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**Risk Issues for Foreign Software Firms in
China**

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ABSTRACT

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Master Thesis

This research was undertaken due to the growing foreign investment in China's software sector in recent years. It discusses the risk issues for foreign software firms in China including: a) general risks for all the foreign firms in China, and b) specific risks for foreign software firms in China only. Due to the specialty of software, this study concentrates on risks related to intellectual property and on risks related to government. The methodology of the study is qualitative case study and one Finnish modeling software company which have business and operation in China was selected. This study indicates that the major risks for foreign firms in China are regional difference, lack of relationship, individual expectation of fast profits, influence from government, and remains of planned economy. It also implies the major risks for foreign software firms are rampant, professional piracy, overall mentality of not paying for software, weak IPR and enforcement, and that few Chinese companies are bidding for international jobs.

Keywords: risk, software business, foreign software firms, China, government, intellectual property, IPR

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1 INTRODUCTION

This chapter introduces the background of the study. Section 1.1 presents the significance of this research. The research problem and the research questions are outlined in section 1.2. Section 1.3 describes the major objectives of the study and section 1.4 explains the motivation for the research. Section 1.5 presents the scope of this study and section 1.6 describe the structure of this research.

1.1 Background of the study

China's Economy grows robustly since 1990s and it seems to be growing continuously (Doing Business in China 2006; Tong 2006). In recent years, China's software industry experienced heavy growth rate due to government's incentive program since late 1990s (Doing Business in China 2006; Contact China 2005). According to High Growth Expected in Software Field (2006), China's software sector will grow at 30% in the future and be worth 1.3 trillion yuan (US\$ 162.5 billion) by 2010. It is expected that more and more foreign software firms will do business in China.

Foreign companies have mix experiences in China during the previous years, some have been extremely profitable while some have been failed or struggled through to make even. Foreign companies must deal with the Chinese current environment in a realistic manner (Doing Business in China 2006; Hoenig 2006; Lieberthal & Lieberthal 2003; Zhuang, Ritchie and Zhang 1998; Bremmer & Zakaria 2006; Bremmer 2005; Martinsons 2005).

For foreign software firms in China, there are specific risks posing them besides the general risks. Liang, Xue, Boulton, & Byrd (2004), Kraemer & Dedrick (2002), Goth (2005), Saxenian (2003), Tschang & Xue (2003), Third BSA and IDC Global Software Piracy

study (2006), Eighth Annual BSA Global Software Piracy Study (2003) and Special 301 Report (2005) demonstrate risks for foreign software firms in China. Among all specific risks for foreign software firms in China, risks relating to intellectual properties and government are the major ones and of extremely importance to foreign software firms in China.

Though China's commitment to Intellectual Property Rights protection is firm and clear due to its pursuant to WTO accession. There is still a transitory period when foreign firms have to be aware of the serious IP violation (Memorandum 2003). Intellectual Property Rights will be a continuing concern for foreign software firms in China. The business influence from government in China should never be underestimated, either from the central government or local authorities (Saxenian 2003; Doing Business in China 2006). According to Saxenian (2003), government is the major player in China's software market.

Due to afore mentioned reasons, it is important to research the risk issues for foreign software firms in China. Within all the risks, IPR related risks and government related risks are focused in this study.

1.2 Research problem and questions

There were researches about risks for foreign firms in China, but very limited research has been done earlier on the risks for foreign software firms in China. Furthermore, very limited research has been done on the risks relating to intellectual properties and government for foreign software firms in China.

The basic research question addressed in this study is: what are the risks for foreign software firms in China and how to minimize those risks?

To answer the above question the following sub-questions were formulated:

1. What are the general risks for foreign firms in China and how to minimize those risks?
2. What are the specific risks for foreign software firms in China and how to minimize those risks?
3. What are the IPR related risks for foreign software firms in China and how to minimize those risks?
4. What are the government related risks for foreign software firms in China and how to minimize those risks?

This research attempts to provide answers to these questions by: a) reviewing literature in the fields of China's investment environment, China's software business environment, general risks for foreign firms in China, specific risks for foreign software firms in China, IPR related risks for foreign software firms in China and government related risks for foreign software firms in China, b) interviewing of a case company, and c) analyzing empirical data of the case company and the in-depth interview.

1.3 Major objectives of the study

The following more specific objectives have been formulated:

1. To explore and describe the general risk for foreign firms in China.
2. To provide solutions to minimize the general risk for foreign firms in China.
3. To explore and describe the specific risks for foreign software firms in China.
4. To provide solutions to minimize the specific risks for foreign software firms in China.
5. To explore and describe the IPR related risks for foreign software firms in China.
6. To provide solutions to minimize the IPR related risks for foreign software firms in China.

7. To explore and describe the government related risks for foreign software firms in China.
8. To provide solutions to minimize the government related risks for foreign software firms in China.

1.4 Motivation for the study

China is the hottest investment destination for quite some years since its economical revolution. Foreign companies had very mixed experience in China: some of them are extremely profitable while others failed and struggled. Foreign software firms need to assess objectively the risks of investing in China, especially software sector where intellectual property is not protected.

Personally I am passionate for intellectual properties for software developers. This study helps me to understand the issue more practically and thoroughly.

1.5 Scope of the research

The focus of this study is defined by the following boundaries:

- This study investigate mainland China. Hong Kong, Macao and Taiwan are excluded from the study because of different administration and legal system in those areas.
- This study does not include e-business or other internet related software business.
- This study focus on copyright and trade secret issues of intellectual properties which are highly related to software business.
- This study investigates IPR risks of proprietary software, not Free or Open Source software.

- This study investigates risks for software companies whose core business is proprietary software, not Free or Open Source software.

1.6 Structure of the thesis

In Chapter 1, the background of the study is introduced, the research problem and questions are formulated, major objectives of the research are defined, motivation for the study are highlighted, scope of the study is presented and structure of the thesis is outlined.

Chapter 2 covers a wide range of literature from earlier research and other relevant materials, based on the main research question, sub-questions and research objectives. The following main topics are undertaken: a) China's investment environment, b) China's software business environment, c) risks for foreign software firms in China, d) IPR related risks for foreign firms in China, and e) government related risks for foreign firms in China.

Chapter 3 describes the empirical research methodology that is applied to execute the research. Research method of this study is a qualitative single case study method. The chapter includes a description of the case study, the selection criteria of the case company, the data collection procedures, and the data analysis technique. In addition to this, reliability and validity are discussed in detail to overcome the biases and weaknesses that the single case study may have.

Chapter 4 presents the case study. The chapter includes: a) background of the case company, b) research results, c) research analysis, and d) conclusion.

Chapter 5 presents the findings of the study, evaluates the weaknesses of the findings and recommends the future research directions.

2 LITERATURE REVIEW

This chapter reviews the literature in the fields of 1) China's business environment, 2) China's software business environment, 3) Risks for foreign software firms in China, 4) IPR related risks for foreign software firms in China, and 5) Government related risks for foreign software firms in China. A deep literature review has been conducted in order to have a thorough understanding of the research area, to develop the theoretical background for this study based on the research questions.

Approach of this literature review is to give overview on various aspects related, while give extra effects to the research area. Readers who need more knowledge about China's business environment could refer to many other literatures, such as "Doing Business in China, 2006" and "Doing Business in the New China, 2004". This literature review concentrates on the areas of a) Software, b) Risks, c) Intellectual Property Rights (IPR), d) Government.

Section 2.1 gives overview of all major aspects of China's business environment. In Section 2.2, China's software business environment is investigated. Risk issues for foreign software firms in China are discussed in section 2.3. This section is divided into two subsections: a) General risks for foreign firms in China and how to lower those risks, and b) Specific risks for foreign software firms in China and how to lower those risks. Since IPR related risks and government related risks are of extremely importance to software business in China, they are described in section 2.4 and section 2.5 respectively.

2.1 China's business environment

2.1.1 Description of China

According to China (2007), China is the largest of all Asian countries which is as large as the whole of Europe. China has 33 administrative units, includes 22 provinces, five autonomous regions, four municipalities (Chungking, Peking, Shanghai, and Tientsin), and two special administrative regions (Hong Kong and Macau). Taiwan has been under separate administration since 1949. Peking (Beijing) is the capital of China and also the cultural, economic, and communications center of the nation. Shanghai is the main industrial city while Hong Kong is the leading commercial centre and port. The following table gives an overview of the key facts of China.

Table 1: Key facts of China

<i>Official name</i>	Zhonghua Renmin Gongheguo (Zhongguo) (People's Republic of China)
<i>Ruling party</i>	Zhongguo Gongchangdang (Chinese Communist Party) (CCP)
<i>Area</i>	9,596,961 square km
<i>Population</i>	1.34 billion (2004)
<i>Capital</i>	Beijing (Peking)
<i>Official language</i>	Putonghua (Mandarin Chinese – Beijing dialect).
<i>Currency</i>	Renminbi yuan (Rmb) = 100 fen
<i>Exchange rate</i>	Rmb8.09 per US\$ (Oct 2005)
<i>GDP per capita</i>	US\$ 1,269 (2004)
<i>GDP real growth</i>	10.10% (2004); 9.9% (2005)
<i>Labor force</i>	778.50 million (2004)
<i>Unemployment</i>	9.80% (2004, urban areas); 20.00% (2004, urban and rural areas)
<i>Inflation</i>	3.90% (2004)
<i>Balance of trade</i>	US\$ 30.70 billion (2004)
<i>Foreign debt</i>	US\$ 233.30 billion (2004)
<i>Annual FDI</i>	US\$ 53.50 billion (2004)
<i>Current account</i>	US\$ 70.00 billion (2004)

Source: Country profile (2006), China (2007)

2.1.2 Political environment

According to Background Notes (2006) and Country profile (2006), China's external and internal political environment is regarded as "Stable". Zhongguo Gongchangdang (Chinese Communist Party) (CCP) rules the state. Chinese government, which has always been

subordinate to CCP, is also called central government due to its leading influence and power. National People's Congress (NPC), the president (the head of state), and the State Council include Premier (the head of government), a variable number of vice premiers, five state councilors, and 22 ministers and four State Council commission directions are the primary organs of state power (Background Notes 2006).

Outside China maintains diplomatic relations with most countries worldwide. However, conflicts occur with other countries in the recent years, primarily with USA. Taiwan issue and East China Sea dispute with Japan are two major unstable elements for China's political environment. China's interest in energy in Africa, South America and especially in Middle East is also a hidden trouble for the external political stability (China 2007).

2.1.3 Legal environment

According to Country profile (2006) and Background Note (2006), the Chinese legal system is an opaque combination of custom and statute. The judiciary is closely connected to the government. Much of the legal system is only partially developed. The hierarchy of people's courts, ranging from Local People's Courts through Intermediate and then Higher People's Courts to the Supreme People's Court is headed by the Ministry of Justice (Zinzius 2004). People's courts, at all levels, deal with criminal, civic and economic matters in separate tribunals. Supreme People's Court judges are appointed by the National People's Congress (NPC) (Country profile 2006). Since 1979 more than 300 laws and regulations, most of them in the economic area, have been promulgated, due to the promotion of functional legal system (Background Note 2006).

2.1.4 Investment environment

China has reformed and opened its market since 1979 and has kept a strong growth rate since then (Doing Business in China 2006). After China's leader Deng Xiaoping's visit to southern China in 1989 and the revolutions follows, China's economy grew robustly at an average rate of 10% per year during the period 1990-2004, the highest rate in the world (Doing Business in China 2006; Tong 2006). China acceded to the WTO in 2001 and is currently in the process of transitional period. Even after central government's policy to cool the economy since 2001, the economy still grew robustly. According to Doing Business in China (2006), China's gross domestic product (GDP) grew 10.0% in 2003, and even faster, 10.1% in 2004, and 9.9% in 2005 (Doing Business in China 2006).

China's investment climate has changed dramatically since the reform in the early 1980s. China has become one of the leading recipients of FDI in the world. In 2005, it received US\$ 60 billion and a cumulative total of US\$ 623.8 billion (Claver & Quer 2005; Doing Business in China 2006). China's investment climate is under deep reform since China's accession to the WTO in 2001. The reform will continue to prepare for the 2008 Beijing Olympic Games and the 2010 Shanghai World Exposition. According to Zinzius (2004, 24), Foreign investment is invited to and allowed to stay in China for three reasons:

- First, to help drive the financial recovery and to restructure and increase the efficiency of lame, inefficient, and loss-generating industrial state-owned enterprises.
- Second, to help drive export and thus bring in foreign currency.
- Third, to be a catalyst for technological development and a vehicle for the transfer of know-how from the West to the East.

2.1.5 Entry modes for foreign firms

According to *Doing Business in China* (2006), *China Business Guide* (2006), Claver & Quer (2005) and Zinzius (2004), there are generally four forms for foreign investments in China as table 2 presents:

1. Representative Office (RO). The presence that affords the investor the least opportunity is called a representative office. A license for such an office is not attained easily. Usually it is assigned only for three years, and must be renewed annually. A representative office without a Chinese business partner is often subject to restrictions. For example, it cannot trade or invoice. Business activities are restricted to observing the market, establishing relationships, and initiating business (Zinzius 2004; *Doing Business in China* 2006).
2. Contractual Joint Venture (CJV). Besides the long-term partnership of a mutual enterprise that binds the invested capital, there is the option of contractual cooperation – That is, a cooperative enterprise described as a contractual joint venture. The legal framework for this venture is not as narrow as for the equity joint venture. A contractual joint venture does not necessarily have to be a legal entity. The organizational form is not stipulated as mandatory as it is for equity joint venture. Foreign and Chinese contract partners cooperate toward the realization of exactly defined projects in a specific time frame (Zinzius 2004; *Doing Business in China* 2006; *China Business Guide* 2006).
3. Equity Joint Venture (EJV). For 20 years, the equity joint venture has been the most common form of foreign capital investment in China. Equity joint ventures are mutual companies that can be compared to a limited liability company. At least one Chinese and one foreign partner contribute money, assets, or other resources to such a company. The company must have a clear strategy and goals, which have to be approved by the administration (Zinzius 2004; *Doing Business in China* 2006; *China Business Guide* 2006).
4. Wholly Foreign-owned enterprise (WFOE). Wholly foreign-owned enterprises offer foreign investors less capital expenditure and more independence. These are 100-percent-foreign-owned companies. They are Chinese legal entities that are founded

according to Chinese law. Admittance is granted only if the enterprise offers technical innovation and is willing and able to produce for export (Doing Business in China 2006; China Business Guide 2006). Since the late 1990s, WFOE are the preferred investment, and in 2003, about 60% of all foreign investments were WFOEs, although many investors maintain a second company form in order to have flexibility in the market. It has to be pointed out that often the authorities only reluctantly allow the foundation of a wholly foreign-owned enterprise (Zinzius 2004).

Table 2: Company Forms for Foreign Investments in China (foreign investment enterprises -FIEs)

<i>FIE</i>	<i>Details</i>	<i>Comments</i>
Representative Office (RO) <i>1 to 3-year term, extendable.</i>	Liaison office for mother company. Limited capital injection needed. Can handle market research, sourcing, project investigation. Can hire local staff via government agents.	Limited activities. No legal person. Invoicing or trading is not allowed. Cost expenses may attract tax liability. First option for start-up companies, or a backup facility or a FIE.
Contractual Joint Venture (CJV) <i>10-30-year term, extendable.</i>	No minimum equity, but maximum of 50%. Contribution can be done via assets, profit sharing based on agreements. No duration limits. Manufacturing and sales operations possible.	Capital withdrawal during investment time possible. Trade unions required. Primary form for small business investments. Great flexibility in assets, management, and organization.
Equity Joint Venture (EJV) <i>10 to 30-year term, extendable.</i>	25 to 75 % foreign capital contribution. Debt: equity ratio depends on the investment. (<US\$3mio: 70%; >US\$30mio: 33%). Profit and risk according to capital share. Balanced foreign exchange account.	Specific requirements for management structure. Restricted withdrawal of capital during the time of investment. Limited domestic sales. Preferred investment form of Chinese government.
Wholly Foreign-owned Enterprise (WFOE) <i>10 to 3-year term, extendable.</i>	Registered as legal person. Limited liability entity, no branch of foreign owner. Employment of Chinese in line with local regulations. Direct negotiations with local authorities. Often converted from representative office.	Intended for high tech or exported-oriented industries. No costly negotiations. Control over management and human resources. No import/export license for own products required. Know how remains under investor's control.

Source: Zinzius (2004, 102)

There are also other foreign business forms in China such as: a) Trade or production via third parties, and b) Branch in restricted industries (banking, insurance) (Zinzius 2004).

2.2 China's software business environment

2.2.1 Definition of software

Software is “A generic term for those components of a computer system that are intangible rather than physical. It is most commonly used to refer to the programs executed by a computer system as distinct from the physical hardware of that computer system, and encompass both symbolic and executable forms for such programs” (Dictionary of Computing 2004). According to World Encyclopedia (2002), software is a “computer program and any associated data file. The term software is used to distinguish these coded instructions and data from computer hardware, or equipment”. Based on views held by various source (Dictionary of Computing 1996; World Encyclopedia 2002) concerning software, this study conceptualizes software as a coded non-physical information application, which enables the usage of hardware, high-tech equipment and/ or other software applications.

