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FDI - A Matter of Distance?

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Abstract

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Geographic Distance, OLI, Eclectic Paradigm

Purpose: The purpose of this study is to explore how the cultural and geographical distances between Sweden and another country influence the location decision of a foreign direct investment. Further, the purpose is also to investigate how this influence has changed between 1992 and 2002

Method: The research is based on secondary data and existing theories concerning FDI, cultural distance and geographical distance. Findings from previous researchers have also been reviewed to be able to interpret the results. Two hypotheses regarding cultural and geographical distances have been formulated based on existing theories, thereafter tested. The investigation period is between 1992 and 2002. The hypotheses have been analysed by looking at patterns of cross-border FDI flows from and into Sweden over time.

Conclusions: The overall results show that the cultural as well as the geographical distance affects the FDI flow negatively. This means that the greater the cultural and geographical distances the less FDI is undertaken between Sweden and a foreign country. A pattern of decreasing correlation between FDI and cultural and geographical distances could be distinguished for the later part of the period. Further, it has been shown that years with large amounts of FDIs are less sensitive to cultural and geographical distances. Finally, the cultural distance is shown to be more important to Swedish investors and to foreign investors in Sweden than the geographical distance.

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1. Introduction

Chapter one begins with a background description to our choice of subject and continues with a problem discussion and purpose. The chapter follows by limitations of the study and finishes with a disposition of the thesis.

1.1 Background

A dramatic transformation process of the national financial markets has taken place during the last two decades. This transformation has resulted in an almost perfect integrated and globalised system, created mainly by the abolition of several capital controls. By repealing some restrictions on cross-border investments, a remarkable boom of foreign direct investment (FDI) has occurred during the last two decades.¹

In Sweden the increase in FDI was considerable in the late 1980's and the beginning of the 1990's, much of which was trigged by the adjustment to the EU. Lately however, reports from Riksbanken (National Bank of Sweden) show that the FDI, and especially the inward investments, had decreased substantially. In 1999 inflows to Sweden reached a record high of 504 Billion Swedish Kronor (SEK) and were the 4th most attractive country for foreign investments. Sweden dropped to a 17th rank in 2002 and was forecasted a 23rd rank in 2003. ^{2,3} The gap between inward and outward investment in Sweden has for the most part been quite large. During 2003, 28 Billion SEK was invested in Sweden while 58 Billion SEK streamed out from Sweden. When looking at the countries, which invest their money in Sweden one can easily notice that the number of countries are limited. The Nordic countries are significant but also the US has become an important partner. FDI outflows are on the other hand much more diversified geographically. In 2002 about half of the FDI outflow went to Europe. Since 1990s the Central and East Europe has become a more important host region as well.⁴

Theories of what drives companies to make foreign direct investments have been a hot debated topic in the literature of international finance for a long time. Earlier

¹ Oxelheim L., (1996), s. 1, 10

² Aronsson C., Homepage of Dagens Industri, 2004-04-19

³ Homepage of UNCTAD, 2004-04-21

⁴ ibid.

research has shown that the cultural distance between a host country and a home country is a key factor in explaining foreign market attractiveness, expansion patterns, the degree of adaptation of marketing and retailing strategies, modes of entry and organizational behaviour⁵. The geographic distance between two countries has also been identified as one of the determinants of the location decision of FDI. An earlier empirical test of the relationship between trade-flows and geographic distance was made in 1966, which came to the conclusion that the greater the distance the less trade-flows exist between the countries⁶. Lipsey and Weiss made a similar investigation in 1981 and found that distance was insignificant as an explanatory variable⁷. Grosse and Trevino found in their study of explanatory variables of FDI in the US that both geographic and cultural distance was negatively significant related to the amount of FDI into the US⁸. The results of these studies have inspired us to make a similar study for Sweden since earlier results have shown to be unambiguous and not up to date.

1.2 Problem Discussion

The question why multinational enterprises own and control operations abroad and why production is undertaken in a particular country has been analyzed by a number of authors. One of the major theories and motives for FDI is the eclectic paradigm by John H Dunning. He recognises three comparative advantages, which are particularly relevant to a country's propensity to engage in FDI. The three advantages are ownership advantages, locational advantages and internalisation advantages. The locational advantages are related to a number of factors where the cultural and geographical distances between two countries are two of them. Other commonly evaluated locational advantages include market size and growth, trade barriers and transportation costs. The decision to undertake a FDI in a particular country is the outcome of a decision process where projected revenues and costs are evaluated. ¹⁰

The cultural and geographical distances have been tested as determinants of FDI. Even if they tend to be negatively correlated with the amount of FDI, the results are far from explicit. Some tests have shown that geographical and cultural distances

⁵ Evans J., (2000)

⁶ Linneman H., (1966), cited in Brainard S. L., (1997)

⁷ Lipsey R. & Weiss M. Y., (1981), cited in Brainard S. L., (1997)

⁸ Grosse R. and Trevino J. L., (1996)

⁹ More specific, it is the companies' within a country that are engaged in the FDI activity.

¹⁰ Dunning J H, (1988)

have been an impediment to FDI.¹¹ Other studies show that the distance should decline in importance over time, as companies acquire experience in a particular market¹².

During the last decade the cost of telecommunications and travel have decreased, both in Sweden and in the rest of the developed countries. Some researchers anticipate that the role of geographic distance might diminish as the information technology is advancing¹³. The last ten years have also implied deregulations of the Swedish financial market, which have benefited the FDI activity. It is not clear how the geographical and cultural distance determines the location decision of the FDIs after the international markets have become more integrated. This transformation of the financial markets has made us interested in investigating the influence that the cultural and geographical distances has on the FDI location decision.

1.3 Purpose

The purpose of this study is to explore how the cultural and geographical distances between Sweden and another country influence the location decision of a foreign direct investment. Further, the purpose is also to investigate how this influence has changed between 1992 and 2002.

1.4 Limitations

A foreign direct investment has been defined in several ways, therefore, our study is limited to the definition of FDI stated by Riksbanken:

"A direct or indirect ownership between two companies of at least 10% of the share capital or votes. All financial transactions between such companies are regarded as direct investments. It can take the form of establishment or acquisition of an enterprise as well as subsequent investments." ¹⁴

¹¹ Daniels J. D., (1971), Kogut B. & Singh H., (1988), Grosse R. & Goldberg L. G., (1991), cited in Grosse R. and Trevino J. L., (1996)

¹² Benito G. R. G. & Gripsrud G., (1992)

¹³ Grosse R. & Trevino J. L., (1996)

¹⁴ Homepage of UNCTAD, 2004-05-06

Another limitation is that the study only investigates Sweden's FDI activity with foreign countries.

The concept of culture in the context of international relations have been discussed and interpreted differently in the literature. The concept that has limited this study is taken from the work of Geert Hofstede, a Dutch social psychologist. Hofstede is most famous for his categorisation of countries' into four cultural dimensions; power distance, uncertainty avoidance, individualism and masculinity. He defines culture as:

"...the unique ideas, customs, skills, arts, behaviours, appearances, and communications of a group of persons." ¹⁶

The concept of geographic distance is limited to the physical distance, in kilometres, between Stockholm and the capital city of a foreign country.

1.5 Chapter Outline

Chapter two is presenting the method used in this thesis. The chapter starts out with a presentation of the general approach and follows by a discussion about the choice of theory and the type of data used in this study. The chapter finishes off with criticism of sources.

Chapter three brings up the financial integration and theories that have direct connection to the topic of the thesis. The purpose is to present a clear view of these theories and to give a better understanding of the topic. The following theories are discussed, FDI, strategic motives for FDI, theories of FDI, psychic distance, cultural distance and geographical distance. The chapter continuously bring up criticism of the theories discussed. The chapter finishes with a presentation of the hypotheses tested in the study.

Chapter four introduces the empirical method used when collecting and testing the statistical data. This chapter also contains information about the sample, the dependent and independent variables and the validity and reliability of the study.

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¹⁵ Homepage of Hofstede Geert, 2004-04-02

¹⁶ Homepage of Hofstede Geert, 2004-04-26

Chapter five presents the results from the tested hypotheses and analyses the outcome.

Chapter six concludes the thesis by connecting theories to the analysis. Finally, the chapter and the thesis end with personal reflections and suggestions for further studies.

2. **Method**

This chapter brings up the methodology used in this thesis. It starts out by discussing the overall approach that will be reflected in the research, continuing with a brief overview of the most important theories. Finally, the type of data and criticism of sources will be discussed.

2.1 The General Approach

The purpose of the thesis is to examine how the cultural and geographical distances affect foreign direct investments into and out of Sweden. To be able to give the reader a better understanding of the research it is important to know how the writers perceive and appraise different situations and their view of knowledge and science.

