The role of exchange rates on the inflow of foreign direct investment to China.

Authors:  Hu dong wei

Supervisor: Catherine Lions

Student
Umeå School of Business and Economics
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Hu Dong Wei
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ABSTRACT

Since the Chinese economic reforms and opening up to free trade, China has experienced sustained and rapid economic growth during the past thirty years, showing an annual GDP growth rate close to 10%, making this GDP growth ranked as the top three in the world since 2005. This remarkable achievement caused widespread concern in the international community. Numerous studies show that a steady stream of foreign direct investment inflows is the most important factor contributing to such great growth miracle. At same time, this great contribution also leads to the international trade imbalance, which causes the external and internal pressure of appreciation of the RMB.

To alleviate the imbalance of foreign trade, enhance international competitiveness and to meet the expanding domestic demand and the needs to improve the level of opening up, China government began to adopt a managed floating exchange rate system that is based on the market supply and demand, adjusted by a basket of currencies at 21st of July 2005, which translated into the RMB appreciation. Until the end of 2011, the cumulative rise mid-rate of the RMB/USD reached 31.4% relative to the former exchange rate regime. So it’s of significant theoretical and practical meanings to conduct the research about how does this new RMB exchange regime influence future foreign direct investment in China.

In order to analyze the new relationship between exchange rate and foreign direct investment in China, this thesis builds an econometric model, which is based on the monthly data of inward FDI and level RMB/USD exchange rate from July 2005 to December 2010. Through ADF test, E-G two steps cointegration test and Granger causality test as well as linear regression model, this thesis gets to the conclusion that appreciation of RMB Exchange rate will encourage FDI inflow, and the great amount of FDI inflows will in return bring appreciation pressure to the exchange rate of RMB.

Key words: FDI, China, RMB/USD exchange rate, Unit root test, cointegration test.
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1. Introduction

In the first chapter, the author intends to familiarize the reader with the background of the thesis, discuss the problem that flows into the research question formulation followed by the consistent research objectives author strives to achieve, and then the limitations of the thesis are presented and finally this first chapter concludes with outlining the disposition of the thesis.

1.1 Background

China has a long history of inflows of FDI and the beneficial contribution of these flows is evident. Ever since economic reforms and an open door policy taking off in 1979, along with the domestic economy getting ever closer with the world’s economy and the global economic integration deepening, the scale of foreign direct investment in China has been also expanding rapidly. Based on the national statistical records, FDI inflows in China from US$3.487 billion in 1990 reached US $106 billion by the end of 2010. According to 2011 World investment Report by the United Nations Conference on Trade and Development, China is the world’s second largest foreign direct investment recipient after USA and the largest FDI destination of all developing countries since 1993.

Foreign direct investment is definitely an important part of China’s economic development and one of the dynamic mechanisms of economic growth. Along with China attracting more and more foreign direct investment (FDI), FDI has already become one of the main driving engines that stimulate the country’s economic growth. Its influences exist in increasing the quantity of employment, introducing advanced technology, pushing the development of import and export industries and so on. Foreign enterprises contribute for 27 percent of China's industrial added value and one-fifth of taxation. They export about 52 percent of the country’s total goods and services and account for 11 percent of local employment during 2010, greatly promoting Chinese economic development.1

Meantime, China’s unprecedented success in attracting foreign direct investment (FDI) has led to a fierce debate among scholars. So how to explain the FDI boom in China and major factors determining the FDI inflows to China becomes very popular topic around the academic world (Xing, 2003, p.3). As a consequence, a plethora of literature has emerged, and most of research generates results highlighting that huge market size, cheap labor cost, preferential policies to attract investment and relatively stable economic policy in China are the primary factors attracting FDI (Lardy, 1995, p.7 ; Zhang, 2001, p.11).

1 http://www.fdi.gov.cn/1800000121_37_21923_0_7.html
Without a doubt, those research results substantially enrich our understanding on the issue. However, although FDI is embodied in the production section in the form of physical resources, it actually flows in the form of currency. Therefore, exchange rate as one of fundamental factors in the global economy plays an important role in international capital transfer, since the currency devaluation or appreciation can change the position of the relative competitiveness of an FDI recipient country. As a matter of fact, looking back from the history, we can easily see that the Chinese currency had been on a devaluation track until 2005 since economic reform beginning in China in 1979, and FDI boom in China also happened at same time. (ACFB, 2010) Thereby, the question also arises naturally, that is, whether the devaluation of the Chinese currency stimulated the inflows of FDI. Most of empirical research conducted by scholars before the 2005 indicated that there is a negative relationship between exchange rate and FDI inflow at that period. Therefore, the devaluation of the Chinese currency did stimulate the inflows of FDI (Hu, et al., 2007, p.5; Xing, 2006, p.8).

1.2 Problem discussion

A growing theoretical and empirical literature attempts to explore the effect of the real exchange rate on FDI.(Froot&Stein,1991; Klein & Rosengren,1994;Blonigen, 1997 ;Cushman,1998) Theoretical considerations based on relative wealth and relative cost effects from previous literature suggest that the devaluation in the currency of the home country will reduce production costs, measured in foreign currency, and thereby reinforces home country’s comparative advantage and also increases the relative wealth of foreign investors. Therefore, by increasing opportunities to invest overseas, on the contrary, appreciation of the home country currency will increase the cost of production costs relatively to the host country, which will lead to reduce FDI inflows in the home country (Goldberg & Kolstad, 1995; Froot &Stein, 1991)

In the case of the China, in order to alleviate the imbalance in foreign trade, to enhance international competitiveness of local business and to meet the expansion of domestic demand, in 21st July 2005, China began to adopt a managed floating exchange rate system that is based on the market supply and demand, adjusted by a basket of currencies, which translated into the RMB appreciation. In 2008, subject to the U.S. subprime mortgage crisis and other factors, under the background of falling dollar, the appreciation of the RMB accelerated its speed. At the end of 2011, the cumulative rise mid-rate of the RMB/USD reached 31.4% relative to the former exchange rate regime (Cheng & Yu, 2010, p.2).

Foreign direct investment is inevitably influenced by the economic environment, macroeconomic policies and other factors. The exchange rate is one of the core factors. There has been written an impressive number of papers to explore the relationship between FDI and exchange rate, and generate knowledge that changes in the exchange
rate will have a significant impact on attracting foreign investment. However, most of them are focusing on developed countries. Study of the situation in China is only few of parts in the previous literature, and all of them focus on the period before the change of the exchange rate regime in 2005. And the research result shows a negative relationship between exchange rate and FDI inflow before change of the exchange rate regime. China being the dominant host country for FDI in the world, especially after 2005 exchange rate reform, with continual appreciation of RMB exchange rate, it is necessary to study deeply how this new situation is going to influence Chinese inward FDI (Cheng & Yu, 2010, p.2).

1.3 Research question

In line with above stated my research question in this thesis can be formulated as follows:

What is the relationship between foreign direct investment inflows and RMB/USD exchange rate in China after changed exchange rate regime in 2005?

1.4 Research purpose

The purpose of this thesis is as follows: first it is to analyze the effect of RMB exchange rate movements on the level of inward FDI in China during the period 2005-2010. Secondly, I want to investigate the impact of inward FDI on RMB exchange rate in China on the same period, which means that I will consider alternatively the two variables to be independent and dependent in my thesis.

To my knowledge, there has been yet not much published research on the interplay of FDI with exchange rate after new reform in 2005. So I would like use the new sample to test interrelationship between FDI and exchange rate to provide a better understanding of how the two variables were related with each other after exchange reform in 2005.

Finally, the target audiences in this thesis are the people with a solid understanding of advanced Finance and Statistics. But I try to explain professional financial terms as much as possible. Therefore, I believe it can be perceived by the reader with a more general Business Administration background, since interested in Chinese markets.

1.5 Limitations

This study has the following shortcomings: First, this paper establishes the model relying mostly on theoretical analysis of the subject in Europe, America and other
developed countries. According to China's actual situation and the real founder of the theory of the relationship between FDI and the current exchange rate is still blank in the academic community, explanation of the actual situation in China based on these theoretical models is limited. Secondly, this thesis was mainly focused on impact of the exchange rate movements on FDI, without making in-depth study of other factors affecting FDI. It may lose objectivity and systematical scrutiny.

Moreover, for time series I tried to cover the period 2005-2010 in this thesis that is mainly because China changed the exchange rate regime from fixed to the floating in 2005. And most of the previous studies are focusing on the time before change exchange rate regime. Therefore, all the data I collected from after 2005 until 2010 is expected to generate different results comparing with fixed exchange rate before 2005 in China.

1.6 Definitions

The following definitions clarify the meaning of the selected of concepts used in this thesis.

1.6.1 China

In this thesis, China defined as mainland of China, which is excluding Tai Wan, Hong Kong, and Macau.

1.6.2 FDI

FDI is foreign direct investment, defined as an investment made to acquire lasting interest in enterprises operating outside of the economy of the investor. (UNCTAD, 2013)

1.6.3 Real Exchange rate

The nominal exchange rate is defined as the price of the domestic currency in terms of foreign currency. That is just purely describing difference value between two currencies. By contrast, besides nominal exchange rate between two different currencies, the real exchange rate also takes two different countries purchasing power in consideration. It tries to measure the value of a country’s goods and services against those of another country at the prevailing nominal exchange rate. (Luis, 2007, p.47).
Since the nominal exchange rate is only showing what a certain exchange rate is on the foreign exchange rate market, if we want to look at how many of a good or service in one country can be traded for one of that good or service in another country, like this thesis, all the Multinational Corporations conduct their foreign investment, they are interested in with local currency what can be bought with it (Luis, 2007, p.47). So I used real exchange rate as one of the variable to conduct research in this thesis.