2.2.2 Software industry overview

According to High Growth Expected in Software Field (2006), Doing Business in China (2006), OECE Development Center (2003), Saxenian (2003), China's software industry grows robustly in recent years. China's software industry, with the considerable aid of government incentive programs, is in the midst of a period of steady growth after more than 10 years of slow development (Doing Business in China 2006; Contact China 2005). It is quoted from Doing Business in China (2006), “According to CCID Consulting 2005 report, in 2005, the sale revenue generated from sales of software in China is expected to reach US\$ 7billion, an increase of 17.9%, while the IT service market is expected to reach US\$ 10.1 billion, an increase of 20.1%.” It is also quoted from Doing Business in China (2006) that “According to an IDC forecast, the packaged software market will reach US\$ 6.234

billion in 2009 with a 2004-2009 compound growth rate (CAGR) of 18.7%.” According to High Growth Expected in Software Field (2006), China’s software industry is expected to keep an annual growth rate of 30% from 2006 to 2010, and be worth 1.3 trillion yuan (US\$ 162.5 billion) by the latter date. Table 3 gives an illustration of Chinese fast growing software market.

Table 3: Packaged Software Import & Export

	2003	2004	2005 (Jan.-Oct.)	Full Year 2005 (Estimated)	2006 (Estimated)
Total Market Size(US\$milion)	4,915	5,598	N/A	6,380	6,960
Total Local Production(US\$milion)	4,171	4,832	N/A	5,500	6,010
Total Exports(US\$milion)	301	206	121,4	150	180
Total Imports(US\$milion)	1,045	1,076	894,4	1,030	1,130
Imports from the U.S. (US\$milion)	243,1	229	203,1	240	264

Source: Doing Business in China (2006)

Despite of the robust growth predicted by many scholars and Microsoft’s signing a US\$750 million investment plan with the State Department Planning Commission in June 2002, there are many irritating facts undermining China’s software industry (Doing Business in China 2006; Zinzius 2003):

- In 2003, the Chinese government made KingSoft office software the standard for various government branches. The decision in favor of KingSoft, who had held a market share of 90% in the office software market in the early 1990s, demonstrates the government’s preference for local companies, in spite of large investment by foreign companies.
- Piracy is still a serious problem area for software manufacturers. It is estimated that about 90% of all software in China is copied illegally, and the American Ministry of Trade estimates annual losses for American companies to be about US\$2 billion (Zinzius 2004; Third BSA and IDC Global Software Piracy Study 2006; Eighth Annual BSA Global Software Piracy Study 2003; Special 301 Report 2005).

2.2.3 Software industry history

China's software industry developed with four major phases (Liu 2004; OECD Development Center 2003; and Saxenian 2003):

1. The software industry in China emerged in the 1970s, much later than developed countries. At that time, China was closed to the outside, so China had autonomously developed its own operation system for the 130,140 and 150 computer series.
2. In the early 1980s, China was more open and some university and research institutes began contracting data entry and simple programming work from foreign companies.
3. About 1985, the electronics market was born in Beijing Zhongguancun area. Some professors or research fellows around that area resigned from their institutions and "went down to the sea" to open their own ventures, software companies were among them. Software companies like Kingsoft(Jingsan),ufsoft(Rengyou), Kingdee(Jingdie), which are famous today were all born in that time. In that time, typical products were a Chinese word processing system---WPS and general use business software.
4. From 1999 to the present, the software industry has entered a golden development stage. Thanks to the new economy in the USA and the emerging competition from Indian software industry, both the business community and the Chinese government are determined to accelerate the growth and development of the software industry. The milestones of which were the releases of two official documents called "No.18" (Some policy to encourage the development of software and IC industry (2000)) and "No 47" (Action plan to rejuvenate software industry (2002)). Both include a package of policy tools like tax incentives, procurement, training and education etc. for the software industry.

2.2.4 Characters and structures of software industry

According to Kharbanda & Suman (2002), the China's software market has three main segments:

- Application Software (64.4% in 2002).
- Platform Software (30.1% in 2002).
- Intermediate Software (5.5% in 2002).

Tschang & Xue (2003) and Saxenian (2003) presented the structure of China's software industry as table 4 and table 5.

Table 4: Structure of China's software industry

<i>Year</i>	<i>Software products</i>	<i>Service</i>	<i>Exports</i>	<i>Total</i>
1999	182	238,5	21	441,5
2000	238	322	33	593
<i>Rate of growth</i>	30.77%	35%	57%	34.3%

Source: Tschang & Xue(2003)

Table 5: Growth in sales of types of products for selected years (100,000 yuan)

<i>Types of products</i>	<i>1992</i>	<i>1996</i>	<i>2000</i>
<i>System software</i>	1,6	8,5	33,2
<i>Supporting software</i>	5,4	20,0	49,6
<i>Application software</i>	12,8	63,5	155
<i>Total</i>	19,8	92	238
<i>Rate of growth</i>	330%	35%	31%

Source: Tschang & Xue (2003)

2.2.5 Human resources of software industry

Tschang & Xue (2003) described the human resources of Chinese software industry. The table 6 shows that the total number of graduates in computer related fields and workers in

the software industry is steadily growing. Other estimates that the pool of IT professionals is about 150,000 in China for 2001. But China suffers an outward migration of graduates to the US (Saxenian 2003).

Table 6: Software workforce in China

<i>Year</i>	<i>Number of software professionals</i>	<i>Number of graduates in computers and software</i>
1998	132,000	29,000
1999	150,000	33,000
2000	186,000	41,000

Source: (Saxenian 2003)

Responding to slow growth rate, the national and local governments are instituting wider plans, such as designation of 35 universities nation-wide as national software engineering programs. Cities like Shanghai, Dalian, and Jinan are actively developing software engineering curricula and developing existing institutions to feed their growing local software industries (Tschang & Xue 2003; Saxenian 2003).

Despite the slow growth of software professionals, there did not appear to be major shortages. A greater problem could be posed by the skills of the workforce. Only about 10% of the IT workforces have experience with complex programming tasks, and project management ability continues to lag behind India. Because of this, the hourly wage rates for professionals with about 2 year experiences are about US \$ 12-25 in China, versus about \$ 24 in India (Tschang & Xue 2003; Saxenian 2003).

2.3 Risks for foreign software firms in China

Every coin has two sides. When there are opportunities and there will be risks. Despite of the economics growth and the recently software business booming in China, there are

irritating facts underlying the positive phenomenon. Not every foreign firm investing in China benefits from the booming economy and so does the foreign software firm (Doing Business in China 2006; Zinzius 2004).

Foreign software firms suffer both general risks for any foreign firms in China and specific risks for software firms. Section 2.3.1 demonstrates the general risks for foreign firms in China and how to lower those risks. This section does not deal with any specific issues concerning software business. In section 2.3.2, those specific risks for foreign software firms are discussed and how to minimize those risks is covered.

2.3.1 General risks for foreign firms

This section is divided into two sub-sections: a) What are the general risks for foreign firms in China, and b) How to minimize the general risks for foreign firms in China.

a) What are the general risks for foreign firms in China?

Miller (1992) has presented a comprehensive framework about how to assess risks and it has been cited by many scholars, as shown in the appendix 1. This framework is a very good starting point to assess the risks for foreign firms in China and it is the basis for the case interview. Based on Hoenig (2006) and Miller (1992), table 7 is made to demonstrate what the risks are for foreign firms in China and how different literature covers each of the risks.

Table 7 Different literatures about general risks for foreign firms in China

General risks for foreign firms in China		<i>Doing Business in China (2006)</i>	<i>Hoenig (2006)</i>	<i>Ghemawat (2001)</i>	<i>Lieberthal & Lieberthal (2003)</i>	<i>Zhuang, Ritchie & Zhuang (1998)</i>	<i>Bremmer & Zakaria (2006)</i>	<i>Bremmer (2005)</i>	<i>Martinsons (2005)</i>
1. Legal and regulatory risks	1.1 Opaqueness of laws and regulations	√	√	√					
	1.2 Ambiguity of laws, regulations and enforcing authorities.	√	√						
	1.3 Inconsistence of laws and regulations	√	√				√		
	1.4 Constant Changing of regulations				√	√			
	1.5 Weak enforcement	√	√						
	1.6 Massive bureaucracy		√						
	1.7 Incompetent and susceptible judges		√						
2. Social and cultural risks	2.1 Lack of business ethics		√						
	2.2 Poor corporate governance		√						√
	2.3 Lack of transparency		√						
	2.4 Lack of local knowledge and <i>Guanxi</i>		√						
	2.5 Low social accountability		√						
3. Crime risks	3.1 Corruption		√	√					
	3.2 Intellectual Property	√	√						√
	3.3 Money laundering		√						
4. Political risks	4.1 External political unrest						√	√	
	4.2 Internal political unrest						√		√
	4.3 Potential for serious disruption				√		√		
	4.4 Domestic or Local Protectionism	√			√		√		√
	4.5 Bureaucracy.					√			
	4.6 Unpredictable and opaque policies	√		√			√		
	4.7 Reputational risk from home country						√		
5. Economical & Market risks	5.1 Devaluation of RMB (Chinese currency)					√			
	5.2 Market disorder (Oversupply and Deflation)	√			√	√			
	5.3 Influence from Central government	√		√					
	5.4 Remains from planned economy	√		√		√			
	5.5 The politics of WTO Implementation				√				
	5.6 Trap of Partnership (reluctant Joint Venture)		√					√	

1. Legal regulatory risks for foreign firms in China are:

1.1 Opaqueness of laws and regulations. Many sectors of China's economy have numerous restrictions and their approval processes are unpredictable (Doing Business in China 2006; Hoenig 2006).

1.2 Arbitrary of laws, regulations and enforcing authorities. Many foreign investors find that the laws, regulations and enforcing authorities are ambiguity and confusing. Sometimes, more than one authority is in charge of the same affair while other times no authority takes responsibility of certain affair (Doing Business in China 2006; Hoenig 2006).

1.3 Inconsistence of laws and regulations. Regulations in China tend to vary from place to place, and in some cases several authorities or department are responsible for interpreting and implementing the same regulations. Because companies must consult all of the relevant authorities, they often incur additional costs for doing so (Hoenig 2006; Bremmer & Zakaria 2006).

1.4 Constant Changing of regulations. Constantly changing regulations, bureaucracies, and reporting relationships make business planning difficult in a country where the government continues to play a major role in the economy. WTO implementation will keep such changes the order of the day. The Chinese environment will thus remain uncomfortably fluid for purposes of forward planning (Lieberthal & Lieberthal 2003).

1.5 Weak enforcement. Enforcement of laws and regulations has been regarded as weak by many foreign investors, especially in the area of Intellectual Property Rights. Even after receiving a favorable ruling, some companies have reported enforcement problems. For example, companies often find that authorities fail to implement judgments in bankruptcy proceedings (Hoenig 2006).

1.6 Massive bureaucracy. In China, a massive bureaucracy still hinders full implementation of regulations (Hoenig 2006).

1.7 Incompetent and susceptible judges. Few judges in China understand and have significant experience in handling commercial disputes; many are susceptible to pressure from local interest groups and governments (Hoenig 2006).

2. Social and cultural risks for foreign firms in China are:

2.1 Lack of business ethics. The concept of business ethics is still fairly new in China. In China's changing economy, material gain, with little regard for how it is acquired, is often the measuring stick of individual success. Kickback from suppliers is common sense in Chinese society (Hoenig 2006).

2.2 Poor corporate governance. In many privately owned Chinese companies, one individual – usually the chair of the economy – is still the only person responsible for all corporate governance issues. Rank-and-file employees generally defer to management without question, creating an environment without internal controls or where such controls are routinely overlooked or circumvented (Hoenig 2006).

2.3 Lack of transparency. Chinese businesses are accustomed to operating behind closed doors, out of view of the justice system, investors, and potential partners. Many financial, human resources, procurement, and subcontracting transactions in China lack transparency and documentation, which makes it difficult to determine what information is accurate and what is exaggerated or even false (Hoenig 2006).

2.4 Lack of local knowledge and *guanxi*. Relationships or connections (*guanxi*) were once regarded as the secret ingredient to success in China. Generally speaking, *guanxi* often presents a double-edged sword to potential investors. It may help the foreign investors to accomplish business goals through their connections. It may also mean that a relative or friend of the local partner's general manager set up a duplicate factory that competes with the JV. Family connections often exist between the purchasing manager, general manager, local managers and the preferred vendors (Hoenig 2006).

2.5 Low social accountability. Though China has relatively robust laws on labor rights and health and safety, working conditions vary enormously across China, especially between rural and urban areas. The reputations of some FIEs have been damaged in the past when subcontractors operated unsafe facilities or employed child laborers without the FIE's knowledge. Besides the reputation issue, productivity is reduced with poor labor conditions (Hoenig 2006).

3. Crime risks for foreign firms in China are:

3.1 Corruption. Embezzlement, kickbacks, and other forms of fraud and corruption are widespread in China. Corruption is not limited to government officials; It is equally pervasive in the private sector (Hoenig 2006).

3.2 Intellectual Property. Both Chinese and foreign companies suffer from weak IP protection in China, especially high-tech companies (Hoenig 2006).

3.3 Money laundering. Much of the capital fraudulently obtained by individuals in positions of power finds its way out of China via investment vehicles and private bank accounts (Hoenig 2006).

4. Political risks for foreign firms in China are:

4.1 External political unrest. China's growing political, economic, and military influence across Asia is itself producing risk. China's disputes with Japan over drilling rights in the East China Sea threaten to provoke a military confrontation. Sharp increases in China's military spending have set its neighbors on edge and led some in the U.S. Congress to threaten new arms sales to Taiwan. In Addition, China's growing energy dependence on other relatively unstable states should be greater concern to investors (Bremmer & Zakaria 2006).

4.2 Internal political unrest. Public anger over land redistribution, widening wealth gaps, major industrial accident and poor social welfare are concerned issues for the modern China. Besides, huge amount of workers are laid from state-owned companies (Bremmer & Zakaria 2006).

4.3 Potential for serious disruption. China's political succession in 2003 for the first time in more than a century took place on time and peacefully. But it is not complete, and the SARS epidemic has complicated the process of sorting out authority among different groups in the new leadership. The Chinese system works well only when the top leaders are able to manage their differences unobtrusively. Open disagreement at the top produces policy stagnation and increases the chances that social discontent will

erupt into large-scale political instability. The new leaders of China also face enormous challenges in deciding on the extremely difficult trade-offs involved in allocating the country's scarce resources to address, among others, the following compelling demands: a) nonperforming loans in the state-owned banking system, which are likely to total more than US\$500 billion; b) an underfunded social safety net and a shortfall in investment in public goods such as health care service; c) expensive ongoing and proposed environmental projects to relieve severe growth bottlenecks, such as the acute water shortage on the North China Plan; d) Financially beleaguered town and country governments, roughly 90% of which are so burdened with unfunded mandates are resulting debt incurred to cover their obligations that they are effectively bankrupt.

4.4 Domestic or Local Protectionism. The fastest way for a leader at the local level to rise to higher position is to oversee successful economic growth in the locality (township, county, city and province) under his control. This has produced a lot of de facto flexibility and initiative at all level, even in an authoritarian system with a socialist planning heritage. But it has also led many local governments to impose protectionist measures to reduce competition from other parts of the country and abroad. Consequently, for example, China's Intellectual Property Rights protections, although strong in theory, are in fact almost impossible for enforce in much of the country. Local governments protect their own counterfeiting operations as sources of local revenue. Moreover, there are no constitutional rules that define the division of authority between different levels of the political system. That division is based on policy rather than law, and policies change constantly (Lieberthal & Lieberthal 2003).

4.5 Bureaucracy. Layers of political power and government authorities are always too complicated in China. Bureaucracy risk is regarded as the 7th biggest risks for foreign firms in the study by Zhuang, Ritchie & Zhang (1998).

4.6 Unpredictable and opaque policies. Chinese government always has opaque policy making process and its decisions are unpredictable to foreign investors (Doing Business in China 2006; Ghemawat 2001; Bremmer & Zakaria 2006).

4.7 Reputational risk from home country. Foreign firms in China face Reputational risks in their home countries. Just as Google, Microsoft, and Yahoo have been sharply criticized in the United States for allowing (in some cases, helping) the Chinese governments to manipulate consumer use of the Internet, other firms may find themselves accused of contributing to unfair labor practices or unsafe environmental conditions (Bremmer & Zakaria 2006).

5. Economical and market risks for foreign firms in China are:

5.1 Devaluation of RMB (Chinese currency). According to Zhuang, Ritchie & Zhang (1998), Devaluation of Chinese currency is regarded as the 8th biggest risk for foreign firms in China.

5.2 Market disorder (Oversupply and Deflation). China's underlying formula for growth has depended on a closed domestic financial system. It worked by channeling individual savings (roughly 40% of GDP) into state-owned banks, which in turn have funneled most of these funds into state-owned enterprises. This will increase opportunities for multinational corporations in both commercial and investment banking services but will also increase the risk of instability and potentially result in a somewhat lower growth rate, as least for a while (Lieberthal & Lieberthal 2003; Doing Business in China 2006).

5.3 Influence from Central government. Chinese government has all the means to control the economic growth and market, input and output (Doing Business in China 2006).