The overall research philosophy that is reflected in this thesis is the positivistic philosophy. The reason why this approach is best suitable is that one of the basic principles in positivism is the confidence in scientific rationality and that the knowledge should be testable empirically. The research shall also be objective and unbiased.¹⁷

Two main types of methodical approaches in surveys exist, which are qualitative and quantitative. The qualitative method is mainly aimed to investigate reasons and create deeper understanding of the subject investigated. It is commonly used in surveys where an understanding of how people relate to a certain question is investigated. The quantitative is more formal and structured than the qualitative. The studied variables in a quantitative study should be numerically measured, compared and quantitatively analysed. When analyzing quantitative data statistical calculations are an important part. This investigation is using the quantitative approach. The data gathered to perform the investigation could be meaningfully expressed by descriptive statistical measures, which is a characteristic of a quantitative approach. 18

The research is based on existing theories concerning FDIs and the cultural and geographical distances between the home and the host country. The most important findings from earlier studies have to be reviewed to understand the results and to earn

Wallén G., (1996), page 27, 33
 Holme I. .M. & Solvang B. K., (1997), page 13-15

from their research methods. This implies that the research approach is *deductive*, since hypothesis based on existing theories are formed and then tested by a developed strategy. The results from these hypotheses lead either to confirmation or denial of the original theories. Another approach would be the *inductive* approach, which begins with an observation to find patterns. These patterns are then used to form explorative hypotheses that end up in developing theories. In this study the deductive approach is more suitable than the inductive approach since the research starts out from theory and not from observations.¹⁹

2.2 **Choice of Theory**

To be able to understand what impact the cultural and geographical distances have on a country's FDI flow and to be able to formulate relevant hypotheses, theories concerning relevant topics were gathered. One of the most famous theories within FDI is the eclectic paradigm, also called the OLI paradigm by John H. Dunning. OLI stands for Ownership advantages, Location advantages and Internalisation. According to this theory a company's FDI depends on its ability to gain O, L or I advantages.²⁰ Other theories that are especially interesting are complementary theories to the eclectic paradigm such as the Network theory by Chen and Chen²¹ and the Uppsala model by Johanson and Vahlne²². Theories concerning cultural distance have also been examined, where Hofstede has a prominent role in the empirical work of classifying countries²³. The theories and hypotheses will be examined thoroughly in the following chapter.

2.3 Secondary data

In order to carry out a survey, data must be collected and thereafter sorted. One distinguishes between two main types of data called primary and secondary data. Primary data refers to raw material that can work as empery in the thesis. Examples of primary data are questionnaires, interviews and unsorted and untreated statistics. Secondary data is on the other hand used in order to describe, interpret and analyse

Svenning C, (2000), page 52-54, 72
 Ekström J, (1998), page 36

²¹ Chen H. & Chen, T. J., (1998)

²² Johanson, J. & Vahlne J–E, (1977)

²³ Hofstede G, (2001)

the primary data. One can also describe secondary data as documented information about a certain phenomenon, but not primarily gathered and put together for the research in question. ²⁴

Only secondary data is used when writing this thesis. Secondary data can be found in several forms. The secondary data used in this research refers to the existing theories of FDI such as articles in finance journals, databases, and specialist literature on the subject. Search-engines on the Internet have also been used to find concepts that are closely related to the subject. Hofstede's index, which is used when dividing countries into cultural distance from Sweden, is regarded as secondary data. The reason for this is that the data is already collected and have been used by several other researchers. The historical data of Swedish FDIs was found at the homepage of Riksbanken and is also regarded as secondary data.

2.4 **Criticisms of Sources**

The insight of the quality of the material is important as the information may be material and form the basis of other decisions²⁵. A critical examination of the sources is necessary in order to valuate the given information. It also makes it easier to estimate the uncertainty in the conclusions drawn.

Our investigation deals with a subject that has been much debated in the finance sector and has created an interest among recognised researchers. It has therefore been much written on the subject, which facilitates the critical attitude to the sources and to keep high reliability. Some of the literature that deals with theories of internationalisation and cultural dimensions are written in the 1970s or 1980s, which may be considered as quite obsolete. However, many of these theories and models are generally applicable, as they have not changed to a larger extent over time. Models, such as Hofstede's culture classification of countries, is made as far back as 1967-1973 but is still used in recent studies by renowned researchers. Therefore, the secondary data is considered to be relevant. However, criticism has been found in more novel literature on the chosen theories and models. This criticism is continuously brought up in the theory chapter. Other sources are found on the Internet, which demands an even more critical disposition. Therefore, only Internet information that corresponded with other published literature, or information that could be compared with existing acknowledged information has been used.

Rienecker L. & Stray-Jörgensen P., (2002), page 135-136
 Dahmström K. (2000), page 269

3. Theory

This chapter brings up the theory that is necessary in order to investigate, describe and analyse the topic. The chapter begins with an overview of the financial integration and follows by an explanation of the concept of FDI. Thereafter, strategic motives as well as the theories of FDI are presented. Finally, the concepts of cultural, psychic and geographical distances are explained along with criticism to the various theories of measuring the distances.

3.1 Financial Integration

During the last decades the state of the world economy has changed dramatically, especially on the financial markets. Deregulations and technological advances have led to increasing internationalization, which have created new growth opportunities both for developed and developing countries. The rapid development of the communication industry and the information technology (IT) industry has been important elements of the financial integration. With this relatively new technology a new capital market has been created globally since capital can be moved all over the world within seconds.²⁶

The liberalisation process was almost completed for the developed countries in the beginning of the 1990s. During the early 1990s many countries opened up for FDI flows as a result of the increased liberalisation.²⁷ This time period was also characterised by an economic crises in Sweden. The financial market was not prepared for the financial deregulations, which was one of the main reasons of the economic recession.²⁸

The Swedish entrance of the European Union in 1995 implied free movement of goods, services, people and capital. The deregulations of the single market led to increased competition, which in turn has created major economic changes within the EU countries. Examples of changes are an increasing amount of mergers and acquisitions and a decreasing number of credit institutes.²⁹ The Swedish membership

²⁶ Srejber E., (2001), 2004-06-05

²⁷ Oxelheim L., (1996), page 50

²⁸ Srejber E., (2001), 2004-06-05

²⁹ ibid.

had a significant impact on the flow of FDI from Sweden, which increased considerably after 1995³⁰.

Foreign direct investment 3.2

Foreign direct investment (FDI) has gained a significant role during the last decade as the tool that accelerates growth and economic development in a country. FDI's importance lies in its fundamental differences from other types of capital investment; FDI involves a more durable commitment.³¹ It entails a long-term relationship and reflects a lasting interest and control by a resident entity or a parent enterprise in a foreign company or affiliate. FDI implies that the investor exercise a significant degree of influence on the management of the foreign company. The investments both involve all initial transactions as well as the subsequent transactions between the companies. FDIs three components are equity capital, reinvested earnings and intracompany loans.³² From 1997 the FDI statistics also include short-term loans and trade credits, real estate transactions and holding companies³³.

It is difficult to distinguish between trade and FDI. According to Porter, international trade can be divided into three sub-groups where one of them can be considered as FDI³⁴. FDI must not either be confused with portfolio investment, which refers to the purchase of shares in companies, with the only purpose of obtaining a return on the funds invested³⁵.

Riksbanken compiles data on stocks and flows of FDIs in Sweden. In this thesis the definition of FDI by Riksbanken, which is in line with international recommendations, has been applied. As mentioned in chapter 1.4 their definition of FDI is a 10 percent direct of indirect ownership of a foreign firm. The ownership can involve mergers and acquisitions as well as subsequent investments.³⁶

In brief, research concludes that FDIs contribute to improved allocative efficiency. This can happen when foreign investors enter into industries with high entry barriers

³⁰ Oxelheim L., (1996), page 67

Oxement L., (1996), page 67

31 Barrel R & Holland, D. (2000)

32 Homepage of UNCTAD, 2004-05-20

33 Homepage of UNCTAD, 2004-05-06

34 Porter M, cited in Alterstav U & Karlsson A-K, (1997)

³⁵ Alterstav U & Karlsson A-K, (1997)

³⁶ The homepage of UNCTAD, 2004-05-06

and they reduce local monopolistic distortion. The presence of foreign producers may also encourage higher technical efficiency as the increased competition may stimulate local firms to more efficient make use of existing resources.³⁷

The importance of FDI in a country's economy is reflected in the increasing ratio of FDI stock to GDP. In Sweden this ratio increased from 5 percent in 1990 to 41 percent a decade later. After 1999 the upward trend ceased and the FDI started to decline, particularly the inflows. In 1999 the inflows reached a record high of 503 Billion SEK but decreased to 108 Billion SEK until 2002. FDI inflows mainly originate in Europe where the Nordic countries are significant. The United States is an important partner as well. The outflows are more diversified than the inflows. In 2002 about half of the direct investment abroad went to Europe. From the mid 1990's the Central and especially part of the East Europe have emerged as important host regions for Swedish direct investment.³⁸

3.3 Strategic Motives for Foreign Direct Investments

There are many motives influencing firms to invest in particular areas. These motives depend on firm-specific characteristics as well as host and home country features. The different types of motives that usually are referred to are resource-seeking, market-seeking, efficiency-seeking and strategic asset-seeking. ³⁹

3.3.1 Resource-seeking

Resource-seekers motive to engage in FDI is primarily to utilize a specific country's comparative advantages, e.g. raw materials and low cost of labour⁴⁰. Resource based firms are usually located close to the sources to be able to exploit economies of scale and also to minimise transportation costs for the inputs⁴¹. The firms that engage in FDI using this strategy usually seeks to reduce production costs and/or seek to protect its sources of supply⁴².

