December 2013, the national balance of financial leasing contract is about 2.1 trillion yuan, an increase of about 550 billion yuan by the end of 2012, which is 1.55 trillion yuan, increased by 35.5%(www.flleasing.com, 2014). From the above statistics, it is concluded that the growth rates of financing and leasing institutions and balance of contractual volume of financing and leasing are both higher than the GDP growth rate of China. The industry has enjoyed rapid development as well as gradually intensified competition.

(4) Relative Low Recognition from the Society

The financing and leasing industry is an emerging industry that gradually develops after the reform and opening up of China. People, especially those from public hospitals who are used to traditional experience and way of financing, attach more importance to ownership. Additionally, promotion of the financing and leasing industry is relatively lagging behind, which makes the nature and features of financing and leasing as well as its role and functions in the economy rarely known. All the above mentioned factors contribute to the relative low recognition of the financing and leasing among the public.

5.4 Comprehensive Evaluation and Conclusion Analysis

Combining the aforementioned CAMELS assessment analysis, most indicators of company A are Class 1 or Class 2 while only the liquidity indicator is classified as Class C. To conclude, the risk control of the company is rated as Class 2. The lease finance company has satisfying and adequate financial resources and asset quality with relatively low risks in asset business. Its level of management is relatively satisfying. There are some tiny problems in management, which does not exert negative impact on the security and stability of the company. Generally speaking, all important risks have been effectively identified, measured, managed and controlled. The business develops in healthy way while the level of profits is satisfying. And it enjoys a sound stability of profit, revenue quality and balance accumulation. However, it should be paid special attention to the fact that liquid assets might not be enough for the capital demand and there are difficulties in raising money in real time.

At the same time, on the basis of analyzing company A and combining the opportunities, threats, strengths and weaknesses of the company, a specific SWOT matrix is established. Moreover, after cross-analyzing the above four aspects, strategies of SO, WO, ST, and WT are worked out.

Table 5-9 SWOT Matrix and Risk Coping Strategies of Company A

Internal Factors / External Factors	**Internal Strengths(S):** **1. Advantage of company institution** **2. Advantage of shareholders' background** **3. Advantage of professionalism** **4. Advantage of innovation** **5. Relative low risk of the assets**	**Internal Weaknesses(W):** **1. High cost of financing** **2. Singular mode of gaining profit** **3. Lack of inter-disciplinary talents** **4. Lack of liquidity**
External Opportunities (O): **1. Abundant room for market expansion** **2. Prudent monetary policy**	SO Strategy: Take advantages of the company institution, shareholders' background, and professionalism and innovation ability to vigorously expand business, take larger market share and absorb prime assets.	WO Strategy: recruit inter-disciplinary talents, actively participate in the reform of public schools, expand the areas covered by its current business, and change the current dilemma of singular mode of gaining profit so as to eliminate the negative impact brought by the high cost of financing.
External Threats(T) **1. Macro economy going downward** **2. Lack of effective protection for the interests and rights of both parties in Leasing** **3. Competition in the industry becoming increasingly intensified** **4. Relatively low social recognition**	ST Strategy: Take advantages of its specialty, produce quality and specialized products in the medical equipment leasing industry, take a larger market share and improve its reputation.	ST Strategy: Risk control should be started with when facing the downward trend of macro economy; focus on improving its ability to identify and control the risks so as to improve its ability to survive in the market.

Source: The author.