5.4 Remains from planned economy. China remains to be a highly planned economy. The Communist Party directly manages the only legal labor union in China. A five-year program sets economic goals, strategies, and targets. Chinese government keeps controls of all major banks and commercial institutes. Understanding of free competition is still incomplete in China (Doing Business in China 2006).

5.5 The politics of WTO Implementation. China's WTO accession package was negotiated by the top pro-reform leaders in the national government, who consulted very little with the parties that would be most affected. The Chinese leaders who

negotiate the WTO agreement stepped down from power in March 2003. A different leadership group will now have to decide how to implement the agreement. The potential for resulting friction is high (Lieberthal & Lieberthal 2003).

5.6 Trap of Partnership (reluctant Joint Venture). Foreign firms find themselves pushed into joint ventures with politically-favored Chinese companies. These Chinese companies then master the technological processes that power their foreign partners, break the partnership, and use their access to central government and its resources to push the foreign companies out of the market (Hoenig 2006; Bremmer 2005).

b) How to minimize the general risks for foreign firms in China?

A number of literatures cover the topic of how to lower the general risks for foreign firms in China. Miller (1992) presented a good framework to lower risks and it is demonstrated in the appendix 1. Miller's framework is also the basis for the case study interview.

Hoenig (2006), Bremmer & Zakaria (2006) and Zhuang, Ritchie & Zhang (1998) demonstrate how to lower those general risks for foreign firms in China and they are presented in the table 8.

Table 8 Different literatures about how to lower general risks

How to lower general risks		Hoening 2006	Bremmer & Zakaria 2006	Zhuang, Ritchie & Zhang 1998
<i>1. Lower the legal and regulatory risks</i>	1.1 Consult professional firms	√		
	1.2 Carefully prepare to avoid legal problems	√		
<i>2. Lower the social and cultural risks</i>	2.1 Institute ethics training programs	√		
	2.2 Perform due diligence	√		
<i>3. Lower the crime risks</i>	3.1 Form alliance with Chinese partners		√	
	3.2 Intensify lobbying efforts with influential officials	√	√	
	3.3 Internal controls and ethics policies	√		
	3.4 Perform due diligence	√		
<i>4. Lower the political risks</i>	4.1 Decrease the assets at risk			√
	4.2 Arrange joint-venture			√
	4.3 Increase bargaining power			√
	4.4 Cooperate with home government			√
	4.5 Adhere to corporate responsibility standards			√
	4.6 Create emergency response plans			√
	4.7 Diversify risk			√
	4.8 Develop strategies for exercising corporate social responsibility		√	
	4.9 Seek outside perspectives			√
	4.10 Have an exit strategy			√
<i>5. Lower the economical & market risks</i>	5.1 Lobbying the Chinese government			√
	5.2 Product diversification			√
	5.3 Flexible marketing			√
	5.4 Flexible manufacturing			√
	5.5 Recruit and train talented managers		√	
	5.6 Understand the competition		√	

1. Lower the legal and regulatory risks

1.1 Consult professional firms. It is wise to seek legal and regulatory advice from experienced professional firms in China. The Chinese business landscape is littered with unsuccessful ventures that tried to save money by “going it alone” (Hoenig 2006).

1.2 Carefully prepare to avoid legal problems. In a relatively opaque environment, careful preparation to avoid legal problems in the first place is the best solution. Companies can minimize legal risk by conducting due diligence on the legal and financial background and reputation of key joint venture partners, acquisitions, senior managers, vendors, and suppliers before entering a formal relationship. Companies should also conduct pre-employment screening of all employees. Finally, companies may also wish to check the reputation of local government officials before committing to a particular locale (Hoenig 2006).

2. Lower the social and cultural risks

2.1 Institute ethics training programs. To prevent ethical breaches, companies should institute ethics training programs to educate employees (Hoenig 2006).

2.2 Perform due diligence. To prevent ethical breaches, companies should perform due diligence on partners, vendors, and investment targets. New senior-level employees and their immediate family members should undergo a thorough background check to determine their overall reputation, potential for conflicts of interest, and to make sure their lifestyle and wealth position are reasonably in line with their current position. In addition, employees who routinely come into contact with Intellectual Property or Financial information should receive a summary pre-employment screening to verify their resume details (Hoenig 2006).

3. Lower the crime risks

3.1 Form alliance with Chinese partners. To safeguard Intellectual Property Rights, foreign firms could form alliance with Chinese partners for joint production. Involving

Chinese stakeholders in the benefits that flow from technical innovation may over time promote greater enforcement protection (Bremmer & Zakaria 2006).

3.2 Intensify lobbying efforts with influential officials. To safeguard Intellectual Property Rights, foreign firms should intensify their efforts with influential Chinese government officials. Some foreign firms have found success by pooling their efforts: A lobby that speaks for many parties have a greater chance of influencing Chinese policy and enforcement strategies than a lobby that speaks for just one firm (Bremmer & Zakaria 2006; Hoenig 2006).

3.3 Internal controls and ethics policies. Internal controls and ethics policies are key methods for reducing the likelihood of corruption. Any company considering operating in China must prepare to invest the resources necessary to ensure that such controls and policies are effective. Foreign investors, however, should understand that it is impossible to avoid such problems completely in China. They must also recognize that investigations of employee, supplier, or partner behavior will be an inevitable cost of doing business in the country (Hoenig 2006).

3.4 Perform due diligence. Foreign investors should conduct due diligence inquiries on potential Chinese partner companies and their personnel before investing to ensure that they do not become unknowing accomplices to money laundering activities (Hoenig 2006).

4. Lower the political risks

4.1 Decrease the assets at risk. This can be done by increasing short term cash outflows, reducing investment and looking for short-term profits (Zhuang, Ritchie & Zhang 1998).

4.2 Arrange joint-venture. Arranging joint-venture could share risks with local Chinese firms, but this type of direct investment preferred by the Chinese government seems to have become less effective over the years (Zhuang, Ritchie & Zhang 1998).

4.3 Increase bargaining power. This can be achieved in a variety of ways. Sometimes, investors can turn an awkward situation to their advantage. For instance, during a recent conflict in the Taiwan Straits, the Chinese government was keen to reassure the

Taiwanese investors that the war game was aimed only at the movement towards Taiwanese independence. Many Taiwanese investors actually used this to ask the government to express their reassurance in deeds as well as words. Another way to increase bargaining power is by reducing the degree of dependence on the domestic market and increasing its reliance on international markets in terms of technology, managerial know how and export (Zhuang, Ritchie & Zhang 1998).

4.4 Cooperate with home government. Foreign firms should work with their home governments to press the Chinese government to honor its commitment to open markets, institute basic economic rules of the road, enforce those rules it does have, and protect intellectual property rights. China remains a transitional economy with many aspects that are not transparent, fair, or even legal under the World Trade Organization's rules. Currying favor with the Chinese government by ignoring these issues is a short term strategy that will eventually undermine foreign firms (Bremmer & Zakaria 2006).

4.5 Adhere to corporate responsibility standards. To minimize reputational risks at home, foreign firms should establish and firmly adhere to corporate responsibility standards. Their leaders should be clear with the Chinese government (and within their own boardrooms) on what they will and will not accept as the price of admission to China's marketplace (Bremmer & Zakaria 2006).

4.6 Create emergency response plans. A firm's director of Chinese operations should be responsible for implementing a system that can work around disruption caused by public health crises, environmental calamities, or large-scale social unrest (Bremmer & Zakaria 2006).

4.7 Diversify risk. This element of corporate strategy is as crucial in China as it is anywhere else. R&D, production, and supply chains should not be concentrated in any one Chinese province or region – or in China generally (Bremmer & Zakaria 2006).

4.8 Develop strategies for exercising corporate social responsibility. A foreign firm that trains and employs local workers and invests in education and in philanthropy to support local charities can build strong relations with local leaders and their constituents. However, if a company claims to espouse social responsibility but does not follow

through, such rhetoric can backfire. What is more, Chinese communities are sensitive to what they perceive as corporate efforts to change their country according to western prescriptions (Bremmer & Zakaria 2006).

4.9 Seek outside perspectives. Firms should supplement the views of their incountry teams and consultants with those of truly independent experts. They should also institutionalize the application of their risk-migration framework. These strategies are much less effective when applied on an ad hoc basis or by only certain segments of the economy (Bremmer & Zakaria 2006).

4.10 Have an exit strategy. It is worth putting in place the means to get out of China. That said, a company may miss important opportunities to secure long-term profits if it prematurely cashes in its chips and moves out. The point is to have an exit strategy – but no necessarily to use it (Bremmer & Zakaria 2006).

5. Lower the economical & market risks

5.1 Lobbying the Chinese government. Lobbying the Chinese government to adopt more favorable policies towards foreign firms is no substitute for taking measures to minimize the potential impact caused by any sudden change in the government economic policies (Zhuang, Ritchie & Zhang 1998).

5.2 Product diversification. A balanced portfolio of products can serve to reduce the overall risk of the business should any of the product markets suddenly collapse (Zhuang, Ritchie & Zhang 1998).

5.3 Flexible marketing. Flexible marketing means that firms need to be willing to adapt their marketing mix according to changing market conditions. For example, if there is a little competition in their market, when the host country devalues its currency, the firm could increase the export price in the host country's currency. On the other hand, if competition is strong, the firm could lower the export price in a foreign currency (Zhuang, Ritchie & Zhang 1998).

5.4 Flexible manufacturing. Flexible manufacturing refers to the foreign firms' ability to increase its competitive advantage by making effective use of the host country's

production resources. If the overall wage rates and other production costs are low, as is the case in many developing countries, such as China and Vietnam, labor intensive operations will be more competitive. However, continuing economic growth will usually produce an increase in living standards, which in turn will push up wage rates making labor intensive operations less profitable. When this happens, firms can either transfer their existing low-tech operations elsewhere or invest in a more high-tech operation in China (Zhuang, Ritchie & Zhang 1998).

5.5 Develop strategies to recruit and train talented managers. A number of foreign firms have discovered that graduates of Chinese business schools lack the necessary skills to manage their operations. Some have created successful partnerships with Chinese colleges and universities, trading promises of future employment for influence in the business management curriculum. Foreign firms get properly trained managers; talented Chinese students get jobs (Bremmer & Zakaria 2006).

5.6 Understand the competition. Increasingly, Chinese companies are competing not just on their home turf but also in foreign competitor's home markets and around the world. A strategic emphasis on the production of high value-added products allows foreign firms to maximize their advantage over Chinese companies, which do not yet have experience and skill in design, marketing, and distribution (Bremmer & Zakaria 2006).

2.3.2 Specific risks for foreign software firms

For foreign software firms, China offers a large but often different market to do business. Besides the general risks for foreign firms in China, there are also a lot of risks specific to foreign software firms. The most obvious ones are, for example, weak Intellectual Property Rights (IPR) and its enforcement, rampant piracy. The following risks were presented by different literatures:

1. Poor software process capabilities. Huawei, a large Chinese telecoms firm, as this reason, locates a major software development facility in Bangalore, India (Tschang & Xue 2003).

2. Poor Intellectual Property Rights (IPR) and weak enforcement. This is the biggest problems for software products. Besides, poor IPR and weak enforcement also pose foreign investor great threats. (Tschang & Xue 2003)
3. Rampant software piracy. Software Piracy in China is extremely rampant (Third BSA and IDC Global Software Piracy Study 2006; Eighth Annual BSA Global Software Piracy Study 2003; Special 301 Report 2005). According to Third BSA and IDC Global Software Piracy Study (2006), PC software piracy rate in China is 86%.
4. High employee turnover. Software firms in China, either foreign or domestic, suffer from high employee turnover. Employees leaving the companies not only cost the firms huge amount of training expense, but also take away precious intellectual property, the precious knowledge (Tschang & Xue 2003).
5. Government's preference to domestic firms. Government favors local firms, either by setting up certain standards or promulgates unfair policies to foreign competitors (Kraemer & Dedrick 2002; Goth 2005; Saxenian 2003).
6. Lack of local knowledge and relationship (guanxi). Local firms benefit from their intimate knowledge of the local market (Kraemer & Dedrick 2002; Saxenian 2003).
7. Language. Language is proved to have significant impact on system implementation. The Chinese language uses pictographic symbols instead of an alphabet. Each symbol, or character, represents an object or concept. It is extremely difficult to translate an enterprise system from English to Chinese accurately and thoroughly (Liang, Xue, Boulton, & Byrd 2004).
8. Reporting Format and Content. Foreign software companies engaging in business or financial software find that their system does not meet the requirements of China's generally accepted accounting and financial standards. China's accounting standards differ from the international accounting standards incorporated into foreign ERP systems (Liang, Xue, Boulton, & Byrd 2004).
9. Price. Software from foreign companies is significantly more expensive than those of domestic companies (Liang, Xue, Boulton, & Byrd 2004).

10. Customer support. Foreign software companies fail to provide adequate customer support due to the shortage of qualified technical personnel. In their haste to gain market share, foreign companies are unable to provide software support personnel (Liang, Xue, Boulton, & Byrd 2004).

Among these risks, Intellectual Property Rights (IPR) related risks and government related risks have the most influence on the software business in China. Because of this, IPR related risks and government related risks are described in section 2.4 and 2.5 respectively. Except these two risks, there are not many literatures discussing about how to minimize risks for foreign software firms in China.

2.4 IPR related risks for foreign software firms in China

The investment needed for creation of computer program is often very heavy and some software could cost millions of dollars to produce. Software can be copied freely and the protection against unauthorized copying and use is of crucial importance to software business, especially to software business in China where Intellectual Property Rights (IPR) is new and IPR system is poor presently. Without such protection, producers of computer programs would not be able to recoup their investment, and so the creation and development of this decisive side of computer technology would be jeopardized. China has joined World Intellectual Property Organization (WIPO) and also signed Trade Related Intellectual Property Agreement (TRIP). But in spite of apparent progress towards improving its intellectual property legal and regulatory regime, China continues to be a challenging environment for IPR protection and enforcement (Doing Business in China 2006; Report to Congress on China's WTO Compliance. 2005).

Section 2.4.1 defines Intellectual Property and the major four intellectual properties relating to software from both general and software point of view: a) Copyright, b) Patent, c)

Trademark, and d) Trade secrets. Section 2.4.2 describe Chinese IPR environment which includes: a) China's IPR commitment, b) China's IPR climate, and c) China's IPR enforcement system. In Section 2.4.3, the IPR related risks for foreign software firms will be discussed and so will be the strategies to minimize those risks.

2.4.1 Definition of Intellectual Property

In this section, definition of Intellectual Property is described. Among all the Intellectual Properties, the most influential to software developers are Copyright, Patent, Trademark and Trade Secrets (A Legal Guide for the Software Developer. 2000). Because of this, definitions of these four intellectual properties are given in this section.

a) Intellectual Property

According to WIPO Intellectual Property Handbook (2004, 3), Intellectual Property, very broadly, means "the legal rights which result from intellectual activity in the industrial, scientific, literary and artistic fields." Countries have laws to protect Intellectual Property for two main reasons. One is to give statutory expression to the moral and economic rights of creators in their creations and the rights of the public in access to those creations. The second is to promote, as a deliberate act of Government policy, creativity and the dissemination and application of its results and to encourage fair trading which would contribute to economic and social development. Generally speaking, Intellectual Property law aims at safeguarding creators and other producers of intellectual goods and services by granting them certain time-limited rights to control the use made of those productions. Those rights do not apply to the physical object in which the creation may be embodied (WIPO Intellectual Property Handbook 2004).

Intellectual Property is usually divided into two branches, namely industrial property and copyright:

- Copyright. Copyright relates to artistic creations, such as poems, novels, music, paintings, and cinematographic works (Understanding Industrial Property 2005; Understanding Copyright and Related Rights 2005; WIPO Intellectual Property Handbook 2004).
- Industrial property. Industrial property takes a range of forms. These include patents to protect inventions, and industrial design, which are aesthetic creations determining the appearance of industrial products. Industrial property also covers trademarks, service marks, layout-designs of integrated circuits, commercial names and designations, as well as geographical indications, and protection against unfair competition (Understanding Industrial Property 2005; Understanding Copyright and Related Rights 2005; WIPO Intellectual Property Handbook 2004).

b) Copyright

According to *A Guide to Intellectual Property* (2006, 32), A copyright protects literary and artistic “expression” as well as other types of informative media that derive their value from the particular manner in which the information is expressed. Books, musical works, plays, computer programs, paintings, sculptures, and movies are among the types of works which are eligible for copyright protections. Generally, any work which is fixed and which includes an artistic or express component can be the subject of a copyright.

According to *Story* (2004) and *A Legal Guide for the Software Developers* (2000), virtually all computer software products may be protected by copyright. In essence, copyright protects against duplication or close imitation of the source or object code of the software product. In addition, copyright law may protect against the copying of a program’s structure, sequence and organization and certain elements of a product’s user-interface, or its “look and feel.” Copyright law also grants the copyright holder the right to prevent others from modifying or adapting a software product for distribution as a modified product. Copyright protection is very easily obtained, is inexpensive, and is relatively easy to enforce in the case of outright copying of code. Copyright protection, however, does not protect certain

important aspects of a software product. It cannot prevent the use of independently developed software. It cannot protect the underlying functions, methods, ideas, systems or algorithms used in a software product or invention. Patent and trade secret protection can be used to protect these.

c) Patent

According to WIPO Intellectual Property Handbook (2004, 17), a patent is “a document, issued, upon application, by a government office (or a regional office acting for several countries), which describes an invention and creates a legal situation in which the patented invention can normally only be exploited (manufactured, used, sold, imported with the authorization of the owner of the patent).” “Invention” means a solution to a specific problem in the field of technology. An invention may relate to a product or a process. The protection conferred by the patent is limited in time (generally 20 years). In a number of countries, inventions are also protectable through registration under the name of “utility model” or “short-term patent.” The requirements are somewhat less strict than for patents, in particular in respect of inventive step, and in comparison with patents the fee are lower, and the duration of protection is shorter, but otherwise the rights under the utility model or short-term patent are similar.