1.7 Disposition

The rest of the thesis is organized as following. In the second chapter, I will start to discuss the methodology I applied in this thesis, and then present the sources through which the data were collected. In the third chapter I will introduce the reader to the history of FDI in China and the RMB exchange rate system changes. The fourth chapter will start with presenting relevant theories on exchange rate and FDI, and reviewing some of the previous studies from Chinese and Western scholars’ perspective regarding the relationship between exchange rate and FDI, and I will suggest hypotheses for testing in the following chapter. The fifth chapter of my paper will start with the elaborate explanation of data collection and sample composition followed by the process of these data with econometric methods and interprets the output in accordance with my hypotheses. In the last conclusion part, I will resume the key findings enabling to answer the research question stated in the introduction chapter, assess the research for consistency with the truth criteria, and finally make suggestions for future research on the issue.
2 Methodological framework

In this chapter, the author starts to introduce the reader to the reasons for the choice of the topic, and preconceptions affecting the research. Further the research philosophy, scientific approach, and research method are discussed. Finally, this chapter deals with the issues about ethical, as well as contains critics of sources and data.

2.1 Choice of topic

Foreign direct investment (FDI) in China grew fast since Chinese reform and opening in 1979, from less 1 billion in 1980 reaching 106 billion dollars by the end of 2010. As a business student, particularly coming from China, I am very interested in what makes China receive such amount of FDI during the last three decades.

I tried to look at some previous literature to find out the reason. As a result, there has been lots of researching among scholars on the Chinese economy that is to explain the country’s FDI boom and most of the research results demonstrate the potential market size, low labor cost, preferential policies and political stability as major factors of attracting FDI. (Lardy, 1995; Chen, 1996; Henley, Kirkpatrick & wiled, 1999; Zhang, 2001) Unambiguously, these factors have contributed significantly to China’s FDI boom. However, from my point of view, the common features of all these analyses focus on the entity economy level of macroeconomic policy, and market environment. Although FDI embodied in the production section in the form of physical resource, it actually flows in the form of currency. Therefore, exchange rate of RMB will inevitably affect FDI flow scale and direction. Especially, after exchange rate regime has been reformed from July 2005, until the end of 2011, the mid-rate of the RMB/USD was 6.3009, and the cumulative rise in the mid-rate of RMB against USD reached 31.4%, since the exchange rate was reformed in 2005.

So next question came into my mind that is what kind of role the exchange rate has played during FDI boom in China. Most of the previous research generating knowledge regarding to the relationship between FDI and exchange rate in China is that a devaluation of Chinese currency is the most important factor stimulated inflow of FDI in China during the last three decades (Cheng&Yu,2010,p.3;Xing,2003,p.6) Therefore, I am quite interested about after changed exchange rate regime in 2005, whether a relationship between FDI and exchange rate is going to stay as same as before and how is the reform of RMB exchange regime going to impact inflow FDI in China?
2.2 Preconceptions

Authors’ previous social life and academic background will influence authors’ theoretical and practical conceptions when they conduct research. Hence, it is very important to have a comprehensive point of view on the subject studied avoiding too subjunctive judgments.

Author has studied Financial Management on the master level along with such electives as Financial Data Analysis, Research Methods in Business Administration and Financial Risk Management at USBE. The author believes to have piled a valuable theoretical tool to conduct this research in an unbiased way. Also, it is necessary to point it out that the empirical part of the thesis is based on describing and analyzing hard data through the prism of statistics and econometrics that is expected to give an undistorted view on the matter.

2.3 Research philosophy and scientific approach

When conducting a research it is very important for researchers to clarify their research philosophy, since it has significant influence on how researchers understand what it is they are investigating for (Saunders, et al., 2009, p.108). To begin with, there are two research philosophies that I want to explain in my thesis: ontology and epistemology considerations. The former refers to the concept how the researchers view on the nature of the reality and are going to cognize the selected object within a particular reality structure, while epistemology is dealing with the issue of “what kind of knowledge in the reality can be or should be consider as acceptable knowledge in the field of study” (Saunders et al., 2009, p.112).

There are two different ontological positions in social science: objectivism and constructionism. First term implies that the social events as objective independently exist from social actors, whereas constructionism infers subjectivity of the reality that is constructed by social actors through their individual experience, memories and expectations (Bryman & Bell, 2011, p.22-23). I hold the objective point of view on my thesis because I logically assume the relationship between FDI inflow and USD/RMB exchange rate exist independently from individual social actors who cannot exercise a visible influence on it is functioning.

Regarding the concept of epistemology, there are two different orientations: positivism and interpretivism. Positivism refers to the principle that only observable phenomena and social facts can genuinely be considered as knowledge. The positivism framework of research implies that the knowledge studied is purely based on the social evidence and facts that are isolated from the researcher’s individual perceptions and cannot be manipulated by the researcher and therefore is regarded objective. From positivistic perspective, the process of research is based on the existing theory, when generating
hypotheses and testing to confirm or refuse hypotheses (Bryman & Bell, 2011, p.17). The concept of interpretivism is to understand differences between humans as ‘social actors’, and try to understand their world from their point of view. Researchers focus on details of the situation. They strive to understand the reality behind these details in the context of the researchers’ academic experiences. Therefore, when conducting research as interpretivist manner, the emphasis is on the subjective meaning of social action (Saunders, et al., 2009, p.112).

From the aforementioned, the positivist point of view will be used in my thesis. I try to create an objective ground for my research by using quantitative and statistical methods to process hard data that exclude any possibility of data manipulation with the researcher personal perceptions. The purpose of this thesis is to explore the impact of exchange rate movements on the level of inward FDI in China over the time. Therefore, in order to achieve this goal, by applying the scientific method of testing hypotheses that are derived from previous relevant literature in an attempt to revise the existing theory, I would even more confirm the applicability of positivism to my research.

There are two general view approaches in the scientific research, which are deductive and inductive (Bryman & Bell, 2011, p.68). In terms of the relationship between theory and research in my thesis, I use the deductive approach that is consistent with its epistemological consideration (positivism). Deductive approaches begin with researcher based approach on the existing theories and some specific knowledge to generate hypotheses. Further, collected empirical data is used to test these hypotheses. Subsequently, hypotheses are either confirmed or refused through the statistics analysis. At the end of the research, the existing theory will be confirmed or modified.

Generally speaking, in a deductive approach, the research is guided by the theory. As a contrast, in the inductive approach, the theory is the outcome of research by the empirical observations and evaluation of collected data (Bryman & Bell, 2011, p.13). The reason why I follow the deductive research approach in my thesis is that I rely on the previous theoretical assumptions regarding the relationship between FDI and exchange rate and strive to deduce hypotheses and test them empirically. At the end of the research I make some generalizations based on the hypotheses tests in order to generate new knowledge and support to or modify the existing theory.

2.4 Research method

The quantitative and qualitative research methods are very popular used in business and management studies. Quantitative methods focus on the measurements and amounts of the characteristics of the subject studied, whereas characteristics of qualitative research are to focus on generation of theory rather than the testing of theories from previous research (Bryman & Bell, 2011, p.27). Moreover, qualitative research involving collecting, analyzing, and interpreting data by observing what people do and say which is often linked to an inductive research approach is based on a hermeneutic perspective.
Quantitative research entails a deductive approach to the relationship between theory and research that is often based on a positivistic perspective (Bryman & Bell, 2011, p.151). The key point can distinguish between the two methods depending on the research question and objective, ontological and epistemological framework of the research (Bryman & Bell, 2011, p. 27-28).

In my thesis, the research will be conducted by means of the quantitative method. The choice of this method is determined by the research question and objectives of the thesis where the main purpose is to investigate the impact of exchange rate movements on the level of inward FDI in China through testing the relation between foreign direct investment inflows and RMB exchange rate in a certain period. Based on the previous relative research, I can test this relation through the collected empirical data and processing it with statistical and econometric tools that correspond completely to the quantitative approach. Moreover, the fact that within epistemological constraint, our research is positivistic, and it is based on a deductive reasoning that is explained in the above subsection along with our interpretation of the subject studied as being objective support and approve the use of the quantitative method since objectivism, positivism and deductive approach are its common features (Bryman & Bell, 2007, p. 28).

2.5 Selection of sources

I am conducting research in this thesis only using secondary sources with the data represented both in a numerical and verbal form. The verbal data that were used in explaining FDI, exchange rate and its characteristics along with the theories comprising the backbone for suggesting hypotheses to test were mostly obtained from books, scientific journals, newspapers as well as internet sources. The hard copies of books were accessed at the library of Umea University. Through the site of this library (http://www.umu.ub.se) a lot of business articles from Business Source Premier (EBSCO), Emerald Full text along with eBooks were found. Since this link (business source premier) is provided by the Umea university library and a lot of students use it as looking for sources, therefore can be consider has high quality.

The numerical data such as the amount of FDI inflows to China and exchange rate movements constituting the empirical input for testing hypotheses will be detailed in the theoretical part of my thesis. They will be collected through National bureau of statistics of China databases as well as the Internet site http://www.safe.gov.cn/, http://www.fdi.gov.cn/index.htm .

While searching the secondary data either at the Umea University library site, or Google I entered the following relevant keywords: exchange rate in china, FDI inflow in china, exchange rate policy in china, open door policy, FDI determinants, and exchange rate influence on investment.
2.6 Criticism of sources and data

There is abundant literature related to the thesis topic. Therefore, it was quite complicated to combine the variety of views on the relationship between exchange rate and FDI inflows, since some of them enter into a direct controversy with each other. Nevertheless, the author tried to do his best in order to cover the concept comprehensively striving to find a trade-off between competing sources where it was possible but also when necessary presenting different positions. Furthermore, it was very useful to consider secondary literature sources expressing different views on the relationship between exchange rate and FDI inflows to take the right point while analyzing the numerical data and to interpret the results afterwards.

