貿易學碩士 學位論文

A study on the globalization strategy of Chinese IT industry :The case of Huawei

중국 IT 산업의 세계화전략에 대한 연구

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Contents

List of Figures

List of Tables

Abstract

This paper aims at analyzing the globalization strategy of Chinese information technology (IT) industry. Based on industry trends, analyzes the development of IT in China and compares its level with that of other countries. It is well known that the high-tech industry in China plays a important role to that nation's development and to the global technological relationship. China, as a latecomer, has relatively low market share in the world market. But Chinese market is expanding rapidly so that it cannot be ignored in the global market.

This paper is summarized as follows. The first chapter gives a overview of the paper including the purpose the plan of this paper. The second chapter introduces the theoretical methodology of the study. The theory of FDI used here provides a more adequate understanding of companies' operational modes as well as business strategies, especially in an extremely competitive high-tech market.

The third chapter analyses the globalization strategies and processes of Chinese IT industry. It attempts to link these strategies and processes to the changing contexts of global competition and national institutions.

The fourth chapter aims at providing more insights into the strategies

and development of IT industry by conducting an case study of a Chinese high-tech company, Huawei Company, in the communications equipment industry. This study proposes that IT industry tend to nurture their capability in the domestic market as a base before globalization. By taking advantage of conventional FDI theories we may explain the globalization of Chinese MNEs. In terms of entry modes, it would appear that Chinese IT industry among emerging economies focuses on obtaining advanced technology only to build up global strategic linkages and seek to acquire new markets by attracting foreign ventures and buying out the foreign company through M & A. It prefers to enter markets with fewer barriers in cultural, technological, economic area and uses inward and outward linkages to complement their strengths and offset their weaknesses in the global market. This study on the globalization patterns of Chinese IT industry enriches and broadens the horizon of understanding the current IT industry;

In the end is the conclusion of this paper. This study advances our understanding of the role of globalization in the catch-up race of IT firm. The firms in emerging economies usually have weak technological capabilities or limited resources compared to the firms in developed economies.

國文抄錄

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중국은 지난 20 여년 동안 눈부신 경제성장을 이룩하였으며 그 중 IT 산업의 성장은 경외로웠다. 2008 년 IT 산업생산액은 세계에서 미국 다음으로 2 위이며 수출액에서는 세계 1 위를 차지하고 있다.

이 논문은 이러한 중국 IT 산업이 어떤 발전전략을 사용하여 세계화에 대처해왔는가를 중국의 대표적인 IT 회사인 Hwawei 사의 사례연구를 통해서 분석하는 데 초점을 맞추고 있다.

먼저 중국 IT 기업들은 넓은 국내시장의 이점인 규모의 경제를 활용하여 경쟁력의 기초를 다졌다. 세계화가 진전됨에 따라 서구의 우수한 기술을 가진 다국적기업들이 OLI(ownership specific advantage, location specific advantage, internalization specific advantage)이점을 활용하여 직접투자 형태로 중국시장에 진출하자 중국시장 내에서 IT 산업의 경쟁은 격화되었다. 지금까지 대체적으로 선진국에서 개도국에 직접투자하는 것이 일반적이었고 경쟁이 격화되면 국내기업들은 다국적 기업과 전략적 제휴하는 선에서 마무리되었다.

그러나 이런 세계화흐름에 적응하기 위해 중국 IT 산업은

신시장을 개척과 신기술 유입을 촉진하고 장기적인 이윤추구를 위해 다각적인 글로벌 전략을 사용하여 오히려 선진국에 직접 투자하는 새로운 투자형태를 보여주었다. Hwawei 사로 대표되는 중국 IT 산업은 적극적으로 대내외적인 네트워크를 형성하고 FDI 를 통해서 기술뿐만 아니라 세계시장에서 마케팅능력 향상, 세계화를 리드하는 인재양성 등 다각적인 목적을 실현하기 위해 세계화를 적극적으로 활용하고 있는 것으로 분석된다.

Chapter 1 Introduction

1.1 The background and purpose

The development of high-technology industries has been intensified and been accelerated competition in the global market. It is found that the countries with increased information-technology (IT) investment growth has consistently achieved high Gross Domestic Product (GDP) and productivity growth rates as well(Kraemer & Dedrick 1994)1. Many countries, both developed and developing, are investing on information technologies for improving their life styles and business practices.

With the development of the economic globalization, more and more companies begin to turn their eyes abroad to increase their market share and competition, or squeeze more profit in spite of facing global competition. Under this circumstances, China as a big and potential market, Chinese companies are inevitable to go global. in this article, I will have an study on the globalization strategy on Chinese IT industry through a Chinese IT company - Huawei and utilize the theory of MNE

[1] Kraemer and Dedrick studied 12 countries and territories in the region. Their studies challenge the notion that investment in IT has not paid off in productivity improvements, and their finding is consistent with the concept of IT-led development. Many East Asian countries have benefited greatly from this opportunity.

focusing on the form of FDI in analyzing how Hauwei go global.

For China, high-tech industry is not only critical to its global competitiveness, it also provides a stage on which it can aspire to compete with foreign company, and strengthen the integration across the Strait. China government also has placed a strong emphasis on IT sector development through the implementation of a national IT strategy, which proactively addresses IT penetration, particularly for disadvantaged segments of the society. Also, China IT sector development framework aims at promoting the development of the IT sector in China, so complementing and supporting the broader socio-economic goals of the government. IT is applied to access, analyze, evaluate, integrate and communicate information. IT has an potentially big effect on promoting economic growth.

In an IT market, the high margins of a new product usually do not last long, as the next new product quickly outperforms the former product. The short life cycles of IT products tend to squeeze profits quickly.

This paper will aim to discuss the globalization of Chinese IT industry. Chinese enterprises as the latecomer in the global market play the catch-up role to compete with western counterparts. What factors

influence Chinese firm globalization? How IT firms develop their strategies to survive and thrive within the "new world order" as latecomers. How have the new challengers in the IT industry established themselves successfully against the sometimes fierce resistance of its competitors? I expand the influence through an in-depth study of Huawei, a high-tech Chinese company in the global communications equipment industry.

1.2 The purpose

The main purpose of this study is to enrich the mainstream of globalization strategy by studying a new context in the globalization of an emerging economy: Chinese IT firms have the potential to provide access and allow dissemination of a huge amount of business information to anyone in possession thereof. In terms of using IT firms to receive business-related information, or to contact individuals who might assist, it seems as if the majority of commonly owned IT firms are used extensively to gain access to required information.

This article helps me understand that what determines the international success or failure of a firm is a fundamental question in strategy and international business (IB) research (Peng 2004; Rumelt, Schendel, and

Teece 1994). Most of the established IB literatures have assumed or taken the perspective of how multinational enterprises (MNEs) from developed economies (hereafter DE) successfully enter and effectively compete in other developed or developing countries. With the current rise of IT companies from emerging economies (hereafter EE), more attention is now being directed toward EE MNEs and what drives the globalization of these companies (Bartlett and Ghoshal 2000; Luo and Tung 2007; Pillania 2009a). However, relatively little is known about how IT companies develop their strategies to survive and thrive within the "new world order" as latecomers (Pillania 2009b; Mathews 2006; Ramamurti 2004). In this study, we ask three questions: (1) Why is globalization theories concerned with the motives behind FDI (2) where do IT's competitive advantages originate; (3) what constraints do IT firms face in their globalization and how do they deal with them; and make themselves successful against the sometimes fierce resistance of DE MNEs? We expand the influence of the FDI theories of globalization and provide more insights into the strategies and development of IT companies through an in-depth study of Huawei, a high-tech Chinese company in the global communications equipment industry.

1.3 The plan of the paper

With the current rise of multinational enterprises (MNEs) from emerging economies (EE), more attention is now being directed toward IT sector and what drives the globalization of these companies. In this article I aim at providing more insights into the strategies and development of IT companies by an in-depth study of a Chinese high-tech company in the communications equipment industry: Huawei. Our case study proposes that IT firms (1) tend to nurture their capability in the domestic market as a base before globalization; (2) prefer to enter markets with fewer barriers in cultural, technological, economic, and institutional distances to accumulate experience; and (3) use inward and outward linkages to complement their strengths and offset their weaknesses in the global market.

In the second section I introduce the FDI theory is applied to this article; in the third section I introduce the development process of Chinese IT firms, and explain why and how FDI theory can be used in the globalization of Chinese IT industry and so on. Then the fourth section is the analysis of the Huawei high-tech company, from whose case we can easily understand how Chinese IT industry goes toward globalization.

In the end, is the conclusion of this article. One element in the international expansion of Chinese firms may be the rapid change in the global environment. The emerging global economy, which can be seen as networks of multiple, interlinked firms, has profound implications for the process of globalization (Mathews 2002). Firms operating in such a networked environment can rapidly establish themselves through taking strategic advantage of network processes. There is a shift from competition between individual firms to rivalry between competing networks and complex alliances of companies. Therefore, it is imperative for firms from EEs to view their domestic market as a part of a global system and to expand internationally by establishing their strategic global linkages quickly in order to obtain unique tangible and intangible resources. Hence, globalization is not an option for latecomers, but a strategic necessity. Outward FDI may allow latecomers that are not initially competitive in the world market to close the gap that separates them from leading companies through establishing global networks and acquiring strategic assets and resources.

Some lessons can be drawn from the rapid globalization of Chinese IT firms. The bad news is that the new cash rich MNEs can strike a victim at any time through M&As in the capital market. The good news is that they

seem prepared to acquire access to networks and knowledge rather than instant market domination, and they have tended until now to acquire firms in a non-hostile way. In addition, Chinese MNEs still seem to have disadvantages in terms of advanced technology and degree of international recognition.

Chapter 2 A Theoretical Survey

In this chapter, I have a research on the relevant theories of this article. China has been one of the most significant sources of foreign direct investment (FDI) [2] in the world. The motivations of Chinese FDI are: to maintain and expand international markets, to secure a supply of key resources, to obtain firm assets from advanced economies, and to seek overseas opportunities with an international vision. The amount of China's FDI has experienced dramatic changes since the late 1970s. The period from 2002 to 2007 witnessed the emergence of China as one of the leading sources of FDI in the developing countries, as well as in the world. The amount of China's FDI flows rose nine fold, from US$2.5 billion in 2002 to US$22.5 billion in 2007, and the FDI stock almost tripled from US$33 billion to US$96 billion.