Patents are frequently referred to as “monopolies”, but a patent does not give the right to the inventor or the owner of a patented invention to make, use or sell anything. The effects of the grant of a patent are that the patented invention may not be exploited in the country by persons other than the owner of the patent unless the owner agrees to such exploitation. Thus, while the owner is not given a statutory right to practice his invention, he is given a statutory right to prevent others from commercially exploiting his invention.

According to A Legal Guide for the Software Developer (2000), a utility patent can protect inventive functions, methods, systems or algorithms, including applied mathematical formulas, which are used or embodied in a software product. A patent protects the ideas and

algorithms in a product as opposed to merely the particular set of code used to implement them. It is also the only form of protection which provides “exclusivity” in the marketplace for an invention, effectively prohibiting even independent developers from making, selling, or using a product or feature similar to the protected invention. For these reasons it normally provides a much broader and more powerful form of protection than either copyright or trade secret protection does.

d) Trademarks

According to *A Guide to Intellectual Property* (2006, 24), a trademark is a word, name, symbol or device used by a manufacturer or merchant to identify his or her goods and distinguish them from others. A service mark is a word, name, symbol or device used by one offering a service in order to identify his or her service and distinguish it from others. Therefore, trademarks and service marks act as a source of origin of goods and services, as well as indicating the quality. For purposes of the following discussion, the word “trademark” will be used to refer to both trademarks and service marks.

Trademark protection is a fourth type of intellectual property protection. It does not protect the technology embodied in a software product, but protects the name, mark, or appearance of a software product and the related consumer goodwill developed in that name. A federal registration on a trademark or service mark can be a valuable property right. Trademark rights can exist forever, so long as marks continue to be properly used and registrations are periodically renewed (*A Legal Guide for the Software Developer* 2000; Story 2004).

e) Trade secrets

According to *A Guide to Intellectual Property* (2006, 36), a trade secret is any formula, pattern, device, process, tool, mechanism, or compound of peculiar value to its owner (and his or her employees) which is not protected by a patent and is not known or accessible to others. Trade secret protection is governed exclusively by state law, but for all practical purposes, every state makes theft or unauthorized dissemination of a trade secret an

unlawful act. The requirements for trade secret protection are that the trade secret must not generally be known, its owner must gain an economic advantage from the trade secret, and its owner must take steps to preserve the confidential nature of the trade secret. One of the major benefits of a trade secret is that there is no limitation as to length of time that the trade secret may be kept confidential.

According to Story (2004), *A Legal Guide for the Software Developer* (2000), trade secret protection can also be used to protect software products. To qualify as a trade secret, the software product or feature sought to be protected must be of value, not readily known or ascertainable to others, provide the owner with a demonstrable competitive advantage and be subject to reasonable efforts to maintain its secrecy. Code, ideas and concepts in code can be protected as trade secrets. Moreover, protection can last as long as the protected technology retains its status as a trade secret. However, trade secret protection cannot protect features of marketed software products that are readily ascertainable by lawful means. Nor can it protect against use of the technology by others who independently develop it (as patent protection can). Also, if an idea is maintained as a trade secret, it is possible for another individual or company to independently invent and patent the same idea, thus potentially precluding the party using trade secret protection from practicing the invention, or at least from marketing software using the invention.

While trade secret protection is an excellent protection scheme for software products under some circumstances, it is best used in combination with patent and copyright protection.

2.4.2 China's IPR environment

Generally speaking, China's IPR environment is perilous. In spite of apparent progress towards improving its intellectual property legal and regulatory regime, China continues to

be a challenging environment for IPR protection and enforcement (Doing Business in China 2006; Report to Congress on China's WTO Compliance. 2005).

There are three aspects about China's IPR environment: *a) China's IPR commitment, b) China's IPR Climate, and c) China's IPR enforcement system.*

a) China's IPR commitment

As part of its Protocol on Accession to the WTO, China has committed to full compliance with the WTO Agreement on Trade-Related Aspects of Intellectual Property (TRIPS), as well as other TRIPS-related commitments. During the lead-up to WTO accession as well as during the year following, China adopted revised patent, trademark and copyright laws, as well as implementing regulations, in addition to numerous other ministerial or local rules and regulations (Doing Business in China 2006; IPR Toolkit 2005; Intellectual Property Rights in China 2004; Intellectual Property Protection in China 2005). A list of China's Current Main Laws, Administrative Regulations and Department Rules Regarding Intellectual Property Rights is attached to appendix 2.

Apart from China's WTO commitments, China has signed a number of international and bilateral agreements regarding IPR (Doing Business in China 2006; IPR Toolkit 2005; Intellectual Property Rights in China 2004; Intellectual Property Protection in China 2005).

A comprehensive list of china's Membership of International IP related Treaties is presented in the appendix 3.

b) China's IPR climate

Industry associations representing computer software, entertainment, and consumer goods industries report high levels of piracy and counterfeiting of all types of products. The Business Software Alliance estimates that more than 90% of business software used in China is pirated. Many consumer goods companies report that, on average, 20% of their

products in the Chinese market are counterfeit. Chinese companies experience similar, or even greater, problems with piracy and counterfeits in their home markets. These problems are compounded by widespread squatting on the rights of others' trademarks, company names, domain names, design patents and trade secrets theft by employees, exports of infringing products, and other challenges (Doing Business in China 2006; IPR Toolkit 2005).

Inadequate enforcement of IPR laws and regulations, through either judicial or administrative means, remains a serious problem. Enforcement of IPR regulations is uneven and is sometimes impeded by local interests. Administrative penalties for IPR violations have little deterrent effect. Chinese law does not currently criminalize the import and export of IPR-infringing goods, and thus lacks sufficient deterrent force to stop this illegal activity (Doing Business in China 2006; IPR Toolkit 2005; Yu 2002).

Limited market access for products such as foreign movies and entertainment software as well as restriction in investment in distribution channels provide additional incentives for smugglers and counterfeiters. The authorities have also conducted thousands of raids at both the manufacturing and the retail level, resulting in the confiscation of counterfeit or smuggled products. Nonetheless, large markets continue to openly sell pirated and counterfeit products despite repeated foreign government requests to shut down and prosecute vendors selling infringing goods, with many such markets located in prominent areas of major Chinese cities or at border crossings, such as the Silk Market in Beijing or at the border with Hong Kong (Doing Business in China 2006).

c) China's IPR enforcement system

In 1998, China established the State Intellectual Property Office (SIPO), with the vision that it would coordinate China's IP enforcement efforts by merging the patent, trademark and copyright offices under one authority. However, this has yet to occur. Today, SIPO is responsible for granting patents (national office), registering semiconductor layout designs

(national office), and enforcing patents (local SIPO offices), as well as coordinating domestic foreign-related IPR issues involving copyrights, trademarks and patents (IPR Toolkit 2005).

According to Shi, Ouyang & Zhang (2005), IPR Toolkit (2005) and Simone (1998), addressing infringement of IP in china follows a two-track system:

- The first and the most prevalent is the administrative track, where by an IP rights holder files a complaint at the local administrative office.
- The second is the judicial track, whereby complains are filed through the court system. China has established specialized IP panels in its civil court system throughout the country.

Determining which IP agency has jurisdiction over an act of infringement can be confusing. Jurisdiction of IP protection is diffused throughout a number of government agencies and offices, with each typically responsible for the protection afforded by one statute or one specific area of IP-related law. There may be geographical limits or conflicts posed by one administrative agency taking a case involving piracy or counterfeiting that also occurs in another region. In recognition of these difficulties, some regional IP officials have discussed plans for creating cross-jurisdictional enforcement procedures. China's court also has rules regarding jurisdiction over infringing or counterfeit activities, and the scope of potential orders (IPR Toolkit 2005). Appendix 4 is a list of contact information of China's competent IP administrations.

2.4.3 IPR related risks

This section discusses the risks related to Intellectual Property Rights posed by foreign software firms considering doing business in China. A foreign software firm should have a good understanding of the intellectual property issues in China prior to commencement of

its China business and sales operations. In general, foreign software companies come to China with the belief that intellectual property cannot be adequately protected in China. To a large extent, this is true for the time being. Though China's commitment to intellectual property protection pursuant to its World Trade Organization ("WTO") admission is firm and clear, there is an interim period of time where foreign software companies must navigate the risky intellectual property waters carefully to minimize infringement by local companies – or even "entrepreneurial" individuals (Memorandum 2003).

Software companies vary from software product development to off-the-shelf software, and to enterprise software. Risks posed by different kind of software companies can be different. Table 9 is made to illustrate what are the general risks to foreign software firms, what are the specific risks for more specialized foreign software firms, and what are the strategies to minimize those risks.

Table 9 IPR related risks for foreign software firms

<i>Risk (R)</i>	<i>Strategies to minimize risk (S)</i>	<i>General risk for foreign software firms</i>	<i>Risk for software product development</i>	<i>Risk for off-the-shelf software</i>	<i>Risk for enterprise software</i>
R1 IP theft by a consultant or an employee.	S1.1 Written consulting or employment agreement		√		
	S1.2 Education and communication about IP		√		
	S1.3 Break-up the development and assemble elsewhere		√		
	S1.4 Joint Venture with local software companies		√		
	S1.5 Aggressive profit sharing schemes and opportunities for local programmers		√		
R2 Rampant piracy	S2.1 Frequently introduces “new” versions			√	
	S2.2 Selling products that require components to be downloaded or registered			√	
	S2.3 Selling a Chinese version that is scaled-down and more affordable			√	
	S2.4 Selling software in separate modules			√	
R3 Lax and haphazard enforcement	S3.1 Prevention of IP infringement	√			
	S3.2 Seek political support	√			
R4 Not sufficient licenses purchase	S4 Create check-and-balance mechanisms	√			√
R5 A deep-rooted culture and philosophy of not paying for software	No strategy available for the time being	√			
R6 Source code disclosure requirement of software copyright registration	No strategy available for the time being	√			
R7 Unpatentability	No Strategy available for the time being	√			
R8 Historical lack of recognition of foreign well-known trademarks	No Strategy available for the time being	√			
R9 Chinese Squatting	S9 Early registration	√			
R10 Costly, time consuming and unpredictable lawsuit	S10 Try to avoid the litigation approach	√			

The IPR related risks for foreign software firms are:

- R1 IP theft by a consultant or an employee. In both instances of either outsourced or in-house development, the most common type of infringement experienced by a foreign company is that of intellectual property theft by either a freelance programmer (consultant) or theft by an employee of its own hire. An employee or consultant may steal all or a portion of software source code, and use it for unlawful personal gains (Memorandum 2003).
- R2 Rampant piracy. Software Piracy in China is extremely rampant (Third BSA and IDC Global Software Piracy Study 2006; Eighth Annual BSA Global Software Piracy Study 2003; Special 301 Report 2005). According to Third BSA and IDC Global Software Piracy Study (2006), PC software piracy rate in China is 86%. It is very likely that the off-the-shelf product is available in China in a pirated form before it is sold in China. It may be not in the Chinese language but the software should be accessible via software vendors selling pirated CDs. Off-the-shelf software piracy will be a continuing problem in China unless the government makes more rigorous and uniform enforcement efforts. However, even with stringent enforcement, the pirates in China will only become more sophisticated. For example, in most large computer software sales centers in China, piracy is “on-demand.” The pirates do not maintain inventory of pirated goods. The pirated CD is “burned” on the spot for the willing purchaser. The entire transaction takes less than 10 minutes with no evidence of any piracy thereafter (Memorandum 2003).
- R3 Lax and haphazard enforcement. Enforcement of Intellectual Property laws is lax and haphazard in China. For example, there is no real penalty for copyright infringement – despite what the statute may say to the contrary (Memorandum 2003, Kennedy and Clark 2006).
- R4 Not sufficient licenses purchase. For enterprise software which must be localized and integrated, a typical Chinese enterprise will likely not purchase sufficient licenses for its business use. This typically happens in two ways. The first is traditional piracy whereby the Chinese company will install unlicensed software and configure it themselves. If the software requires substantial integration and configuration work, the Chinese company will either use their internal IT professionals (who likely learned the process while supervising the

integration team) or use the foreign company's IT professionals (paying them for moonlighting work). The second common method of piracy is more sophisticated but nonetheless a form of piracy. The Chinese company may give the sales staff/team a kickback, purchasing a very limited number of licensed software but ultimately receiving full installation on all their systems. These practices are not uncommon. Frequently, the foreign company is relying on a local distributor for sales and marketing and these practices go undetected. The local distributor hires local sales and marketing personnel and the staff owes on duty of loyalty to the foreign software company (Memorandum 2003).

- R5 A deep-rooted culture and philosophy of not paying for software. A Chinese company sees developed software as a zero-cost good. There is no incremental cost for the sale (or give-away) of one additional license. The Chinese joint venture distributor partner has every motivation and incentive to generate sales, even if it is at the expense of the foreign company's intellectual property. The Chinese enterprise using the software has every motivation and incentive to illegal use the software. The Chinese companies have a difficult time accepting the fact that piracy dilutes the value of software and ultimately discourages future innovation. There is comfort in knowing that this deep-rooted philosophical difference is beginning to change as more and more Chinese software companies are beginning to confront piracy themselves (Memorandum 2003).
- R6 Source code disclosure requirement of software copyright registration. Foreign software firms are unwilling to register software copyright based on the required disclosure of source code. Specifically, application for the registration of software copyrights are required to contain program authentication materials that must include 20 consecutive pages taken from each of the beginning, middle and end of the source code (IPR Toolkit 2005; Fitzgerald 2005; Taplin 2005).
- R7 Unpatentability. Computer programs and software cannot be patented (but may be protected under the Regulations on the Protection of Computer Software) in China. However, if the combination of software and hardware as a whole may really improve the prior art, bring about technical results and constitute a complete technical solution, an invention containing a computer program maybe be patentable (IPR Toolkit 2005).

- R8 Historical lack of recognition of foreign well-known trademarks. Foreign well-known companies allege trademark infringement need to prove that their marks are well-known within China based on sales, marketing, and advertising figures (Yu 2002; IPR Toolkit 2005).
- R9 Chinese Squatting. China has a “first-to-register” system, leaving registration of popular foreign marks potentially vulnerable to third parties. Foreign companies have found that Chinese squatters have registered trademarks they had previously registered in Hong Kong or Taiwan but neglected to register in Mainland China (IPR Toolkit 2005; Yu 2002).
- R10 Costly, time consuming and unpredictable lawsuit. It is important to recognize that although a foreign company may have a legal claim against its employee, consultant, or an infringing outsourcing company, the litigation approach is not very practical in China as lawsuits are costly, time consuming and unpredictable. Rarely does a foreign plaintiff find itself happy with the outcome of a lawsuit or arbitration proceeding in China. In most instances, a successful foreign plaintiff cannot collect meaningful damage (Memorandum 2003, Kennedy and Clark 2006).

The strategies to minimize the risks are:

- S1.1 written consulting or employment agreement. A foreign company is recommended to enter into a written consulting or employment agreement with its software programming staff. The Agreement should discuss intellectual property ownership issues (Memorandum).
- S1.2 Education and communication about IP. It is recommended that foreign companies sit down with its employees and consultants; and educate them about intellectual property infringement and its consequences. Let the employee or consultant know what acts constitute an infringement. Very frequently, the local programmers are not familiar with certain acts of infringement. Typically, education and communication often leads to better practical results than the best-written contracts (Memorandum 2003).
- S1.3 Break-up the development and assemble elsewhere. One practical consideration for foreign software companies doing development or value-add work in China is to break-up the development into modules and assemble the product in another location. Many software companies like to use local and more affordable programmers to do value-add work. Though

this requires additional administrative burdens and costs to ensure the severance of functional source codes, some foreign companies find it worthwhile because the potential damage from infringement far exceeds the additional administrative burdens and costs (Memorandum 2003).

- S1.4 Joint Venture with local software companies. Some companies rely on business structure to reduce the risks of infringement. Foreign companies may wish to enter into a joint venture with a local software development company. With such joint venture where the parties share the profits and risks, the chance of infringement (not a distributor) is lessened because local companies and its staff have very little incentive to “steal” the source code. Though this seems an over-simplified solution, when applied in conjunction with other practices, a foreign software company can manage to reduce the incidence of infringement from within (Memorandum 2003).
- S1.5 Aggressive profit sharing schemes and opportunities for local programmers. Sometimes, aggressive profit sharing schemes and opportunities for local programmers can effectively eliminate the incentive of infringement (Memorandum 2003).
- S2.1 frequently introduces “new” versions. Many software firms found it effective to frequently introduce “new” versions to reduce the influence of piracy (Memorandum 2003).
- S2.2 selling products that require components to be downloaded or registered. Software products require registered or with components to be downloaded could lessen the effect of piracy (Memorandum 2003).
- S2.3 selling a Chinese version that is scaled-down and more affordable. If software published will be pirated in China in any case, it is also a wise idea to sell a Chinese version that is scaled-down and more affordable. Foreign companies have found this approach quite practical (Memorandum 2003).
- S2.4 selling software in separate modules. Software sold in separate modules will have less chance to be pirated (Memorandum 2003).
- S3.1 Prevention of IP infringement. Foreign software companies should protect their intellectual property rights before they need to enforce (Memorandum 2003).