All the selected secondary sources have high reliability. Since all books, scientific journals used in this thesis were taken from well-known respective sources as well as the data I used were downloaded from official statistics websites such as, http://www.isda.org, http://www.unctad.org, and http://www.stats.gov.cn/. In addition newspapers, articles come from the trustworthy Internet editions of Financial Times and China Daily.

As for the numerical data, they are coming from official statistics in China government, because it is easier to conduct since they already exist, and these data are coming from national level institutions, which make them having less interest in personal gains and a stronger sense of accuracy. At least it is official data, so could it is considered as high quality of data.

2.7 Ethical considerations

The Research ethics refer to use appropriate behavior to conduct research, which is mainly concerning these three areas: lack of informed consents; invasion of privacy; and deception (Bryman & Bell, 2011, p. 128).

As the research is mainly using the information which already been published, and anyone can access to this public information, there is no any harm or invasion of privacy exists during the data collection in this thesis. Lack of informed consents would also have the same non-exposure due to the fact that the data is public. Deception usually occurs when the researcher tries to hide the true purpose of the study in order to get more naturally respond from participants. Due to nature and source of data I used in this thesis, there won’t be any deception issue occurring.
3 Overview of the Development of Foreign Direct Investment and exchange rate in China

Foreign direct investment has greatly contributed to China's economic growth during the last 30 years. At the same time, China's RMB exchange rate system has experienced a different system, and every time change in exchange rate system has had a close relationship with development of domestic and international economy.

The chapter will review the development of foreign direct investment and exchange rate in the different periods, and try to provide insight on the relationship between inward FDI and exchange rate.

3.1 FDI development in China

Foreign direct investment inflows into China have grown rapidly since China's reform and opening up after 1979. Combined with FDI characteristics in the different historical periods, FDI inflows could roughly be divided into four different flowing periods:

3.1.1 “The experimental period” (1979-1985)

For the first time since 1949, the central government of China began to practice special policies of “open door” in 1979, gradually allowing foreign direct investment into China. Meanwhile, the National People’s Congress passed the “Foreign Equity Joint Venture Law” and thereby granted the foreign investors a legal status by establishing joint venture enterprises with Chinese partners in China (Liu, 2006, p.5-6). In 1980, four Special Economic Zones (SEZs) were created in the eastern coast of China (Shenzhen, Zhuhai, Shantou, Xiamen) together with preferential tax and administrative policies to encourage foreign investment. The primary aim of SEZs was to provide ‘window’ and ‘radiator’ functions to attract foreign investment and import modern production expertise and technology and increase exports (Yueh, 2010, p. 232-233).

In 1980, other 14 ‘Coastal Port Cities’ were given relatively same preferential policies as those SEZs were opened to foreign investment. Following this trend, more and more areas were opened up. In January 1985, the state council designated Yangtze and Pearl River deltas and the South Fujian Province Triangle Area as ‘Coastal economic open zones’, (CEOAs). This significant movement towards opening up resulted in the spread of FDI from SEZs to other coastal regions and led to the first FDI boom in 1984-1985 (Wei&Liu,2001,p.15;Luo,2000,p.11-13)The FDI invested projects, contracted value and actually realized value reached 6842 items, 16.1billion and 6.1billion during 1979 -1985.
At this stage, the overall trends and characteristics of FDI inflows in China were settled but highly regulated. The total amount of FDI inflows was fairly low during this time that is reflecting government’s cautious attitude during this ‘experimental period’. For instance, FDI was geographically restricted in the four Special Economic Zones, and limited to equity joint ventures. Due to the sector restricted, most of FDI concentrated in the service sector. (Chai, 2011, p.202)

Table 3.1 FDI INFLOWS INTO CHINA 1979-1985(US billion)

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of projects</th>
<th>Contracted FDI (US billion)</th>
<th>Realized FDI (US billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979~1982</td>
<td>965</td>
<td>4.974</td>
<td>1.788</td>
</tr>
<tr>
<td>1983</td>
<td>638</td>
<td>1.917</td>
<td>0.916</td>
</tr>
<tr>
<td>1984</td>
<td>2166</td>
<td>2.875</td>
<td>1.419</td>
</tr>
<tr>
<td>1985</td>
<td>3073</td>
<td>6.333</td>
<td>1.956</td>
</tr>
<tr>
<td>Total</td>
<td>6842</td>
<td>16.099</td>
<td>6.079</td>
</tr>
</tbody>
</table>


3.1.2 “Gradual development period” 1986-1991

With the seemingly successful experiment of FDI in the SEZs and deep understanding of potential benefits of FDI, the Chinese policy makers promulgated a series of laws and regulations to reduce government intervention and attract more foreign investors.

Started in 1986, the central government of China has promulgated “Law on Foreign Capital Enterprises” (April 1986), “Provisions of the State Council on the Encouragement of Foreign Investment” (October 1986), “Law on Chinese Foreign Contractual Joint Ventures” (April 1988) to lift the restrictions on foreign ownership, clarify the legal environment for FDI. Furthermore, the State Council decided to extend Coastal economic open zones to Liaoning Peninsula, Shandong Peninsula in 1988. Thus, most of areas in the coastal provinces were incorporated into the coverage of ‘open economic zones’ (Yueh, 2011, p.232-233; Wang, 2011, p.10-13). These remarkable movements led realized foreign direct investment inflows into China to increase rapidly with annual growth rate around 20 percent during the period 1986-1991. By the end of 1991, the government of China had approved 35,706 foreign invested projects. These projects had a contract value of 36 billion USD and their actual use reached 18.6 billion USD.
Compared to FDIs in the previous stage, this period showed the following features: a) the regional distribution of FDI has been in expansion, the inner area started to join the team to absorb foreign direct investment. b) The dominant type of FDI has shifted from equity joint ventures (EJVs) to contractual joint venture (CJVs) and wholly foreign-owned enterprise (WFOEs). c) In term of sector distribution, FDI in China has undergone significant change from the service sector to the industrial sector.

The proportion of export-oriented and technologically advanced enterprises, as well as infrastructure and some basic industries increased meaning that China started to attach importance to FDI orientation and structure adjustment and optimization (Wei & Liu 2001, p.2).

Table 3.2 FDI INFLOWS INTO CHINA 1986-1991 (US billion)

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of projects</th>
<th>Contracted FDI</th>
<th>Realized FDI (US billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986</td>
<td>1498</td>
<td>2.834</td>
<td>1.875</td>
</tr>
<tr>
<td>1987</td>
<td>2233</td>
<td>3.709</td>
<td>2.314</td>
</tr>
<tr>
<td>1988</td>
<td>5945</td>
<td>5.297</td>
<td>3.194</td>
</tr>
<tr>
<td>1989</td>
<td>5779</td>
<td>5.6</td>
<td>3.393</td>
</tr>
<tr>
<td>1990</td>
<td>7273</td>
<td>6.596</td>
<td>3.487</td>
</tr>
<tr>
<td>1991</td>
<td>12978</td>
<td>11.977</td>
<td>4.366</td>
</tr>
<tr>
<td>Total</td>
<td>6842</td>
<td>36</td>
<td>18.6</td>
</tr>
</tbody>
</table>


3.1.3 ‘High-Growth period’ 1992-1996

The acceleration period started in 1992 due to famous “Tour to south” by China’s paramount leader Deng Xiaoping. Deng explicitly articulated “development is just hard truth” in the public speeches during his tour, to send the information to the world that China would continue committing to market-oriented reforms and policies to open up. These ideas also gave economic development direction of China in the future (Wang, 2011, p.12).

According to the instructions and spirit of Deng Xiaoping's southern tour speeches, in the same year, the State Council then further liberalized its foreign direct investment regime by deciding to open 11 capital cities in the hinterland, 5 cities along the Yangtze River (four more added in 1993) and 13 cities alone China’s border line as ‘open cities’ (OCs) with same policy treatment as that given to coastal open areas to the foreign direct investment (Wang, 2011, p.12). The implementation of opening up policies in the
national wide made remarkable result that China's actually utilized foreign direct investment, showing an increase in geometric progression, (see the table 3.3) from US $4.37 billion in 1991 to US$11 billion in 1992, then jumped to US$41.7 billion in 1996.

The feature of FDIs in this period can be summarized as following: the rapid expansion of investment scale; foreign direct investment gradually flowed from the coastal area to the interior and western regions; more diversified source of investment compared with the last stage; the investors mainly focused on investing in the technology-intensive industries; due to removed further investment restrictions, wholly foreign-owned enterprises (WFOEs) became increasingly popular among foreign investors during this period.

Table 3.3 FDI INFLOWS INTO CHINA 1992-1996(US billion)

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of projects</th>
<th>Contracted FDI</th>
<th>Realized FDI(US billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>48764</td>
<td>58.12</td>
<td>11.00</td>
</tr>
<tr>
<td>1993</td>
<td>83437</td>
<td>111.45</td>
<td>27.52</td>
</tr>
<tr>
<td>1994</td>
<td>47549</td>
<td>82.68</td>
<td>33.77</td>
</tr>
<tr>
<td>1995</td>
<td>37011</td>
<td>91.28</td>
<td>37.52</td>
</tr>
<tr>
<td>1996</td>
<td>24556</td>
<td>73.27</td>
<td>41.73</td>
</tr>
<tr>
<td>Total</td>
<td>241317</td>
<td>416.8</td>
<td>151.54</td>
</tr>
</tbody>
</table>


3.1.4 ‘Adjustment stage’ post 1997

The annual growth rate of FDI inflows continually showed a positive trend until the 1999 drop down to US$40.319 billion with the negative growth rate -11.315% (First time during last two decades). This temporary decline was mainly due to the influence from Asian financial crisis and the rise of acquisition transactions in both OECD and non-OECD countries (Li, 2005, p.5-6). However, the inflow of FDI to China had recovered from the crisis by accession to WTO in 2001.