There are a variety of forms of FDI, for example contractual joint venture, international leasing, multinational enterprise (MNE) and so on, but MNE is the main form of FDI. In this paper, I select one company-

[2] In 2002, China absorbed the largest amount of foreign direct investment in the world. However, the US retook first place the next year, with FDI up to $87 billion. China was ranked second with $57 billion FDI, and Ireland was third with $42 billion in 2003 (UNCTAD 2004)

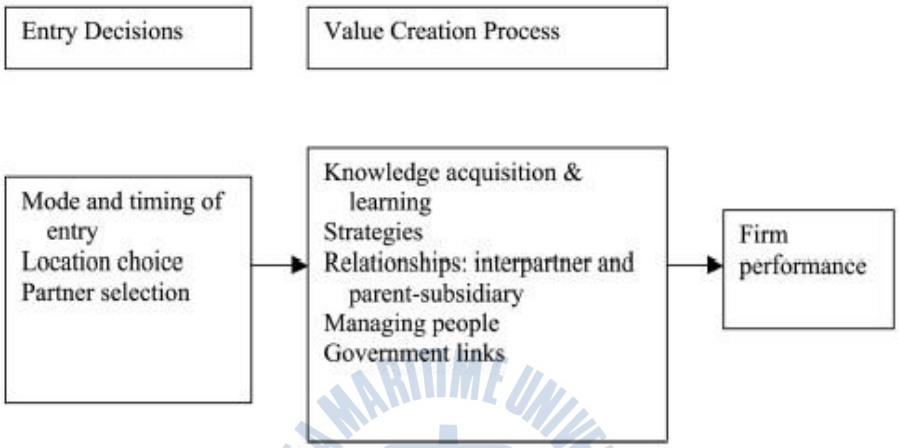
Huawei Company- as the representative one of IT industry to study the globalization of Chinese IT industry. Establishing MNEs in other countries is better for squeezing profit and firm development. There have been two approaches to this question. One has its origins in the product-life-cycle theory, which views developing-country enterprises as relatively passive recipients of technology and skills at the mature stage of their life-cycle. The other focuses on how technological capabilities are built up by a gradual accumulation of skills, information, and technological effort.

The rise of Chinese multinational enterprises (MNEs) has been considered puzzling because China is a lower-middle-income developing country (with a per capita income of less than US$3,000 in 2008) and FDI sources are usually developed economies, such as those of the United States, Western Europe and Japan.

The Chinese model for economic development, with its heavy reliance on FDI, has great relevance to the world today, as it is increasingly being copied by other developing economies. Thus, understanding why a huge amount of FDI flows China offers insight into the broad pattern of economic and business development of a wider range of emerging

economies (Tsui et al., 2004) [3].

Figure 1: Typical FDI Process



Source: (Yao & Wei, 2007)

The preceding discussion suggests that the firm which goes multinational through FDI must possess special advantages to overcome inherent disadvantages and high costs of foreign production. As a developing economy, China is not on the world's frontiers of technology and organizational sophistication. In fact, the comparative advantages of the Chinese FDI are mainly derived from the adaptation of mature technologies to more labor-intensive contexts and to local raw materials. Chinese multinational enterprises have built up their competitive edge

[3] One should note that FDI into China often involves the building of fixed assets such as factories. Of the total FDI each year, the proportion of investment into fixed assets increased from roughly 40% in 2003 to more than 60% in 2006. Thus, FDI appears to be the key driver of the growth momentum both for fixed assets and the overall economy (Yao & Wei, 2007)

from one of three possible sources: first, the possession of technologies so mature that they may have been phased out by developed-country firms, but which have not yet been mastered by countries lower on the industrialization scale; second, an advantage gained by downscaling the technology (to smaller markets), making production more labor-intensive (to match lower wage rates) or adapting it to local raw materials; and third, a cost advantage arising from lower wages or overhead.

Chinese companies have now established their MNE in different sectors, include those that are the most exposed to global competition, such as electronics, telecommunication equipment, and IT services.[4] In addition to the large state-owned MNEs, Examples include Lenovo, Haier, TCL, Huawei Technologies and so on. All these cases show the growing power of Chinese firms in the world economy and represent a significant development in the global strategy of Chinese firms.

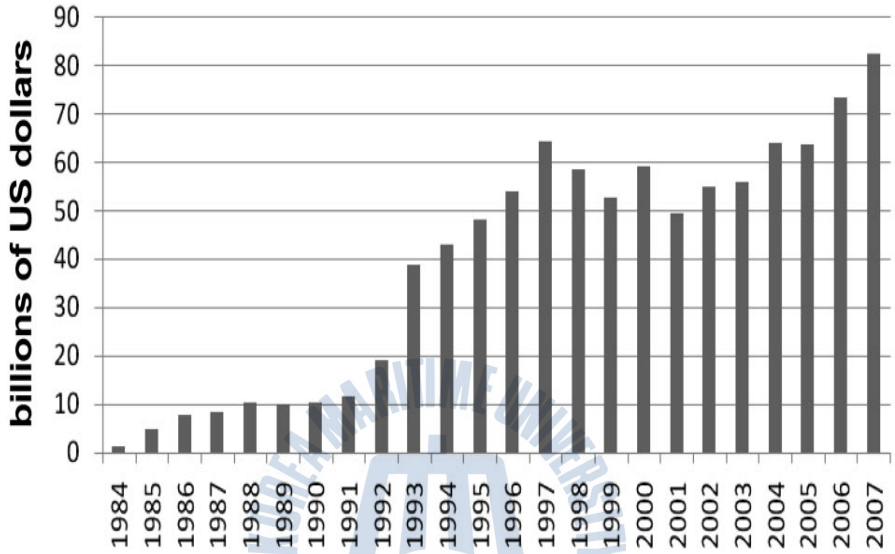
2.1 Theoretical background

China historically had a number of large Sino-Soviet joint ventures that

[4] Considering that many large merger and acquisition deals undertaken by Chinese companies are financed outside China, their outward investment may be significantly underestimated. Three-quarters of China's outward FDI goes to Hong Kong (China); part of these outflows can be attributed to round-tripping

brought FDI into China after the communist party took over of the nation.

Figure 2: FDI in China, 1984-2007



Source: China Ministry of Commerce and China Statistical Yearbook

The trends in Figure 2 can be explained that as a result, the amount of FDI grew very slowly from 1984 to 1992, with only a trickle of such investment at first. By the 1980s, the amount had grown into only a few billion dollars per year. And in the 1990s, when the government introduced greater economic liberalization, including greater flexibility in joint ventures, the amount of FDI jumped to more than $40 billion per year in the mid-90s, and ultimately to over $80 billion per year in 2007.

Table 1: FDI in China by province 1997-2006 (in US$ Billion)

FDI location	1999	2000	2001	2002	2003	2004	2005	2006
Beijing	39.3	40.2	42.9	45.5	46.3	53.2	60.7	69.7
Tianjin	29.4	33.1	34.1	36.5	41.6	47.0	56.8	68.6
Shanghai	90.7	98.5	112.7	128.0	150.8	172.2	200.7	225.5
Jiangsu	72.9	75.0	92.0	125.5	150.0	217.0	265.7	324.3
Zhejiang	27.5	29.3	34.1	43.2	61.2	83.4	101.9	125.7
Fujian	49.4	47.1	51.3	59.4	66.1	68.9	75.3	87.8
Shandong	38.1	38.9	42.5	47.1	59.7	69.4	78.6	88.5
Guangdong	215.2	216.5	221.8	236.4	241.3	261.0	288.9	314.3
10western province	36.4	36.9	40.2	44.1	49.7	53.7	59.7	69.6
Total	778.6	824.7	875.0	981.9	1117.4	1311.2	14640	1707.6

Source: China Ministry of Commerce and China Statistical Yearbook (various years).

As Table 1 shows, FDI into China is not evenly distributed. Historically, FDI has concentrated on the more developed coastal areas of China, specifically in the Special Economic Zones[5] in these areas. In particular,

[5] The Chinese government did not introduce economic liberalization uniformly across the nation. Instead it established Special Economic Zones in very limited areas initially.

FDI has had its greatest concentration in three major locations: Jiangsu, Guangdong, and Shanghai. Jiangsu is the province to the north of Shanghai; Guangdong is the province that borders Hong Kong in the south of China. By way of illustration, Guangdong in 1997 was the largest center of FDI in the country (29% of the country's FDI), but today that has declined to 18% of the nation's FDI. In contrast, Zhejiang, Jiangsu, and Shanghai today have the largest inflow of FDI. Zhejiang is the province to the south of Shanghai; Zhejiang, Jiangsu, and Shanghai form the Yangtze River Delta. The total FDI in this region is now 40% of the national total; the FDI in Zhejiang and Jiangsu has grown more than 350% over the last 10 years. Thus, investments have shifted from Guangdong in the south to other coastal provinces around Shanghai. Moreover, the spread of FDI in China today is beyond the coastal provinces. Liaoning province in the northeast of China, for instance, has seen its FDI grow 150% in 10 years; the national growth in FDI in this same 10-year period was 126%. The 10 western provinces, the least developed in China, have nearly doubled their FDI in the last 10 years, from $32.7 billion to $69.6 billion, representing a stable 4% of the country's total FDI, the same share as Beijing and

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One of the first ones, in Shenzhen in Guangdong Province in the south of China, was chosen in part since it was remote enough that if the economic liberalization experiment failed it could be isolated from the nation's notice easily.

Tianjin. Although the growth in the western provinces is not as phenomenal as that in the coastal regions, these provinces nevertheless receive a sizable sum of investments.

2.2 Study Methodology

I use case study as the main methodology. A case study approach for explorative, descriptive, and explanatory questions is useful in generating novel and accurate insights from the phenomenon under study. Designing case study research allows cases to be treated as a series of independent experiments to confirm or disconfirm our theoretical construction. I will show Huawei's globalization experience and its particular globalization path which is thereby expected to enriching the current theoretical framework on globalization.

The international expansion of Huawei was, to some extent, influenced or 'pushed' by MNEs operating in China. Huawei is a high-tech consumer electronics firm in IT industry central to the economic development of EEs, of which China is the prime example. Each firm to date has arguably relied upon low-cost production for its competitive advantage, rather than technical innovation and networking. It has already been noted that Huawei seems to be the representative of many quoted firms in China, it

can be seen that the selection of this case reflects a new stage in China's FDI and also reflects the distinct, and possibly paradigmatic, characteristics of Chinese latecomer MNEs, a new and important global phenomenon that needs more explanation. It cannot be predicted in advance which a set of IB theories best fits their strategies. Two cases cannot yield generalizations or test theories, but they may indicate fruitful theoretical directions in terms of augmenting theory through the addition of missing variables.

Biasing the case analysis is in favor of explanations derived from conventional OLI (ownership, location and internalization specific advantage) and entry mode theories, both developed in the context of large western MNEs. Huawei represents the case where a Chinese company has acquired a division of a well-known MNE, and this strategic move has drawn much attention in China and the West, although access to Huawei's executives and thus rigorous case analysis has so far been difficult. At the same time, Huawei is a high-tech consumer electronics firms in an industry central to the economic development of EEs, of which China is the prime example. Each firm to date has arguably relied upon low-cost production for its competitive advantage, rather than technical innovation and networking. Again, this favors traditional,

MNE-based theories, especially OLI theory in relation to location specific advantages. It has already been noted that Huawei seems to be representative of many quoted firms in China, comprising asset 'carve outs' from State enterprises and institutions.