³⁷ Goldberg L. S, (2003), 2004-04-25

³⁸ Homepage of UNCTAD, 2004-04-21

³⁹ Ivarson I, Johnsson T, (2000)

⁴⁰ Ekström J, (1998), page 90-91

⁴¹ Ivarson I, Johnsson T, (2000)

⁴² Ekström J, (1998), page 91

3.3.2 Market-seeking

Market-seekers tries to satisfy foreign market demands via local production or by expanding to markets outside its home market, e.g. present export countries, by undertaking FDI. Market size and market growth are two important factors in the market-seeking strategy along with nearness to customers, high transportation cost, exchange rate risks and trade barriers. The choice between exporting and producing locally is dependent on economies of scale and of disadvantages by not being a local producer. If the economies of scale exceed the exporting costs, the firm would benefit from FDI. If not, the firm would be better off exporting. Firms whose home market size is relatively small tend to undertake FDI to expand the domestic market and to reduce the independency of it. Firms with small economies of scale and high exporting costs have a higher propensity to engage in FDI than other firms and inverse.⁴³

3.3.3 Efficiency-seeking

Efficiency-seekers are those looking to rationalise the structure of production units by integrating assets, production and markets. Economies of scale and scope are potential benefits in efficiency-seeking FDI, which will come from process specialisation, product and geographical concentration. The efficiency seeking FDIs have increased both between developed countries and between developed countries and developing countries, as transportation costs and artificial barriers have decreased. On the other hand, licensing has increased in certain industries as technology have become standardised and reduced the amount of FDI. The efficiency seeking FDIs are transported to the standardised and reduced the amount of FDI.

3.3.4 Strategic Asset-seeking

The firms that make strategic asset-seeking FDIs tries to protect or increase their existing ownership-specific advantages and/or reduce those of their competitors⁴⁶. The main purpose is to acquire resources and capabilities that the investing firm believes will sustain or supplement its firm-specific competencies in global markets. The resource that the firms tend to find important is the technological know-how that the host country's firms hold. This know-how can only be incorporated through long-

⁴³ Ekström J, (1998), page 90-91

⁴⁴ Ekström J, (1998), page 93-95

⁴⁵ Dunning J H, (2000)

⁴⁶ Dunning J H (2000)

term technological cooperation. The competences that the firms want to sustain or supplement are usually created in nation-specific industrial clusters. These clusters are usually closely related activities located within close geographic distance. Firms that want to generate technological competence should look for suppliers and customers, operating in internationally competitive host-country industry clusters, to be their partners.⁴⁷

3.4 Theories on Motives for Foreign Direct Investments

There are many authors that present theories on motives for foreign direct investments. Some of the main theories are, Hymner-Kindelberger theory, Vernon's production cycles theory, Buckley's Internalisation theory, Kojima's dynamic comparative advantage theory, Knickerbocker's "Follow my Leader" theory and Dunning's Eclectic theory (OLI).⁴⁸ Dunning suggests that the many varied explanations of the extent and structure of FDI are complementary rather than substitutional and are strongly situation specific⁴⁹. This study will be based on the eclectic paradigm since it brings up the cultural and geographical influence on the location decision⁵⁰. The internationalisation model developed by Johanson and Vahlne, also called the Uppsala model, is based on the perceptions of psychic distance. It is a model of knowledge development, which implies that firms tend to invest in countries that are psychically close when they invest for the first time and then seek locations with greater psychic distance. 51 The Uppsala model does not quite suit the topic of this thesis, since our study does not consider the knowledge development. However, the Uppsala model and the Network theory will still be considered in the study since they are complementary theories to the eclectic paradigm.

3.4.1 The Eclectic Paradigm

According to Dunning there are three necessary conditions for a firm to undertake foreign direct investments, which are explained by the *Eclectic paradigm*, also called

⁴⁷ Ivarsson I, Johnsson T, (2000)

⁴⁸ Hong M, Chen L S, (2001)

⁴⁹ Dunning J H, (2000)

⁵⁰ Ekström J., (1998), page 39

⁵¹ Johansson J. & Vahlne J-E., (1977)

the *OLI paradigm*⁵². This paradigm serves to explain why multinational enterprises (MNE) undertakes FDI:s rather than go abroad through joint ventures, licensing, strategic alliances and exporting. The first condition is that a company must have *ownership advantages* (the "O" in OLI). This means that the company must have competitive advantages in its home market that can be transferred abroad if the company's FDI is successful. The second condition is *location advantages* (the "L" in OLI). This condition implies that a company has to be attracted by specific characteristics of a foreign market. The third condition is *internalisation advantages* (the "T" in OLI), which means that a company can keep its competitive position by trying to control a whole value chain in a specific industry.⁵³ The three specific OLI parameters that influence MNEs production decision depend upon the underlying motives for such production. It is not very likely that the parameters influencing a company to invest in Kina are the same as the parameters influencing a company to invest in the US.⁵⁴

Dunning has reviewed criticism to the eclectic paradigm of international production where he demonstrates that the paradigm still is a useful theory in explaining the motives for FDI. Both the economical rational of foreign production and the organisational and impact issues relating to the activity of a firm are explained.⁵⁵ The eclectic paradigm states that the country of origin influences a pattern of international economic involvement⁵⁶.

3.4.1.1 Ownership Advantage

As mentioned above the "O" in OLI refers to ownership advantages. This subparadigm states that "the greater the competitive advantages of the investing firm, relative to those of others, and particularly those domiciles in the country in which they are seeking to make their investments, the more they are likely to be able to engage in, or increase, their foreign production". ⁵⁷ A firm must have competitive advantages in its home market through firm-specific, not easily copied characteristics to be able to invest abroad. Trade barriers imply increased costs for companies that invest abroad and these costs have to be compensated by firm-specific characteristics.

⁵² Markusen J R, Melvin J R, Kaempfer W H, Maskus K E, (1995), page 396

⁵³ Mofett M H, Stonehill A I, Eiteman D K, (2003), page 337

⁵⁴ Dunning J H, (1988)

⁵⁵ ibid.

⁵⁶ Schoarth F W, Hu M Y, Chen H, (1993)

⁵⁷ Dunning J H, (2000)

Therefore, it is important that these characteristics can be transferred abroad.⁵⁸ According to Dunning there are three ownership-specific advantages. One of these advantages originates from the unique privileged possession of or access to particular income generating assets. The second advantage is enjoyed by a branch plant compared with a new firm and the last advantage is a consequence of geographical diversification or multinationality.⁵⁹ Examples of ownership-specific advantages are, economies of scale, product diversification, management of organisational expertise. Other advantages are the ability to create, acquire and upgrade access to a domestic market, product differentiation etc.⁶⁰

The ownership advantages can be divided into asset advantages (Oa) and transaction cost minimizing advantages (Ot). The most common "Oa" advantages are the control of firm-specific technology, patents, management knowledge, capital and product differentiation through brand names or advertising. The "Ot" advantages on the other hand derive from firm size, product diversity, learning experience, synergistic economies in production, purchasing, marketing, research and development, finance and transportation. According to Dunning, the "Ot" advantages arise from a firm's ability to organize geographically spread activities and to capture the gains that occurs from diversifying the risk. An ownership advantage that has been added later is the possession of home country advantages because it influences the geographic origin of a FDI⁶³.

3.4.1.2 Location Advantage

Location advantages, the "L" in OLI, are normally market imperfections or comparative advantages that attract a firm to make FDIs in a particular market⁶⁴. Location advantages are connected to the characteristics of economical, cultural, legal, political and/or institutional environments across locations and affect the cost and/or revenues of producing in different locations⁶⁵. These "L" advantages influence the expected profitability of producing in different countries and the expected profitability of foreign production to export⁶⁶. Examples of location-specific

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⁵⁸ Oxelheim L, Randøy T. Stonehill A., (2001)

⁵⁹ Dunning J H, (1988)

⁶⁰ Dunning J H, (1990)

⁶¹ Dunning J H, (1988)

⁶² Dunning J H, (1993), cited in Ekström J, (1998), page 37-38

⁶³ Dunning, (1980)

⁶⁴ Dunning J. H., (1988), cited in Ekström J, (1998), page 39-40

⁶⁵ Dunning J. H., (1988), cited in Ekström J, (1998), page 39

⁶⁶ Ekström J, (1998), page 39

advantages are national resources, labour productivity, transportation costs, physical distance, tariff barriers, taxation, structure of competition etc⁶⁷. Exchange rate risk and tariff and non-tariff trade barriers are two market imperfections that can make one location more favourable to operate on compared to another. Other advantages that can determine the choice of a specific location are reduced transportation cost and tariffs, which implies that there is an economic integration agreement. "L" and "O" advantages are not completely independent of each other. A specific location may actually be chosen to protect, advance or generate new "O" advantages to a firm. ⁶⁸

3.4.1.3 Internalisation Advantage

The propensity for firms to internalise their ownership and location advantages makes up the "I" in OLI⁶⁹. The "I" stands for internalisation advantage and explains why companies that operate across borders prefer FDI to alternatives that do not demand ownership control of foreign activity⁷⁰. This is the most abstract advantage of the three included in the OLI paradigm. The possession of proprietary information and control of the human capital that generates new information through expertise in research, is the main element in keeping firm-specific comparative advantages⁷¹. The key factor in an internalisation strategy is minimising transaction costs. "I" advantages are closely related to "O" advantages. The "O" advantages of a firm determine the advantages of internalising foreign markets. Firms produce abroad to internalise their "O" advantages in foreign market, which may lead to new "O" advantages and increasing benefits of internalising.⁷²