In order to meet the requirements of entry into WTO, the central government of China adjusted structure of economy and further revised the economic policy, such as opening up more industries sectors (banking, insurance, finance and telecommunications) to foreign investors, reducing the industrial tariffs, removing requirements for import and export quotas, eliminating requirements for foreign exchange balancing and domestic sales ratio requirements (Chai & Roy 2006, p.135). This resulted in a large boost to the foreign investment; (see the table 3.4) China with US$ 53 billion FDI inflows overtook America as the largest foreign direct investment recipient in 2003. At the end of 2007,
FDI inflows reached a new record of US$74.7 billion (Guo, 2010, p.142).

Under the background of big shrink of global FDI, due to worldwide financial crisis in 2008, China’s absorbed FDI is US$ 90.033 billion, a decrease of 2.56% as compared with that of the same period last year. However, with government adjustment of macroeconomic policies (stable the currency), the FDI inflows to China started to increase again reaching US$ 105.73 billion at 2010 with a growth rate 17.44% compared with 2009.

Table 3.4 FDI INFLOWS INTO CHINA 1997-2010 (US billion)

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of projects</th>
<th>Contracted FDI</th>
<th>Realized FDI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>21001</td>
<td>51.003</td>
<td>45.257</td>
</tr>
<tr>
<td>1998</td>
<td>19799</td>
<td>52.102</td>
<td>45.463</td>
</tr>
<tr>
<td>1999</td>
<td>16918</td>
<td>41.223</td>
<td>40.319</td>
</tr>
<tr>
<td>2000</td>
<td>22347</td>
<td>62.380</td>
<td>40.715</td>
</tr>
<tr>
<td>2001</td>
<td>26140</td>
<td>69.195</td>
<td>46.878</td>
</tr>
<tr>
<td>2002</td>
<td>34171</td>
<td>82.768</td>
<td>52.743</td>
</tr>
<tr>
<td>2003</td>
<td>41081</td>
<td>115.069</td>
<td>53.505</td>
</tr>
<tr>
<td>2004</td>
<td>43664</td>
<td>153.479</td>
<td>60.630</td>
</tr>
<tr>
<td>2005</td>
<td>44001</td>
<td>189.065</td>
<td>60.325</td>
</tr>
<tr>
<td>2006</td>
<td>41473</td>
<td>193.727</td>
<td>63.021</td>
</tr>
<tr>
<td>2007</td>
<td>37871</td>
<td></td>
<td>74.768</td>
</tr>
<tr>
<td>2008</td>
<td>27514</td>
<td></td>
<td>92.395</td>
</tr>
<tr>
<td>2009</td>
<td>23435</td>
<td></td>
<td>90.033</td>
</tr>
<tr>
<td>2010</td>
<td>27406</td>
<td></td>
<td>105.735</td>
</tr>
<tr>
<td>Total</td>
<td>426821</td>
<td>1010.011</td>
<td>871.786</td>
</tr>
</tbody>
</table>

Source: China Statistical Year book (2011)

3.2 Exchange rate development in China

Based on the situation of the economic development and characteristics of the RMB exchange rate in the different periods, the progress of exchange rate development in China can be divided into four periods:

(1) Pre-reform period 1949-1978.

(2) Dual Track Exchange Rate System 1979-1993.


(4) New Managed Floating Exchange Rate Regime Post 2005
3.2.1 Pre-reform period from 1949-1978

After the founding of the People’s Republic of China (PRC) in 1949, the new government began to rectify the currency market and establish China’s foreign exchange control system. The People’s Bank of China (PBC) was designated as the government agency to implement foreign exchange control. During 1949-1952, the national exchange rate system was not yet formed as unified.

In 1953, national currency market was gradually unified. RMB exchange rate system in compliance in the planned economy was initially shaped. In this period, the RMB exchange rate is pegged to USD and served mainly for accounting function to determine local currency profits or subsidies. The official fixed exchange rate of the RMB to USD at 2.4618 until 1973. (Lin & Shermm, 2003, p.3-6).

After the BrettonWoods system collapsed in 1973, China promptly adjusted the exchange rate regime. However, under national economic strategy of central planning, RMB exchange rate was still fixed at overvalued levels of 2.2673 Yuan per dollar. The official exchange rate of the RMB to USD decreased from 2.2673 to 1.6836 during 1973-1978, and RMB relatively appreciated by 34.7% .The reason of this is that country focus on the import-substitution industrialization strategy, with the overvalued exchange rate allowed China to import machinery and equipment to priority industries at a relatively lower domestic currency cost than otherwise would have been possible (Tu, 2004, p.8-9). However, at same time this overvalued exchange rate could hurt the export incentive.

3.2.2 Reform period 1979-1993

In the context of the reform and opening up policy beginning in 1979, foreign trade gradually became decentralized. The overvalued official exchange rate had made country’s export sector unprofitable and led to the shortage of foreign exchange reserves. To remedy this situation, the State Council decided to introduce the dual track exchange system in 1981 to settle trade balance and increase the foreign exchange reserves. The more depreciated rate ISR (Internal settlement rate, at fixed rate 2.80 per dollar) mainly applied to the rate of earning exchange in terms of exports of products. The official exchange rate (between 1.5 and 2.0 Yuan per dollar) was used to non-trade-related foreign exchange transactions (Lin & Shermm, 2003, p.6).

During the period 1981-1985 that ISR was used, situation of the export sector unprofitable and shortage of foreign exchange reserves had significantly improved. However, dual track exchange rate system also caused a number of distortions. Meanwhile, both IMF and U.S. authorities accused China of using the dual exchange system to subsidize exports. Eventually, the Chinese State Council decided to abolish dual track exchange rate system by January 1st, 1985. The official exchange rate was devalued to the level of 2.80 Yuan per US dollar at same year (Lin & Shermm, 2003,
A new dual track exchange rate system re-emerged with foreign exchange swap rate replacing the ISR rate introduced by State Council in 1986. The swap rate played a major role in foreign trade transactions and was generally determined by the market force. The government determined the official exchange rate. However it was adjusted periodically in response to changes in the value of a basket of currencies. At end of 1993, the swap rate and the official rate were 8.7 Yuan per US dollar and 5.8 Yuan per US dollar (Lin & Shermm, 2003, p.13).

3.2.3 De Facto Fixed Exchange Rate System 1994-2005.

At the beginning of 1994, in the context of planned economy, previous system was replaced by socialist market economic system. In order to achieve RMB convertibility, a vital reform sweeping the foreign exchange control system was carried out. RMB exchange rate regime was changed into market-based, single, managed floating exchange rate. China unified dual exchange rate regime into a single one, and the official rate devalued 40% and eventually unified at the swap market rate of Yuan 8.7 per US dollar (Tu, 2004, p.8)

Asian financial crisis struck economic development for the Asian neighbors and led them to substantially devaluing their currency. In order to prevent contagion of the crisis, and preserve economic and financial stability in Asia, China authorities were committed to maintain the stability of RMB exchange rate. Sufficient foreign exchange reserves and tight control on the capital account helped Chinese government successfully maintaining the RMB exchange rate at constant level 8.28 Yuan per US dollar until 2005 when the new exchange rate regime was introduced (Yí, 2008, p.9). 

3.2.4 New Managed Floating Exchange Rate Regime Post 2005

After joining in WTO, with the increases in trade surplus and the foreign exchange reserves, the internal and external pressure of RMB appreciation became gradually greater. On July 21st, 2005, the People’s Bank of China announced that RMB was no longer pegged to the U.S. dollar, and switched to implement a managed floating exchange rate system based on market supply and demand, with reference to a basket of currencies. In the meantime, Chinese Yuan appreciated 2% from 8.27 to 8.11 Yuan per US dollar (Yí, 2008, p.11).

Due to the pressure of economic and financial market developments at home and abroad, and the balance of payments (BOP) situation in China, the appreciation of RMB significantly increased after 2006. In these three years following the accumulation of appreciation until September of 2008, the RMB/USD exchange rate varied from 8.11 to 6.809 Yuan per dollar, indicating a total appreciation of 19%. 
According to the announcement People’s Bank of China made on July 19th of 2010, China’s central bank decided to push forward the RMB exchange rate reform to enhance the RMB exchange rate flexibility and maintain the macroeconomic and financial stability in China. At the end of 2011, the mid-rate of the RMB/USD was 6.3009; the cumulative rise in the mid-rate of RMB against USD reached 31.4%, since the exchange rate reformed in 2005 (SAFE, 2005; 2011).
4 Theoretical framework

The chapter starts with the definition of what the FDI is and provides insight on the positive and negative effects of FDI on the host country’s economy. Further, it focuses on the theoretical relationship of the influence of exchange rate movements on FDI as well as FDI impact on exchange rate movements. Finally, it reviews previous studies on the impact of exchange rate movements on FDI.

4.1 FDI

The name of FDI is the acronym for foreign direct investment and refers to “an investment made to acquire lasting interest in enterprises operating outside of the economy of the investor, the investor’s purpose being to have an effective voice in the management of the enterprise” (UNCTAD, 1999). Foreign direct investment has played an important role in the growth of emerging economies, not only by contribution of providing financing for their economic growth, but also creating employment opportunities, productivity enhancement and supporting domestic industrialization through the transfer of advanced technology and expertise management skills, and help integrate the host economy with the global economy.