Thus, it can be seen that the selection of the cases reflects a new stage in China's FDI and reflect the distinct, and possibly paradigmatic, characteristics of Chinese latecomer MNEs, a new and important global phenomenon that needs explanation. It cannot be predicted in advance which set of IB theories best fits their strategies. The case cannot yield generalizations or test theories, but they may indicate fruitful theoretical directions in terms of augmenting theory through the addition of missing variables.

2.3 Complement theory

Theories of complement may help illuminate firms' strategic choices and how they come into being. In other words, some capabilities are necessary for an enterprise to implement a specific strategy; these capabilities contribute to both cooperation and competition between Chinese and foreign enterprises. Core complement, they argued, are "the collective learning in the organization, especially how to coordinate

diverse production skills and integrate multiple streams of technologies". According to the complement theories of "linkage leverage and learning ", what can this approach teach us about analyzing the IT industry[6]? In high-tech sectors, generally speaking, companies are both capital intensive and technology intensive. The competence perspective helps us analyze the ways in which an IT company runs and understand the characteristics of a high-tech market more fully.

Again, this favors traditional, MNE-based theories, especially OLI theory in relation to location specific advantages. It has already been noted that Huawei seems to be the representative of many quoted firms in China. In that point Huawei was prominent, it may indicate fruitful theoretical directions in terms of augmenting theory through the addition of missing variables. This approach helps draw the relative positions of both sides' IT companies in the network of global commodity chains. Huawei is competing against developed-country MNCs in the global telecom equipment market.

[6] Later in this study, I will expand the core competence approach and make it more dynamic by taking into account the shifting nature of the IT market

Chapter 3 Overview of Chinese IT industry

This chapter introduces the process of Chinese high-tech development. According to the World Trade Organization (WTO) Information Technology Agreement (ITA), IT includes computers, semiconductors, telecom equipment and so on[7]. The Emerging Digital Economy, the U.S. Department of Commerce defines the IT industry as products and services which produce, process, and transmit information, regardless of whether these products and services are intermediate (used in the production of other products) or final (intended for consumption, investment, government purchases, or export)[8].

3.1 Chinese Development of IT Industries

Generally, China has heavily relied on foreign imports of advanced technology even while stressing its goal of "self-sufficiency" and "self-reliance". Kojima Reiitsu (1982) notes that China has imported massive amount of foreign technology since 1949 on four occasions, those are the first half of the fifties, the first half of the sixties, the first half

[7] In China, these products fall under the definition of "electronic products," a term that also includes various electronic consumer goods, such as televisions

[8] Refer to Standard Industrial Classification (SIC) in 1987 and (North American Industry Classification System) NAICS in 1997

of the seventies, and finally after 1978[9].

Table 2: Examples of typical companies that follow each strategy

Route	Typical company	Major sector
OEM exporting	Galanz	Microwave oven
Own brand exporting	SVA	TV
Strategic partnership	TCL	TV
Acquisition	Lenovo	PC
Organic growth via FDI	Huawei	IT equipment

Source: Fan (2006).

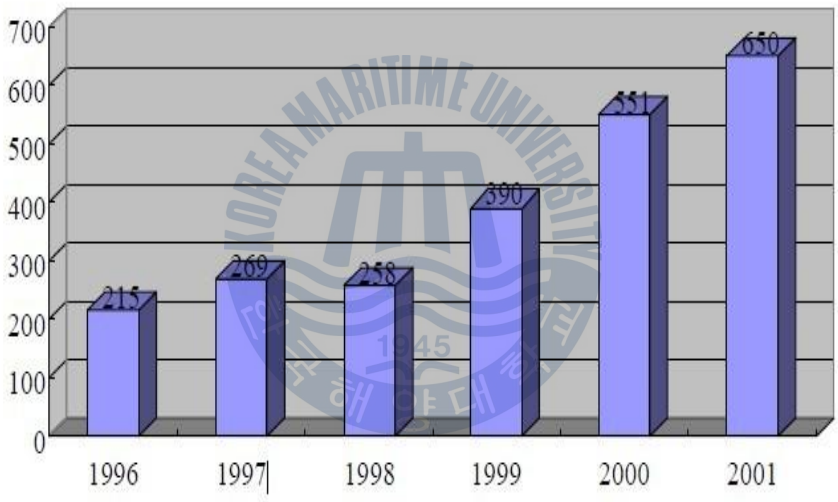
In 2002 China became the second largest handset market in the world. Given its brief history of just two decades, the development of China's IT industry can be regarded as successful. Since 2002, China has been the world's second largest hardware producer, surpassing Japan in that year and rapidly gaining ground on the US, as Table 3-4 reveals.

Figure 3 shows a strong increasing trend for exports, from $21,500 million in 1996 to $65,000 million in 2001. The total value of exports

[9] Although this study analyzes both sides' IT industry, since the 1980s and emphasizes the importance of institutions, China's high-tech industry, in a broad sense, did benefit from Soviet, the US.

nearly tripled within 5 years. The export of telecommunication items has grown most rapidly, with a 33% annual growth rate and a value of $9,200 million. For handset exports, the amount was up to $4,130 million, with a growth rate of 56%—the highest for all IT items (CEIY 2002) [10].

Figure 3: Value of China's IT product exports (100 million USD)



Source: CEIY 2002

These are figures from a relatively short period. To fully understand

[10] As a matter of fact, China has become the No. 1 handset exporter in the world. According to an official report, between January and May 2004 China exported 9.5 million units and became the world's largest exporter of handsets

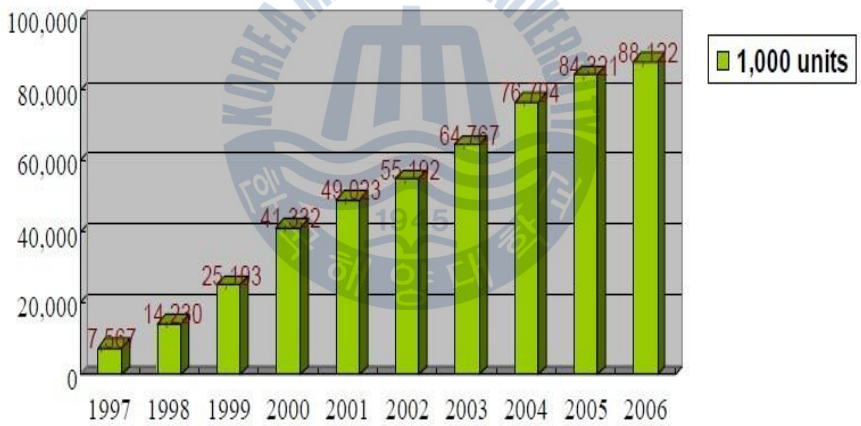
China's quick development in information technology industry, it is necessary to go back a little further. China's rapid growth in the IT industry, specifically in the desktop, notebook, and handset sectors, does not mean that there are no weaknesses or obstacles in China's developmental path. For example, on average China has produced over 30 thousand in per year. However, fewer than 10% of them were materialized and commercialized. Compared with 50% in advanced economies, commercialization in China still lags far behind that of leading countries. Moreover, the PRC devoted only 0.6% of the GDP to invest on high technology and new industry, far lower than the 3% allotment in developed countries. Certainly, how and to what extent these disadvantages may retard China's IT development is still an open question.

Certainly, from Figure 4 we can see that such a large market, with growing demand, has caught the attention of IT entrepreneurs as well as investors[11]. According to the CCID, MNEs led the handset market on the mainland. In 2000, Motorola took the lead with 31.1% market shares, then

[11] Dataquest's estimate for 2004-2006 may be a little optimistic. According to Kao Hung-hsiang (2003), the growth rate will probably slow down to some extent after 2004, largely because of the constraints of relatively higher commuting fees and two-directional charges in China's telecommunications systems

Nokia with 26.9%, followed by Ericsson, Siemens, and Samsung with market shares of 14.7%, 8.9%, and 5.4% respectively. The first three global brands occupied a total of 72.7% of the market. In short, giant MNEs dominated China's handset market in the 1990s. However, local firms began to rapidly gain larger market shares at the beginning of the 2000s.

Figure 4: Growth of the IT market in China



Source: Kao Hung-hsiang (2003)

The IT industry has been the pillar industry of China's national economy. In terms of its status in the national economy, the total output value of the electronic information industry increased at an annual

average rate of 32.1% from 1990 to 1999. In the meantime, China's overall industrial growth rate was 14.2%, while the growth rate of state-owned industries was 9.7%. Clearly: the electronic information industry has been one of the most important backbone industries in the national economy.

The total output value of China's IT industry was US$27.83 billion in 1996, and then jumped to US$66.7 billion in 1999, ranking third in the world with 5.6% of the world's total production. At the same time, U.S. output value was US$34.48 billion, representing 29% of world total output, while Japan's total output was US$21.16 billion with 18% of total production.

Chinese IT industry has maintained an approximate 20% growth rate beginning in 1995. Since 1999, it has maintained a growth rate of over 30%. This exceeds the growth rate of the gross domestic product (GDP). The IT economic value added reached RMB17.74 billion in 2001, an increase to 1.85 % of GDP from 0.77% in 1995. The IT industry's share of a total of forty industry sectors increased from 3.1% in 1990 to 6.6% in 2001. At the same time, China's IT industry scale amounted to 9 % of the global IT industry. China's IT industry had RMB82.372 billion in sales revenue and RMB75 billion in profit and tax. Sales revenue grew at 20%

and profit and tax grew at 9.4 %, ranking first and third respectively among all industry sectors that are classified by the Chinese government.

It can be seen from Table 3 that the majority of strengths enjoyed by Chinese IT makers are derived from cost or location specific advantage. Their main weaknesses show that they lack firm specific advantages such as technology, branding and expertise in international marketing. Two points from the table deserve special attention. First, low-cost production, to which economies of scale are partly related, is often cited as one of the most important competitive advantages that Chinese companies have. However, with international competitors such as Huawei, facing intensified competition at home, it is imperative for Chinese firms to address their main competitive disadvantage in branding both at home and abroad. Secondly, support from the government has been widely regarded as playing a crucial role in the globalization of Chinese firms. But it could be easily overlooked that the government has played a double role of facilitator and obstructor at the same time in the development of Chinese multinationals. We believe that the lack of a proper institutional environment is the main reason why China has still not produced real multinational firms.