- S3.2 Seek political support. Foreign software companies emphasize the vital importance of cooperating with and seeking support from government, as well as maintaining close cooperation with government administration and enforcement agencies (Yang, Sonmez & Bosworth 2004; Kening 2005).
- S4 Create check-and-balance mechanisms. The best way to minimize the “piracy” of not purchasing sufficient licenses is to create check-and-balance mechanisms to either eliminate such activities or to be able to discover them very quickly with swift punishment carried out. It is recommended that a foreign company, when entering into an agreement with a local distributor or level 1 or level 2 support providers, prepares contract language which specifically prohibits certain practices and requires contractual damages up front for such activities. Foreign companies should carefully negotiate the standard of proof. Moreover, these types of disputes should be resolved via arbitration, not litigation (Memorandum 2003).
- S9 Early registration. To reduce trademark squatting, foreigners seeking to distribute their products in China should consider registering their foreign mark and/or logo, any Chinese language translations or transliterations, as well as appropriate Internet domains (IPR Toolkit 2005; Yu 2002).
- S10 Try to avoid the litigation approach. It is a better idea to avoid the litigation approach. Better employee education, better communication and other strategies could save the trouble of going to court (Yang, Sonmez & Bosworth 2004).

2.5 Government related risks for foreign software firms in China

The business influence from government in China should not be underestimated, either from the central government or local authorities. For example, local officials in China control resources that are essential for entrepreneurs and businesses, and their administrative authority includes allocation of financing, infrastructure, access to licenses and permits, and the enforcement of contracts (Saxenian 2003; Doing Business in China 2006). For foreign software firms, the government related risks are:

- **Capability demonstration.** Government officials in China depend upon local businesses to demonstrate their own capability. Political advancement in China's new reform economy is tied closely to growth, and the decentralization of state authority has fuelled intensifying competition between localities – particularly in the critical IT sectors. This creates powerful incentives for officials to favor local technology firms in the interest of stimulating growth (Saxenian 2003).
- **Support national industrial development.** Chinese government is one of the dominating paying customers of the Chinese software industry. Government ministries, agencies, and institutes at all levels procure software to support the goals of national industrial development as well as to improve their own productivity and they are frequently urged to procure local rather than foreign-made software (Brizendine 2002; Goth 2005; Saxenian 2003). In January 2003, China passed a new procurement law that calls for the Chinese governments to procure “domestic software.” In accordance with China's Five-Year Plan, the Chinese government is working on an aggressive industrial policy, focused on promoting the growth of its domestic IT industry (China: Software Government Procurement 2003; Goth 2005).
- **National champions.** The strong desire among government officials, for either economic or security reasons, to create “national champions” leads them to invest heavily in domestic software companies, or to rigidly enforce purchasing fiats demanding that all departments and state-owned enterprises purchases Chinese-made components and/or services (Saxenian 2003).
- **Legacy governmental organizations favored.** The “non-governmental” high tech spin-offs from government research institutes and university computer science department (such as Founder, TOP, and Neusoft) have been heavily favored by the Chinese government (Saxenian 2003).
- **Guanxi.** Domestic firms usually have better relations with government or local authorities (Brizendine 2002; Saxenian 2003).
- **Democracy.** According to Flint (2006), Chinese government is looking to obtain information about the activities of its citizens which it might thereafter use to pursue them criminally. Google and Microsoft suffered this risk (Saxenian 2003).

3 RESEARCH METHODOLOGIES

This chapter describes the selection of a suitable research method and its utilization in this study. Section 4.1 explains the reason why qualitative research approach is chosen. Section 4.2 presents reasons behind the selection of a case study method for this study. In section 4.3 the research design of the case study is explained. Section 4.4 describes the data analysis process of the study. Section 4.5 presents a variety of measures that were taken to improve the validity of measures that were taken to improve the validity and reliability of this study.

3.1 Selection of the research approach

The selection of a suitable research approach is very important to attain the right information about the investigated phenomenon and to get the most expected findings. There are two main research approaches, qualitative and quantitative. Both of these approaches generate different kinds of data and the selection of a most suitable approach depends on the research questions and objectives of the research (Creswell 1994). According to Creswell (1994, 117), quantitative research approach is based on testing a theory that consists of variables, where research findings are measured with numbers and analyzed with statistical procedures in order to determine the generalization of the generalizations of the theory. According to Creswell (1997, 15), qualitative research is “An inquiry process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem. The research builds a complex, holistic picture, analyzes words, reports detailed views of informants, and conducts the study in a natural setting”.

Qualitative approach is chosen for this research for the following reasons:

- Qualitative approach is selected because of the nature of the research question. In a qualitative study, the research question often starts with a *how* or a *what* so that initial forays into the topic describe what is going on. This is in contrast to quantitative questions that ask why and look for a comparison of groups or a relationship between variables, with the intent of

establishing an association, relationship, or cause and effect (Creswell 1997). The research question of this study is exactly what and how questions.

- Qualitative approach is selected because the topic needs to be explored. Variables cannot be easily identified, theories are not available to explain behavior of participants or their population of study, and theories need to be developed (Creswell 1997). In this research, risks for foreign software firms in China cannot be easily identified and theories could help explain the phenomenon for risk issues, especially in China.
- Qualitative study is selected because of the need to present a detailed view of the topic. The wide-angle lens or the distant panoramic shot will not suffice to present answers to the problem, or the close-up view does not exist (Creswell 1997). This research need to present a detailed view of risk issues for foreign software firms in China, especially IPR related risks for foreign software companies.
- The qualitative study is selected because the audiences are receptive to qualitative research (Creswell 1997). The audiences for this research are mainly foreign investors who are more interested in qualitative research.
- The qualitative study is selected to emphasize the researcher's role as an active learner who can tell the story from the participants' view rather than as an "expert" who passes judgment on participants (Creswell 1997).

3.2 Selection of the research method

According to Järvinen (2004), Creswell (1997), there are five different qualitative studies: 1) a biographical life history, 2) a phenomenology, 3) a grounded theory study, 4) an ethnography, and 5) a case study. But Yin (2003) suggests that case study should be defined as a research strategy, an empirical inquiry that investigates a phenomenon within its real-life context. Yin (2003) notices that "case studies should not be confused with qualitative research and points out that they can be based on any mix of quantitative and qualitative evidence". On the other hand, Järvinen (2004) divided case study into qualitative case study and quantitative case study. Research methodology is not the main

issue for this study and thus this study will regards case study one of the research methods of qualitative study.

This study will use a case study research method and the reasons behind this selection are:

- Rather than using large samples and following a rigid protocol to examine a limited number of variables, case study methods involve an in-depth, longitudinal examination of a single instance or event: a case. They provide a systematic way of looking at events, collecting data, analyzing information, and reporting the results. As a result the researcher may gain a sharpened understanding of why the instance happened as it did, and what might become important to look at more extensively in future research (Flyvbjerg 2006). A qualitative case study provides in-depth analysis of the current research problem, based on diverse sources of relevant material and objective of a case in the empirical environment (case company) that is part of a larger environment (all foreign software companies in China)(Creswell 1997). This research needs in-depth analysis of what are the risks for foreign software firms in China, especially the intellectual properties risks.
- According to Yin (2003), the case study is the preferred strategy when the main research question and sub-questions include “how” and “why” type of questions and the investigator has little or no control over the contemporary set of events. “How” type of questions are major part of this research.
- The case study investigates a real-life context when the boundaries between new phenomenon and the real-life situation are not clearly evident (Yin 2003). “Foreign software firms in China” is a new phenomenon and no research has yet been done on what are the risks for foreign software firms in China and how to minimize those risks.

A case study research method can be divided into a single case study and a multiple case study (Yin 2003). The single case design requires careful investigation of the case unit to reduce the possibilities of misrepresentation and to increase the access needed to collect the empirical data. The multiple case study method contains more cases than the single case study and allows greater generalization than the single case study (Yin 2003). But the more cases an individual studies, the greater the lack of the

depth in any single case. What motivates the researcher to consider a large number of cases is the idea of generalizability, a term that holds little meaning for most qualitative researchers (Creswell 1997). Single case study method is used in this study because:

1. The purpose of this study is to make an in-depth investigation of the case company.
2. Research at master thesis level significantly lacks of time and resources.

3.3 Research design

According to Yin (2003), the following five components of a research design are especially important:

- a study's questions,
- its propositions, if any,
- its unit(s) of analysis,
- the logic linking the data to the propositions, and
- the criteria for interpreting the findings.

Järvinen (2004) defines the process of case study as: 1) getting started, 2) selecting case, 3) crafting instruments and protocols, 4) entering the field, 5) analyzing data, 6) shaping hypotheses, 7) unfolding literature, and 8) reaching closure.

Research design in this study includes: the arrangement of research questions, the selection of a case company, data collection procedures, and data analysis and inspection of validity and reliability.

The selection of the most suitable unit is based on the knowledge of the unit and the unit's willingness to share information about the phenomenon under examination (Yin 2003). In this study the "risks for foreign software firms in China" is the unit of analysis. The selection criteria of the case company focuses on whether the software company:

- which have business operation in China,
- whose core business is proprietary software,

- which is willing to share their knowledge, experience and opinions.

According to Yin (2003), the data collection process of a case study includes six sources of evidence. These sources of evidence are documentation, archival records, interviews, direct observations, participant observation and physical artifacts. Considering the purpose and limitation of the study, only documentation and in-depth interviews were used in this study. Documentation included corporate news, interview complement document, and other relevant materials. In-depth interview with the executive vice president were conducted and e-mail were used extensively to collect additional data. The questions of the interview guide were developed by utilizing the literature review and advisor's very effective and systematic assistance. The interview guide (see Appendix 5) includes open-ended and semi-structured questions.

3.4 Data analysis

According to Yin (2003), analyzing a case study is difficult because the strategies and techniques have not been well defined in the past. This study used a qualitative data analysis technique based on Miles & Huberman (1994) and Marshall & Rossman (1995). The following phases will be used in the process:

- Data reduction,
- Data display, and
- Conclusion drawing and verification.

A data analysis was made after the interviews by transcribing the taped interviews to the narratives (Miles & Huberman 1994). Taped interviews were very carefully listened twice and transcribed verbatim using a computer word processor. The transcribed text was compared to the taped interviews on a third listening to assure correspondence between the taped and transcribed data. A complete case report was sent back to the case company to ensuring validity and authenticity of written data. If the interviewees in the case company found some errors or misunderstanding from the

text, those were corrected following their comments. The collected data was compared with other sources, like internal publications and documents, and magazines (Nahar 2001, Järvinen 2004).

3.5 Validity and reliability

To ensure validity and reliability of this study the following measures were applied:

1. The interview guide was verified by the advisor.
2. The interviewee had to be specialist in the phenomenon under the investigation.
3. The concept and interview guide of this research were delineated to the interviewee before conducting the interview to improve the validity of the research.
4. Multiple data sources have been used to increase the validity of the research.
5. The case reports were sent to the interviewees to check errors and evaluate the validity.
6. The data analysis report has been checked by the advisor and other experts.
7. The original raw data is presented for the readers to enhance the validity of this study and allowing readers to make their own conclusions.
8. All the original raw data will be documented and saved for future review.

4 CASE DESCRIPTION, ANALYSIS AND RESEARCH RESULTS

In this chapter, a case analysis has been performed. The following issues have been investigated and analyzed based on the interview and the interview appendix: a) general risks for foreign firms in China and how to minimize those risks, b) Specific risks for foreign software firms in China and how to minimize those risks, c) IPR related risks for foreign software firms in China and how to minimize those risks, d) government related risks for foreign software firms in China and how to minimize those risks. The interview guide for the case study is attached in the appendix 5.

Section 4.1 introduces the case company of this study and describes the company's business experience in China. In section 4.2, the finding of the case study based on the interview and the interview appendix is presented. Section 4.3 analyzes the findings and compares the findings with the literature review in Chapter 2. Section 4.4 summarizes the key aspects of the case study.

4.1 The Background of Tekla Corporation

Tekla was established in 1966, making it one of the oldest software companies in Finland. Tekla is the leading international software company whose innovative software solutions make customer's core business more effective in building and construction, energy distribution and in municipalities. The company's model-based software products and related services are used in more than 80 countries. Tekla has own offices in 12 countries; its headquarters are situated in Espoo, Finland, and offices in Sweden, Denmark, Norway, Germany, the UK, France, the US, Japan, Malaysia, China and the UAE. In addition to these Tekla has a worldwide partner network.

Tekla's experience in China is as follows:

- From year 1999 to 2000, Tekla had some business and technical visiting in China.
- In March 2000, Tekla set up representative office in Shanghai, China.

- In December 2002, Tekla upgraded the Shanghai representative office to Tekla Software (Shanghai) Co., Ltd.

4.2 Research results

This section describes the research results of the case study. The results are divided into four categories: 1) general risks for foreign firms in China, 2) specific risks for foreign software firms in China, 3) IPR-related risks for foreign software firms in China, 4) government-related risks for foreign software firms in China.

4.2.1 General risks for foreign firms

For Tekla, Seven years' business operation in China as a foreign firm has encountered quite a number of challenges. Some are the risks common to any other new market, while others are specific risks of China.

Risk 1: Individual expectation of fast profit

Chinese people are pursuing big profit in very short term. Because of culture, language, relationship, business networks and etc, Tekla needed local Chinese people. They can be its Chinese staffs, Chinese vendors, Chinese resellers, Chinese partners and Chinese investors. Those individuals are looking for really fast profits. A year is too much for many people and some of them are eager to see the business result within three months or at most six months. The interviewee explained this in the following manner:

“Chinese business environment, Shanghai for example, it is kind of business environment where people are looking at fast profit. It comes more like that not China as a whole, but goes individual level. People you work with typically are looking at a kind of business that can give them quite fast result. A year is too much for many people. Half a year is a kind of period people would like to see some results. You can't do business as a Finnish person. You can't sell directly in China. Just because culture, language and all these things, you

need local people. Whether they are your partners, agents or your own staffs, people are looking at typically fast results. That is kind of challenge in China.” (Interview, Executive Vice President, Espoo, Finland 2007)

The situation can be worse for those new entrants and not well-known foreign firms. It is too difficult to make a market presence in such a business environment. Chinese business environment requires much faster profit generating speed than any other market in the world. The interviewee communicated this in the following manner:

“Typically when you create a business of software, you need to create a market, a business. When you come to a new vendor and typically when you are not well known in China unless you are a big international brand, people won’t recognize you. It takes time to make market presence before people start buying from you.” (Interview, Executive Vice President, Espoo, Finland 2007)

To minimize this risk, Tekla really had to show that its business models were dynamic and could generate profits fast enough. The Interviewee explained this in the following way:

“People can get excited, but you need to be able to show a kind of business model that you can create business relatively fast, faster than any other market area”. (Interview, Executive Vice President, Espoo, Finland 2007)

Risk 2: Difficulty of finding right and qualified partners

For Foreign firms, especially SMEs or new market entrants or not well-known firms, it is difficult to find the right and qualified partners. It was hard for Tekla to find the people who have the same motivation and the same drive to do the business in China. Since Tekla didn’t have their own business contacts in the market, it was hard to judge and crosscheck whether your partners, vendors, or resellers were right for Tekla or really working for Tekla. Because of this, Tekla might lose control of the business in China. For Tekla, this is a common problem for other markets in the world as well, but it is more serious in China. Considering how eager and ambitious people are in China, it made the matter worse. The interviewee communicated this in the following manner:

“You may want to start looking for partnerships. It is very difficult to judge whether the partnership really work for you or right for you. It is very difficult because you don’t have your own contacts in the market. You don’t have any touch in the market. It is very difficult to cross check how your partners are performing, are they really working for you, are they just keeping to be agents without really doing much. It is difficult to control. It is difficult of course in many market areas, but it is especially difficult in China to get your hands on the experience.” (Interview, Executive Vice President, Espoo, Finland 2007)

To minimize the risks, Tekla had business setup in different areas and had own staffs to control and overview the business. The interviewee explained this in the following way:

“Our setup is that we have our own office in Shanghai. Then we have reseller in Beijing and resellers in Guangzhou. We have a kind of setup that we have own staffs that can then control the partners we have. We have better understanding of the partners’ operating, are they very actively operating or are they motivated to do our business?” (Interview, Executive Vice President, Espoo, Finland 2007)

Risk 3: Government’s influence on business

For Tekla, the market in China is very political, especially the construction and energy market which are both Tekla’s key areas. Stealing sector, for instance, is about 95% owned by the government. This risk can lead to many sub risks:

- Business decision is coming from top-down, from the command of central or local government. Decision is not coming from bottom-up, as in many other countries, where the decision is made upon the market need.
- Many business decisions are under political pressure. It can be double-edged sword to foreign firms. Tekla had both pleasant and unpleasant experiences.
- Business contact or guanxi is of great importance to do business with government-control enterprises.
- It is really difficult to challenge these companies if they are infringing foreign firms’ IPR rights. It is also not wise to take legal actions or any other aggressive actions towards these companies.