In general, company A enjoys competitive advantages in company institution and financing and leasing of medical equipment. It was founded only a few years ago, but has enjoyed rapid development. In comparison with its competitors in the industry in China, such advantages have become part of its core competitiveness. However, there is still room for improvement in financing at a low cost and the mode of gaining profit. From the above table, it can be concluded that opportunities and threats coexist for company A and the situation is not optimistic. If the situation is dealt appropriately, great breakthroughs can be made. In the short-term, against the backdrop of reform of public hospitals and rapid expansion of financing and leasing of medical equipment, company A can survive and develop in a certain period. In the long run, if it fails to innovate, the source of development will be drained out and the company will be driven out of the market. Based on the current development stage of the company and its position in the division of labor in the future market structure, company A should continuously improve itself in operating and managing by practice and expand and innovate its core business. It has to maximize the efficiency of knowledge and experience, establish its advantages in specific areas, create its own brand, and rapidly realize the integration of profit, market share, technology, talent and other resources, so as to form its advantages in a comprehensive way. True innovation can only be achieved by formulating scientific competitive strategies and conducting a series of market competition under these strategies, instead of limiting itself or being satisfied with the single product, area and marketing strategy. With the advantages of the flexible system and institution, the company should adopt differentiated competitive strategies, be profit-oriented and carefully categorize various types of clients. It should focus on the core area of financing and leasing of medical equipment and actively expand other areas. Moreover, it should invest abundant resources, emphasize on innovation and cultivating teams of talents, improve its market competitiveness, enlarge its market share and further become a company of relatively large size in a certain area.

Chapter 6 Conclusions and Suggestions to Policies

Most lessees of finance lease in medical industry are public medical institutions, the operation condition and profitability of which are more stable than other sub-industries. In medical industry, overdue payments can be rarely seen and the ratio of non-performing asset is also kept in a low level. However, since medical industry is a very special industry, the risks of medical equipment finance lease are unique. Hence, improving the risk detection and management in both project and enterprise internal management becomes quite essential.

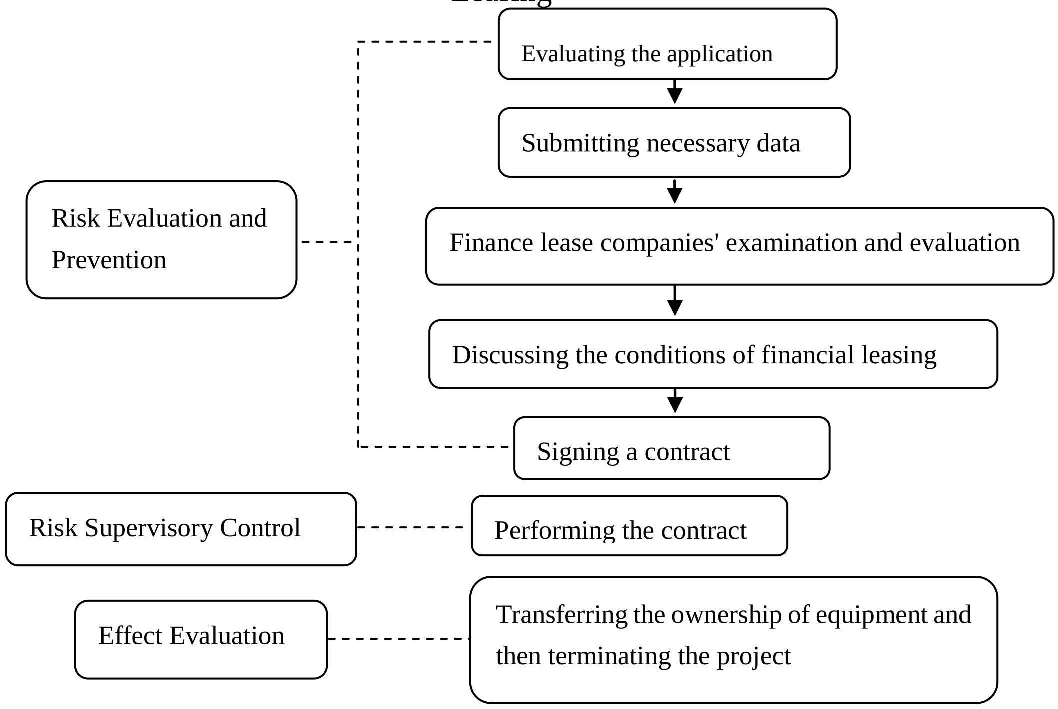
6.1 Project Risk Management

Project risk management is management upon a series of uncertain factors which may affect the project progress, efficiency, effectiveness and objectives. The factors include the management of external environmental factors and internal factors. In the following part of the thesis, we discuss the management of project risk combining specific financial leasing process.