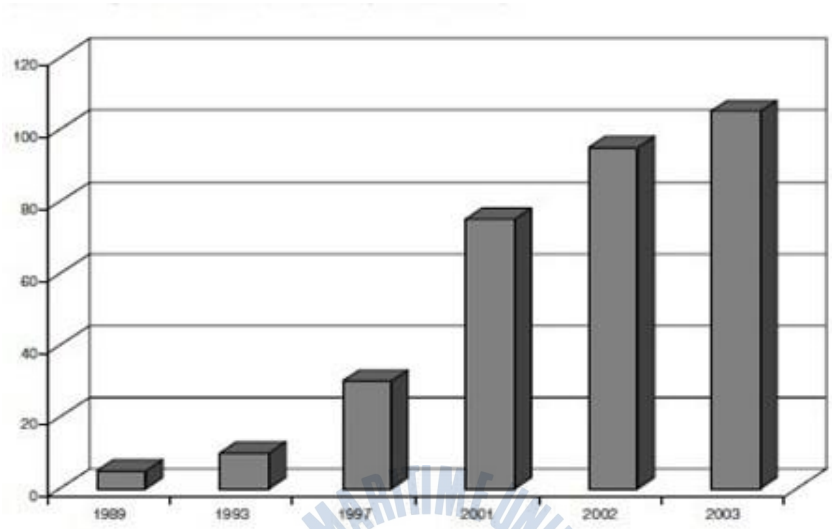
Table 3: The strengths and weaknesses of Chinese IT companies

Strengths	Weaknesses
1 Low cost production 2 Economies of scale (due to a large domestic market) 3 Modern production 4 Improving quality 5 Price advantage 6 Good work force 7 Strong financial position 8 Government support	1 No brand awareness abroad 2 Lack of branding expertise 3 Little experience in direct exporting 4 Lack of understanding of foreign markets 5 Reliance on foreign technology 6 Difficulty in international promotion

Source: compiled by the author from various sources in Chinese

IT industry export value reached US$65.02 billion in 2001, with 18% of national export, IT industry is the largest export sector. From 1997 to 2001, exports grew at an average annual rate of 24%. According to a report from the Ministry of Information, the export value of IT production reached US$90 billion in 2002, equivalent to about 28% of China's total export value that year and about twice its 1997 value. In 2003, total export jumped to US$100 billion (see Figure 5).

Figure 5: IT Export Value in China (US $billion



Source: Ministry of Information, annual reports.

3.2 China and International Comparative Analysis

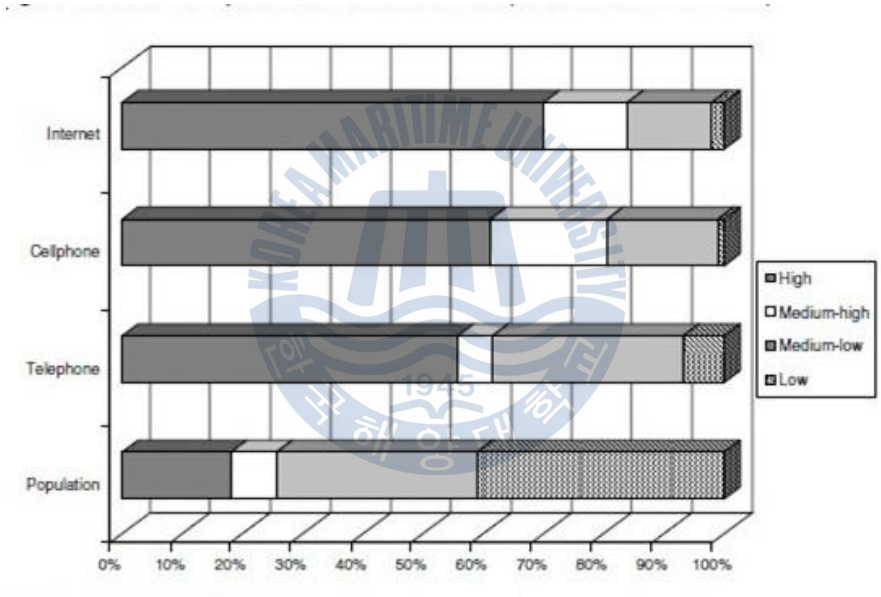
According to World Bank statistics, high-income countries occupy only 15 % of the world's population, but own 80% of the world's computers and provide for almost 90% of the world's Internet users. On average, the number of computers per capita in high-income countries is forty times than that of African countries south of the Sahara (see Figure 6).[12]

Developed countries and developing countries now face the same task:

[12] World Bank 2002, 290–300

how to change the "digital divide" to a "digital dividend." The member professors who belong to the Chinese Academy of Sciences have provided statistical data and depicted the huge differences between China and developed countries.

Figure 6: IT Development Around the Word (Different Income Level)



Source: World Bank statistics, 2002

These differences include two major factors: first, the gap in economic development; second, the gap in knowledge and information. The latter is especially prominent when compared to the Group of Seven (G-7) nations—the United States, Japan, United Kingdom, Germany, France,

Italy and Canada. Computers per capita in the G-7 nations amount to anywhere from thirty-two to ninety times than those in China, whereas G-7 Internet usage amounts to anywhere from 143 to 1,761 times than that of China. Based on these numbers alone, the digital divide is truly striking.

Table 4: IT Development Situation: China and Other Countries

	Fax	PC	Internet
	Per1.000 inhabitants 1999	Per1.000 inhabitants 1999	Per1.000 inhabitants 2000
Word	12.3	68.4	152.47
China	1.6	12.2	0.69
Low-income countries	0.4	4.4	0.48
medium-income countries	2.0	27.1	13.20
Lower-medium income countries	1.5	17.7	3.55
Upper-medium income countries	3.8	60.9	48.46
High-income countries	73.0	345.9	981.74
EU	47.9	234.9	263.37

Source: World Bank, World Development Index (CFT Press, May 2002).

Table 4 compares the statistics of Chinese IT progress to that of nations at every stage of the developmental path. From a per capita standpoint,

China lags behind the weighted world average for all indicators except for televisions per thousand heads, which hovers slightly above the world average. Even when compared to nations with below-average income, China still trails behind in personal computers per capita and Internet availability. The current gap in these two areas is still greater than reflected by Professor's 1997 statistics. U.S. computers per capita outnumber those of China by a ratio of 42 : 1, and U.S. Internet availability exceeds that of China by a ratio of 3,507 : 1. A commonly discussed problem is whether or not the digital divide is following a hastened widening trend. Because of China's large population base, calculations for averaged indicators typically are relatively low. In 2000, China's Statistics Bureau made a survey of real national information ability; information ability which means a nation's combined ability to produce, develop, and utilize information technology. The survey combined statistics on a nation's ability to utilize information technology and equipment, population knowledge ability, industry investment, Research & Development (R&D) spending and so on, and the produced national rankings (see Table 5).

Table 5 Information Ability Scores and Ranking:

Ranking	Country	Scores

1	United States	71.76
2	Japan	69.97
3	Australia	65.59
4	Canada	59.40
5	Singapore	57.07
6	Netherlands	54.06
7	United Kingdom	53.45
8	Germany	53.25
9	New Zealand	52.32
10	France	49.26
11	Korea	40.23
12	Italy	34.71
13	Spain	33.75
14	Russia	26.21
15	Poland	21.57
16	Mexico	17.43
17	South Africa	17.11
18	Brazil	15.34
19	Romania	12.92
20	Turkey	12.71
21	Philippines	11.54
22	Egypt	10.64
23	India 9.	28
24	Indonesia	8.46
25	Thailand	8.34
26	Sri Lanka	8.19
27	China	6.17
28	Pakistan	5.28

Source: "Comparative Analyses on Information Ability," National Bureau of Statistics.

From table 5 we can see among twenty-eight countries that China ranked twenty-seventh, just higher only than Pakistan. This result is rather unexpected, but reflects the real situation of IT development in China. In addition, according to the World Economic Forum, China ranked forty-third in 2002, but dropped to fifty-first in 2003.[13]

On the other hand, the compound growth rate in China is higher than in neighboring countries and areas. In the past decade, China's fixed telecommunications operations grew at double-digit rates, peaking in the period around 1993–95. As of the second half of 2002, both the scale (or size) of fixed telecom networks and the number of telephone users in China were the highest in the world. According to statistics published by Ministry of Information Industry (MII) statistics, fixed telephone availability has rose from 1.29 percent in 1991 to 25.9 percent in 2001.

3.3 The Digital Divide of China

The digital divide exists not only between developed countries and developing countries, but also between urban areas and rural areas within China, and reflects the unevenness of China's digitization.

[13] World Economic Forum, December 2003

3.31 Large Gaps Exist Along Regional Development

Generally speaking, a dividing line runs between eastern China and western China, considered to be indicative of regional investment and income. Eastern China has dominated the major part of investment and income since the open reform policy, but the regional differences have been smaller since 1990.

According to statistics on Internet development, Internet usage among the agriculture, forestry, livestock, fishing, and irrigation industries represents only 0.76 % of total national usage, an extremely low figure. In terms of regional distribution, Beijing, Guangdong, and Shanghai account for 12.39 %, 9.69 %, and 8.97 %of total usage, respectively, while Tibet, Qinghai, and Ningxia account for only 0.03 %, 0.31 %, and 0.48 %.

3.32 Unbalanced Development

Digitization of domestic firms has also experienced unbalanced development trends, with a general gap between larger and smaller enterprises. While only 15% of large and medium-sized firms have introduced management information systems (MIS) and computer control systems, just 5% of small-to-medium–sized firms have adopted

information technology. On the whole, the digitization of Chinese firms is relatively low among the (township and village enterprises) TVEs (township and village enterprises), and a huge gap exists between Chinese firms and those of developed countries. Chinese firms have only engaged in basic infrastructure, framework design, and elementary applications. Many enterprises have not adopted MIS, and a considerable number of firms still operate without computers. Hence, it is a critical issue for Chinese enterprises as to how to integrate the efficiencies of IT.

3.4 Research questions

Globalization refers to the degree in which a firm's sales revenue or operations are conducted outside its home country. There are four main streams of research in globalization:

3.41 Why are globalization theories concerned with the motives behind FDI?

Our first part of research addresses questions on why f globalization theories are concerned with the motives behind FDI, and how globalization is carried out. Conventional theories focus on the why FDI has happened between developed countries (DCs) or FDI from

developing countries in either two-way. The main explanation about such a FDI derives from the ownership specific advantage, location specific advantage and internalization specific advantage (OLI) paradigm. Such advantages expressed in more detail are as follows. Avoiding foreign government pressure for local production; Circumventing trade barriers, hidden and otherwise; Making the move from domestic export sales to a local-based national sales office; Capability to increase total production capacity; Opportunities for co-production, joint ventures with local partners, joint marketing arrangements, licensing.

Another theory stream attempts to explain what determines flows of FDI from developing countries or newly industrialized economies (NIEs). However, the majority of these studies investigate why firms from NIEs or developing countries invest in other NIEs or developing countries, and do not consider the expansion of MNEs from developing countries to DCs. Only a few studies have explored why MNEs from NIEs, the rapid international expansion of Chinese firms has received little attention in the academic world, and there has been limited research on Chinese MNEs, especially their expansion into DCs . It is important, therefore, to consider whether theories of FDI and globalization also apply to Chinese firms critical instance.