4.2 FDI effects on the host country

4.2.1 Positive effects of FDI

The UNCTAD world investment report (2011) stated that the foreign direct investment encourages host countries’ economic development in several ways. In addition to bring physical capital into a host country, FDI can also provide advanced technology, expertise management skills, create new jobs, increase exports by raising efficiency, as well as give access to international markets. All these factors can raise the productivity and the efficiency of resource use in the host country, thus will promote host countries’ economic growth.

4.2.2 Negative effects of FDI

Every coin has two sides. Regarding to above positive factors I mentioned, however, sometimes these factors can also bring negative effects. For instance, multinationals with advanced technology will have higher efficiency and better product quality compared with local firms. In that case they might suppress domestic business to wipe out local competitors. Thus, many jobs might be lost instead of creating (Zhang, 2001,
p.6-7; Asta, 2010, p.3). Moreover, the local business will become dependent on
technologies introduced by multinationals instead of producing new technologies by
themselves, eventually will create core technology deficiency in the host country
(Vissak & Roolaht 2005, p.50-54).

4.3 Theoretical impact of exchange rate changes on FDI

4.3.1 Exchange rate and FDI linkage

Regarding to the relationship between exchange rate and FDI, there are three popular
arguments existing in previous literature: “production flexibility theory”, the
“risk-aversion arguments” and the “exchange rate sheltering hypothesis”.

The production flexibility theory primarily assumes that foreign investors are neither
risk-averse nor risk seeking. They are risk-neutral and that “generally diversify globally
to increase the flexibility of production in response to shocks under conditions of free
entry as dictated by the operative exchange rate regime of an economy” (Aizenman
1992,p.897-910) Basically, this model indicates that comparing with flexible exchange
rate regime, the fixed exchange rate regime is more conductive to FDI flows. A different
definition of “production flexibility theory” was used in Dixit and Pindyck (1994). This
is referred as the ‘real option’ model based on that a firm could have the option to invest
overseas, with exchange rate uncertainty potentially influencing the expected return on
the option. The value of holding onto the option by not investing will increase when
exchange rate fluctuation (Phillips & Fredoun, 2008. p.7-10). Whereas changes in
exchange rate levels affect the price of the option. Goldbergev and Kolstad (1995)
concluded that MNCs build their plants in different countries creating the option to shift
production among plants to avoid exchange rate shocks. So conduct investment in the
lowest cost location is their first choice after an exchange rate movement.

The risk-aversion argument posits that exchange rate risk arises due to information
asymmetry, sociological, macroeconomic factors and natural occurrences existing in an
imperfect world and also the different exchange rate regimes across the world. Froot
and Stein (1991) raised out “wealth effects” theory in their research using an imperfect
capital market approach to indicate that exchange rates operate on wealth to affect FDI
flows. Cushman (1985) pointed out a middle ground for the production flexibility
theory and risk-aversion theory in his research. He argues that when the enterprise
wants to serve foreign markets it has option through either exports or foreign direct
investment. Most of the firms will choose FDI if exchange rate volatility increases or
real exchange rate appreciation lowers the foreign cost of capital (Bénassy-Quéré et al.
2001). In their research, when the risk adverse enterprises invested abroad, they
exploited exchange rate correlations between locations to reduce the effect of
uncertainty on profits.
The “exchange rate sheltering hypothesis” also known as “complacent manufacturer hypothesis” posits that depreciating exchange rate protects local firms from external competitive pressure (R. Lafrance & L. Schembri, 2000, p.17-20). Taking China as an example, when the RMB exchange rate falls relative to the dollar, it lowers the price of Chinese products on the American market, making them more competitive relative to similar goods and services produced abroad. That is also one of the important reasons why China received so much FDI during the last decades. At the same time, the local firms would rely on the weak currency to gain their relative competitive advantage on the international market. Therefore, maintaining the low exchange rate reduces the firm’s incentive to make productivity-enhancing investments, eventually it could be harmful to domestic production development. That is probably one of explanations why China has stayed as a labor-intensive industry for a long time.

### 4.3.2 Exchange rate effect on the different types of FDI

The exchange rate level effect on FDI inflows has been examined in several theoretical and empirical studies. The general conclusion of these studies is that devaluation in the host country’s currency stimulates inflows of FDI, and conversely, an appreciation leads to a reduction (Kohlhagen, 1977; Cushman, 1985; Caves, 1989; Froot & Stein, 1991).

Essentially, based on diverse motives of investing, the literature identifies two types of channels through which exchange rate impact on foreign direct investment: market-oriented FDI and cost-oriented FDI.

Cost-oriented FDI, also known as export-oriented or resource-oriented FDI, refers to the multinationals investing in the host country where it has a relatively lower production cost to produce and export output back to the home or a third country. The main motivation behind this is that multinationals exploit interregional factor price differentials for the production process to maximize profit. Most of cost-oriented FDI are focused on investment in tradable goods between countries; therefore, they face higher exchange rate risk exposure in terms of sales. (Lin, et al., 2005, p.5)

Depreciation of host country currency will stimulate the inflow of cost-oriented FDI since depreciation of host country currency will increase the wealth of (cost–oriented) foreign investor and lower their cost of the production in the host country, hence, stimulating FDI inflow. (Cheng & Yu, 2010, p.4)

Market-oriented FDI is direct investment by multinational companies in order to penetrate and directly serve the local market of the host country rather than though the exporting. The main motivation for this type of investment is to access rapid development of the market size in the host country without any additional cost such as transportation and tariffs. The most of market-oriented FDI are focused on non-tradable business; therefore, they face lower exchange rate risk exposure in terms of sales. (Lin, et al., 2005, p.6)
In the case of market-oriented FDI, appreciation of home country currency will increase market-seeking FDI, because the appreciation of home country currency will improve local customer consume capacity. Moreover, with improvement of home country market price mechanism, this will eventually increase market-oriented FDI inflow to the home country. (Cheng & Yu, 2010, p.5)

### 4.3.3 Wealth and Cost effect

The “common wisdom” belief, all other factors being equal, the exchange rate changes have a direct impact on the international distribution of wealth, will make cross-changes in the relative value of the stock of wealth, and with more wealth multinationals will find it to be relatively easier to implement overseas mergers and acquisitions. Froot and Stein (1991) used an imperfect capital market model to show that exchange rates operate on wealth to affect FDI. Because appreciation of the home country currency against the host currency will raise the relative wealth position of firms denominated in foreign currencies, lowering their relative cost of capital. Thus, it allows a foreign investor to bid more aggressively for overseas assets. As a result, this will increase FDI into host country, and conversely an appreciation of the host currency should decrease FDI.

Relative cost effect means that when there is home currency devaluation, foreign investment in the host country for a fixed production inputs (such as land, plant, labor, etc.) becomes relatively cheap, so the production cost is reduced accordingly for foreign investors. With higher investment yields will attract more multinational companies to set up factories to come to host the production and operation, thus inflow of foreign direct investment in the host country will continue to increase. This effect emphasizes the exchange rate changes effect on the cost of production of the host country.

Xing, (2005,p.6); Zhang, (2009,p.20-25); Cushman, (1988) mention that it has to carefully consider the Relative cost effect on market-oriented FDI. Because if market-oriented FDI mainly uses home country resource as input, thus, if appreciation of the home country currency against the host currency, making exporting from the host country to the home country less cost-competitive, which will reduce inflows of FDI. However, compared to the cost-oriented FDI, since they mainly use host country resource as input, thus, appreciation of the home country currency against the host currency, making production of cost in the host country decrease, which will increase inflows of FDI.

### 4.4 Inward FDI effect on exchange rate

Exchange rate is important link between domestic and international commodity, and financial markets. Exchange rates as a monetary special price, is an important factor of the national macroeconomics, it is mainly determined by the supply and demand of foreign currency in home currency.
Although there is variety of factors that can influence supply and demand of foreign exchange, while they are mainly affected by the country’s international trade balance. If the international balance of payments deficit, that’s indicated shortage of the foreign exchange rate, there is pressure of devaluation of the currency; on the contrary, there is upward pressure. The balance of payments could generate demand for currency, take foreign direct investment as the example, investments advanced technology and equipment to the home country, usually need local labor, land and raw material resources, which often end up invested domestic resources in monetary terms, so that is increase domestic money supply. More specifically, the inflow of foreign capital in the international balance of payments is equivalent to a direct increase in the money supply, thereby affecting the foreign exchange reserves. As the result foreign exchange supply and demand will change, eventually change exchange rate.

4.5 The effect of RMB Exchange Rate Appreciation

There have been a lot of debates about what is the effect brought into the economic situation after China changed the exchange rate regime after 2005. After carefully reviewing the related literature, there are two different perspectives regarding the RMB appreciation effect: Hinder economic development & Simulate economic development.

Based on the “relative production cost effect” and “relative wealth effect” summed up by Cushman (1985) and Froot & Stein (1991), appreciation of the home currency would reduce the international competitiveness of the country directly. Because if other factors are hold constant, the appreciation of currency will increase local relative to foreign production cost, such as labor cost and at same time also reduce relative wealth of foreign investor, which will lower the price competitiveness of country’s export, thus bring the certain negative effect on FDI inflows, eventually will slow down economic growth.

On the contrary, research made by the Campa (1993) stated that currency appreciation in the home country would encourage FDI inflow. In his model, the overseas investment decisions made by the foreign companies depend on expectations of future profitability. Therefore, the stronger the currency in the host country, the higher confidence of the future earnings expectations multinational corporations will have, which will attract more FDI. Relatively, devaluation has the opposite effect.