According to the eclectic paradigm, firms internalise to circumvent or utilise market failures and to capitalise on "O" advantages through the internal creation of market failures based on those advantages. According the internationalisation theory, market failures are exogenous.⁷³ The basic incentive for firms to internalise its ownership advantages is to avoid disadvantages or capitalise on the imperfections. These imperfections encourage firms to internalise and could be market or price imperfections or public interventions such as tax and exchange rate policies and government legislation. This last aspect of the eclectic paradigm has been seriously

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⁶⁷ Dunning J, (1990), page 47-49

Dunning J. H., (1980,1988), Thomsen S. & Nicolaides P., (1991), cited in Ekström J, (1998), page 39
 Dunning, J H, (1980)

⁷⁰ Ekström J, (1998), Page 41-42

⁷¹ Mofett M H et al, (2003), page 338

⁷² Ekström J., (1998), page 41-42

⁷³ ibid.

neglected but without internalisation advantages much of FDI would be replaced by international trade.⁷⁴

3.4.2 Behavioural Approach Theory

Theoretically, firms should identify its competitive advantages and then look for market imperfections and/or comparative advantages to find the location where it can gain strong competitive advantages. In practice, other methods have been observed. Many authors have claimed that behavioural factors affect a firm's decision of where to invest. The decision is determined by a firm's ability to gather and consider all information needed to make a rational decision based on all facts. This has led researchers into two behavioural theories, the *Internationalisation model* and its corollary the *Network Perspective*.⁷⁵

3.4.2.1 The Internationalisation Model

Johanson and Vahlne from Uppsala University believed that the internationalisation of a firm is the product of a series of incremental decisions. They meant that firms often develop their international operations successively, rather than by making large foreign investments in one single step. 76 Their study of the internationalisation process of the firm led to a framework called the Uppsala model. The internationalisation should be interpreted as a learning process. Initially only culturally close markets are found as potential locations. As companies acquire more knowledge from operating in foreign markets, more distant markets will be regarded as potential locations for the next FDI. Consequently, a step-wise expansion pattern of FDIs is expected to evolve for individual companies.⁷⁷ The knowledge acquired is experiential, i.e. knowledge which can only be gained through personal experience. This is considered to be the critical kind of knowledge in international marketing. The Uppsala model is unique in seeing experiential knowledge as the key factor of entering a foreign market, compared to competing internationalisation models. Johanson and Vahlne later pointed out another variable that is critical when entering a foreign market. The variable is the relationship to other bodies in the foreign

⁷⁴ Dunning J H, (1980)

⁷⁵ Mofett M H, Stonehill A I, Eiteman D K, (2003), page 339-340

⁷⁶ Johanson J. & Vahlne J-E., (1977)

⁷⁷ Benito G. R. G. & Gripsrud G.,(1992)

market, for example customers, suppliers and competitors. By adding this variable the Uppsala model also embraces the industrial network approach.⁷⁸

3.4.2.2 The Network Theory

The network theory views FDI as the construction of a link between a domestic network and a foreign network. Linkage via FDI is considered to be a strategic choice that increases, maintains or restores the investor's competitiveness in the global market. The International Marketing and Purchasing (IMP) Group describes the industrial system as a network of firms engaged in production, distribution and use of goods and services. Through this, lasting business relationships are established, developed and maintained. The firm will need to take into account not only its own position in relation to its customers at a given market, but also the environment of that market in relation to other actors, e.g. competitors. Networking also facilitates FDI. Via network connections, investors can overcome entry barriers to establish themselves in a foreign market and reduce transaction costs when running crosscountry operations. According to Chen and Chen, network linkages may complement or replace the weakness of firm-specific capabilities and enable small and seemingly weak firms to undertake FDI. 79 The only purpose of linking to a foreign network is to gain access to the resources within it. These resources are for example market opportunities, natural resources, labour capital etc. Networking is an adaptation process. The reason for this is that interdependent productions, logistics, development and administrative activities and resources need to be modified and adapted in order to better match in the new network. If foreign networks are structurally similar to domestic ones, creating linkages is relative easy because there is little need for adaptation for either party.⁸⁰

3.5 Cultural Distance

3.5.1 The Connection between Cultural and Psychic Distance

Cultural distance has received a great deal of attention in the international business literature. It has been identified as a key factor explaining foreign market

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⁷⁸ Whitelock J., (2002)

⁷⁹ Chen H & Chen T-J., (1998)

⁸⁰ ibid.

attractiveness, expansion patterns, the degree of adaptation of marketing and retailing strategies, modes of entry and organisational behaviour. However, this is a matter that has been discussed for a long time. Researchers early realised that there were some kind of barrier that prevented FDI or trade operations from running smoothly in a geographical area that was culturally distant.⁸¹

One of the first to point this out was Beckerman when he, in 1956, tried to explain the distribution of international trade⁸². For many years this phenomena was labelled *Psychic distance*, and could be defined as:

"the perceived distance between the home country and a foreign country resulting from the difference in terms of cultural, business and political differences, i.e. differences in language, political and legal system, trade practice, industry structure etcetera"⁸³

In an empirical study of the spatial distribution of Swedish exports, Vahlne and Wiedersheim-Paul used the concept of psychic distance. They defined psychic distance as "the factors preventing or disturbing the flow of information between potential or actual suppliers and customers".⁸⁴ Hörnell and Vahlne managed to show that psychic distance had a considerable explanatory value on the country distribution of Swedish firms⁸⁵. Nordström and Vahlne confirmed these findings twenty years later when a new Swedish study was conducted. They also managed to show a correlation between the concepts of psychic distance and cultural distance by arguing that psychic distance is reflected in the absolute cultural differences.⁸⁶

3.5.2 Cultural Distance and its Dimensions

During the early eighties, Hofstede, Luostarinen, Ronen and Shenker presented their findings in the field of culture. Loustarinen defined culture as:

⁸¹ Evans J., (2000)

⁸² Vahlne J-E. & Nordström K., (1992)

⁸³ Joliet R. & Hübner G., (2003)

⁸⁴ Vahlne, J-E. & Wiedersheim-Paul F., (1973), cited in Vahlne J-E & Nordström K, (1992)

⁸⁵ Hörnell, E. (1973) cited in Vahlne J-E & Nordström K, (1992)

⁸⁶ Vahlne J-E & Nordström K, (1992)

"the sum of all factors creating, on the one hand, a need for knowledge, and on the other hand, barriers to the knowledge flow and hence also for the other flows between the home and the target country" 87

In his study of Finish firms', he used indicators such as level of economic development, everyday language and level of operation to describe their international operations. Countries were divided from very close to very distant and were scored on a five-grade scale. The classifications in the model are very rough and the validity of his findings may be questioned.⁸⁸

In the mid 1980s, Ronen and Shenker grouped the variables of eight cross-cultural attitudinal studies into four broad categories, work goals importance; need deficiency, fulfilment and job satisfaction; managerial and organizational variables and work role and interpersonal orientation. Further, nine groups of similar countries was created out of forty-six countries. However, it does not measure the difference in culture between the various clusters.⁸⁹

In our study, Hofstede's model is used in order to measure the cultural differences between countries. This is a model that is frequently used by researchers. Even though it is thirty years ago his empirical study was conducted, it is still considered the most comprehensive framework of national cultures. It was originally based on a study Hofstede conducted between 1967 and 1973, while he was working at IBM as a psychologist. He collected and analyzed data from over 100,000 individuals from fifty different countries. From these results, and later additions, Hofstede initially developed a model identifying four primary dimensions to differentiate cultures of different countries.⁹⁰

Individualism: The extent to which people place primary value on themselves. It focuses on societies emphasise on individual and collective achievements or interpersonal relationships.⁹¹

Power distance: The degree of equality and inequality between people in a society. A high power distance indicates large wealth and power gaps between the people in the society. ⁹²

⁸⁷ Benito, G., Gripsrud G, (1992)

⁸⁸ ibid.

⁸⁹ ibid.

⁹⁰ Moorhead G., Griffin R. W., (2001)

⁹¹ Homepage of Hofstede Geert, 2004-04-02

⁹² Homepage of Hofstede Geert, 2004-04-02

Uncertainty avoidance: The tolerance level for uncertainty and ambiguity in a society. A high level of uncertainty avoidance implies a rule-oriented society to diminish uncertainty and risk. ⁹³

Masculinity: The extent to which the dominant values in a society emphasise aggressiveness and the acquisitions of money and material goods, rather than concern for people, relationships among people, and the overall quality of life. High masculinity implies large differentiation and discrimination between the genders. ⁹⁴

A fifth dimension has been added to the model afterwards, which is called *long term orientation* (see below). This dimension does not categorise all countries that are included in the first four dimensions. The lack of information from the fifth dimension makes it impossible to include it in our study.⁹⁵

Long-term Orientation: Focuses on the long-term devotion to traditional forward thinking values. A high level of long-term orientation implies long-term commitment and respect for traditions⁹⁶.

3.5.3 Criticism to Hofstede's Cultural Dimensions

Hofstede can be criticised for a number of issues. Several authors have criticised him for not taking the changing relationship between parent companies (IBM) and subsidiaries in a global economy into account. The generalisability of the research findings has been questioned since the sample is drawn from one large multinational company alone ⁹⁷. Further, Hofstede assumes that the company's employees represent the entire country, excluding the fact that IBM selectively recruits from the middle class. Some critics stress the fact that big multinational companies create their own cultural values in the organization. That is emphasised by the fact that IBM was renowned for its strong corporate culture at the time. He further ignores that a country may contain more than one culture ⁹⁸.