In relation to how globalization and research on entry-mode selection has so far focused exclusively on western MNEs in DCs and emerging economies (EEs). For example, intensive studies have been conducted on the managerial challenges facing MNEs from the West which operate in China. However, there is totally litter research on entry strategies adopted by Chinese firms operating in DCs. This paper will take an initial step towards investigating the motives behind FDI and also entry mode selection of Chinese MNEs, based on case studies for Chinese firms, Huawei Co., one of the highest technology company in China.

3.42 Where do IT firms competitive advantages originate?

The preceding discussion suggests that a firm that goes international must possess special advantages to overcome inherent disadvantages and high costs of foreign production. As a developing economy, China is not on the world's frontiers of technology and organizational sophistication. In fact, the comparative advantages in China are mainly derived from the adaptation of DCs' mature technologies to more labor-intensive contexts and to local raw materials. Chinese multinational enterprises have built up their competitive edge from one of three possible sources: first, the possession of such mature technologies that they may have been phased

out by developed-country firms, but which have not yet been mastered by countries lower on the industrialization scale; second, an advantage gained by downscaling the technology (to smaller markets), making production more labor-intensive (to match lower wage rates) or adapting it to local raw materials; and third, a cost advantage arising from lower wages or overhead.

The rise of China's IT industry is a structural phenomenon closely associated with its growing role in the world economy over the past decades. In many respects, the expansion of China's IT industry is expected to expand in exporting products. Firm ownership advantages are likely to increase as China reaches higher levels of development and becomes a top trading nation in the world. Thus, IT industry is a natural extension of China's globalization process along with its export boom, in response to the need to access markets or resources and, subsequently, to reduce production and transaction costs by coordinating their regional and global activities. Firm-specific advantages possessed by China's MNEs are similar in kind to their developed-country counterparts, but differ in proportion. While the latter are most likely to possess advantages based on ownership, such as technologies, brands, and other intellectual property,

3.43 What constraints do IT firms face in their globalization? How do they deal with them and make themselves successful against the sometimes fierce resistance of DE MNEs?

The Uppsala process model proposes that psychological distance, such as differences in language, education, business practices, culture, and religion, are the most important factor burdening firms in globalization. IT industry increases the extent of their globalization by gradually accumulating, integrating, and learning the knowledge of foreign markets. According to the product cycle theory, EE firms produce low-end standardized or commoditized products with low costs, while DE MNEs produce high-end new products with premium prices. Therefore, EE firms face more pressure because of the extra cost of globalization. EE firms' low margin in low-end products sometimes cannot cover the extra costs. Thus, how to increase the value of EE MNEs products becomes their toughest challenge.

There has been debate on whether IT latecomers have globalization strategies that differ from traditional strategies of MNEs from DE. Mathews (2006) argues that challenging firms from IT industry establish themselves successfully through the strategy of linkage, leverage, and

learning to overcome the sometimes fierce resistance of incumbents. The new phenomena suggest new perspectives on the resources accessed through globalization and encourage scholars to rethink the criteria normally utilized in traditional resource-based accounts of strategy, which focuses more on the internal resources of firms.

Network linkages, as a potential source of learning, promote efficient skill transfer among firms or generate novel discoveries and gains or retain access to materials, markets, manpower, and other productive resources. Because of the unbalanced learning race and unequal relationship between latecomers and front-runners in size, skill, and resource endowment in the external network, EE MNEs have many opportunities to shorten the technology gap through knowledge spillovers. Such spillover effects rest on the motivation of DE MNEs to achieve, expand, or defend their first-mover advantages, the absorptive capabilities of EE local partners (Buckley, Clegg, and Wang 2007), and the partners' structure position in asymmetrical alliance network.

Cross-border M&As[14] provide an opportunity for a firm to enter, and to have an immediate impact on, a foreign market. By acquiring an

[14] Reuters: China's hunger for resource M&A remains strong, November 7, 2008; Economist; China's quest for resources; A ravenous dragon. March 13,2008

existing business in the new market, the firm obtains existing products, customers and critical relationships with suppliers and distributors (Dyer, Kale, and Singh 2004). Through M&A, latecomers can utilize the intangible assets of the acquired firms such as the brand name, reputation, core technology and human capital to accelerate the process of globalization, and enhance the firms' power in global markets. It is not surprising that latecomers may adopt a "buy-in strategy" by acquiring foreign firms with well-known international reputations and global brands in order to accelerate market entry and speed up the process of globalization. In particular, foreign acquisitions and other forms of FDI may be motivated by a drive for knowledge acquisition in relation to technology and markets, rather than the reduction of local uncertainty via incremental levels of commitment.

Chapter 4 The case Study on Huawei Company

4.1 Overview of HuaweiCo.

HuaweiCo. one of the highest technology company in China, was founded with a US$9 million bank loan and 30 employees in 1988, and Huawei Co. grew rapidly to get revenues of US$1.2 billion and 6000 employees in 1998. In 2008, this company has become one of the largest patent applicant in the world under the WIPO Patent Cooperation Treaty (PCT) (No. 4 in 2007) [15]. Huawei's revenue rose from 36% in 2008 to $17 billion, showing better performance than most of its Western rivals including Ericsson, Alcatel-Lucent, Motorola, Nortel Networks (Nortel filed for bankruptcy protection in 2009), and Cisco, amid the global economic turmoil [16]. By 2009, it retained 90,000 employees and obtained worldwide sales of more than $21 billion covering mobile, networks, terminals, and value-added services. In just two decades, it has not just caught up, but has left behind in some areas by taking over. It is

[15] The World Intellectual Property Organization (WIPO) (2009) Global Economic Slowdown Imparts 2008 International Extent Filings, http;//www,wipo.int/pressrooni/en/articles/2009/article_0002.html

[16] The Wall Street Journal (2008), Huawei Co Sales Growth, Even as Rivals Slump. January 16,2008.Intellectual Property Organization (WIPO) (2009) Global Economic Slowdown Imparts 2008

the world's number-two firm in telecommunications equipment and number one in subfields such as mobile switches and next-generation network technology. Business Week rated it one of the world's 25 most influential companies in March 2008. Huawei that beat the rivals, Nokia and Ericsson in their home markets, achieved a significant milestone in 2009 when it won 4G roll-out contracts in Norway and Sweden.

Some Chinese IT firms have evolved from domestic platform to innovate enough to compete globally. Huawei can again provide an illustrative example: Fast Company rated it among the world's top five most innovative companies in 2010, along with Facebook, Amazon, Apple, and Google. That rating reflected Huawei's relentless investment in technology R&D and its expenditure of some 10% of revenue on R&D centers based not just in China but now in India, Europe, and the U.S. It is the single largest applicant under the international Patent Cooperation Treaty.

Huawei has implemented the globalization of business strategies. Its products and solutions have been applied to more than 100 countries and regions in the world market and more than 10 billion global users. 80% of Huawei's sales comes from the overseas market. The sales revenue it has acquired since foundation in Europe, the United States, and Japan

increases more than 150%. Since 2007, Huawei has surpasseses Nortel Networks and has become the world's fifth largest telecom equipment manufacturer in terms of sales revenue. By 2009, Huawei has sales of 302million dollars, up by 30%, and more than 2/3 comes from the international market.

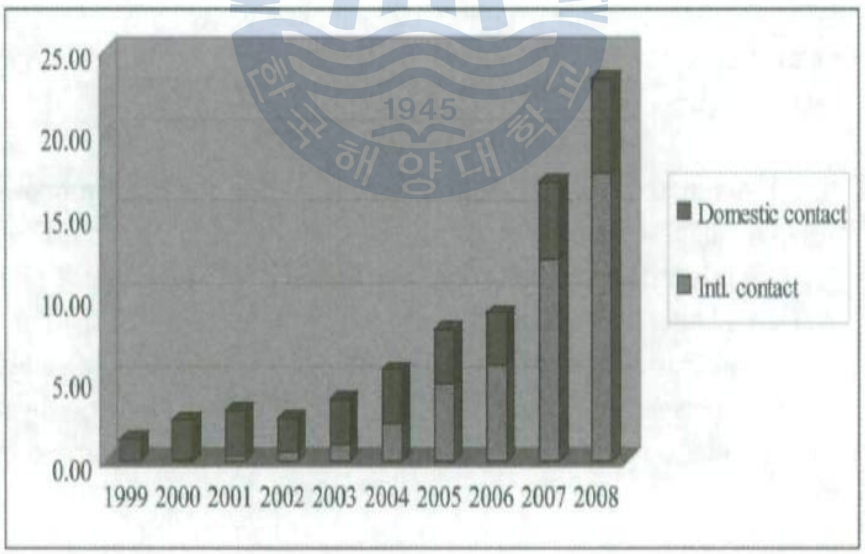
Figure 7: The sales of Huawei from 2005 to 2009

Source: Chinese economic data in 2009

In January 2008, Huawei won the first global commercial contract to supply the equipment called an advanced "fourth-generation" VLTE mobile network in Oslo, Norway. The bid shows that Huawei also has high-end technologies in its portfolio, as well as cost-competitive ones. Business Week magazine also lists Huawei in "The World's Most

Influential Companies," which means that the company has played a major role in the world of business during 2008. With 75% of its contract sales coming from outside China in 2008, Huawei is a significant example of an globalization firm that has nurtured its capability in the domestic market and then treated global competition as an opportunity to accumulate its capabilities, moving into the more profitable value curve, and adopted strategies that turn latecomer status into a source of competitive advantage.

Figure 8: Fast globalization of Huawei (in US$ billion)



Source: Chinese economic data in 2008

Huawei is a leader in providing next generation telecommunications networks and now serves 31 of the world's top 50 carriers, along with over one billion users worldwide. From its startup, Huawei reinvests no less than 10% of its sales revenue in R&D and 10% of the R&D budget in cutting-edge technologies and fundamental technologies. The company is committed to providing innovative and customized products, services, and solutions to create long-term value and growth potential for customers.

At the end of 2008, Huawei has over 87,502 employees, of whom 48% are dedicated to R&D. Huawei's global R&D centers are located in Bangalore (India); Moscow (Russia); Stockholm (Sweden); the Silicon Valley, California (USA); and Dallas, Texas (USA), in addition to those in Beijing, Shanghai, Nanjing, Shenzhen, Hangzhou, and Chengdu in China.

Table 6: The globalization Ratio of Huawei (in US $ billion)

	2004	2005	2006	2007	2008
International contract	2.28	4.66	5.86	12.24	17.48
Domestic contract	3.29	3.36	3.16	4.76	5.83
Total contract	5.57	8.02	9.01	17.00	23.3

					0
Globalization Ratio(%)	40.91	58.11	65	72	75

Source: Einhorn, B. 2008. Huawei Co.