6.1.1 Operating Process of Medical Equipment Finance Lease Project

Hospitals' application to lease finance companies for financing leasing mainly includes the following seven steps: (see Figure 6-1).

Figure 6-1 Flow Chart of Hospitals' Application to Finance Companies for Financing Leasing



Source: The author.

(1) Evaluating the application

First, a hospital needs to take the following aspects into full account before making its decision of adopting finance lease mode: the scale of the hospital, debt condition, state of capital management, development direction of the hospital and medical needs of residents within the hospital's service radius. Only after the above consideration can the hospital file an application, submitting the "recommendation form of lessee " or "application form of lessee ".

(2) Submitting the necessary data

In order to avoid any risks, finance lease companies usually have to evaluate the whole project. Hence, the hospital must provide the following data: ①qualification proof of the level of the hospital; ② a copy of Practicing License of Medical Institution; ③ a copy of Organization Code Certificate; ④ a copy of Legal Person Registration Certificate for Public Institution; ⑤ balance sheet of the last three years and the latest month, income and expenditure statement, medical receipt and payment statement and drug receipt and payment statement. Besides, all of the above data need to be stamped by the hospital. What's more, the hospital also needs to provide relevant documents about its plans of equipment purchase, letter of acceptance, resolutions approved by the meeting of deans that are relevant to the bid negotiation, license for the use of large medical devices and relevant official documents. Name, brand, model number and price of equipment and the name of supplier must also be presented.

(3) Lease finance companies' evaluation

The evaluation must be finished within seven workdays since the date of the hospital's submission of application form and necessary data. The hospital's financial condition, the expected earning condition of the project, market environment and relevant policies of the government will all be covered in the evaluation.

(4) Discussing the conditions of financing

(5) Phrase of signing a contract: signing some legal texts such as contract of leasing and contract of purchase.

Relevant clauses of the contracts:

The total price of equipment: the price offered by equipment lessor in the contract; Down payment: a part of the total price, which is paid by the lessee to the lessor;

Payment for equipment: after receiving the down payment from the lessee, the lessor must pay the loan to suppliers timely according to the contract of equipment purchase;

Lease rate: the lease rate needs to be determined by both sides after negotiation in accordance with the loan interest rate stipulated by relevant banks for the corresponding period;

Term of lease: the term of lease is determined by both sides after negotiation, which is usually 2 to 5 years;

Payment method: the rent can be paid monthly, quarterly or semi-annually, or can be paid at the end of the term;

Scrap value of equipment: the scrap value is decided by both sides after negotiation;

Insurance: the insurance company and the type of insurance are determined by the lessor while the fee is paid by the lessee;

Tax bearing and cost: all tax and costs caused by the leasing business are paid by the lessee;

Lease deposit: the lessee must pay a deposit to the lessor and the amount of the deposit is determined by both sides after negotiation;

Guarantee and pledge: there is no hard-and-fast rule for guarantee and pledge and it can be decided according to the actual situation of the lessee.

(6) Performing the contract

The hospital must pay the lease deposit and handling charge to the lease finance company while the company must deliver, install and examine the equipment and pay the loan according to the agreement. What's more, the hospital must pay the rent to the company regularly.

(7) Transferring the ownership of the equipment and terminating the leasing project

There are usually three choices: the first is that the hospital returns the equipment to the lease finance company; the second is renewing the lease; and the third is, after negotiation between both sides, the lease finance company gives or sells the equipment to the hospital.

6.1.2 General Measures for Finance Lease Risk Control in Medical Industry

(1) Keep in line with the direction of medical reform

At present, the state government is taking various measures to carry out the medical system reform. Hence, special attention must be paid to the direction and changes of medical system reform policies. Besides, we also need to evaluate carefully the impact of separated management between medicine and pharmacy on hospital's balance of payments and its repayment ability. Furthermore, issues such as the change of financial subsidy policy, the proportion of appropriation from the state government and local government, projects of appropriation and the situation of appropriation, especially the implementation of local governments' funding plan, should also be paid close attention. What's more, it must be made sure that there is no any withholding of medical revenue in the financial department of the hospital. If a hospital plans to use the future financial subsidies as the source of repayment, then it should apply to its financial department and superior departments for repayment commitment or relevant approval and list the cost of finance lease into the list of fiscal health budget expenditure. Generally speaking, if the place where the hospital is located has a healthy financial performance, then the local medical industry can enjoy more financial funding.