In the case of China, some scholars stay on the perspective of hinder economic development have same opinion as are Cushman (1985) and Froot & Stein (1991), they believed appreciation of RMB currency will inhibit FDI inflow and lower China competitiveness on the export parts since exports is accounting for 37% proportion of GDP at 2005, So far; Chinese economic development still heavily depends on the exports. Therefore, appreciation of currency eventually will slow down economic growth. (China Statistics yearbook, 2008)
As we all know China is famous its cheap labor cost, which is not good for the country's long-term development. The scholars agree on the opinion of stimulating of the economy is because they thought that RMB appreciation is a benefit to China's industrial restructuring and labor market reallocation, to guide it from labor-intensive industries to capital and technology-intensive industries. Well, appreciation of RMB will indeed have a negative impact on export enterprises in the short time, however, with the rapid economic growth and opening up in China, re-adjustment industrial structure, this effect would be offset by the lower import price in the long run. So China economy will benefit with this currency appreciation in the long run. (Gao, 2010, p.25)

4.6 Literature review

Regarding to the relationship between exchange rate and FDI, there are three main different perspectives that I could gather from previous literature:

4.6.1 Currency appreciation in the host country will promote FDI inflow

Cushman (1985) proposed the theory of relative production costs, emphasizing that the exchange rate changes affect the cost of production of the host country. He used two-period dynamic model, in which multinational corporations used local currency to measurable profits. Through analyzing the production and sale of land in four different investment models, he reaches the conclusion that depreciation of home country currency would lower production costs and enhance FDI inflows in the host country.

Campa (1993) in his model pointed out, whether multinationals invest abroad or not, is depending on the expectations of future profitability, if the host country currency is stronger (appreciation compared with home country) more foreign capital will flow in, and higher will be expectations of future profits from entering a foreign market. He concludes that appreciation of host country currency will increase FDI inflow.

Bénassynassy nassy-Qu éré (2001) through the establishment of econometric models get that the relationship between exchange rate and foreign direct investment relationship is that the effect of exchange rate on FDI depends on the motivation of the FDI. If it is market-seeking multinationals, appreciation host country currency will accelerate inflow of FDI.

Gorg and Wakelin (2001) conducted comprehensive research on exchange rate movements on impact FDI. In his paper, he not only considers inward FDI, but also about the situation with outward FDI, he analyzed both direct investment from US to 12 countries and investment from these 12 countries to the US. The result is contradictory; first a positive relationship between US outward investment and appreciation in the host country currency while there is a negative relationship between US inward investment and appreciation in the dollar.
4.6.2 Currency depreciation in the host country will promote FDI inflow.

Froot and Stein (1991) proposed relative wealth effect. When capital markets are subject to information imperfections, exchange rate movements do influence foreign investment. They explained in their paper that depreciation of host country currency relative to the home country actually increases relative wealth of foreign investors, thereby encouraging foreign investors to acquire more domestic assets. As a base for the empirical analysis, they used industry level data on US inward FDI from the 1979 and 1991 to conclude that the dollar depreciation caused increase in FDI inflows.

Kohlhagen (1977) mentions that MNEs tend to increase their production capacity in host countries for serving their home market if foreign currencies depreciate.

Dewenter (1995) using data of acquisitions of U.S. companies from 1975-1989 examined the exchange rate and FDI correlation. He found that depreciation of the dollar led to a lot of foreign investment in U.S.

Xing (2006) based his research on panel data covering Japanese direct investment in China’s nine major manufacturing sectors from 1981 to 2002, and combined the data situation in Japan, by constructing econometric models to test exchange rate movements impact Japanese direct investment in China, found that the Yuan’s cumulative devaluation created substantial wealth and production effects, and contributed to the surge of Japanese FDI inflows.

Zhang (2005) conducted quantitative analysis for Hong Kong, United States, Taiwan, Japan, and Singapore and other countries and regions with Chinese bilateral real exchange rate movement’s effects on China FDI, the real exchange rate depreciation in China leading FDI increase, while the appreciation of RMB currency led to reduce inward FDI.

Sun, Liu & Song (2006) conduct their research based on two sub-sample models including market-oriented FDI and cost-oriented FDI to China to evaluate the effects of exchange rate changes on FDI based on the period from 2001 to 2003. The result indicated that appreciation of RMB would attract more market-oriented FDI whereas it would decrease cost-oriented FDI.

Based on the empirical researches, Goldbery & Klein (1997) and Bayoumi & Lipworth (1998) provide evidence supporting the theoretical arguments on the negative relationship between exchange rates and inward FDI.

4.6.3 Exchange rate is not significant factor for the inflows of FDI

Hymer (1960) stated that "in the case of perfect capital markets, foreign direct investment is the company's own strategic considerations, exchange rate fluctuations will not affect FDI"; Goldberg and Kolstad (1995) established an empirical model for
developed countries, drawn the conclusion that the “exchange rate depreciation for foreign direct investment has no significant effect”

**Regarding to the FDI impact on exchange rate movements:**

Dornbush (1973; 1974), stated that the inflow of foreign capital may lead to a real exchange rate appreciation or depreciation, this depends on whether capital inflows are used to finance domestic spending or capital accumulation in the traded or the non-traded sector.

Giavazzi and Spaventa (1990) argue that these large inflows of foreign capital were the main reason causing the real exchange rate appreciation.

For Harberger (1985) and Edwards (1985a, 1985b, 1986) at their research result, they both indicated that the massive inflow of capital experienced between mid-1979 and mid-1981 in Chile was the main factor behind the real appreciation of the peso.

**4.7 Hypotheses**

Regarding to the previous literature, it seems that the research result of the relationship between Exchange rate and inward FDI are quite different, that’s mainly due to different research targets, methods and different periods. However, there is strong evidence from previous literatures indicated that firms always want to mitigate exchange rate risk when they were establishing production plants in countries with large markets. In the case of China, combined with previous studies, Exchange rate and FDI relationship history fact in China, I set two hypotheses, which will be tested, in the empirical part.

**First hypothesis:** Appreciation of RMB exchange rate will reduce FDI inflow.

**Second hypothesis:** Inward FDI promotes appreciation of RMB exchange rate.
5. Empirical analysis

5.1 Data collection and description

The thesis objective is to test the relationship between FDI inflow and exchange rate; therefore I need to collect these two variables’ information. In order to obtain real exchange rate, I also need information about customer price index. All the numerical data sources include inward FDI, Exchange rate RMB/Dollar, and customer price index (China, USA) comes from China Statistical Yearbook, China Statistical Bulletin, Bank of China and world economic outlook from IMF official website.

The period for time series model ranges from 2005-2010, and the size of sample together includes actually number of FDI utilization and exchange rate with monthly frequency is totally 132 observations. (See the table5.1) The real exchange rates are calculated by the equation as \( \text{RER}=e \frac{P^*}{P} \) in this thesis, where, \( e \) is the nominal Yuan-dollar exchange rate, \( P^* \) is the average price of the goods in the China area, and \( P \) is the average price of the goods in the United States.

<p>| Table 5.1 RMB/USD Exchange rate and Number of FDI utilization 2005-2010 |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|                             | Month           | 2005            | 2006            | 2007            | 2008            | 2009            | 2010            |
| Actually Number Of FDI Utilization (US$ 100 million) | January         | 45.45           | 51.75           | 112.0           | 75.41           | 81.29           |
|                             | February        | 40.44           | 45.34           | 69.28           | 58.33           | 58.95           |
|                             | March           | 56.56           | 61.84           | 92.86           | 84.03           | 94.18           |
|                             | April           | 42.34           | 44.66           | 76.03           | 58.92           | 73.46           |
|                             | May             | 45.09           | 48.99           | 77.61           | 63.79           | 81.32           |
|                             | June            | 54.39           | 66.30           | 96.10           | 89.61           | 125.1           |
|                             | July            | 45.28           | 42.79           | 50.42           | 83.36           | 53.9            | 69.2            |
|                             | August          | 49.02           | 44.86           | 50.18           | 70.08           | 74.99           | 76.0            |
|                             | September       | 52.54           | 53.97           | 52.70           | 66.42           | 78.99           | 83.8            |
|                             | October         | 51.64           | 59.87           | 67.76           | 67.22           | 71.05           | 76.6            |
|                             | November        | 47.16           | 56.97           | 76.79           | 53.22           | 70.23           | 73.5            |</p>
<table>
<thead>
<tr>
<th>Exchange Rate RMB/USD</th>
<th>December</th>
<th>71.98</th>
<th>87.58</th>
<th>130.94</th>
<th>59.78</th>
<th>121.38</th>
<th>81.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>8.0668</td>
<td>7.7876</td>
<td>7.2478</td>
<td>6.8382</td>
<td>6.8273</td>
<td></td>
<td></td>
</tr>
<tr>
<td>February</td>
<td>8.0493</td>
<td>7.7546</td>
<td>7.1601</td>
<td>6.8357</td>
<td>6.8270</td>
<td></td>
<td></td>
</tr>
<tr>
<td>March</td>
<td>8.0350</td>
<td>7.7390</td>
<td>7.0752</td>
<td>6.8341</td>
<td>6.8264</td>
<td></td>
<td></td>
</tr>
<tr>
<td>April</td>
<td>8.0156</td>
<td>7.7247</td>
<td>7.0007</td>
<td>6.8312</td>
<td>6.8274</td>
<td></td>
<td></td>
</tr>
<tr>
<td>June</td>
<td>8.0067</td>
<td>7.6330</td>
<td>6.8971</td>
<td>6.8332</td>
<td>6.7615</td>
<td></td>
<td></td>
</tr>
<tr>
<td>July</td>
<td>8.2369</td>
<td>7.9910</td>
<td>7.5805</td>
<td>6.8376</td>
<td>6.8320</td>
<td></td>
<td></td>
</tr>
<tr>
<td>August</td>
<td>8.1019</td>
<td>7.9733</td>
<td>7.5753</td>
<td>6.8515</td>
<td>6.8322</td>
<td></td>
<td></td>
</tr>
<tr>
<td>September</td>
<td>8.0992</td>
<td>7.9368</td>
<td>7.5258</td>
<td>6.8307</td>
<td>6.8289</td>
<td></td>
<td></td>
</tr>
<tr>
<td>October</td>
<td>8.0889</td>
<td>7.9032</td>
<td>7.5012</td>
<td>6.8316</td>
<td>6.8275</td>
<td></td>
<td></td>
</tr>
<tr>
<td>November</td>
<td>8.0840</td>
<td>7.8652</td>
<td>7.4233</td>
<td>6.8286</td>
<td>6.8274</td>
<td></td>
<td></td>
</tr>
<tr>
<td>December</td>
<td>8.0759</td>
<td>7.8238</td>
<td>7.3676</td>
<td>6.8424</td>
<td>6.8279</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Bank of China (website) and China Statistical Yearbook (2010)