Huawei's global market is divided into eight different zones that report directly to the Marketing Management Committee:

• China (Headquartered in Shenzhen)

• Latin America (Headquartered in Brasilia, Brazil)

• North America (Future Huawei subsidiary, headquartered in Piano, Texas)

• Asia Pacific (Headquartered in Kuala Lumpur, Malaysia)

• Europe (Headquartered in London, England

• Southern Africa (Headquartered in Johannesburg, South Africa) Middle East and North Africa (Headquartered in Cairo, Egypt))

• Commonwealth of Independent states (Headquartered in Moscow, Russia and includes the Centre Asian Republics)

• East Pacific (Headquartered in Sydney, Australia and includes Australia, Hong Kong, Macao, Taiwan, Japan, and Korea)

4.2 Huawei's Motives of globalization

The Huawei's motives behind the globalization include building global strategic linkages, entering new markets and seeking advanced technology in order to gain competitive advantages and achieve further growth. Globalization strategies are regarded as learning networks which allow them to build their capabilities. Huawei realizes that it is imperative to expand internationally, as the domestic market has become part of a networked global economy. The senior management in company shares the same vision of international expansion. Seeking profits and further growth through global linkages or networks were the primary objectives of international expansion for Huawei.

The senior management believed that there were two main methods for further growth. One was to break its existing business model to diversify and enter a new business area; the other was to expand and enter new international markets. Huawei had a solid economic foundation for its international expansion. It had a secure base at home and developed IT industry in China. Having a large domestic market share helped Huawei accumulate technological capabilities and enjoy cost advantages as well as funds needed for international expansion.

However, Huawei's domestic technology was not advanced enough to take advantage this potential and it was too time-consuming and costly to conduct its own R&D and develop its core technologies gradually. This meant that organic growth was not a realistic strategy.

Huawei had a strong domestic foundation for its international expansion, but it could not achieve technological advance through joint ventures with other MNEs. Every firm was aware of different globalization strategies such as establishing their own brand or adopting original equipment manufacturing (OEM). They observed that Taiwan and Hong Kong's MNEs started the process of globalization through exporting and then moved on incrementally to global OEM. However, Chinese companies in mainland have a huge domestic market, which allows Chinese firms to establish their brands at home before they go overseas. Moreover, the OEM strategy would lead firms to concentrate on manufacturing rather than technology. After careful consideration, Huawei decided to produce and sell its own products on the international market rather than being a manufacturer for other MNEs. However, it realized that, as latecomers, Chinese Economic and Business Studies faced formidable obstacles to international expansion, especially in developed countries, as international expansion needs a well-established

brand, effective global distribution networks, and leverage in technology. After the 1950s, it took Japanese firms more than 20 years to build their global brands organically. It should be noted that industry characteristics may also drive the international expansion of Chinese firms. In this case, the IT industries are regarded as being global, implying that operating on a global scale is essential for survival and further growth. The acquisition strategy of Huawei was therefore partly driven by the characteristics of the industry.

In a newly IT developed industry, Chinese firms had not developed their own core technologies and feared that MNEs from developed countries with advanced technology would enter the Chinese market and leave no space or time for organic development by local firms. The international expansion of Huawei was, to some extent, influenced or pushed by MNEs operating in China. The presence of foreign MNEs has had two main effects. One is the learning effect by which Chinese firms adopt global strategies that are similar to those used by MNEs; The other effect is that MNEs in China put Huawei under competitive pressure, which may have forced it to go global. However, senior managers claimed that they have learned little from MNEs in terms of adopting an M&A strategy for globalization.

4.3 Domestic Market to Overseas Market (Establish MNE in foreign country)

Many Western reporters highlight Huawei's military background, earnest company culture. This claim seemed to come out due to the fact that its CEO, Ren Zhengfei had served in Chinese People's Liberation Army for 14 years. But it is turned out that Huawei has no practical linkage to the military because it receives only a very small contract from China's military. When it comes to its culture in the early years of development, Huawei was strongly influenced by its CEO's training in the military. Discipline, hard work, and purpose are the main drivers of Huawei's employees.

Compared with government-supported state-owned rivals, private-owned Huawei has no close linkages to its clients, all of which are state-owned communication carriers. Huawei develops essential competitive skills, similar to a wolf, realizing the crucial natural selection in the market. It is widely reported that Huawei incorporates the wolf spirit as part of its indispensable corporate culture: a sensitive nose, aggressiveness, and persistence on attack.

The first trait is a sensitive nose for opportunities. Wolves always keep

their eyes fixed on their prey, closely observing the movements of sheep and even the behavior of the shepherds. Once an opportunity emerges, wolves immediately mount an attack. In Huawei, this inquisitiveness is vital in tracing the development of new technology, formulating business strategies, studying price fluctuations, and surveying the movements of competitors. Starting as a PBX equity agent, Huawei heavily invests in R&D and is the second innovator on the C&C08 digital switch in 1993, both of which were in huge demand by the rapidly developing Chinese communication industry in the 1990s and dominated by foreign suppliers, such as Siemens and Alcatel. Based on excellent technology and low price on equity, Huawei triumphs over foreign companies and ranks fourth in local switch suppliers in 1998 (all three leading suppliers are state-owned).

The second trait is aggressiveness and unyieldingness. When wolves attack a flock of sheep, they firmly bite into their prey and won't let them go easily. A wolf is not satisfied with getting enough food from the killing of one sheep but is determined to kill as many as possible in a short time. This aggressiveness describes precisely how Huawei gains six-fold growth from 1996 to 1998 and how Huawei develops the leading GSM mobile switch system. In 1999 Huawei is selected as the principal supplier

for China Mobile's nationwide CAMEL Phase II compliant IN. This aggression makes Huawei the number one local supplier in the mobile communication equity market even before Nokia and Ericsson dominated.

The third trait is persistence. In competition, Huawei keeps a furious attack with its comparatively low-cost R&D, in other words, the cheaper intellectual resources from EE. Data from Siemens indicates that the annual average working hours of European research workers is only 1,300 to 1,400 hours per year, while Huawei's reaches 2,750 hours a year—twice as many as Europeans working in the same field. The average R&D personnel cost at European MNEs is US$120,000 -150,000 per annum. At Huawei, the cost is only US$25,000 per annum. The input to output ratio of Huawei R&D work is ten times larger than its European counterparts. This explains Huawei's advantage.

Gaining 85% sales growth in 2000, Ren sensed that the income stagnated in the domestic market. If Huawei only focuses on this market, Ren believed that Huawei would experience "the chill winter". He boldly sold Avansys Power Co. Huawei's fast-growing subsidiary of telecom and data network power conversion products, to Emerson with 20 times the P/E in October 2001 and raised US$750 million to initiate a large scale attack in the global market. Ren shared a stirring lecture for the oversea

campaigners on January 18th,2001[17].

4.31 Huawei's Pain in the U.S.EE and EU

Huawei begins to attack the North American market aggressively in 2001. Rather than targeting traditional telecommunications products, the company chooses to explore the burgeoning market of digital communications. It adopts a very aggressive marketing strategy. Huawei's products challenge Cisco directly with a 30% lower price. Huawei also airs an extremely hostile advertisement featuring Huawei products against the background of the Golden Gate Bridge in San Francisco, which happens to be the symbol of Cisco Systems Inc. The message line reads "The only difference between us and them is price."

The competitors in the communication industry immediately recognize the high-quality performance of Huawei's routers. Cisco's first reaction is to discuss the possibility with Huawei that Cisco would give all of its lowed products as OEM orders to Huawei. If Huawei would give up its R&D in high-end products and not build its brand in the US. Such

[17] In this era, an entrepreneur is awesome if he has the vision of global strategy; a nation is thriving and prosperous if it can feed the marrow of globalization; a company grow forever if it can build a global commercial ecosystem; a staff has a transcendent career if he treat every strange place as his familiar home

requests are refused by Huawei straight away.

In June 2002, Cisco's CEO, John Chambers, visits Huawei's booth at the Super-Com shown in Atlanta, and later a counter-attack plan against Huawei is formulated. In January 2003, Cisco accuses Huawei of intellectual property rights (IPRs) infringement. A federal judge in East Texas is considering Cisco's motion a preliminary injunction to prevent Huawei from selling many of its products in the U.S. market[18]. Einhorn, B. 2003. Huawei vs. Cisco Jusl Got Nastier. Business Week, June 3, 2003; Cisco: In Hut Pursuit of a Chinese Rival, BusinessWeek, May 19.2003.

Huawei needed a partner, a friendly American partner. It decided to give up its brand to 3Com in the overseas market (the joint venture called "3Com-Huawei"in English but"Huawei-3Com"in Chinese) and signs the sweeping JV agreement with the struggling networking company just one week after it had been sued by Cisco.

Com helped increase Huawei's bargaining power in settling the lawsuit. Com CEO Claflin said,"If Cisco were to sue the JV, it's 100% certain that we would countersue. It would be very different from just suing Huawei.

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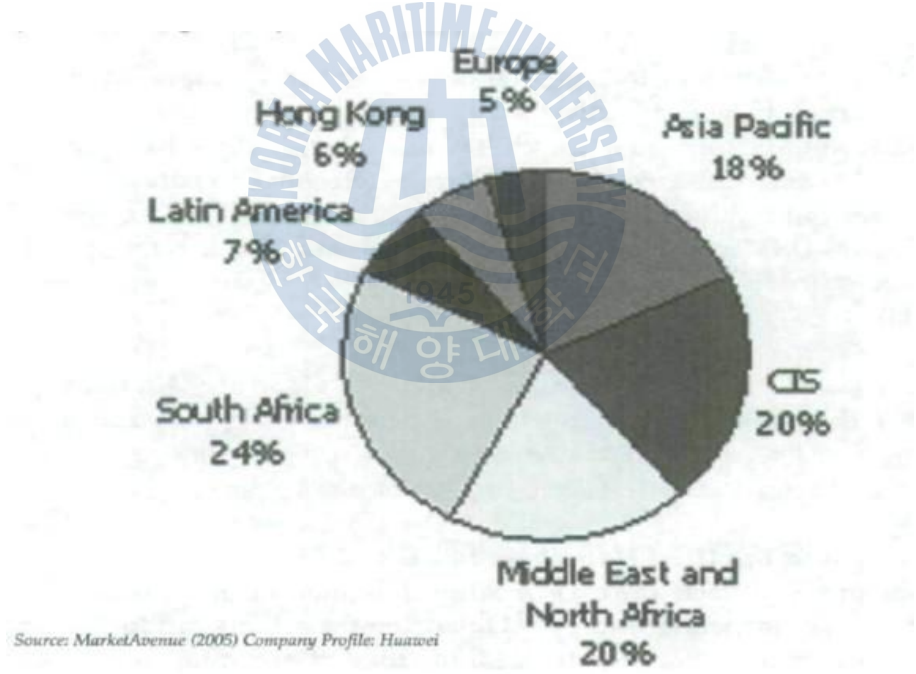
[18] Einhorn, B. 2003. Huawei vs. Cisco Just Got Nastier. Business Week, June 3, 2003; Cisco: In Hut Pursuit of a Chinese Rival, Business Week, May 19.2003

Cisco and Huawei finally reach an agreement on July 28, 2003. Cisco withdraws the lawsuit and both companies resolve all patent litigation, with each party paying for its own legal fees. Neither side reveals the terms. However, Huawei withdraws almost all of its products from the largest market in the world over the next several months.