The interviewee communicated this in the following manner:

“For electricity business, there is definitely huge market. But it is more political to get into those companies. It is not directly business related. It is budget funded. There maybe political pressure that in this certain area, we really want a reliable electricity. They might want select this area to be the head of others and there will be a development project, which is coming from top down. In China, it is mainly top-down decision making.” (Interview, Executive Vice President, Espoo, Finland 2007)

“The risk for Tekla is that how you challenge a company which is relatively big government owned and you know that they are using illegal software.” (Interview, Executive Vice President, Espoo, Finland 2007)

To minimize this risk, Tekla took advantage of the business network, business relationships and cooperated with governments. The interviewee explained this in the following way:

“Shanghai financial center project is owned by a Japanese company. We get through this project owner and we got influence. We went to this owner and explained that ‘your project will be done by Tekla’s software. You have selected a partner which can not do that. For sure they only have two licenses. It is impossible to do a project of this size with only two licenses’. Thus we got that company purchase more licenses and we got revenue out from that project. Not all the licenses required, but some is purchased. If we have a project owner who have interest and control in the project, there will use more legal licenses purchased. It is kind of Chinese way to tackle illegal use of software that you need to create relationship with Chinese government agencies which deal with these issues and they will share the profits.” (Interview, Executive Vice President, Espoo, Finland 2007)

Risk 4: Remains of planned economy

Even six years after China’s WTO accession in 2001 and almost twenty years after China’s economical revolution, China’s economy is still “half-market oriented”. Some of the markets are still controlled by the government. Central government is controlling how the economy grows and it has all kinds of means to control the economy, either by regulations or policies. This increased the unpredictability for Tekla. Tekla sometimes even had nowhere to find such information. The interviewee stated it in the following way:

“China is on its own. So the government can control, by all the means, how fast the economic grows. Chinese government may block certain investment, may delay certain investment, and may regulate certain sectors just to keep the market in a certain growing path. For us who is dealing currently now business of construction industry, especially steeling construction industry, We can’t predict what happens really to Chinese construction industry from local perspective. Currently, it is booming and there are a lot of projects going on. But one day maybe they just slow it down significantly. It is difficult to even access to this kind of information. ” (Interview, Executive Vice President, Espoo, Finland 2007)

“China is half-market oriented economic, some of the markets are still controlled by government. The growth of Chinese economy depends on the fixed assets investment quite a lot. If the government feels the economy is too hot, they may use the political way to cut down the investment. At that time, almost all the field will be affected. That is the main risk for foreign firms in China.” (Interview appendix, Executive Vice President, Espoo, Finland 2007)

To minimize this risk, Tekla kept the office small and investment low. Tekla also needed to update its plans and budget feasibly to lower the risks. The interviewee expressed this in the following manner:

“That means you must be careful that you are not over-investing in China. Keep your office and cost low and activities small. We need to update our plans and budget feasibly to lower our risk” (Interview, Executive Vice President, Espoo, Finland 2007)

Risk 5: Difficulty of attracting qualified staffs

Chinese people are used to work in a company of big size which has thousands of employees usually. It was difficult to attract qualified staffs for Tekla. Chinese employees might have their own ambitions to work for bigger companies or seeking bigger opportunities. The interviewee stated it in the following way:

“Chinese are used to work for a company of thousands of people. We are relatively small. We are very small from local standards. The risk is that we are small and people may have their own ambitions to work for a bigger company and have a career in a bigger company. People are really ambitious and it is difficult to attract them.” (Interview, Executive Vice President, Espoo, Finland 2007)

To minimize the risk, Tekla was looking for employees who had same vision with Tekla and who was sincerely passionate for Tekla’s products. The interviewee commented it in the following way:

“We need to find those people who really love the products. Those people who will do it, they really love the products, really love to work in Tekla. Typically we are looking for people who know us especially from past activities. They have some sort of understanding, at least what we are doing. They really would like to join us. ” (Interview, Executive Vice President, Espoo, Finland 2007)

Risk 6: Big regional difference

From Tekla’s experience in China, different regions in China need to be treated very differently. Different regions have different interpretation of laws, different regulations, different cultures, different business processes. The interviewee presented it in the following manner:

“Shanghai has its own market area. Beijing has its own market area. Guangzhou has its own market area. In different area, you are dealing with different authorities and different individuals. There are difference that how people understand the regulations. What is ok and what happened in Shanghai is totally different matter from what is in Beijing. You need to deal with China as many separate markets. That is kind of challenge that what applied to Shanghai may not applied to Beijing. What can be enforced in Shanghai may not be enforced in Beijing or other way around” (Interview, Executive Vice President, Espoo, Finland 2007)

To minimize the risk, Tekla has already a subsidiary in Shanghai and resellers in Beijing and Guangzhou. If Tekla will expand its business in other parts of China, this will be a concern. The interviewee explained it in the following way:

“You need to deal with China as many separate markets.” (Executive Vice President, Espoo, Finland 2007)

Risk 7: External political risk

To Tekla, China’s international relationship is a risk. But the risk is a lot more predictable compared to huge political risk in Middle East. The interviewee presented it in the following manner:

“International relationship is also part of the risks. Some areas like Middle East have huge political risk, China in that sense is lot more predictable.” (Interview appendix, Executive Vice President, Espoo, Finland 2007)

To minimize this risk, Tekla took advantage of neutrality of Finland. Nokia was a very good example for Tekla to gain good political image in China. The interviewee explained it in the following manner:

“Nokia a very good example of Finnish company in China and we are using this good image in China.” (Interview, Executive Vice President, Espoo, Finland 2007)

Risk 8: Bureaucracy

Some government departments are very bureaucratic. The interviewee explained it in the following way:

“Some government department works with very low efficiency.”(Interview appendix, Executive Vice President, Espoo, Finland 2007)

4.2.2 Specific risks for foreign software firms

Besides the general risks discussed in section 4.2.1, Tekla also posed to risks which are specific to foreign software firms in China. This section discussed the specific risks for foreign software firms in China. The more detailed risks concerning IPR or government are discussed in the section 4.2.3 and 4.2.4 respectively. As a foreign software firm in China, Tekla encountered the following risks.

Risk 1: overall mentality towards buying software and rampant, professional piracy

The biggest risk for Tekla in China was the overall mentality towards software and the rampant, professional piracy. These two risks relate to each other closely and they are treated together as one major risk for foreign software firms in China.

This situation has not changed even after China’s 2001 WTO accession and its commitment to TRIP agreements. Many Chinese enterprises are using pirated Tekla’s software, while other Chinese companies only pay one or two licenses of Tekla’ software and they copy for the rest of employees.

People in China feel themselves more legal when they are paying for one or two licenses instead of not paying any license.

In many Chinese companies, knowledge of using illegal copies of software is at the top management level. If those companies are state-owned companies, it is not wise for Tekla to challenge those Chinese companies. There is also no use in taking legal or more aggressive action towards the usage of illegal software with top management knowledge. The interviewee presented it in the following manner:

“The mentality in China is that they just don’t pay for the software. They buy your software, maybe one copy or two copies. Then they have a group of people or a team of the people and they just copy for the rest. They have a Chinese saying which is a slogan for us. They feel that they are more legal by buying one or two copies instead of not buying any. The mentality is that you are only illegal if you are not buying any copy. That is an acceptable way of doing business (be legal by paying only one or two copies). The knowledge of using illegal software is at the top management. Because they are the one who has the buying authority and decision of what tools they are using. It is at the very high level of management what software they use and they are paying or not. ” (Interview, Executive Vice President, Espoo, Finland 2007)

“Chinese users are used to quite cheap software, piracy software and free services like training and annual maintenance/no maintenance. This is the major risk. Chinese users may have different requirements comparing with European countries and US, since they work on different codes and standards.” (Interview appendix, Executive Vice President, Espoo, Finland 2007)

Rampant piracy was also a serious problem facing Tekla. Only one week after Tekla released its software in China, the software was cracked and sold in the market at the cost of 5 RMB or 50 cents. Apparently, Tekla’s software was cracked by very professional people. The interviewee presented it in the following manner:

“There is no technical way to prevent piracy. One week after we release our software in China, there is a crack version in China. It is a professional cracking for commercial purpose. That is the main risk (mentality and piracy) for Tekla. ” (Interview, Executive Vice President, Espoo, Finland 2007)

As far as the mentality and the piracy are concerned, there is almost nothing Tekla could do about it. Tekla only hope that the situation will change in the near future. To minimize the mentality and piracy risks, Tekla tried to do some activities with BSA and to deal with local lawyers to send letter to notify those Chinese companies of using illegal software. But there were no direct income results for Tekla. But it is a good way of marketing and Tekla will keep working with BSA. The interviewee explained it in the following way:

“We are trying to do some activities with BSA. We are trying to do activities with own local lawyers to send letter to recognize that you are using illegal licenses. It doesn’t have any effect.” (Interview, Executive Vice President, Espoo, Finland 2007)

To minimize the risks, Tekla used business relationship to push Chinese companies purchasing more licenses and copies. In the case of Shanghai Financial Center Project, Tekla talked to the head of its financing company, one Japanese company. The head of the financing company pressured the Chinese companies so that more licenses of Tekla’s software have been purchased.

Rampant piracy and the overall mentality of not paying for the software also have positive side. Since the pirate software is of the same price and the price is too cheap to be an issue. That is why only the best software is cracked and sold in the market. It helps to eliminate competitors and create huge amount of user bases. As long as the situation of mentality and piracy change, Tekla, which provides the best software in modeling software in China, will gain at least five times the profits of nowadays. By that time, all the competitors are eliminated and users have already committed to the software. Up till now, Tekla is the only modeling software company which could do business in China. The interviewee explained it in the following way:

“When you have a coin, you have other side as well. Basically software is available without paying high cost. They always take the best one. Our software is really the software for that purpose. The positive side is that we have a lot of coverage in China. Nearly all 3D modeling for steel frames was built in China one way or another is done by using our

software. It means that it is very easy to beat the competition very easily. None of our competitor basically can exist or can do business in China. We are the only one who can do business in China currently. We have a very large user base in China. ” (Interview, Executive Vice President, Espoo, Finland 2007)

Risk 2: Very few Chinese firms are bidding for international jobs

If Chinese companies, small engineering and designing companies, are bidding for international projects, especially in US, they are required to use legal software or licensed copies. Maybe not every copy of their software is legal or licensed, but they have to buy enough licenses to claim that they are using the legal software for the project. For Tekla’s core business area, construction and energy business, most of the Chinese companies are doing domestic projects. It is mainly because the domestic construction sector is so huge in China. The construction and energy sector in India is a lot smaller than in China, but Tekla has about four times revenue from India than from China. There are many factors underlying this fact, such as good IP laws and implementation in India, but the main reason is that most of Indian companies using Tekla’s software are bidding for international projects, particularly in US. In US, the IP laws are very strict and they have all the means to check the legal status of the software for designing. The interviewee explained it in the following way:

“My business in China is only one fourth of my business in India. In India, there are a lot of international companies who have established outsource, design or even factories. We have a lot of local companies who are bidding international jobs. Anyone who is bidding international jobs would like to be seen as a legal user. If you bid work in US and US has quite tough IPR laws. Company in US can’t take any file that is produced with non-registered license. All the companies in US have all the means to make sure that their subcontractors have legal software or legal tools. That is why we have four times profits in India than in China” (Interview, Executive Vice President, Espoo, Finland 2007)

To minimize this risk, Tekla made some special deal of ten licenses pack, which was cheaper than the price in Europe. For those small enterprises, price is an issue. But if you are dealing with a big construction company, price is not an issue, only the mentality of top management matters. The interviewee explained it in the following way:

“For those companies who are bidding international jobs, we have a package like of tens of copies. The pricing is not all the same like USA or European market. We do special deal to legalize the market.” (Interview, Executive Vice President, Espoo, Finland 2007)

Risk 3: Lack of software talents

Because of the piracy and other reasons, no one could really make a living by making software in China. Software talents are leaving for other countries. The interviewee explained it in the following way:

“People can’t do business (software business) domestically. No one could make a living by making software. So the best guys moved out China to work for someone else.” (Interview, Executive Vice President, Espoo, Finland 2007)

Risk 4: Weak IP laws and its enforcement

Compared to other developing country such as India, IP laws and its enforcement in China are weak. Legal actions toward IPR infringement can be costly and not applicable. The interviewee explained it in the following way:

“India is enforcing copyright law more seriously than China.” (Interview, Executive Vice President, Espoo, Finland 2007)

“The government doesn’t have practical means to carry out the rules they made for IPR.” (Interview appendix, Executive Vice President, Espoo, Finland 2007)

Risk 5: Doubts about aggressive actions

Tekla had doubts about using aggressive ways towards those companies which were using illegal software or unlicensed software. Tekla was not sure about the results of aggressive actions. There might lead to some feeling of hostility from the users. But with time goes on, users are more and more committed to the software, and with user base gets much bigger, Tekla will have more power to argue or to take aggressive actions. The interviewee explained it in the following way:

“We don’t know how our user base will react to our actions stopping them using illegal software with government agencies’ support. We don’t know whether they will feel that

Tekla is hostile. We are not so sure that how our user base will react to such aggressive actions. “(Interview, Executive Vice President, Espoo, Finland 2007)

4.2.3 IPR related risks for foreign software firms

Generally speaking, Chinese Laws and regulations regarding Intellectual Property Rights and their enforcement are weak comparing to other developing countries, such as India. Concerning more specific risks which relate to Intellectual Property Right, they are presented as 1) Patent risk, 2) Copyright risk, 3) Trademark risk.

1. Patent risk: Unpatentable

Tekla has patents in US and Europe, including pending patents. But Tekla doesn't have any patents in China. The interviewee explained it in the following way:

“We have patents in US, Europe. We don't have patents in China at all. ” (Interview, Executive Vice President, Espoo, Finland 2007)

2. Copyright risk: Weak enforcement and rampant piracy

This is already discussed in the part of Mentality and Piracy in the sub chapter 4.2.2.

3. Trademark risk: Web address squatting

Although Tekla has no problems with registering company's trademark, there is a problem of web address squatting. The interviewee explained it in the following way:

“We do have a problem with our website address. It is a problem how we get our web address.” (Interview, Executive Vice President, Espoo, Finland 2007)

To minimize the risk, Tekla took legal actions. The interviewee explained it in the following way:

“We have taken some legal actions try to get our web address.” (Interview, Executive Vice President, Espoo, Finland 2007)

4.2.4 Government related risks for foreign software firms

Many government-related risks for Tekla are already discussed in the previous three sections, since government have influence on nearly any part in China’s economy. Besides those risks, Tekla encountered other government-related risks as well.

Risk 1: Local protectionism

Tekla experienced local protectionism in China. The interviewee explained it in the following way:

“Some government departments encourage local software.” (Interview appendix, Executive Vice President, Espoo, Finland 2007)

Risk 2: Lack of government effort to tackle IPR problems

Tekla found that the government didn’t have practical means to carry out the rules they made for IPR. It doesn’t spend enough effort to tackle the IPR problems in China, including the mentality, piracy and etc. The interviewee explained it in the following way:

“The government doesn’t spend much effort on IPR problems; the mentality behind the scenes is to support ‘free’ usage of software” (Interview appendix, Executive Vice President, Espoo, Finland 2007)

4.3 Research analysis

In this section, an analysis is made based on the literature review in the chapter 2. This study analyzes what is the difference between the case results and the literature review and the reason underlying the difference. The analysis helps to overcome the weakness of single case research method and identify the real risks for foreign software firms in China. For simplicity, tables are used to analyze the case.

Table 10 presents the analysis on general risks for foreign firms in China. Table 11 demonstrates the analysis on how to minimize the general risks for foreign firms in China. Table 12 analyzes the specific risks for foreign software firms in China. Table 13 presents the strategies to lower the specific risks for foreign firms in China.

4.4 Summary

This chapter presented Tekla's risks as foreign software firm in China and its strategies to lower the risks. Research findings were systematically compared and analyzed to the limited literature and research in this area. Analyses indicate that the major risks for foreign firms in China are the regional difference, weak IP laws and enforcement, influence from government, business environment of fast profit and remains of planned economy. To lower these risks, Tekla keeps its office small and investment level low. Analyses also indicate that major risks for foreign software firms in China are rampant, professional piracy, overall mentality of not paying for software and the fact that few Chinese companies are bidding for international jobs. Generally, there are no effective strategies available to lower these risks.