The questionnaires in Hofstede's study were never designed to identify national cultures. Their original purpose was to enhance senior management's interventions at

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⁹³ ibid.

⁹⁴ ibid.

⁹⁵ ibid.

⁹⁶ ibid.

⁹⁷ Evans J. & Mavondo F, 2004-04-23

⁹⁸ Hill C., (2003)

a time of worry about the company morale. Some years later Hofstede used these non-independent, company-administered, "second-hand" questionnaires for his analysis. 99

Critics of the work of Hofstede argue that culture is something that changes over time and not something static. This becomes especially apparent in countries that have gone through periods of socio-political changes during the last thirty years. Their cultural scores have not been changed even though it seems likely that this would affect their national culture. Nonetheless, others have argued that Hofstede's dimensions of national culture are valid, reliable and stable over time. ¹⁰⁰

Vahlne and Nordström classified 22 countries according to the psychic distance from Sweden. Their findings showed that the countries were ranked in almost the same order as when using Hofstede's cultural dimensions. ¹⁰¹ This shows that the results from Hofstede's cultural classifications have support from other researchers.

A somewhat updated version of Hofstede's model is used in this study. He has not changed the results from the old IBM survey, he has merely added ten more countries. ¹⁰²

Even though this model is thirty years old and obviously has its limitations, it is still widely accepted and used by many companies¹⁰³. It is also a model used to provide a relatively general framework when analysing cultural differences and FDI.

3.5.4 The Kogut and Singh index

A method to calculate Hofstede's dimensions into an index was created by Kogut and Singh¹⁰⁴. With their model, Hofstede's country dimensions can easily be compared and the difference between each of the four cultural dimensions can be mathematically measured on the basis of the home country's ranking (Sweden).

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⁹⁹ Homepage of Hofstede Geert, 2004-04-25

¹⁰⁰ Evans J. & Mavondo F., 2004-04-23

¹⁰¹ Vahlne J-E. & Nordström K., (1992)

¹⁰² Hofstede G., (2001), appendix

¹⁰³ Moorhead G. & Griffin R. W., (2001)

¹⁰⁴ Kogut B. & Singh H., (1988)

Algebraically, the Kogut and Singh index for cultural distance CD_i is given as 105 :

$$CD_j = \sum_{i=j}^{4} \{(I_{ij} - I_{is})^2 / V_i\} / 4$$

 \mathbf{I}_{ij} = index value for cultural dimension i of country j

 V_i = variance of the index for dimensions i

S = home country (Sweden in this case)

This is a formula that many studies have used in order to measure cultural distance ¹⁰⁶.

3.6 Geographical distance

Geographical distance is probably one of the oldest trade problems. However, it is most likely that the problem has diminished dramatically during the last century. A shrinking world is a result of decreasing cost of transportation, larger free-trade areas and perhaps more recently, the cost of communication and travel. There are still some arguments that may suggest that companies conduct less FDIs in countries that are geographically distant. This is because of the higher costs of obtaining information about a foreign market, transaction costs and problems of managing an affiliate at a distance. 107

A number of earlier studies have used geographic distance in order to test the significance between the amounts of FDI into a region and the distance of the country of origin. Findings from these researches have not managed to rule out or confirm geographical distance as an explanatory factor. An American study from 1995 by Grosse and Trevino managed to show that geographical distance was negatively correlated with the amount of FDIs taken into the US. This means that the greater the distance the less FDI is taken into the US. 108 A recent study within the banking industry found a similar result¹⁰⁹. However, in 1981 Lipsey and Weiss found that

¹⁰⁵ Benito G. & Gripsrud, G., (1992)

¹⁰⁶ Evans J. & Mavondo F., 2004-04-23

¹⁰⁷ Grosse R. & Trevino L., (1996)

¹⁰⁹ Soussa F., Homepage of Bank for International Settlements, 2004-06-07

geographical distance was insignificant in explaining exports when affiliate sales were included as a dependent variable ¹¹⁰.

3.7 Hypotheses

In this study we seek to investigate the influence of cultural and geographical distance on the amount of FDI crossing the Swedish border. After reviewing theories and previous research on FDI we can conclude that earlier results have proven to be unambiguous. In order to test if culture and physical distances play a significant part of the location decision when a company engage in FDIs, the following two hypotheses are tested:

H 1: The greater the cultural distance between a foreign country and Sweden, the less FDI is undertaken between the countries.

H 2: The greater the geographical distance between a foreign country and Sweden, the less FDI is undertaken between the countries.

It can be argued that culture and physical distance, as determinants of FDI might be irrelevant since we live in a more homogeneous world today with similar customer demand. The world is becoming "smaller" given the easiness of travel and transportation, new means of communication and the fact that international media is spread all over the world.

¹¹⁰ Lipsey R. & Weiss M. Y., (1981), cited in Brainard S. L. (1997)

4. Empirical method

This chapter contains the empirical method used in this study. It starts out with a discussion about the selection of the sample, which follows by a description of the statistical tests. This part includes a presentation of the dependent and the independent variables. Further, the regression model and the hypotheses are presented along with the underlying assumptions and evaluations of the models. Finally, the reliability and validity of the study are presented.

4.1 Sample Selection

The research sample of this study is based on a number of criteria. To begin with, an up to date study on this specific topic is of great relevance to the selection of time period. To be able to draw conclusions of the material, a time period of eleven years is selected between 1992 and 2002. These years follows a dramatic period within the financial markets. The 1980s represents, from an economic point of view, a decade of financial market deregulations. In the developed world the liberalisation process was almost completed in the early 1990s. ¹¹¹ We have based our choice of time period on the fact that it is the first decade after the liberalisation. We are able to analyse if cultural and geographical distances affect the FDI location decision on a liberalised financial market.

Countries that are involved in FDIs with Sweden during the selected time period and which are documented in the statistical database at Riksbanken are included in the sample. A further selection is made from these countries based on Hofstede's index of cultural distance. Only countries that are included in the cultural distance index are comprised in the sample. This process results in a sample of 67 countries.

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¹¹¹ Oxelheim L. (1996), page 1, 50

4.2 The Statistical Test

The collected data is sorted, restructured and calculated in Microsoft Excel¹¹². To be able to analyse the material, the data is transferred to the statistical software SPSS. Thereafter, an evaluation of the hypotheses using a multiple regression model is being conducted. The multiple regression model is chosen since the dependent variable is predicted by more than one independent variable.

4.2.1 The Dependant Variable

The dependant variable in the in the multiple regression model is measured as the value of the net FDI flow between Sweden and a foreign country.

The data concerning FDI from each country was initially divided into inward and outward FDI. The presented data on outward and inward investments is composed of a net amount of invested minus disinvested capital. This means that outward FDI is the flow of capital out from Sweden and the inward FDI is the flow of capital in to Sweden. As this study intends to test the total FDI flow between Sweden and a foreign country, independent of the direction, the inward and outward net flows are summed up. The data on FDI provided by Riksbanken is presented in SEK, which becomes a problem since figures necessary for the tests are in US dollars. Therefore, a translation of the FDI figures is performed using a yearly mean value of SEK/USD. Another issue with the data is that from 1997 the FDI statistics also include shortterm loans and trade credits, real estate transactions and holding companies¹¹³. This may have a minor impact on the size of the FDI flow from 1997.

4.2.2 The Independent Variables

The two determinants of FDI, which this study intends to test, are cultural distance and geographical distance. We believe these are explanatory variables of FDI, which is the reason why they are selected as independent variables.

¹¹² The data is collected from: www.riksbanken.se (FDI, US\$ exchange rate), www.worldatlas.com (geographic distance), www.unctad.org (GDP, GDP/capita), www.worldbank.org (GDP, GDP/capita), www.investintaiwan.nat.gov.tw (GDP, GDP/capita)

113 Homepage of Riksbanken, 2004-05-06

Cultural Distance

Cultural distance is one of the independent variables that we believe explain the variation in FDI. To be able to measure this variable an index of cultural distance is calculated. The calculation of the cultural distance indices is emanated from the cultural classification of countries made by Hofstede. Using Hofstede's figures, a composite index is formed based on the deviation along each of the four dimensions (i.e power distance, uncertainty avoidance, masculinity and individualism) of each country from Sweden's ranking. The deviations are then corrected for differences in the variances of each dimension and then arithmetically averaged. Kogut and Singh's cultural index formula is shown below. 114

$$CD_{j} = \sum_{i=j}^{4} \{(I_{ij} - I_{is})^{2} / V_{i}\} / 4$$

 CD_i = Cultural index from the home country j

 I_{ij} = index value for cultural dimension i of country j

 \vec{V}_i = variance of the index for dimensions i

U = home country (Sweden in this case)

The cultural distance index shows both expected and unexpected results¹¹⁵. Denmark and Norway are the closest countries to Sweden in terms of culture, which they were expected to be. The result that Iran and Tanzania are culturally closer to Sweden than the US and Great Britain is very surprising. The cultural distance index may therefore be interpreted with caution. However, Hofstede's work and Kogut and Singh's formula for the cultural index is still used by a number of authors, which allows us to apply it in our study.