Figure 9: Huawei's International Sales Distributed by Region in 2008

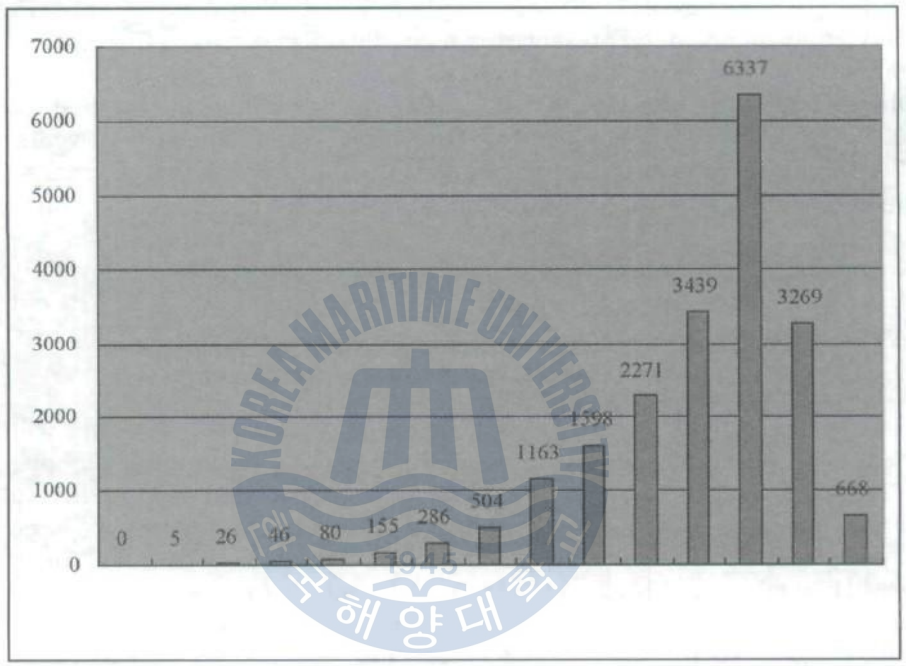


Source: Market Avenue Q005) Company/ Profile: Huawei

Huawei decided to focus on emerging markets and Europe. The global

deregulation wave around the world helped Huawei win a lot of orders from EEs.

Figure 10: Huawei's Registered Patent Number In China



Source: The database of the State Intellectual Property Office of PRC

Many hard-budgeted HE carriers are attracted by Huawei's low-cost, high-quality products and are apparently untroubled by allegations of IPRs problems. In 2003, Huawei's overseas sales soared to $1 billion and reached double what they were the year before. Most of its revenue came from Asia Pacific, South Africa, Middle East, and North Africa in 2004

(see Figure 3). The smallest was from Eastern Europe, which together with Western Europe, the second smallest piece, accounted for 7% of the whole.

However, Huawei has made persistent attack in EU. It won the first national network contract from France's second-largest fixed-line telecom carrier, LDCom Networks. LDCom already used Cisco's metro Ethernet switches and routers in its network. However, Huawei swiftly finished a temporary project which put stress on taking advantage of its low price and quick response to the customer to defeat Cisco. Huawei also targeted BT, Britain's incumbent carrier from 2001. After a three-year attestation process, Huawei joins the "short list" of BT's 21st Century Network planning in 2004.

Since Huawei took huge pressure for allegedly IPR pilfering in Cisco's lawsuit, it scaled up the application patents in the US Patent and Trademarks Office (USPTO). Huawei's registered patents showed rapid growth since 2004 in recent years (Hu and Mathews 2008). For six consecutive years, Huawei is ranked first in the number of patent applications in China. At the end of 2007, Huawei has a total number of 26,880 patent applications.

According to the World Intellectual Property Organization (WÎPO), Huawei becomes the largest patent applicant under the WIPO Patent Cooperation Treaty (PCT), with 1,737 applications published in 2008.

4.32 Linkage, Leverage, and Learning

Huawei is increasing their offshore R&D activities at a fast pace. Some are doing so through growth in strategic alliances with EE firms in R&D and related technology-development activities (Mowery 2009). Such "inward- linkage" also becomes EE MNEs' opportunity to move up the value curve and outward globalization. Huawei has built up many kinds of inward-outward linkages. By allying with 3Com to compete with Cisco, joint venturing with Symantec, partnering with Bain capital to bid an American company, teaming up with Google, and participating in international standard settings, Huawei showed increasing skills in accessing new markets, acquiring intangible assets such as brands and M&A experience, and experimenting with new business models.

Some outward linkages also brought Huawei's market extension. For example, Huawei's alliance with Vodafone and Spain Telefónica helped extend its market penetration in Spain, Greece, Hungary, Romania, and Latin America. Through weaving the alliances with these DE MNEs,

Huawei could reach their global network. Extending the RBV framework, Huawei's success in outward internationalization illustrates how inward-outwork linkage can help EE MNEs extract rents and move up the value curve using alliance networks (Lavie 2006).

Huawei needed to modify its wolf spirit to teamwork. Huawei toned down its predatory attitude and began to emphasize cooperation with established telecom equipment suppliers, hoping to obtain access to the international market through them. Since 1999, Huawei has established joint R&D labs with Texas Instruments, Motorola, IBM, Intel, Agere Systems, Sun Microsystems, Altera, Qualcomm, Infineon, and Microsoft. As of June 2005, Huawei Technologies has a total of ten joint research labs. Huawei now maintains in-depth cooperation with Motorola for wireless equipment, with Siemens for digital communications and TD-SCDMA, and with NEC for digital communications and mobile terminals. In other areas, they still remain rivals. This paints a very complex picture of competition and cooperation. While few of the ventures are directed towards the North American market, Huawei uses Huawei-3Com JV as a new route to enter international markets, especially those in developed regions. Even after it sold its JV's 49% ownership to 3Com with US$882 in 2006, Huawei partners with private equity Bain

capital to take over 3Com in 2007 but fails to pass through the national security reviews by the Committee on Foreign Investment in the United States (CFIUS) in 2008.

4.4 Case analysis

Although Huawei has a low-cost advantage in R&D based on cheaper intellectual resources and engineers, as international business is playing an ever bigger role for Huawei, its costs have also increased. In global resource distribution, global service, materials and product parts purchasing, financing, marketing, and other areas, Huawei's advantages are starting to erode. For example, there are more urgent demands on the quality of products, academic qualifications of staff, quality of service, product delivery capacity, and so on. All these factors lead to increasing business costs. Additionally, Huawei's IPRs cost is actually higher than its Western counterparts. Also, its relatively lower R&D cost often leads to higher total cost of ownerships since products out of the low-efficient R&D may have defects. Since 1997, Huawei has realized this management challenge. IBM, Towers Perrin, the Hay Group, Price Waterhouse, Coopers, and Fraunhofer-Gesellschaft have been acting as Huawei Technologies' consultants, respectively, on process

transformation, employee stock option plan, human resource management, financial management, and quality control. Huawei learns management skills from these leading multinational consultancy firms to keep in line with the best practices in the industry. The benchmark learning has borne sweet fruits: employee productivity (per capita sales) of Huawei in 1996 was only US$73,300 even when the staff worked overtime every day, but this figure increased to US$193,000 in 2005 and US$266,280 in 2008. This success was achieved despite a decreasing amount of overtime work. Huawei built up its capability in the world-class R&D management models, not relying on personal cleverness and diligence but on organizational integration in "speed, quality and low cost".

Currently, Huawei has joined 83 International Standard Organizations, has taken up nearly 100 roles in these organizations, and has actively participated in international standard-setting. In 4G, LTE, SAE, NGN, IPTV, and other fields, Huawei has submitted a total of 3,072 proposals in 2007. Through these linkages, Huawei has built its global learning networks and brings dispersed knowledge together to fuel its innovation (Doz et al. 2001).

4.41 Home Country Market: Nurture Capability

Huawei has been developing its capabilities by concentrating on cutting costs, raising productivity, and ensuring a strong cash flow from its domestic market. The restructured Chinese telecommunications market and its strong growth from the 1990s nurture Huawei's growing dynamics and capabilities. Lakshmi Mittal, the chairman of steel giant Mittal, said:"Some managers from emerging markets have had to develop certain abilities that prove very valuable when they go to a first world economy, where productivity is crucial." In the internationalization process, low cost and high productivity help Huawei compete with global elephants of telecom equipment providers.

Domestic clusters support Huawei's fast growth. Huawei and Zhongxing Telecommunication Equipment (ZTE) [19] were founded in Shenzhen city in the 1980s. Shenzhen city has full-fledged structures of customers, inventors and innovators, entrepreneurs, and industrialists to support its high-tech industries annual growth at a staggering 45% from

[19] Another one of China's leading telecommunications companies, listed global top 100 patent applicant in WIPO in 2008

1992 to 2006[20].

Apart from the Shenzhen high-tech cluster, Huawei operates six domestic R&D centers in Beijing, Shanghai, Nanjing, Hangzhou, Xi'an, and Chengdu. All of these domestic R&D centers work closely with some public research institutions such as the Research Institute of Telecommunications Transmission, the China Academy of Telecommunication Research, Xi'an Electronic Engineering Institute, and Beijing Design Institute, thus providing a glance of the importance of these public research institutions for Huawei's own technological development. Certainly, to reach other countries' markets, Huawei also leverages external technology through its six overseas R&D centers. China's fledging software outsource companies show the same patterns, which support Mathews' (2006) argument that firms pursuing asset-augmentation FDI strategies will locate R&D operations in knowledge-intensive countries so they can tap into resources and knowledge that would otherwise not be available at home. However, Huawei's domestic headquarters still serves as a backbone (similar to most of China's software outsourcing companies). Huawei invested $517

[20] In 2006, Shenzhen's high-tech production reached RMB 630 billion, topping China's other major cities. The city's investment in R&D is some 3.4% of its GDP, far higher than the national percentage of 1.4%

million on a new R&D and manufacturing base in Shenzhen in 2007. Based on RBV analysis, most of Huawei's low-cost competitive advantage comes from its domestic root.

Huawei's domestic market also provides learning-by-doing experiments. As Bartlett and Ghoshal (2000) recommended in their benchmark strategy for EE MNEs, adapting and responding to DE MNEs' entry into home markets is the best training ground for EE MNEs in future head-to-head competition in foreign markets. Huawei set its strategic partner, IBM, as its benchmark and learned internal cooperation, new product development, and supply channel capability. IBM laid down the foundation for Huawei's competitiveness.