(2) Examine the rationality of operating cost

It must be made sure that there is no waste in the use of capital. Priority should be given to the examination of hospital's formulation of annual budget and the implementation of it, so as to make sure that whether the cost of basic construction and equipment purchase exceeds the budget. What's more, the impact of serious medical disputes on the operation and development of hospital should be carefully evaluated.

(3) Analyze the source of repayment

The hospitals that use fiscal subsidy as the capital source for repayment should have an analysis of the ratio of basic budget subsidy to project budget subsidy. Project budget subsidy usually belongs to special subsidy, the use of which is quite clear. Even there is a surplus of the annual project subsidy, it needs to be carried forward to the next year or submitted to the department that is responsible for the appropriation. Only those financial subsidies that are specifically used for house maintenance, construction and equipment purchase can be regarded as the capital source for repayment. As for those hospitals which use medical income and drug income as the capital source for repayment, they should analyze whether their charging standard for medical services and their price setting of drug conform to relevant regulations of the state. Besides, they should also have an analysis of the variation trend of medical fee and drug price in the future. At present, most hospitals just have a small surplus or even a deficit in their balance of medical payments. Since China has issued a series of specific regulations on drug price, proportion of drug income in revenue, ratio of drug price difference and submission of surplus in the balance of drug payments, the proportion of drug income in hospital's balance of payments will definitely decrease in the future. However, the establishment of new hospitals or the expansion of old hospitals will bring a great growth in the number of both inpatients and outpatients. Therefore, these hospitals should have a comprehensive and careful analysis on their special features, service coverage, current usage rate of hospital beds, the number of medical staff and the situation of similar hospitals. Meanwhile, they also need to analyze the medical expenditure and drug expenditure in detail and figure out how much is used for repairing and purchase and how much is used for the preparation for bad loans in medical payments. The surplus of repairing and purchase fund and the fund that is left in the preparation for bad loans can be regarded as the capital source of repayment. Besides, these hospitals should also figure out whether they have other capital source for repayment. Hospitals that have been relocated or newly built in a different site should consider whether their old site can be liquidated and the income of liquidation can be used as the capital source for repayment.

(4) Examine the credit standing of guarantor enterprise

In the case of enterprise guarantee, the guarantor is usually a construction enterprise that works for hospital's capital construction, a pharmaceuticals enterprise that provides medical hygienic products for hospital, a medical device manufacturing company or a drug sales company. In this kind of guarantee, the contractual capacity and guarantee willingness of the guarantor should be strictly inspected and the continuity of its contractual capacity should also be evaluated and analyzed, so as to avoid any failure within the term of loan period. In security guarantee, the guarantee is usually some non-public facilities of a hospital. However, since the hospital might adjust the usage of these assets, it is difficult for lease finance company to identify, examine and ensure the non-public use of them. Therefore, in the case of security guarantee, the potential handling obstacles should be taken into full account. In terms of account pledge, its protection of the creditor's right is much weaker than the previous two methods of guarantee. Once risk of repayment occurs, it is hard to realize creditor's rights by depending on account pledge. Therefore, in such a circumstance, measures such as door-to-door fee collection should be taken in order to achieve a closed-off management of capital.

(5) Analyze the age of receivables and payables

Compared with those upstream enterprises such as pharmaceuticals or medical device manufacturing companies, hospitals are in an advantageous position. Medical products are usually sold on credit to hospitals, because of which there is no great demand for capital in the purchase. However, as for those government departments of medical insurance, they are often in arrears with medical clearing fee for various reasons, leading to financial deficit in hospitals. Therefore, items such as receivables of creditors, other types of receivables, payables of debtors and other types of payables must be analyzed, based on which the rationality of capital occupation, the effectiveness of capital source and the authenticity, rationality and validity of liquidity loans should be checked, so as to avoid any circumstances that short-term loan is used for fixed asset projects. What is worth noticing is that the long-term default of government departments of medical insurance, the large amount of back money and the unhealthy performance in government's balance of payments will increase the risk of finance lease projects.