Table 10 Case study analysis: general risks for foreign firms in China

Case study analysis: general risks for foreign firms in China.		Literature Review	Case Finding	Analysis
1. <i>Legal and regulatory risks</i>	1.1 Opaqueness of laws and regulations	√		Laws and regulations are not Tekla's major concern due to the low investment level.
	1.2 Ambiguity of laws, regulations and enforcing authorities.	√		Laws and regulations are not Tekla's major concern due to the low investment level. Besides, the with weak enforcement system, this risk will not be a outstanding one.
	1.3 Inconsistence of laws and regulations	√	√	Since Tekla have operations in different regions in China, this risk is a major one.
	1.4 Constant Changing of regulations	√		Unlike pharmaceutical or other standard oriented industry, software is quite free from this risk.
	1.5 Weak enforcement	√	√	Weak enforcement of IPR is a major concern for Tekla and other software company.
	1.6 Massive bureaucracy	√		Because of the weak enforcement, Tekla didn't need to experience this risk.
	1.7 Incompetent and susceptible judges	√		Because of the weak enforcement, Tekla didn't need to experience this risk.
2. <i>Social and cultural risks</i>	2.1 Lack of business ethics	√	√	For Tekla, using illegal software with top management's knowledge is a major risk. Besides of this, the overall mentality towards software is a major risk for Tekla.
	2.2 Poor corporate governance	√		This has not been a risk since Tekla only set up an office and subsidiary of its own.
	2.3 Lack of transparency	√		This has not been a risk since Tekla only set up an office and subsidiary of its own.
	2.4 Lack of local knowledge and <i>guanxi</i>	√	√	Construction and electricity markets are huge in China, but lack of local knowledge and <i>guanxi</i> is one reason why Tekla' sales revenue was not as good as should be.
	2.5 Low social accountability	√		Tekla's office is small and investment is low, thus this has not been an issue.
	2.6 Individual expectation of fast profit		√	This is one major finding of this study. Since Tekla is a new entrant into Chinese market and a relatively small and unknown (from Chinese' perspective) company, this can be a major risk to make market presence. It is common for all new market area, but the situation in China is most severe.
	2.7 Regional difference		√	Not only different interpretation of law in different regions affects Tekla's business, there is also cultural and social difference in different areas, in different cities.
3. <i>Crime risks</i>	3.1 Corruption	√		Because the cash flow of Tekla's business was not large and it was not an issue.
	3.2 Intellectual Property	√	√	This is a major risk for Tekla and other software firms in China. Low awareness in China about intellectual property and weak enforcement of IPR is challenge.
	3.3 Money laundering	√		Since Tekla only set up office and subsidiary of its own, this has not been an issue.
	4.1 External political unrest	√	√	This is a common concern for foreign firms in China, especially after Tiananmen incident.

4. <i>Political risks</i>	4.2 Internal political unrest	√		Tekla's investment is low and it is only provide software and service, this has not been an issue.
	4.3 Potential for serious disruption	√		Tekla's investment is low and office is small, this has not been an issue.
	4.4 Domestic or Local Protectionism	√		Since Tekla's product is quite unique in China. no other foreign or Chinese software companies in 3D modeling area could compete with Tekla due to Piracy and its leading product. This has not been an issue.
	4.5 Bureaucracy.	√	√	Tekla experienced this risk, but it didn't rate this risk as high.
	4.6 Unpredictable and opaque policies	√	√	This is a major risk for Tekla, since its core businesses are electricity and construction, especially steeling construction. They are mostly affected if Chinese government wants to cool the economy.
	4.7 Reputational risk from home country	√		Tekla's investment level and its business type left it out of the political turbulence.
	4.8 Regional difference		√	Unlike other country in Europe, different regions in China have different politics. This made Tekla's business more complex.
5. <i>Economical & Market risks</i>	5.1 Devaluation of RMB (Chinese currency)	√		Tekla's business doesn't include import and export, thus this has not been an issue.
	5.2 Market disorder (Oversupply and Deflation)	√		Tekla's business is mainly software licensing, not manufacturing. This has not been an issue.
	5.3 Influence from Central government	√	√	Many big enterprises are still state-owned, especially in steeling and construction section where Tekla's core business are. Steeling industry for example, 95% is state owned. There are many sub risks for Tekla. For instance, how to challenge a big state-owned enterprise if it is using illegal copy of Tekla's products.
	5.4 Remains from planned economy	√	√	When Chinese government decides to cool the economy, all the industry will be affected, especially construction and steeling industry. Tekla's core business is construction and steeling. That is why this is one major risk for Tekla.
	5.5 The politics of WTO Implementation	√		Unlike banking, telecom and other highly protected industry, software is quite free from such risk.
	5.6 Trap of Partnership (reluctant Joint Venture)	√	√	Since Tekla haven't got business contacts or business relationships in China, it is difficult for Tekla to cross check the partners and overview its performance.
	5.7 Difficulty of attracting qualified staffs		√	Because of the investment level and its fame and size from Chinese perspective, it is very hard for Tekla to attract qualified staffs in China. Since the office in China is small, Tekla could afford losing one employee.
	5.8 Regional difference		√	Tekla found that only interpretation of laws and regulations, culture is different in different regions. Market in different region is also distinct.

Table 11 Case study analysis: how to minimize general risks

Case study analysis: How to minimize the general risks		<i>Literature Review</i>	<i>Case finding</i>	<i>Analysis</i>
<i>1. Lower the legal and regulatory risks</i>	1.1 Consult professional firms	√		Since Tekla's investment is low, this strategy may not be effective.
	1.2 Carefully prepare to avoid legal problems	√		Tekla's business operation in China is quite simple, comparing to more complicated industry such as financing, pharmaceutical industries. This strategy may not be effective.
<i>2. Lower the social and cultural risks</i>	2.1 Institute ethics training programs	√		Since Tekla's investment is low, this strategy may not be effective.
	2.2 Perform due diligence	√		Since Tekla's investment is low, this strategy may not be effective.
<i>3. Lower the crime risks</i>	3.1 Form alliance with Chinese partners	√		Since corruption and other business related crime is not an issue for Tekla for the time being, this strategy was found in the case study.
	3.2 Intensify lobbying efforts with influential officials	√	√	Tekla found that lobbying with influential officials could force some companies purchasing more legal copies.
	3.3 Internal controls and ethics policies	√		Since corruption and other business related crime is not an issue for Tekla for the time being, this strategy was found in the case study.
	3.4 Perform due diligence	√		Since corruption and other business related crime is not an issue for Tekla for the time being, this strategy was found in the case study.
<i>4. Lower the political risks</i>	4.1 Decrease the assets at risk	√	√	Construction business, especially steeling construction business is unpredictable in China. Meanwhile, piracy can be a continuing problem in China. Thus, Tekla kept its office small and investment low.
	4.2 Arrange joint-venture	√		Since Tekla's investment is low, this strategy may not be effective. Besides, Tekla needed to have more control over its own operation.
	4.3 Increase bargaining power	√		Since Tekla's investment is low, this strategy may not be effective.
	4.4 Cooperate with home government	√		Since Tekla's investment is low, this strategy may not be effective.
	4.5 Adhere to corporate responsibility standards	√		Since Tekla's investment is low, this strategy may not be effective.

	4.6 Create emergency response plans	√		Since Tekla's investment is low, this strategy may not be effective.
	4.7 Diversify risk	√		Since Tekla's investment is low, this strategy may not be effective.
	4.8 Seek outside perspectives	√		Since Tekla's investment is low, this strategy may not be effective.
	4.9 Have an exit strategy	√		Since Tekla's investment is low, this strategy may not be effective.
<i>5. Lower the economical & market risks</i>	5.1 Lobbying the Chinese government	√	√	Since Tekla's core business areas are construction business and electronic business. Both these sectors are highly controlled by Chinese government, thus this strategy can be very effective.
	5.2 Product diversification	√	√	Besides the construction business, Tekla also stepped into the electricity business in China.
	5.3 Flexible marketing	√	√	Tekla used flexible marketing to minimize the risk. It had business setup in different areas and had own staffs to overview the market and partnership.
	5.4 Flexible manufacturing	√		Tekla's business is mainly licensing and service providing, while software is free of complicated manufacturing process.
	5.5 Recruit and train talented managers	√		Since Tekla's investment is low, this strategy may not be effective.
	5.6 Understand the competition	√		Since Tekla's investment is low, this strategy may not be effective.
	5.7 Business model exhibition		√	Tekla is a new entrant of Chinese market and not very well known in China. To make market presence, business model exhibition is very effective for Tekla to lower the risk. For many other foreign firms, this might not be an issue.
	5.8 Hire the right people		√	Since Tekla's investment was low and office was small, it couldn't afford to lose one employee. So it is important for Tekla to find the right employee who love Tekla's product and have the same vision with Tekla.
	5.9 Partnership		√	Because of the language, culture and business network, Tekla also need partnership to minimize the risk. This may not be a good strategy for companies which have trade secret issue in concern.

Table 12 Case study analysis: specific risks for foreign software firms in China

Case study analysis: specific risks for foreign software firms in China		<i>Literature review</i>	<i>Case finding</i>	<i>Analysis</i>
<i>1 Poor software process capabilities</i>		√		Tekla was not producing software in China. This may not be a risk for Tekla.
<i>2 High employee turnover</i>		√		Since Tekla's investment was low, this may not be a risk.
<i>3 Language</i>		√		For Tekla, language is not an issue. As Executive Vice President mentioned "For Tekla, software localizing is same in China as in other market area".
<i>4 Reporting Format and Content</i>		√		Tekla's software is 3D modeling software. This may not be an issue.
<i>5 Price</i>		√		Because of piracy and other illegal use of software, Tekla could easily beat up domestic and foreign competitors in China. Basically, Tekla was the only 3D modeling software company which can do business in China. Thus, this was not an issue.
<i>6 Customer support</i>		√		Tekla's investment was low, this may not be an issue.
<i>7 Lack of software talents</i>			√	This is one finding of the case study. It can be a risk for other foreign software firm in China.
<i>8 IPR related risks</i>	8.1.Poor Intellectual Property Rights (IPR) and weak enforcement	√	√	Apparently, this risk is one of the major risks for foreign software firms in China. Tekla regarded this risk, together with piracy, as the biggest risk in China.
	8.2 overall mentality towards buying software	√	√	This risk is the major risk for Tekla in China. This is also one major finding of this research. Rampant, professional piracy and poor IPR system are only part of the reason behind the illegal use of software.
	8.3 Very few Chinese firms are bidding for international jobs		√	Since Tekla's software is mainly for design, this risk is quite specific to Tekla. This is one finding of the case study.
	8.4 Doubts about aggressive actions		√	This is one finding of the case study. It can also be a risk for other foreign software firm in China as well.
	8.5 IP theft by a consultant or an employee.	√		Tekla is not developing software in China. This was not an issue.
	8.6 Rampant software piracy	√	√	Apparently, this risk is one of the major risks for foreign software firms in China. Tekla regarded this risk, together with IPR risk, as the biggest risk in

				China.
	8.7 Not sufficient licenses purchase	√	√	Tekla's products are also enterprise software and this risk is typical to enterprise software companies.
	8.8 Source code disclosure requirement of software copyright registration	√		Tekla's software composes of millions of lines of code. Tekla's software is too complicated.
	8.9 Unpatentability	√	√	Tekla didn't have any software patent, including pending patent.
	8.10 Historical lack of recognition of foreign well-known trademarks	√		Tekla didn't have problem with the trademark.
	8.11 Chinese Squatting	√	√	Tekla had problem with the website address and it is taking legal actions towards the web squatter.
	8.12 Costly, time consuming and unpredictable lawsuit	√		Most of the companies which are using illegal copies of Tekla's software are state-owned construction companies. It is not even wise to challenge them.
9 Government related risks	9.1 Lack of local knowledge and relationship (<i>guanxi</i>)	√	√	Tekla needed <i>guanxi</i> to make market presence. Besides, <i>guanxi</i> is needed to get local companies to purchase more legal copies.
	9.2 Support national industrial development	√		Because of piracy and other illegal use of software, Tekla could easily beat up domestic and foreign competitors in China. Basically, Tekla was the only 3D modeling software company which can do business in China. Thus, this was not an issue.
	9.3 National champions	√		Tekla's software doesn't have relationship with national security. This was not an issue.
	9.4 Capability demonstration	√		Because of piracy and other illegal use of software, Tekla could easily beat up domestic and foreign competitors in China. Basically, Tekla was the only 3D modeling software company which can do business in China. Thus, this was not an issue.
	9.5 Legacy governmental organizations favored	√		Because of piracy and other illegal use of software, Tekla could easily beat up domestic and foreign competitors in China. Basically, Tekla was the only 3D modeling software company which can do business in China. Thus, this was not an issue.
	9.6 Lack of government effort to tackle IPR problems			√

Table 13 Case study analysis: strategies to lower the specific risks for foreign software firms

Case study analysis: strategies to lower the specific risks for foreign software firms	Literature review	Case study	Analysis
	1.1 Written consulting or employment agreement	√	Since Trade secret was not a big risk for Tekla, this strategy was not used.
	1.2 Education and communication about IP	√	Since Trade secret was not a big risk for Tekla, this strategy was not used.
	1.3 Break-up the development and assemble elsewhere	√	Tekla was not developing software in China. This strategy was not used.
	1.4 Joint Venture with local software companies	√	Tekla wanted to have more control of its own business operation in China. Besides, its investment was low. This strategy was not used.
	1.5 Aggressive profit sharing schemes and opportunities for local programmers	√	Since Trade secret was not a big risk for Tekla, this strategy was not used.
	1.6 Frequently introduces “new” versions	√	Piracy in China is very commercially professional. Tekla was not seeking any technical solutions to piracy.
	1.7 Selling products that require components to be downloaded or registered	√	Piracy in China is very commercially professional. Besides, many local companies only paid for one or two copies and felt more legal. Thus, Tekla didn't take this strategies.
	1.8 Selling a Chinese version that is scaled-down and more affordable	√	Piracy in China is very commercially professional. Tekla was not seeking any technical solutions to piracy.
	1.9 Selling software in separate modules	√	Piracy in China is very commercially professional. Tekla was not seeking any technical solutions to piracy.
	1.10 Prevention of IP infringement	√	Piracy and mentality towards software are the major risks for Tekla; this strategy may not be helpful to lower the risk.
1 Lower the IPR related risks	1.11 Seek political support	√	Most of Tekla's customers are state owned big construction companies and the knowledge of illegal use of piracy is at the top management level. It

				was not wise for Tekla to use this strategy.
	1.12 Create check-and-balance mechanisms	√	√	Tekla also found that many Chinese companies haven't purchased enough licenses. This strategy was used to lower the risk.
	1.13 Early registration	√	√	Tekla register its trademark before it create subsidiary in China.
	1.14 Try to avoid the litigation approach	√		Piracy and mentality towards software are the major risks for Tekla; this strategy may not be helpful to lower the risk.
	1.15 Cooperation with BSA		√	This strategy had no direct income result for Tekla, but it was a good marketing promotion strategy. This strategy helps lower the risks indirectly.
	1.16 Take legal actions		√	Tekla cooperated with local lawyers to send notifying letters to companies which were using illegal copies. It also took legal action toward web squatting.
	1.17 Using piracy and mentality to eliminate competitors		√	This is a major finding of the case study. Piracy and overall mentality actually helped to eliminate competitors in China.
	1.18 Lower price		√	It is controversial in the literature review whether to lower the risk by lowering price. Tekla, on the other hand, lowered the price for some software package in order to legalize China's software market.
2 Lower government related risks	2.1 Take advantage of <i>Guanxi</i>		√	Basically, Tekla found no way to lower the government related risks. But sometimes, taking advantage of <i>Guanxi</i> help to push Chinese companies to buy more legal copies.
3 Lower other specific risks for foreign software firms	Not covered in either literature review and the case study			Both literature review and case study don't cover the strategies to lower other specific risks for foreign software firms.

5 CONCLUSIONS AND IMPLICATIONS

5.1 Conclusions

This study has investigated risks for foreign software firms in China and the strategies to minimize those risks. This research was based on comprehensive literature review and single case study. The risks were investigated systematically as: 1) general risks for foreign firms in China, 2) specific risks for foreign software firms in China, 3) IPR related risks for foreign software firms in China, and 4) government related risks for foreign software firms in China.

According to various literatures *Doing Business in China* (2006), Hoenig (2006), Ghemawat (2001), Lieberthal & Lieberthal (2003), Zhuang, Ritchie & Zhuang (1998), Bremmer & Zakaria (2006), Bremmer (2005), and Martinsons (2005), major general risks for foreign firms in China are: a) inconsistency and opaqueness of laws and regulations, b) lack of local knowledge (*guanxi*), c) weak intellectual property protection, d) domestic or local protectionism, e) external political unrest, f) unpredictability and opaque policies, and g) remains from planned economy.

This study found that inconsistency and opaqueness of laws and regulations is not necessarily a risk for foreign firm. For firms which keep the investment low or not closely related to law-intensive sector, this risk might not be a concern. The study found that local knowledge or *guanxi* is very important in China. This risk is quite common to most foreign companies and is verified by the case study. Weak intellectual property protection is also a common concern to foreign companies. It is also agreed by this study. Different intellectual property violations are posed to different kind of companies. For high-tech companies, violations of patents, copyright, trade secrets are common risks, while for others trademarks is a common risk, including web-address squatting. This study also found that domestic or local protectionism is a big risk for foreign firms, especially with firms with local

competitors. This study also agreed that unpredictability and opaque policies is also a common risk for foreign firms. Companies which have heavy investment, long term commitment, or invest in highly infected sectors, found this risk one of the major risks. The highly infected sectors are construction, steeling, energy industries and other highly state-owned industries. It is also agreed by this study that remains from planned economy is a major risk for foreign firms. Market need is coming top-down from government's officials for most large state-owned firms, instead of coming bottom-up from market drivers. The case study found that even though electricity market is huge in China, but the case company found it difficult to entry this market.