In addition, the transformation from domestic focus into accelerated globalization is not easy. Huawei's bold decision to divest Avansys in 2000 and its inside conflicts in 2001 also showed the importance of strong global mindset (Bartlett and Ghoshal 2000; Levy, Beechler, Taylor, and Boyacigiller 2007). EE MNEs from the periphery needed to clearly articulate their global perspective and not be burdened with existing commitments and attitudes born of domestic self-sufficiency.

4.42 Market Entry Sequence: Huawei's MNE in American

After successful growth in its domestic market, Huawei boldly tried to enter the American market first in 2001. However, it underestimated the DE's barriers, especially on intellectual property right (IPRs) in a high-institutional distance. China's low development of IPRs environment made Huawei misunderstand the rules, regulations, and restrictions in the American market. DE MNEs have a first-mover advantage in IPRs, which grant them market power along the value chain and establish barriers to entry (Reitzig 2004). Cisco's lawsuit gave Huawei a great lesson. Although Huawei had to retreat from the American market in 2003 because of backfire from the lawsuit with Cisco, Huawei improve its performance in the IPRs and filed 1,737 WIPO's Patent Cooperation Treaty (PCT) applications in 2008, topping the list of PCT applicants (No.37 in 2005; No.l3 in 2006; No.4 in 2007). The accumulation of large portfolios of patents by Huawei clearly showed that it has seeked to use these patents in cross-licensing bargains with established DE MNEs and to insulate itself against the effects of patent litigation or infringement judgments in DEs (Mowery 2009). Only after it accumulated enough patents did Huawei win its first American contract in 2007.

Although it retreated from the American market, Huawei has particular success selling its products in developing countries, especially in Asia pacific, Africa, and the Middle East, which are not far from China (see Figure 3), then Huawei invades prosperous DE markets again. It isn't until Huawei gets British Telecom's contract on building a 21st-century network in 2004, a milestone in DE market, that Huawei speeded up its internationalization scales in DE (see its annual internationalization ratio in Table 2). It clearly showed that moving up EE MNEs' value curve in the geographic expansion took care of all kinds of barriers in culture, technology, economy, and institution. Huawei's lessons suggest an optimized method of international expansion: first enter a foreign market not distant from home country, and then adapt to markets at a high distance.

4.43 Inward-Outward Linkages: Build Up Capability

DE MNEs are increasing their offshore R&D activities at a fast pace. Some are doing so through growth in strategic alliances with EE firms in R&D and related technology-development activities . Such "inward-linkage" also becomes EE MNEs' opportunity to move up the value curve and outward internationalization. After Cisco dropped the lawsuit on

Huawei, tellingly, CEO John T. Chambers later said that he would love to partner with Huawei.

As predicted, Huawei has built many kinds of inward-outward linkages. From allying with 3Com to compete with Cisco, joint venturing with Symantec, partnering with Bain capital to bid an American company, teaming up with Google, and participating in international standard settings, Huawei showed increasing skills in accessing new markets, acquiring intangible assets such as brands and M&A experience, and experimenting with new business models.

Some outward linkages has also made Huawei's market extension. Through weaving the alliances with these DE MNEs, Huawei can reach their global network. Extending the RBV framework and Huawei's success in outward globalization illustrates how inward-outword linkage can help EE MNEs extract rents and move up the value curve using alliance networks. MNEs in China put Huawei under competitive pressure, which may have forced it to go global. Traditional views of firms as vehicles for both asset exploitation and efficiency seeking are the dominant explanations for FDI from DCs and NIEs.

FDI theory suggests that one important motive for firms to invest in

host country is that these firms possess firm-specific ownership, location and internalization (OLI) advantages developed in their home markets. In terms of ownership, firms from advanced countries rely on the economic benefits of exploiting intangible assets internationally.

The implications of this explanation are that firms must first develop strategic or intangible assets domestically, and subsequently serve as a suitable mode for exploiting these assets in foreign countries due to the existence of resource inimitability or market failure. A firm invests abroad to derive further profit from innovations developed for the domestic market.

Although this theoretical explanation may accord with the situation of firms from advanced countries, IT firms from EEs have disadvantages in terms of technological advancement and brand names. Therefore, exploiting the strategic advantages of intangible assets may be an unsatisfactory explanation for the presence of Chinese IT firms in developed economies.

4.5 limitations

It can be seen that the selection of the case reflects a new stage in China's FDI the distinct, and possibly paradigmatic, characteristics of

Chinese latecomer MNEs, a new and important global phenomenon that needs explanation. It cannot be predicted in advance which a set of IB theories best fits their strategies. The case cannot yield generalizations or test theories, but they may indicate fruitful theoretical directions in terms of augmenting theory through the addition of missing variables. Qualitative case research always raises the question of generalizability to a broader population of firms. Cases can be selected with bias toward "ideal" types, especially a single case that cannot provide contracts and varieties. In the future, we will collect and analyze more cases from different EEs to better understand why and how a phenomenon occurs in one setting and performs a completely different way in another setting.' Such strategic comparison across cases will help confirm, disconfirm, or extend our three propositions. In addition, quantitative methods counteract the potential bias of individual judgment through more objective, systematic procedures. We can use mixed methods with quantitative data to further verify our findings.

Despite the limitations, I believe this study may have important implications to practitioners. This study also initiates new insights on the often disputed first-mover or late-mover advantage (Lieberman and Montgomery 1998). Recently, debate is whether America's

competitiveness could be the next victim of the global financial crisis'" and whether the rising China, India, or BRICs become the new innovation engine. How Huawei competes with global giants (like Cisco, Ericsson, and Alcatel- Lucent) with disruptive technology is worth further inquiry.

Chapter 5 Contribution and Conclusion

This paper has provided some insights into the globalization of IT firms from EEs through case study, including motives for globalization. Having been successful in local markets, leading Chinese firms have strong incentives to expand abroad. In this sense, traditional FDI theory is still relevant to explaining latecomer MNEs from EEs. Establishing some form of ownership advantage in the domestic market is still important for the international expansion of firms.

5.1 Contributions and Implications

Three primary contributions emerge from my study. First, this article offers a unique perspective for understanding IT firms' globalization strategy. One of the most dramatic developments of the past decade has been the development of IT firms. Our case study of Huawei indicates that existing theories and frameworks are relevant to explaining the globalization of IT firms. The prominent and unique patterns of globalization of IT firms enrich and broaden our understanding of the IT industry and its economics, I connect international business(IB) research and strategy through the resource-based view (RBV) and show how IT firm nurture, accumulate, and build up capability in the globalization

process.

Second, this study advances our understanding on the role of globalization in the catch-up races of IT firms. Emerging economic (EE) firms usually have weak technological capabilities or limited resources compared to development economic (DE) firms. There is the fundamental theoretical question and debate of whether we can expect a systematic positive relationship between firms' globalization process and performance. Our case shows that Huawei, like many IT firms, experiences globalization as a key means to achieve strategic learning, capability building, and company growth. Competing in the domestic market alone is not enough for IT firm to catch-up. Understanding Huawei's competitive sources from global competition will also benefit our full appreciation on the potentials of IT firms.

Third, this study has taken one step forward in identifying some important strategy design variables, like FDI, inward and outward linkages, in making critical globalization choices. We are also aware of some special external variables, like cluster, cultural distance, technological distance, economic distance, and institutional distance, which drive internationalization choices. Some effects of these variables in the EE MNE context are the same as in the DE MNE context, like

global mindset, but others are different. IB and MNE literature are full of research on entry country choice and entry mode but few exist on market entry sequence. These variables can be used as a practical tool to check or optimize EE MNEs internationalization strategy. This study initiates new insights into the often disputed first-mover or late-mover advantage. In the end is my paper's conclusion. In this sector I will tell that what I learned based on the case study of its accelerating globalization process.

5.2 Conclusion

This paper has provided some insights into the globalization of latecomer IT firms from EEs through case study. Although based on only one case, Huawei deserves a thorough analysis on a academic basis. Based on the case study of its eight-year accelerating globalization process, I propose that (1) IT tend to nurture their capability in their domestic market as a base before globalization; (2) they prefer to enter markets with less institutional barriers first to accumulate experience and overcome the liabilities of foreignness; and (3) they use inward and outward linkages to complement their strengths and offset their weaknesses in global market. The case of Huawei starkly demonstrates that "globalization" no longer means just new markets for DE MNEs but

also tremendous opportunities for latecomer EE MNEs. Two sets of considerations motivate Chinese firms to go multinational: traditional factors (asset exploitation) and Chinese factors (asset augmentation). The traditional motivations include market-seeking and resource-seeking; while asset-seeking and overseas-opportunities seeking are specifically Chinese motivations. While the first set of motivations dominates Chinese FDI, the second set has gained increasing importance in recent years. Firms motivated by asset-augmentation gain knowledge as they go multinational. Such knowledge potentially benefits the firms in several channels: learning from their experience; improving their ability to operate internationally; and gaining expertise and technology to enhance their specific advantages. All of these help Chinese firms to improve their competitiveness and performance.

The evidence shows that domestic accumulation is still a key step towards globalization. The large domestic market has enabled Chinese IT firms to develop competitive advantages and this has provided a solid foundation for international expansion, largely based on low costs. Having been successful in local markets, leading Chinese firms have strong incentives to expand abroad, but each firm was unable to achieve technological advance from internal resources. In this sense, traditional

FDI theory is still relevant to latecomer MNEs from EEs. Establishing some form of ownership advantage in the domestic market is still important for the international expansion of these firms.

However, the dominant motives behind globalization and entry mode choice of Chinese IT firms appear to differ somewhat from the assumptions of traditional IB theories such as the OLI (ownership, location and internalization) paradigm and the stages model. The key characteristics of Chinese MNEs are that they do not build solid international structures from scratch, but rather they engage in network building by using an entry mode involving high levels of commitment and control. As latecomers, once Chinese firms have decided to go international, they do not tend to follow the incremental approach. Instead, these latecomers tend to follow an accelerated expansion route, e.g. through M&As. As a result, they are able to build their global networks extremely quickly through linking up with existing players.

These observations, derived from the cases, raise questions for IB theory. Market-like entry modes (e.g. exporting, licensing) have conventionally been associated with rapid, low-commitment foreign market entry. Similarly, FDI has been analyzed with reference to locational production advantages, and incremental entry, advancing from

markets to hierarchies (Williamson 1975). However, China seems to be establishing a new model in relation to latecomer globalization that is more consistent with network and knowledge-based theory.

Taken together, these conclusions tentatively suggest possible future directions for IB research based on network theory, or perhaps a synthesis of networks and conventional OLI and stages theories. In particular, network perspectives help develop IB research by drawing its traditional focus away from immediate economic concerns toward a firm's embedded and network system in the global economy. Host country-based networks established through FDI are particularly important to latecomer IT from EEs.

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