The reason why I choose this 5 year period is that: in recent years, there have been great changes to the exchange rate regime and exchange level in China, especially after China authorities stated that RMB exchange rate reform on the July of 2005, it formally means the ending of a fixed exchange rate period, the RMB started to appreciate. By the end of 2010, the RMB-Dollar exchange rate was 6.82, which means nominal Chinese currency had appreciated by 21.21% from 2005, an annual average of 4.71%. Therefore, it has significant theoretical and practical meanings to investigate RMB exchange rate impact on inward FDI under this new situation during this period. (Zhang, & Chan, 2011p.71)

Before constructing regression models, I need to test data for stationarity. If the data is non-stationary, I need further transformation to satisfy stationarity criteria in order to conduct regression analysis. First, I process the data on each variable through Eviews6.0 software to take ADF test in order to accept or reject the hypothesis of its stationarity. Without adjust unit root, the two variables show no-stationarity, after calculating first order the result appears to be stationary for two variables. So these two variables are then classified as integrated of order I (1), so there is possible to set up models that leads to stationary relations among the variables, and where standard inference is possible. In order to satisfy stationarity criteria among non-stationary variables is called a
cointegration. Testing for cointegration is a necessary step to check if my modeling has empirically meaningful relationships. If variables have same trends processes, they can stay in fixed long-run relation to each other. After going through the cointegration test, I found result showing that FDI and Exchange rate have cointegration relationship. So this proves that two variables can be used to conduct regression analysis.

Further, I test the hypotheses of the normal distribution of the stationary time series. As a state in the research purpose is to test relationship between inflow FDI and exchange rate movement in China, so when constructing regression models I am going to consider alternatively the two variables to be independent and dependent.

5.2 Hypotheses testing and result discussion

To analyze the effect of exchange rate movement on inward FDI, and impact of inward FDI on RMB exchange rate in China, following empirical framework from previous studies, I have established following equations:

1) \[ \text{LnFDI}_t = \alpha_1 + \beta_1 \text{LnREER}_t + \beta_2 \text{LnFDI}_{t-1} + \mu_t \]
2) \[ \text{LnER}_t = \alpha_1 + \beta_3 \text{LnFDI}_t + \beta_4 \text{LnREER}_{t-1} + \mu_t \]

LnFDI$_t$ : The natural logarithms of actually realized Foreign direct investment at period t.

LnREER$_it$ : The real effective exchange rate with U.S. dollar of country i at time t defined as the nominal exchange rate times the foreign price (U.S. CPI) divided by China price (China CPI)

\( \alpha_1(i=0,1) \) : intersection coefficient

\( \beta_i (i=1,2,3,4) \) : slope coefficients

\( \mu_t \) : white noise

5.3 Unit root test and cointegration analysis

If we use non-stationary time series variable to conduct regression analysis that will generate a spurious regression, which is two time series variables relationship are actually independent, however, the regression result shows the relationship dependent with each other. Therefore, we should adjust whether time series variables are stationary or not before conduct any regression analysis. If the time series variables are not stationary, we could use cointegration analysis to handle it. (Granger&Engle, 1987, p.3-15)
All the empirical tests are completed by Eviews 6.0 software in this thesis. Before conducting cointegration analysis, I take unit root test first. The ADF test results regarding the two time series variables are provided at Table 5-3:

Table 5-1 LnFDI and LnREER stationary test result

<table>
<thead>
<tr>
<th>Variable</th>
<th>t-Statistic</th>
<th>1%level</th>
<th>5%level</th>
<th>10%level</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>LnFDI</td>
<td>-2.035132</td>
<td>-3.544063</td>
<td>-2.91086</td>
<td>-2.59309</td>
<td>Non-stationary</td>
</tr>
<tr>
<td>LnREER</td>
<td>-0.467885</td>
<td>-3.548208</td>
<td>-2.912631</td>
<td>-2.606857</td>
<td>Non-stationary</td>
</tr>
<tr>
<td>△LnFDI</td>
<td>-9.071875</td>
<td>-3.546099</td>
<td>-2.935001</td>
<td>-2.594027</td>
<td>Stationary</td>
</tr>
<tr>
<td>△LnREER</td>
<td>-3.080149</td>
<td>-3.548208</td>
<td>-2.912631</td>
<td>-2.594027</td>
<td>Stationary</td>
</tr>
</tbody>
</table>

The results from the table show that: without adjusting unit root at conventional 5% and 10% significant level, the LnFDI unit root Mackinnon critical value are -2.91086, -2.59309, which are lower than t-statistic result, so I can reject the hypothesis of unit roots I (0), so the LnFDI is not stationary in nature. After the variables are carried out the first difference, LnFDI unit root Mackinnon critical value are -2.935001, -2.594027, which are higher than t-statistic result, so I cannot reject the hypothesis of unit roots I (1), so the △LnFDI is stationary, same analysis and result can be applied for exchange rate too. After carried out the first difference with two variables, both variables have integration of order one. Thus, the cointegration analysis can be performed between LnFDI and LnREER.

5.4 Cointegration analysis

Engle and Granger proposed cointegration test in 1987 represented decisive breakthrough in the modeling of Econometric methodology. The theory is that: While some economic variables are a non-stationary series, but there may be a linear combination of them is stationary sequences. This smooth linear combination is called cointegration equation, and can be interpreted as a long-term stable equilibrium relationship between variables, namely (Cointegration) relationship.

There are two most well-known common methods applying for cointegration test: E-G two steps method (Engle and Granger 1987) and Johansen Cointegration test (1988). I use Engle-Granger (EG) test for cointegration, since only two variables are included in the test. First, I suspect that the variables LnFDI and LnER have cointegration, then used OLS method to establish regression equation:

\[ \text{LnFDI}_t = \alpha + \beta_1 \text{LnREER}_t + \beta_2 \text{LnFDI}_{t-1} + \mu \text{and calculated residual. After that I apply} \]
ADF test to check whether residual is stationary or not.

Table 5-2 Residuals stationary test result

<table>
<thead>
<tr>
<th>Augmented Dickey-Fuller Test statistic</th>
<th>t-Statistic</th>
<th>Prob.*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test critical values:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1% level</td>
<td>-2.604746</td>
<td></td>
</tr>
<tr>
<td>5% level</td>
<td>-1.946447</td>
<td></td>
</tr>
<tr>
<td>10% level</td>
<td>-1.613238</td>
<td></td>
</tr>
</tbody>
</table>

The result from table 5-4 indicate that at the conventional 1% significant level, the ADF t-statistic results are much less than the critical value, so the residual is stationary, indicate that FDI and Exchange rate have cointegration relationship.

5.5 Granger Causality Test and regression analysis

We often need to make judgments to the causal relationship between economic variables in our economic analysis, but sometimes it’s difficult to make a rational judgment only based on the economic theory. Therefore, statistical inference methods with data obtained from the actual experience can become an effective way to do so.

To test whether changes in the RMB exchange rate impact foreign direct investment is to explore this causal relationship between the two variables. Most common method to test the causal relationship is Granger Causality test proposed by Granger in the 1969. The theory is that: through a series of F-test or T-test on lagged values of X, to check whether those values provide statistically significant information about future values of Y. If the effect is not significant, then we say that X is not Y, "Granger cause" (Granger cause), if the effect is remarkable, then we say X is Y, "Granger cause." Similarly, this can also be used to test and Y is X, "cause".