According to various literatures Memorandum (2003), IPR Toolkit (2005), Fitzgerald (2005), Taplin (2005), Yu (2002) and Kennedy and Clark (2006), the major IPR risks for foreign software firms identified are: a) rampant piracy, b) lax and haphazard enforcement, c) not sufficient licenses purchase, d) deep-rooted culture and philosophy of not paying for the software, e) Unpatentability, f) Chinese squatting.

This study found out the piracy is a major risk for foreign software firms. Piracy market is extremely rampant and huge in China and the most affected industry is software, music, and movie industries. It might not be a big risk for other industries. This study didn't agree with the literature about lax and haphazard enforcement. This study found that enforcement is not a necessarily a risk for foreign firms since most of the firms are trying to avoid the legitimate means. This study highly agreed with the risk of not sufficient licenses purchase. The case company experienced with the exact risk during its business operation in China. This risk was considered as the major risk for the case company. The study also agreed that the deep-rooted culture and philosophy towards software is one major risk for foreign software firms. This study found that the overall mentality towards software can be a continuous problem in China. As far as unpatentability, this study didn't agree with the literature review. It is found that software is not patentable in China, but software of billions lines of codes is not easily to be stolen or copied. It is found by this study that

Chinese squatting is a serious problem for foreign software firms. The case company had problem with web address squatting.

Based on the literature review and case study, the study indicates that for foreign firms in China, the major risks are:

- Regional difference. China has big regional difference in laws and regulations, government policies, cultures, business networks and etc. This study supports former studies and literatures that different local authorities have different interpretation of laws and regulations, but also supplements that the regional difference is much wider with different cultures, different local policies, different business network, and different authorities to deal with.
- Lack of relationships. This study supports former studies and literatures that lack of business relationships and relationships with government official is one of the major risks for foreign firms in China. It found that *guanxi* is important not only to do business in China, but also to tackle IPR infringement by large state-owned enterprises.
- Individual expectation of fast profits. This is one major founding of the studies. People's attitude has changed with robust economical growth in recently years. This risk has not been mentioned in former studies and literatures, but it is considered as the biggest risk by the case company.
- Weak intellectual property laws and enforcement. This study supports former studies and literatures that weak intellectual property and enforcement is a serious problem for foreign firms in China.
- Influence from government. This study supports former studies that influence from government is a major risk for foreign firms in China. Decision making is from top down, not driven by the market needs. Many business decisions are under political pressure. It is difficult to challenge state-owned companies. *Guanxi* is overvalued in business in China.

- Remains from planned economy. As mentioned in former studies, this study also found that China's half-market oriented economy increase a lot unpredictability for foreign firms, especially to construction and energy sectors in China.

This study agrees with the literatures that to overcome these general risks in China, foreign firms should keep investment low and lobbying with influential government officials.

Based on the literature review and case study, this study indicates that for foreign software firms, the major risks are:

- Rampant and professional piracy. This study agrees with former studies that piracy is a serious and continuous problem in China and it is one of the major risks for foreign software firms in China.
- Weak IPR and enforcement. This study agrees with former studies that IPR and its enforcement are weak. Intellectual property lawsuit is time consuming and costly. Copyright enforcement, for example, is too weak and infringers are not actually punished.
- Overall mentality towards software. Many former studies and literatures indicate that piracy is a deep rooted problem in China and some studies explain this root with Chinese culture. In this way, this study supports former studies that the overall mentality towards software in China is not to pay for the software. In addition, this study supplements with more detailed and practical knowledge about the mentality. It is found the many Chinese companies feel more legal by paying for one or two copies of software instead of paying nothing.
- Few Chinese companies are bidding for international jobs. This risk is a major finding of this research. This study found that if a company is bidding for international jobs, especially in US, that company tends to purchase enough copies of the software. This risk is not mentioned in former studies or literatures.

- Unpatentability. This study agrees with the former studies and literatures that software is not patentable in China. This is one major risk for foreign software firms in China.

5.2 Limitations of the study

This research area is new and wide, and there is a significant lack of earlier research on this phenomenon. Therefore, a huge amount of time was needed to conduct in-depth investigation on earlier researches and literature from a variety of fields. Besides, a lot of time and energy was also needed to conduct an in-depth empirical study. This study was undertaken to prepare a Masters level thesis and only limited time was available to carry out both the theoretical and empirical parts.

This study deals with a single case study and that is why the research findings and results may not be fully generalized. The case company is a new entrant in Chinese market. It is a relatively small Finnish software company from Chinese perspective. Its core business areas are construction and electricity which are highly owned by Chinese government. Its software is mainly enterprise software. Thus, research findings might be different from other foreign software firms in China.

The interviewee had a very tight schedule. This limited time for in-depth interview. Besides, some suitable data for the study may be confidential or business secrets, therefore interviewees did not discuss this kind of information.

IPR Laws and enforcement in China are changing constantly. The risks concerning the IPR might be outdated very fast.

Due to the significant lack of earlier research on this phenomenon, non-scientific publications were also used in the literature review. Some of the publications were published by government offices, e.g. in China, UK, and US. These publications may include some political influences, which may decrease their reliability.

5.3 Implication of the study

For Chinese government, this study implies that because of piracy and mentality, nearly nobody could make a living by making software in China. Software talents in China are leaving for other countries. Besides, knowledge economy is highly valued in China nowadays, but China doesn't have any international well-known software company. Piracy and overall mentality are not only undermining foreign software firms, but local Chinese software firms as well. Chinese government should increase efforts to tackle the problem.

For software companies which are planning to go to China or have already invested in China, this study implies China should be treated as different authorized regions where interpretations of laws and regulations, local policies, cultures, business networks are very different. Also for foreign SMEs or companies which keep the investment low, they really need to have a dynamic business model to do business in such fast profit environment in China. It also implies that influence from central government on local business and economy is still high and companies should keep their investment low. Business relationships and relationships with influential government officials are still overvalued in China. Intellectual property is not well protected in China and it is impossible to challenge large state-owned enterprise about IPR infringement.

It also implies that piracy and mentality of not paying for the software will be a continuing problem for quite some time. The chance that the software of foreign software companies are cracked and sold in piracy market is really high. Piracy in China is not only rampant, but also very professional. Pursuing technical solutions to piracy may not be effective and

practical. Foreign enterprise software firms should also be prepared that Chinese companies might only purchase one or two copies and feel more legal. It is very hard to tackle such kind of problem. On the other hand, piracy and mentality of not paying for software help to eliminate competitors very easily in China.

It is also implied that IPR and its enforcement is still very weak in China. To prevent infringement should be done in the first place. Lawsuits can be time consuming and costly, which may not be effective and practical. Foreign companies should seek relational solutions to IPR infringement or lobbying government officials instead of taking aggressive actions towards those state-owned companies. This strategy proved to be very successful by Microsoft.

5.4 Recommendation for further research

This research concentrated on risk issues, though strategies to minimize the risks were also covered. A further research on the strategies to minimize the risks is recommended. Further research is also recommended to investigate the risks for foreign software firms in china according to their business models and their products.

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Appendix 1: Risks Management Framework

General Environmental Uncertainties

General Environmental Uncertainties	<i>Political Uncertainties</i>	War
		Revolution
		Coup d'état
		Democratic changes in government
		Other political turmoil
	<i>Government Policy Uncertainties</i>	Fiscal and monetary reforms
		Price controls
		Trade restrictions
		Nationalization
		Government regulation
		Barriers to earnings repatriation
	<i>Macroeconomic Uncertainties</i>	Inadequate provision of public services
		Inflation
		Changes in relative prices
		Foreign exchange rates
		Interest rates
	<i>Social Uncertainties</i>	Terms of trade
		Changing social concerns
		Social unrest
		Riots
Demonstrations		
<i>Natural Uncertainties</i>	Small-scale terrorist movements	
	Variations in rainfall	
	Hurricanes	
	Earthquakes	
	Other natural disasters	

Source: Miller (1992)

Industry Uncertainties

Industry Uncertainties	<i>Input market uncertainties</i>	Quality uncertainties
		Shifts in market supply
		Changes in the quantity used by other buyers
	<i>Product market uncertainties</i>	Changes in consumer tastes
		Availability of substitute goods
		Scarcity of complementary goods
	<i>Competitive uncertainties</i>	Rivalry among existing competitors
		New entrants
		Technological uncertainty
		Product innovations
		Process innovations

Source: Miller (1992)

Firm uncertainties

Firm uncertainties	<i>Operating uncertainties</i>	Labor uncertainties	Labor unrest
			Employee safety
		Input supply uncertainties	Raw materials shortages
			Quality changes
			Spare parts restrictions
		Production uncertainties	Machine failure
	Other random production factors		
	<i>Liability uncertainties</i>	Production liability	
		Emission of pollutants	
	<i>R&D uncertainty</i>	Uncertain results from research and development activities	
<i>Credit uncertainty</i>	Problems with collectibles		
<i>Behavioral uncertainties</i>	Managerial or employee self-interested behavior		

Source: Miller (1992)

Organizational responses to Uncertainties

Organizational Responses to Uncertainties	<i>Financial risk management</i>	Forward or futures contracts		
		Insurance		
	<i>Strategic management</i>	Avoidance	Divestment	
			Delay new market entry	
			Low uncertainty niches	
		Control	Political activities	
			Gain market power	
			Exchange of threats	
			Vertical integration	
			Horizontal mergers and acquisitions	
		Cooperation	Long-term contractual agreements with suppliers or buyers	
			Voluntary restraint of competition	
			Alliances or joint ventures	
			Franchising agreements	
			Licensing and subcontracting arrangements	
			Participation in consortia	
			Interlocking directorates	
		Limitation	Interfirm personnel flows	
			Limitation of product and process technologies	
		Flexibility	Follow other firms in moving into new markets	
Diversification	Product diversification			
	Geographic diversification			
Operational flexibility	Flexible input sourcing			
	Flexible work force size			
	Flexible work force skills			
	Flexible plants and equipment			
Multinational production				

Source: Miller (1992)

Appendix 2: List of China's Current Main Laws, Administrative Regulations and Department Rules Regarding Intellectual Property Rights

Laws, regulations or rules	Effective date and amendment date
Trademark Law of the People's Republic of China	Effective Date: March 1, 1983 First amendment Date: February 22, 1993 Second amendment Date: October 27, 2001
Patent Law of the People's Republic of China	Effective Date: April 1, 1985 First amendment Date: September 4, 1992 Second amendment Date: August 25, 2000
Copyright Law of the People's Republic of China	Effective Date: June 1, 1991 First amendment Date: October 27, 2001
Rules for Pesticide Administration	Effective Date: May 8, 1997 First amendment Date: November 29, 2001
Regulations on the Protection of New Varieties of Plants	Effective Date: October 1, 1997
Regulations on the Protection of Layout-Design of Integrated Circuits	Effective Date: October 1, 2001
Implementing Regulations on Patent Law	Effective Date: July 1, 2001 First amendment Date: December 28, 2002
Regulations on Computer Software Protection	Effective Date: January 1, 2002
Management Regulations of Audio and Video Products	Effective Date: February 1, 2002
Regulations on Protection of the Olympic Symbols	Effective Date: April 1, 2002
Implementing Regulations on the Copyright Law	Effective Date: September 15, 2002
Implementing Regulations on Trademark Law	Effective Date: September 15, 2002
Regulations for the Implementation of Drug Administration Law	Effective Date: September 15, 2002
Regulations on the Customs Protection of Intellectual Property	Effective Date: March 1, 2004
Regulations on Administration of Veterinary Drugs	Effective Date: November 1, 2004
Interpretations by the Supreme People's Court and the Supreme People's Procuratorate on Several Issues of Concrete Application of Laws in Handling Criminal Cases of Infringing Intellectual Property	Effective Date: December 22, 2004

Regulations on the Copyright Collective Administration	Effective Date: March 1, 2005
Implementation Rules for the Regulations Regarding the Protection of New Varieties of Plants(Agriculture Part)	Effective Date: June 16, 1999
Implementation Rules for the Regulations Regarding the Protection of New Varieties of Plants(Forestry Part)	Effective Date: August 10, 1999
Implementation Rules for the Regulations on Integrated Circuits Design Protection	Effective Date: October 1, 2001
Management Measures of Wholesale, Retail, and Rent of Audiovisual Production	Effective Date: April 10, 2002
Management Measures of Audiovisual Production Import	Effective Date: June 1, 2002
Provisions for Identification and Protection of Well-known Trademarks	Effective Date: June 1, 2003
Procedures for the Registration and Administration of Collective Marks and Certification Marks	Effective Date: June 1, 2003
Measures on Patent Agency Administration	Effective Date: July 15, 2003
Measures on Compulsory Licensing of Patents	Effective Date: July 15, 2003
Measures for the Enforcement of Copyright Administrative Penalty	Effective Date: September 1, 2003
Measures for the Implementation of Regulations Governing Customs Protection of Intellectual Property Right	Effective Date: July 1, 2004

Source: Intellectual Property Protection in China. 2005

Appendix 3: List of China's Membership of International IP related Treaties

Name of treaty	Date of accession
Convention Establishing the World Intellectual Property Organization	Since June 3, 1980, China has been a member state of World Intellectual Property Organization
Paris Convention for the Protection of Industrial Property	Since March 19, 1985, a member state of Paris Convention
Treaty on Intellectual Property in Respects of Integrated Circuits	Since 1989, one of the first member states
Madrid Agreement Concerning the International Registration of Marks	Since October 4, 1989, a member state of Madrid Agreement
Bern Convention for the Protection of Literary and Artistic Works	Since October 15, 1992, a member state of Bern Convention
Universal Copyright Convention	Since October 30, 1992, a member state of Universal Copyright Convention
Convention for the Protection of Producers of Phonograms against Unauthorized Duplication of their Phonograms	Since April 30, 1993, a member state of the Convention
Patent Cooperation Treaty	Since January 1, 1994, a member state of the Convention
Nice Agreement Concerning the International Classification of Goods and Service for the Purposes of the Registration of Marks	Since August 9, 1994, a member state of the Nice Agreement
Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure	Since July 1, 1995, a member state of the Budapest Treaty
Locarno Agreement Establishing an International Classification for Industrial Design	Since September 19, 1996, a member state of the Locarno Agreement
Strasbourg Agreement Concerning the International Patent Classification	Since June 19, 1997, a member state of the Strasbourg Agreement
International Convention for the Protection of New Varieties of Plants	Since April 23, 1999, a member state of UPOV
Agreement of World Trade Organization on Trade-related Aspects of Intellectual Property Rights	Since December 11, 2001, a member state of the Agreement

Source: Intellectual Property Protection in China. 2005

Appendix 4. Contact information of China's competent IP administration

China's Industrial Property Offices: Marks

Competent administration State Administration for Industry and Commerce Trademark Office

Web site address <http://sbj.saic.gov.cn>

Address 8, Sanlihe Donglu, Xichengqu, 100820 Beijing

Telephone (86 10) 6 803 22 33

Telefax (86 10) 6 801 04 63

E-mail address waiban.sbj@saic.gov.cn

Title and name of head Director General: Mr. AN Qinghu

China's Industrial Property Offices: Patents

Competent administration State Intellectual Property Office of the Peoples' Republic of China (SIPO) Patent Office

Web site address <http://www.sipo.gov.cn>

Address 6 Xi Tu Cheng Road, Ji Men Bridge, Hai Dian District, 100088 Beijing
No.6 Xituchenglu Road, Haidian District, P.O. Box 8020, 100088 Beijing

Telephone (86 10) 62 09 36 77 (PCT matters) / (86 10) 62 62 09 32 68

Telefax (86 10) 62 01 96 15 [general] / [86 10] 62 01 94 51 [PCT matters]

Title and name of head Commissioner: Mr. Wang Jingchuan

China's Copyright office

Competent administration National Copyright Administration of China

Web site address <http://www.ncac.gov.cn>

Address 85, Dongsì Nan Daijie, 100703 Beijing

Telephone (86 10) 6512 78 69

Telefax (86 10) 6512 78 75

Title and name of head Commissioner: Mr. Shi Zongyuan

Source: Country Profile (2006)

Appendix 5: The Interview Guide

1. General background regarding the company

- Name of the interviewee:
- Position:
- Contact details:
- Company / organizational background:
- Name of the company and contact information:
- Year of establishment:
- Main products:
- Company experience in China:
- When did you establish the subsidiary in China:

Notice: Flow chart below shows how each question is related to each other

2. General risks for foreign firms in China

What are the risks for foreign firms in China and why? Among those risks, which are the major risks? What kind of strategies TEKLA has to lower those risks? How those risks differ from the risks faced in other countries / what are so special about China?

3. Specific risks for foreign *software* firms in China

What are the risks for foreign software firms in China and why? Among those risks, which are the major risks? What kind of strategies TEKLA has to lower those risks? How those risks differ from the risks faced in other countries / what are so special about China?

4. IPR related risks for foreign software firms in China

What are the IPR related risks for foreign software firms in China and why? Among those risks, which are the major risks? What kind of strategies TEKLA has to lower those risks? How those risks differ from the risks faced in other countries / what are so special about China?

5. Government related risks for foreign software firms in China

What are the government related risks for foreign software firms in China and why? Among those risks, which are the major risks? What kind of strategies TEKLA has to lower those risks? How those risks differ from the risks faced in other countries / what are so special about China?