Geographic Distance

Geographic distance is the second independent variable that possibly explains the variation in the FDI flow. The ambition is to test whether we can explain a possible correlation between the physical distance and the amount of FDI flow. To be able to quantify this variable the distance, in kilometres, between Stockholm and the capital city of a foreign country is measured 116. This way of measuring geographic distance

<sup>Kogut B, Singh H, (1988)
See appendix 1
See appendix 2</sup>

is supported by previous research within a similar topic¹¹⁷. A possibly more suitable measurement of geographic distance would be to measure the infrastructure between and within countries. Unfortunately this is not possible since we have not found a method to estimate this measure.

4.2.2.1 Control Variables

There are several other possible determinants, except from cultural and geographical distances, which may influence FDI location decision. In order to get a fair and reliable result other variables must be taken into account along with the two independent variables. Therefore, control variables are added to the model, which possibly can affect the relationship between the independent and the dependant variables. In addition to the two distance factors, determinants that generally show to be important to the location choice are labour cost differentials, transportation costs, governments policies and market size and growth 118,119. The American study that has influenced our research showed that the variable with highest explanatory effect on FDI location choice was the GDP 120. Based on this finding we have chosen market size, measured as GDP and GDP/capita as control variables.

Gross Domestic Product

The size of the Swedish and the host market is likely to affect the amount of FDI, which is the reason why Gross Domestic Product (GDP) is included as a control variable in the model. We expect large national markets to have a dominating effect on the amount of FDI since these markets usually contain more large companies that are willing to expand internationally by e.g. FDI. ¹²¹ By taking this factor into consideration we are able to distinguish the specific effect it has on the flow of FDI.

Gross Domestic Product per Capita

The second control variable that we expect to have an impact on the flow of FDI is the Gross Domestic Product per capita (GDP/capita). This variable considers both the

¹¹⁷ Grosse R. & Trevino L. J., (1996)

¹¹⁸ Benito B.R.G. & Gripsrud G., (1992)

¹¹⁹ Grosse R. & Trevino L. J., (1996)

¹²⁰ ibid.

¹²¹ ibid.

size of the market and the population. Firms increase their investments as sales increase and FDI rises with the home country's rising GDP. 122

Dummy Variable

The US has one of the largest FDI flows with Sweden. Since the US is such a dominating market it might lead to a biased model. Therefore, a zero-one dummy variable is added as a control variable. This variable allows for a shift in the regression line intercept, which measure the mean value. By adding the US as a dummy variable the model takes a possibly different mean value into account if the US mean value is different from that of the rest of the countries.

4.2.3 The Time Periods

The entire time period between 1992 and 2002 has been divided into four pooled time series to be able to distinguish and compare the FDI trends. The reason for not investigating one year at a time is that large investments may have a too big impact on a single year's statistics. The first time period represent the years between 1992 and 1994. These years represent the period when Sweden prepared for the EU membership and the FDI flow was low but slowly increasing. The second time period last between 1995 and 1997 starts with the entrance into the EU. These years are experiencing a small peak in FDI flow in 1995. The third period is between 1998 and 2000 and represents the period when the FDI flow had a real boom. The last time period stretches between 2000 and 2002. These last years are showing a decreasing FDI flow. These four series all represent different phases of the FDI activity. It is therefore interesting to analyse if the results are dissimilar for the four time series or indicating the same outcome. Furthermore, it is interesting to investigate the period just before and after the EU entrance in order to analyse whether Sweden's entrance has affected our result. Finally, are we looking at the whole time period between 1992 and 2002 to be able to draw generable conclusions about the whole period.

¹²² Grosse R. & Trevino L. J., (1996)

Total FDI/year

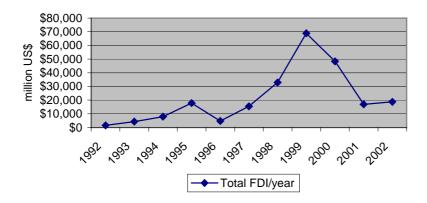


Figure 4.1 Swedish total FDI net flows per year, 1992-2002

4.2.4 The Null Hypotheses and its Alternate Hypotheses

As already mentioned, the data is analysed and interpreted in Excel and SPSS. The latter is used when running the regression and evaluating the hypotheses. SPSS only runs two-tailed tests and the tests in this study are one-tailed. Therefore, the t-values are interpreted using the critical value for one-tailed tests¹²³. The data are pooled time series, cross-section observations of Swedish FDI.

Before running the regression, null hypotheses (H_0) and alternate hypotheses (H_1) are stated (see below). The level of significance is decided in advance to know the probability of rejecting the null hypotheses when they are true¹²⁴. The hypotheses in this study are tested on the 0.05 level of significance.

Hypothesis 1: The greater the cultural distance between Sweden and a foreign country, the less FDI is undertaken between the countries.

$$\mathbf{H_0}^1$$
: $\beta = 0$

$$H_1^1: \beta < 0$$

¹²³ Lind D.A., Marchal W. G. & Mason R.D., (2002), appendix F

¹²⁴ Lind D A, Marchal V G, Mason R D, (2002), page 338

Hypothesis 2: The greater the geographic distance between a foreign country and Sweden, the less FDI is undertaken between the countries.

$$H_0^2$$
: $\beta = 0$

$$H_1^2: \beta < 0$$

4.2.5 Assumptions about Multiple Regression

There are five assumptions underlying a multiple regression that must be met in order to avoid a biased result. The five assumptions are the following: 125

- □ Residuals are normally distributed with a mean of zero.
- ☐ It exists a linear relationship between the independent and the dependant variables.
- ☐ The dependant variable is continuous and at least interval scale.
- ☐ The difference in the variation between the actual and predicted values is the same for all observations. When this is the case, differences exhibit homoscedasticity.
- □ Successive observations of the dependant variable are uncorrletated. Violation of this assumption is called autocorrelation.

The two latter assumptions can be statistically tested. Autocorrelation is discovered using a test called Durbin-Watson (DW). The DW value shall be close to two in order to meet the assumption of uncorrelation. Homoscedasticity can be discovered by plotting the residuals against the fitted value of Y (the observations). Two typical examples when homoscedasticity are not met are when the plots of residuals are funnel-shaped or when a pattern is discovered. When homoscedasticity is not fulfilled the standard deviation of the regression coefficient may be understated causing independent variables to appear significant when they may not be. We will not check the first three assumptions as they are fulfilled if the latter two are fulfilled.

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¹²⁵ Lind D A, Marchal W G, Mason R D, (2002), page 511-512

Furthermore, a linear relationship will appear if the numbers of observations are more than 30, which they are in our case. 126

4.2.6 Evaluation of the Regression

When evaluating the regression there are certain tests and values that must be analysed in order to conclude if the tests are valid.

- □ The coefficient of multiple determinations, written as R², shows how much the independent variables are able to explain the variation of the dependant variable, FDI. If the independent variables totally explain the variation the R² is 1. The closer to 1 the greater is the level of explanation of the regression. ¹²⁷
- □ The ANOVA-test is the global test. Basically it investigates whether it is possible that all the independent variables have zero net regression. To put it another way, could the amount of explained variation, R², occur by chance? The F-value is telling whether the whole test, including all the independent coefficients is significant or not. The F-value should be larger than the critical value in order to be significant. The critical value of this F-test is 2.37. 128
- □ A one-tailed t-test can be conducted in order to test whether the independent variables individually are significantly correlated. The critical value of this t-test is 1.671. 129
- □ In order to test whether the independent variables are correlated we test for multicollinearity. Multicollinearity may distort the standard error of estimate causing incorrect conclusions as to which independent variables are statistically significant. The Pearson correlation may test for multicollinearity. If there is absolutely no relationship between two variables Pearson's r is zero and if the r is between -1 and +1 it indicates perfect correlation. A value between -0.7 and +0.7 do not cause difficulties. ¹³⁰

¹²⁶ Lind D A, Marchal W. G. & Mason R.D., (2002), page 525-526

¹²⁷ Lind D.A., Marchal W. G. & Mason R.D., (2002), page 465

¹²⁸ Lind D.A., Marchal W. G. & Mason R.D., (2002), page 515-516

¹²⁹ Lind D.A., Marchal W. G. & Mason R.D., (2002), page 517-518

¹³⁰ Lind D.A., Marchal W. G. & Mason R.D., (2002), page 515, 460

4.3 Validity and Reliability

When a measure is devised it should not be apparent that it shows appropriateness and adequacy. Therefore it is necessary that it meets the author's aim and that it has adequate measurement properties. A discussion of such issues is closely related to the consideration of whether the measure is reliable and valid.¹³¹

Validity

The validity of the research refers to whether the results actually show what they appear to show, i.e. how well the data collection and the data analysis captures the reality being studied. Validity is the most important requirement for a gauge. If the instrument does not measure what it is supposed to measure, the importance of the quality of the research almost disappear. We will use a multiple linear regression in order to test if the cultural and/or geographical distance between two countries explains the amount of FDI. We find that a multiple regression is the most suitable statistical test for this study as it tests the linear relationship between a dependant and several independent variables. The independent variables are chosen among several explanatory factors that we believe to be significant in explaining the amount of conducted FDI. By including them in the regression, we are able distinguish how much each of them explain the variation in FDI flow.

Validity also refers to the link between theory and empirical research¹³³. We consider the theory chosen on motives for FDI, are not the only contributing theory, but valid in explaining our empirical findings. However, it is difficult to show that one single theory would be the sole reason for a FDI's location decision, as the theories are not substitute but rather complementary to each other.