(6) Examine relevant government approvals about the leased equipment

The regional allocation of medical equipment must be examined to find out whether the total amount exceeds the standard; the allocation of hospital's large medical equipment must be compliant with the requirements of regional allocation plan and it needs to be made sure that whether the hospital has obtained the license for the use of large medical devices; the examination and treatment price of large medical devices must be approved by relevant authorities, and the social and economic benefits of these equipment should be predicted; the allocation quantity, service efficiency and charging standard of similar equipment in the market and patients' affordability should be investigated. What's more, it needs to be found out that whether the supply exceeds the demand and whether the service is sold at an overly reduced price. Besides, it must be made sure that all large medical equipment have registration certificate for production or import issued by the state. And all equipment purchase funded by the government must conform to relevant regulations of government procurement.

(7) Examine government approvals for hospital capital construction project

The project construction must be examined to see whether it is compliant with the plan for developing regional medical health industry; the approval documents about research sites of loan projects for fixed assets and environment evaluation must be checked to figure out whether there is any separated examination and approval; the planned area of construction for project must be inspected to find out whether it conforms with relevant national construction standards for hospitals, especially the area for per bed and the area of construction land; the number of outpatients and the number of prepared beds need to be evaluated and predicted to see whether they match with each other; the development of preliminary budget for project must be checked to figure out whether it is strictly kept with the standard and to make sure that, when the actual construction scale and total investment of the project exceed the budget, the examination and approval is reconfirmed by the authoritative approval department. Besides, as for those newly-built hospitals, their addresses also need to be examined to see whether the location is appropriate and the layout is reasonable.

In the calculation of expenditure for hospital's capital construction, the total investment of the project and the accurateness and rationality of its composition must be confirmed; the rationality, authenticity and reliability of the financing plan must be analyzed and the source of investment capital of all parties must be clearly figured out. The funds from financial appropriation and the funds raised by the hospital itself should be put in place in advance or timely for repayment. If there is any overspend in the project, the financial department should apply for more appropriation or the hospital should raise more funds by itself to cover the excess expenditure.

6.2 Internal Risk Management Strategy for Lease Finance Company

Different from public hospitals, which can enjoy government guarantee, lease finance companies are independent economies and they have to take more business risks independently in their operation. Therefore, a lease finance company, as the lessor in medical equipment finance lease, should optimize its internal management and formulate effective strategies, so as to prevent the various risks that might occur in the finance business.

6.2.1 The Establishment of Risk Pre-warning System for Finance Lease in Medical Industry

The best way to avoid risks in the pre-warning system is prevention. The risk pre-warning system of lease finance company is a system of prevention and warning, in which all report forms and other data provided by the lessee hospital will be analyzed, examined and tested to figure out whether its internal organization, structure of lease combination, financial structure and business operation exceed the warning line. Based on the above analysis, the operation situation of the lease finance company, especially the cash flow status of lease payables and financing funds, can be further figured out. In this way, once an operation crisis occurs, the warning signal can be sent in the early stage to the lease finance company, so that the company can adopt a higher-level prevention and warning system to avoid risks.

6.2.2 Real-time Monitoring in all Sub-industry Projects and the Strategy of Diversification in Risk Management

Since any lessor's ability of risk control is limited, it can transfer the project risk of its sub-industry into social risk, such as property insurance, property credit, guarantee insurance, credit insurance and receivable factoring. In this way, the risk of enterprise can be shared by the society. Besides, the lessor should also prepare a reserve fund to cover any expected loss, in spite of the impact of reserve fund on the profits and capital of lease finance company. The strategy of risk diversification means to reducing risks by analyzing the business of lessee and optimizing project cycle, limit of lease and exchange rate. There are two ways for lease finance company to manage risks: effective diversification and random diversification. Specifically, effective diversification refers to placing leasing assets in different industries and controlling the credit limit of individual clients to realize risk diversification. As for random diversification, it means diversifying risks by increasing the number of single assets in the leasing assets portfolio. The selection of single assets is random, in which risks are diversified by expanding business scope.