Table 5-3 Results of Granger Causality Test

<table>
<thead>
<tr>
<th>Null Hypothesis:</th>
<th>Obs</th>
<th>F-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LnER does not Granger Cause LnFDI</td>
<td>59</td>
<td>2.68207</td>
<td>0.0775</td>
</tr>
<tr>
<td>LnFDI does not Granger Cause LnREER</td>
<td>3.38843</td>
<td>0.0411</td>
<td></td>
</tr>
</tbody>
</table>

So from table 5-5, we can see that, at 5% significant level, the causality relationship between FDI and Exchange rate exists, at 10% significant level, RMB exchange rate movements are the reason for the inflow of FDI, while inflow of FDI are the reason for the RMB exchange rate movements.
Table 5-4 Regression results of exchange rate movement on the inward FDI

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std.Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LnREER</td>
<td>-0.830618</td>
<td>0.368939</td>
<td>-2.251370</td>
<td>0.0282</td>
</tr>
<tr>
<td>C</td>
<td>3.093749</td>
<td>1.127865</td>
<td>2.743014</td>
<td>0.0081</td>
</tr>
<tr>
<td>LnFDI (-1)</td>
<td>0.658415</td>
<td>0.110924</td>
<td>5.935731</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

R-squared     | 0.715227    | Mean dependent Var | 4.181380   |
Adjusted R-squared | 0.705235 | S.D. dependent Var | 0.240503   |
S.E.of regression | 0.130575  | Akaike info criterion | -1.185037 |
Sum squared resid | 0.971835 | Schwarz criterion | -1.080320  |
Log likelihood  | 38.55110   | Hannan-Quinn criter | -1.144076  |
F-statistic     | 71.57961   | Durbin-Watson stat | 1.930033   |
Prob(F-statistic) | 0.000000 |                      |            |

From table 5-4 data, the regression equation can be generated as follow:

\[
\text{LnFDI}_t = 3.093749 - 0.830618\text{LnREER}_t + 0.65841\text{LnFDI}_{t-1}
\]

\[
\begin{align*}
(2.743014) & \quad (-2.251370) & \quad (5.935731) \\

R^2 = 0.715227 & \quad F\text{-test} = 71.57961 & \quad DW = 1.930033
\end{align*}
\]

We can see that \(R^2 = 0.715227\), Adjust \(R^2 = 0.705235\), so the regression model fits well. F\(-\text{test} = 71.57961\) \(DW = 1.930033\) proves that the model is significant. From the economic perspective, if the exchange rate number increased 10% in the equation, (value depreciation 10%), the amount of inward FDI will be decreased 8.30618%. So the exchange rate movements have positive impact on inward FDI.

Table 5-7 Regression results of inward FDI on the exchange rate

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std.Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
</table>

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From table 5-7 data, the regression equation can be generated as follows:

\[
\ln\text{FDI}_t = 0.144544 - 0.012670\ln\text{FDI}_{t-1} + 0.952552\ln\text{REER}_{t-1}
\]

\[(4.425928)\quad (-4.108404)\quad (82.95563)\]

\[R^2 = 0.997897\quad \text{F-test}=8698.523\quad \text{DW}=1.913568\]

Evidence showed that the regression model fits well and is significant. From economic point, the model indicated that increased inflow of foreign direct investment would result in decreased RMB exchange rate, that appreciation of the exchange rate. On the contrary, China's foreign direct investment inflows reduced will lead RMB exchange rate increased, which is the devaluation. From the equation, we can easily find that if everything else keeps constant, amount of foreign direct investment increased by 10\%, the RMB exchange rate will drop 0.12670\%, i.e., RMB appreciation 0.012670\%. 
6. Conclusions

This chapter finalized my work. First to introduce the main findings I have achieved in this thesis, and contribution to the academic research is discussed. Then, several criteria the quality of the research are estimated. Finally, directions for further investigation of the subject are suggested.

6.1 Concluding discussion

In my thesis, I have attempted to answer the question: What is the relationship between foreign direct investment inflows and RMB/USD exchange rate in China? To find the answer to this question I have explored the concept of FDI and exchange rate, considered a bidirectional impact between FDI and exchange rate in China. Finally conducted an empirical analysis to tests its relationship between two variables.

My First hypothesis was: Appreciation of RMB exchange rate will reduce FDI inflow in China.

From the empirical analysis, the first hypothesis is rejected. The appreciation of RMB exchange rate doesn’t reduce FDI inflow. So the answer to the research question is that: After changed exchange regime from fixed to floating in 2005, the relationship between inward FDI and RMB/USD exchange rate is still positive, which means appreciation of Chinese currency to the US dollar encourages FDI inflow to China.

This result is different from previous literature (Cushman 1985, Campa 1993, Hu, Cui&Yu 2007, Xing 2006); I think there are several reasons:

1. For all stages of economic development in China, because in the selected sample, periods are different, the research results are not the same, and historical experience should serve only as a reference and learn from. Exchange rate regime choice difference is also one of the important reasons.

2. As indicated in the theory part, due to the feature of cost-oriented FDI, devaluation of host country currency relatively to the home country could encourage cost-oriented FDI inflow. That’s also one important reason why China received so much FDI during last three decades, since cost-oriented FDI accounted for a large proportion of the total amount of FDI in China during the last three decades. However, after market-seeking FDI take more and more place in the recent year, relationship between FDI and exchange rate also changed.2 The motivation for this type investment is that to access rapid development of the market size in the host country and most of market-seeking FDI are focused on non-tradable business.

2 http://www.fdi.gov.cn/pub/FDI_EN/default.htm
Appreciation of home country currency will improve local customer consumption capacity and home country market price mechanisms.

In the aftermath of the U.S. financial crisis, the safety of funds is a primary factor considered by the investors, and China in the crisis demonstrated strong vitality. During the last two decades of rapid economic development, China has attracted a large number of foreign direct investment, has accumulated a strong economic strength, kept the RMB stable for all the period, which is one of the important reasons to promote the inflow of foreign direct investment. In addition, the reasons why foreign investor investing in China, are mainly due to China's vast market, their aims being to occupy the Chinese market, then the currency appreciation will promote FDI.

3. At present, the world still considers that RMB is not in the normal equilibrium level; therefore, they have expectations of RMB appreciation. As a result, further increase in foreign direct investment trends in China can be expected.

Second hypothesis was: Inward FDI promotes appreciation of RMB exchange rate.

From the empirical analysis, this hypothesis can be accepted. Increase FDI inflows, as the state both in the theory and literature review parts, this situation will lead to the international trade surplus, foreign exchange reserves is increasing and foreign exchange rate oversupply, which will bring appreciation pressure for the RMB.

6.2 Contribution to the existing knowledge

Most of the previous research on this subject is mainly focused on the western countries. Moreover, after China reformed exchange rate regime into floating in the 2005, RMB exchange rate promotes its value constantly all the time. However, research time interval usually is very old among existing studies on this subject focusing on China. Furthermore, the role of China’s exchange rate policy has been largely ignored in the previous studies even though exchange rates are critical in the decision of MNEs’ FDI activities. By investigating the exchange rate and FDI nexus in the context of after China reform exchange rate regime into floating in the 2005.this thesis attempts to fill this gap in the literature. This thesis collected data from 2005 to 2010 under new exchange rate regime and finds that the RMB’s cumulative appreciation doesn’t reduce FDI inflow. The research result is quite different from previous studies; the main reason from my point of view is that the selected sample, periods are different. Therefore, the result is different.

Whether the Chinese Yuan appreciates will hurt FDI inflow or not has been a recent matter of debate among scholars and policy makers since exchange rate reform after 2005. These results would suggest that, generally speaking, appreciation RMB could
help increase China’s competitiveness in attracting FDI. From theory parts, it’s easy to see that due to the wealth and cost effect, depreciation of home country currency will stimulate the inflow of cost-oriented FDI. Due to the demand effect, appreciation of home country currency will stimulate the inflow of marketing-oriented FDI. Therefore, combining the research result and theory part in this thesis, I think could give some hints for the policy maker is that a certain range of RMB appreciation will enhance the enterprise the cost of production, thereby inhibiting the cost oriented direct investment, however, could promote market-oriented direct investment. So in order to avoid the influence of unfavorable factors to FDI inflows, (E.g. labor costs, and increase currency appreciation), continue to maintain the attractiveness of FDI, the governments need to speed up the technical innovation to increase domestic demand and expand the size of the market.

6.3 Quality criteria

When every research is acheived, it is very important to look back and give a fair evaluation of its quality. Since my research was conducted within the quantitative framework the most appropriate criteria of its quality are validity and reliability.

6.3.1 Validity

A measure can be called valid if it represents precisely those features of the concept that are really about what they appear to be about. There are three types of this research criterion: measurement validity, internal validity, and external validity. (Saunders, et al., 2009, p.143)

*Measurement validity* deals with the issue whether a measure applied to a concept really fits to analyze it. Regarding to my research, I measure relationship between exchange rate movement and inward FDI by the outcome of linear regression model acquired by the relevant data processing through the statistical software Eviews6.0 that provides a notion of inter temporal relation between exchange rate movement and inward FDI.

*Internal validity* tests whether the estimated causal relationships are worth credence. I conducted Granger causality test to find out which variable is explained and which is explanatory. I believe that this allows us to qualify the direction of causal relationships.

*External validity* refers to the issue of whether the results achieved are equally applicable to other research settings. Regarding to my research, it’s based on the previous relevant studies to generate hypotheses to be tested, and all the numerical data is collected from public organizations, so it’s applicable for other research.
6.3.2 Reliability

Reliability measures a degree to which the research procedures can be repeated in the future (Bryman & Bell, 2009, p.159). For processing and analyzing data in my research, I applied methods analogous to those employed in the previous relevant studies. This fact already confirms a possibility to replicate a similar study in the future. Furthermore, the whole research process starting from the data collection up to the result analysis in my thesis is clearly and detailed described. Therefore, my research can be easily replicated that even more enhances its quality with regard to reliability criterion.

6.4 Suggestion for further research

I suggest future research can include more variables, such as inward FDI from different countries (different currency to be a measure) and inward FDI to the different sectors, such as service, technology and manufacture sectors since I only focus on the total amount of inward FDI and one currency rate, which may affect the degree of interpretation of the relationship between the FDI and Exchange rate.

In this thesis, I am only focusing on aggregation of inward of FDI; however, with more and more marketing –seeking FDI increased in China after 2005, the future research could conduct research with different FDI motivations, such as conduct the research to see exchange rate effect on marketing-seeking FDI and resource-seeking FDI.
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