¹³¹ Bryman A, (1995), page 54-57,

¹³² Eriksson L. T. & Wiedersheim-Paul F., (1997), page 38-39

¹³³ Svenning C, (2000)

Reliability

Reliability refers to the consistency of a measure. This implies that a gauge should give reliable and stable judgments. Would other researchers come up with the same results if they used the same method? There are many threats to the reliability of the study that could occur during the data collection. Examples are 134:

- 1. Subject bias
- 2. Participant bias
- 3. Observer error
- 4. Observer bias

The above-mentioned threats to the reliability concern the gathering and the interpretation of the primary data. Since this study is conducted using only secondary data from official sources and easily accessible databases, these threats can be neglected, i.e. problems with the gathering and processing of the data have been avoided. During the collection of data we have double-checked all the facts from various sources. The method used to calculate the regression is thoroughly described, which makes the study easy to duplicate.

¹³⁴ Saunders M., Lewis P., Thornehill A., (2003)

5. **Analysis**

This chapter begins with an evaluation of the underlying assumptions for the multiple regression models. It follows by a presentation of the results from the regression analysis for each time period where it is stated whether the hypotheses are rejected or not. Thereafter, a thorough analysis of the material where the time periods are compared to each other, to the Swedish and the global economy and to historical FDI flows.

5.1 Presentation of the Results

Before analysing the material, the assumptions about multiple regressions are evaluated in order to avoid a biased result. All four regression models fulfilled the assumptions. Further, no autocorrelation occurred since the Durbin Watson test was close to 2 in all regression 135. Homoscedasticity was also fulfilled as the residuals did not form pattern or were funnel-shaped when plotted into a scatter chart ¹³⁶.

1992-2002

For the entire time period, 1992-2002, the Swedish FDI fluctuated substationally in size among the countries in this sample ¹³⁷. In the beginning of the 1990s the Swedish FDI started out of from a rather low level. It had an upswing in 1995 but the real peek came in 1999. From then on the flow of FDI slowed down considerably.

The regression model for the whole period (1992-2002) explains 43% of the variation in the FDI flow and the F-test indicates that the model is significant. All the regression models are run at the 0.05 level of significance. The t-tests show that cultural as well as geographical distances significantly explains the amount of FDI since they are both outside the critical value of 1.671. This implies that both the first and the second null hypotheses are rejected, $(H_0)^1$ $\beta < 0$, $(H_0)^2$ $\beta < 0^{138}$.

As expected, the two distance variables are negatively correlated with the amount of FDI, which means that the larger the distance, the less FDI flow between the

¹³⁵ See table 1, appendix 4, 5, 6, 7, 8

¹³⁶ See appendix 9, figure 1, 2, 3, 4, 5
137 See figure 4.1, page 29

¹³⁸ See table 5.1, page 35

countries. None of the control variables were significant which indicates that the cultural and geographical distance dominates the explanation of the FDI flow¹³⁹.

Table 5.1 Summary of the results from the regression models.

	1992-2002	1992-1994	1995-1997	1998-2000	2001-2002
R-square	0.43	0.308	0.895	0.312	0.175
F-test	9.203	5.438	103.947	5.544	2.584
Critical value of F	2.37	2.37	2.37	2.37	2.37
t-values:					
Cultural Distance	-2.606	-1.757	-3.136	-2.204	-2.001
Geographic Distance	-1.948	-1.194	-2.256	-1.77	-1.212
GDP	1.558	0.255	0.595	1.911	0.565
GDP/capita	1.052	1.265	2.138	0.942	0.542
US-dummy	0.716	1.702	11.113	-0.706	0.087
Critical Value of t	1.671	1.671	1.671	1.671	1.671

See appendix 4, 5, 6, 7 and 8 for more detailed results of the five regression models.

The countries with the largest FDI flow with Sweden are presented in a "top twelve" bar chart for each sub-period¹⁴⁰. As can be seen in figure 5.1, the FDI flow between Sweden and Finland has been very high during the entire time period of 1992-2002. The reason that Great Britain comes at a second place is not due to continuously large flows during the entire period. Rather, the flows have been very high at certain points, such as in 1999 when the inflow from Great Britain was unusually high.

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¹³⁹ See table 5.1, page 35

¹⁴⁰ Important to notice is that the scale on the Y-axis is not the same for all "top twelve" bar charts, see figure 5.1, 5.2, 5.3, 5.4 and 5.5.



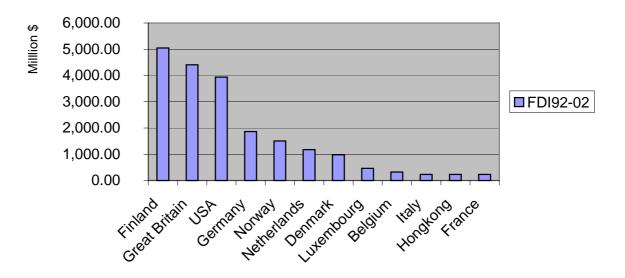


Figure 5.1 The Swedish yearly mean value of net FDI flows between 1992 and 2002^{141}

1992-1994

The regression model between 1992 and 1994 explains 30.8% (R2) of the variation in FDI. Even if the explanation level is rather low the regression model is significant, shown by the significant F-value of 5.438. When evaluating the t-values, it becomes clear that only cultural distance has a significant t-value of -1.757. The geographic distance has a t-value of -1.194, which is within the critical value. This result leads to a rejection of the first null hypothesis $(H_0)^1$, $\beta < 0$, while the second null hypothesis, $(H_0)^2$, $\beta = 0$ is not rejected. 142

The FDI flows during 1992-1994 were low compared to the other investigated time periods. The twelve countries that had the largest FDI flows with Sweden during this period are presented in figure 5.2 below. The largest business partner during 1992-1994 was Great Britain, which is fairly close to Sweden considering culture and geography.

 $^{^{141}}$ For an extended list of countries see appendix 3. 142 See table 5.1, page 35

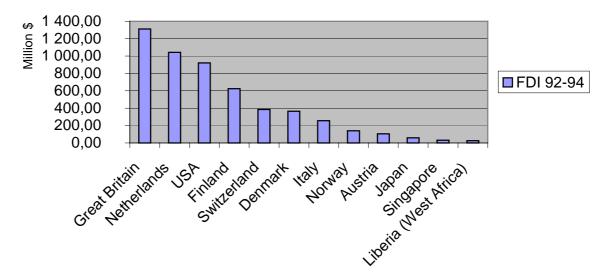


Figure 5.2 The Swedish yearly mean value of net FDI flows between 1992 and 1994¹⁴³

1995-1997

The regression between 1995 and 1997 is able to explain as much as 89.5% of the variation in the FDI flow. This is also shown by the significant F-value of 103.947, which is very high. The reason for this high level of explanation is due to strong correlation between the chosen variables and FDI flow.

When evaluating the t-values, we can conclude that all the independent variables except GDP are significant. The cultural variable has a t-value of -3.136 and the geographical variable has a t-value of -2.256. 144 This implies a rejection of the first null hypothesis $(H_0)^1$: $\beta < 0$ and also of the second null hypothesis $(H_0)^2$: $\beta < 0$. The variable with the highest explanatory level is the US-dummy, which is positively correlated with FDI. This indicates that the US has other country specific variables, except the ones used in this model, that explain the FDI flows in and out from the US and that the US FDI flows are out of proportion compared to the other countries. GDP/capita has a significant positive t-value, which means that it is an important variable explaining FDI flows during this time period. 145

¹⁴³ For an extended list of countries see appendix 3.

¹⁴⁴ See table 5.1, page 35 ibid.

During 1995-1997, the flow of FDI is still low for most of the "top twelve" countries except the US, which had a major impact on the FDI activities, see figure 5.3. This is due to an extreme inflow from the US in 1995. As mentioned above, the US-dummy variable is very large for this time period. Norway, is on the second place but far behind the US.

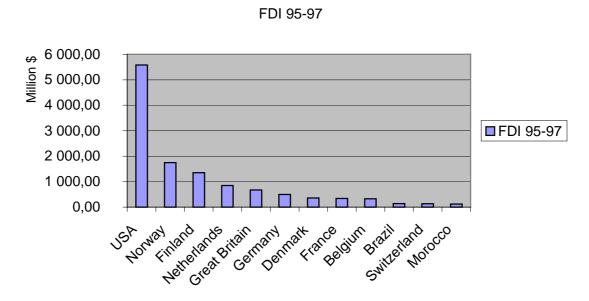


Figure 5.3 The Swedish yearly mean value of net FDI flows between 1995 and 1997¹⁴⁶

1998-2000

The years between 1998 and 2000 represent a peak in the FDI flow during the whole investigated period. The regression model for this period is significant, shown by the F-value of 5.544, but it only explains 31.2% (R²) of the variation in FDI¹⁴⁷.

When examining the t-test, the significant explanatory variables are cultural distance, geographical distance and GDP. Cultural distance has a t-value of -2.204 and the geographical distance a t-value of -1.77, which means that the first and the second null hypothesis are rejected, $(H_0)^1$: $\beta < 0$, $(H_0)^2$: $\beta < 0$. A significant value for GDP implies an important explanatory variable of FDI flow. 148

 $^{^{146}}$ For an extended list of countries see appendix 3. 147 See table 5.1, page 35 148 Ibid.