The credit limit for the two major types of medical institutions in China -- public medical institution and private medical institution, should be analyzed according to the theory of asset portfolio management. As lessees, their distribution of gross financing amount should be figured out in order to bring about an ideal status of risks and profits for investment portfolio. With stable profits in its single lease project and low rate of bad debt, the finance project of public medical institution can be listed as an income portfolio, in which priority is put on maximizing the basic earnings and the internal rate of return of the project is relatively low. As for the finance lease project of private medical institution, it can be listed as a growth portfolio, in which capital appreciation is emphasized and its internal rate of return is relatively high. A sound investment policy should be made and asset portfolio should be produced on the basis of asset portfolio management theory. The asset structure in the portfolio should be adjusted timely according to the development situation and variation trend of the market. Finally, the operation effect of the asset portfolio should also be evaluated. The evaluation can not only serve as a review of the portfolio investment, but also provide some experience for the next phase of investment portfolio management.

6.2.3 Promote Innovation in Finance Lease Business

Since the government is unable to support the development of all hospitals, now many hospitals are actually self-dependent. Besides, the development of private hospitals also conforms to the national industrial policy and prospect of medical industry. Though there are certain limits in the business expansion of medical industry finance lease, there are still many other options such as taking up shares, share holding or acquisition. In this way, hospitals can be managed by a trustee and their shares can be held by other shareholders. As for lease finance companies, they can make full use of the transaction database of lessee hospitals in the country to integrate all the financial services for the whole industrial chain in the medical system. They can expand their service scope from simple finance lease to various comprehensive services, such as trade, equipment maintenance management, second-hand equipment lease, financial management, capital management, consultation and investment. Besides, the lease finance companies also can develop funds for medical industry and cooperate with various platforms such as insurance, bank and security. In this way, financial capital and industrial capital can be integrated with each other in the finance lease market. In venture lease, by integrating leasing rights and equity investment together, the lessor leases equipment to the lessee to make profits. The profits not only include the income from rent but also the earnings from equity investment. In the case of newly-established private hospitals whose targeted investment is rapidly growing, the credit risk and equity risk should be taken into consideration. The profits mainly include these parts: the first part is rental income, which is the main source of investment returns for the lessor and accounts for 50% of the total; the second part is the income from scrap value, which is the most stable income with the lowest investment risk and accounts for 25% of the total; the third is income from equity investment, which is the key part and accounts for 25%. In the leasing agreement signed by both sides, the number of stock subscriptions should be clearly stated. What's more, after the signing of agreement, the lessor has the right to purchase a certain number of common stocks issued by the lessee at a certain price. In this way, the operation and development of the lessor can become more diversified and its market shares are also expanded. If the lessee has a healthy development in the future, the shareholder can enjoy a higher premium. However, conversely, if the lessee has a bad management or even ends up with bankruptcy, then the lessor has no rights to ask the lessee for other assets as compensation.

6.3 Improve External Support for Risk Management in Lease Finance Company

The emergence of medical equipment finance lease complies with the needs of the time. It provides an important channel for many medical institutions to finance and introduce new equipment. The industry of medical equipment finance lease in China is still in the stage of development, during which the measures and standards of risk control are still being explored and optimized. Although many enterprises now have started formulating their own standards for risk control, the healthy and orderly development of medical equipment finance lease in China still needs external support and guidance. Therefore, the state must improve the relevant policies, laws and regulations so as to lessen the impact of external risks on the industry of medical equipment finance lease.

6.3.1 Develop A Reasonable Insurance Policy and Credit System

A reasonable insurance policy and a credit system need to be established to support and protect the development of lease industry in China. To be specific, a credit insurance system for leasing can be established to provide support for the risk control in lease finance company. For example, a credit insurance fund for leasing can be set up for the lessees in a certain industry.

6.3.2 Establish A Supervision Mechanism for Finance Lease Industry

At present, there are two supervisory organizations that are in charge of the supervision on lease finance companies in China, namely, the ministry of commerce and China Banking Regulatory Commission. The supervision mainly refers to the examination of shareholders' qualifications and other senior executives' qualification. However, in the other aspects of risk control, there is a lack of supervision or even a lack of supervisors. Therefore, the functions of supervisory organizations need to be clearly defined and the supervision measures should be optimized. The control of industry development risk should be taken as a mission in order to enhance the healthy development of finance lease industry.

6.3.3 Optimize the Legal System for Finance Lease in Medical Industry

The legal system of finance lease in China should be improved as soon as possible. The establishment of laws about finance lease and the development of its market should be further explored. Besides, all laws and regulations should be complementary and consistent with each other. Efforts should be put on establishing Chinese-funded lease finance companies to get rid of the situation that most of the markets shares are occupied by foreign investors. What's more, a unified standard should be put forward for market access.

Since the laws and regulations of finance lease in China are made by different supervisory departments, the lack of coordination or differences of understanding between the departments will lead to inconsistency of supervision regulations or supervision gaps. With the promulgation of such regulations as Financial Leasing Company Management Rules, Accounting Standards for Business Enterprises -- Lease and Regulations on Issues of Disputes over Finance Lease Contract issued by the Supreme People's Court of China, a special guideline or policy for the finance lease in medical industry is expected to emerge. Such a guideline or policy is of great importance in increasing the confidence of all parties that are involved in finance lease, lowering the risks of the industry, providing laws for people to follow and making the development of finance lease industry in China on track.

6.4 Conclusion and Prospect

The recent years have witnessed remarkable achievements in the development of finance lease business in medical industry in China. However, compared with those developed countries, China still lags behind no matter in the asset scale, business innovation or risk control. In this research, the development of finance lease in medical industry in China has been analyzed. It is found that, the lease finance companies in medical industry do not lack the impetus of innovation, since they enjoy a large development space and have gathered some management experience in terms of risk control. However, further improvements and explorations are still needed in many aspects, such as risk identification, risk control and prevention and the establishment of risk control system which is quite necessary in the business innovation and development, including the internal project risk control system and external project risk control mechanism. On the other hand, in the course of medical reform in China, the establishment of a financial ecological environment, which is necessary for the development of finance lease in medical industry, especially the formulation of government regulation, cannot be completed in a short term. However, from a positive perspective, it also shows that there is a great room for improvement for the finance lease business in medical industry in China.

However, the ability of the author is quite limited. Although some breakthroughs have been made in terms of risk control approach, the research results of this thesis are preliminary. Generally speaking, there are still many limitations in this research. For example, we fail to make significant breakthroughs in exploring how to establish an effective risk control system and provide early warning of risk for enterprises. Besides, both of the research objects and conclusions of this thesis come from limited actual situations and they are not universally applicable, since the national macro-political environment of medical industry is being constantly improved. Therefore, the future researchers should focus on the establishment of a risk control system for medical industry finance lease in China on the basis of a thorough understanding of the development trend of the industry and the actual situation in China. They should learn from the development experience of other countries in this area. This is not only a direction for the efforts of an individual, but also a common responsibility of all Chinese people.

6.5 Limitation

Although the study analyzes the general situation of domestic medical equipment financing leasing business risk and its generating mechanism, there are still many limitations. Firstly, the research focuses on the medical equipment financing leasing business while lacks analysis on the internal medical institutions on financial leasing process. Therefore, some risks may be underestimated or missed. Secondly, due to the governmental control over parts of relevant data and information, especially specific financial information and management information of public hospitals, the information obtained in the research is hard to provide a full vision of current domestic medical equipment financing lease. Finally, due to China's imperfect relevant policies and regulations on hospital reform and financing lease, many uncertain situations occurred in the research.

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