During 1998-2000, the FDI flows were substantionally larger compared to previous periods. Large acquisitions from Great Britain influenced the FDI statistics, which is shown in table 5.4. In 1999 One explanation is the merger between Astra and British Zeneca, a merger worth 65 Billion SEK. 1999 was also the year when Ford bought Volvo PV at a price of 50 Billion SEK. Finland had the second largest FDI flow with Sweden during this period, even larger than the US.

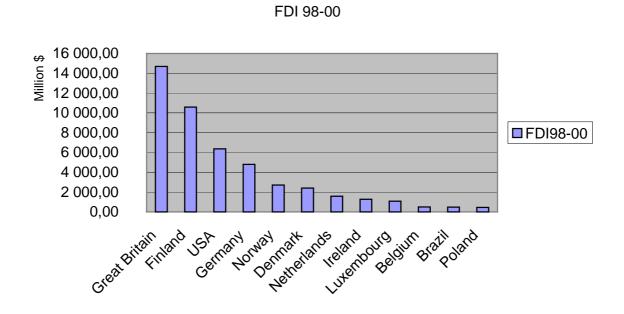


Figure 5.4 The Swedish yearly mean value of net FDI flows between 1998 and 2000¹⁴⁹

2001-2002

The regression for the time period of 2001-2002 only explains 17.5% of the FDI, although the F-value is proven to be significant. The only independent variable that is shown to be significant is the cultural distance, t-value of -2.001, which implies that the first null hypothesis is rejected, $(H_0)^1$: $\beta < 0$. The geographical distance hypothesis is not rejected since it has a t-value of -1.212, $(H_0)^2$: $\beta < 0$.

The Pearson correlation shows that there is multicollinearity between the US-dummy and the GDP. This implies that the US' GDP correlates with the mean value of all the

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¹⁴⁹ For an extended list of countries see appendix 3.

¹⁵⁰ See table 5.1, page 35

countries' GDP since its GDP represent such a large part of total GDP. This multicollinearity appeared in all five regressions.

According to figure 5.5, Finland had the largest FDI flow with Sweden during 2000-2002. One reason that Finland is such a dominant actor during this period is the merger between Telia and Sonera in March 2002. However, this was a period characterised by a global downturn in FDI activity. Interesting is that Hong Kong is on the sixth place, since it has not been among the "top twelve" in earlier periods.

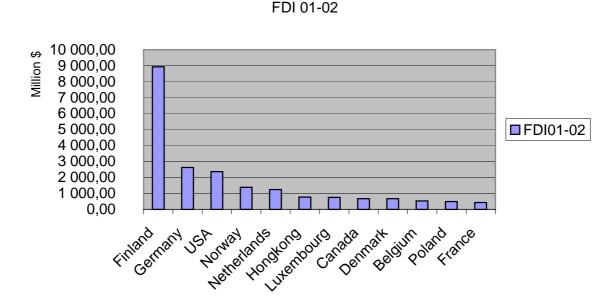


Figure 5.5 The Swedish yearly mean value of net FDI flows between 2001 and 2002¹⁵¹

When comparing the "top twelve" countries, five remain on the list during all four time periods. These five countries are Finland, the US, Norway, the Netherlands and Denmark. This shows that many of Sweden's largest investment partners are basically the same during the studied time horizon.

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¹⁵¹ For an extended list of countries see appendix 3.

5.2 Analysis of the Results

During the 1980s many of the developed countries in the world abolished most of their capital controls. The consequence of two decades of liberalisation of the financial markets was a more or less perfectly integrated system. Due to this transformation of financial markets, FDI policies changed which led to major shifts in stocks and flows of global financial resources. This implies a rapid growth of FDI flows during the recent past, even faster than international trade, and has been the primary mechanism linking national economies for a long time 153. It was not only the developed countries that liberalised, countries in the developing world also followed the liberalisation process, in fact they liberalised the most in relation to the developed countries 154. The 1990s is recognised as a decade when the business cycle fluctuated heavily in Sweden and in many other countries. This was also the decade when Sweden entered the European Union (EU). This membership imposed that rules and regulations became standardised within the EU, which facilitated cross-border investments.

The growth of international investment agreements¹⁵⁵, increasing liberalisation and integration between countries may imply that the cultural and geographic distance should have less effect on the FDI location decision. The empirical results show that the cultural distance does influence the FDI flow but the correlation is diminishing after the mid 1990s. The last time period between 2001 and 2002 is just about significant. The same trend is discovered for the geographic distance, which becomes irrelevant as an explanatory variable to FDI during the last two years. An interesting thought is if the decreasing influence of culture and geographic distance is a consequence of greater boldness among countries. Or, has the risk decreased, as markets are getting closer to one another? In that case it would imply that the propensity to invest in distant markets becomes greater.

The American study by Grosse and Trevino, that served as an inspiration source to this thesis, showed that both the cultural and the geographical distances were negatively correlated with the amount of FDI taken into the US. The results also showed that the geographical distance had a stronger impact on the FDI flow than the cultural distance. ¹⁵⁶ These earlier findings are to some extent in line with the results

¹⁵² Oxelheim L, (1996), page 1, 50

¹⁵³ World Investment Report 1996, 2004-05-19

¹⁵⁴ Oxelheim L, (1996), page 1, 50

¹⁵⁵ World Investment Report 2003, 2004-05-19

¹⁵⁶ Grosse R. & Trevino L. J., (1996)

from our study, which shows that the distance variables are negatively significant with the flow of FDI in almost all time periods. However, in our case the cultural distance has a greater impact on the FDI flow than the geographical distance, which separates the findings from the two studies.

Companies motive to invest in Sweden are usually to access the Swedish technology industry, especially in wireless technology and mobile services. Sweden is known as a country that develops and adopts new technology early. In 2002 Sweden was ranked as one of the top recipients of FDI, most of it technology-based, which makes most of the investors strategic asset-seekers. American companies' motive to invest in Sweden is also to reach the European market and to get an entry port into the Baltic States and Russia. 157 They are by other means not only strategic asset-seekers but also market-seekers. Swedish companies invest abroad mainly to enjoy larger markets, decrease transportation costs and/or lower cost of capital. This implies that the Swedish firms have market-seeking and/or resource-seeking motives.

When looking at the top twelve countries with the largest FDI net flows with Sweden, a pattern can be seen over the different time periods. Five of the countries at "top twelve" remain among the largest FDI net flow recipients/investors for all time periods¹⁵⁸. By tradition, the Nordic countries have accounted for a large part of Sweden's FDI flow. Even if countries like the US, Hong Kong and Japan are geographically distant and the two latter are culturally distant they have placed themselves in the "top twelve". It is hard to say how large acquisitions affect the statistics but the fact is that some of the largest Swedish companies have been acquired by multinational companies during the last fourteen years, e.g. Saab automobile-GM, Pharmacia-Upjohn, Volvo-Ford, Astra-Zeneca. These companies origin from countries with cultural values fairly close to Sweden and that contributes to the explanatory effect of cultural distance on FDI flow.

The years between 1992 and 1994 was reflected by slow FDI development. The cultural distance proved to be significant for this time period but not the geographical distance. According to Dunning, institutional agreements such as EU or NAFTA may reduce the cultural distance among countries. It implies that companies that try to avoid cultural differences, but are aware of the economic benefits, might overcome their uncertainties and invest in countries within these agreements¹⁵⁹. The regressions show that cultural distance has a negative impact on the FDI flow before the Swedish

¹⁵⁷ Cole E, (2002), 2004-05-23

¹⁵⁸ See figures 5.1, 5.2, 5.3, 5.4, 5.5 Dunning J H, (1997)

EU entrance and an even stronger impact on the FDI flow after becoming a member. It is difficult to express to what extent the EU membership has affected the correlation between cultural distance and FDI flow. A reason that the two distance variables show the weakest link to FDI flows this period, 1992-1994, may be explained by the lack of large mergers and acquisitions. The underlying condition for the above-mentioned circumstance was the Swedish economic crises that occurred during the beginning of the 1990s. This crisis caused scepticism towards Sweden on the financial markets. Sweden recovered and regained confidence in the middle on the 1990s. ¹⁶⁰

1995 was a year characterized by a small boom in the FDI flow all over the world¹⁶¹. During this year, international FDI increased with 40 percent. In Sweden, the American pharmaceutical company, Upjohn, made an acquisition of Swedish Pharmacia. This can be one of the reasons why the US-dummy is strongly correlated with the FDI flow between 1995 and 1997. It was not only the US-dummy that showed strong relation to the FDI flow, both the cultural and the geographical distances were strongly significant. A factor that could have had an impact on the unusually strong distance variables were increasing investments from Norway to Sweden, after Norway decided not to join the EU¹⁶².

The FDI boom in 1995 was followed by two years of decreasing FDI flow, but at the end of the 1990s a second peak occurred. This peak rapidly outperformed the first peak in the mid 1990s. The business cycle in Sweden was remarkably high and the economy was booming. 1999 and 2000 were two extreme years of FDI in Sweden, which was a result of a few large acquisitions, e.g. Astra and PharmaciaUpjohn. The inflow of FDI was more than twice as large as the outflow in Sweden¹⁶³. The Swedish stock market reached its peak during the spring of 2000 much due the communication industry and the IT-boom. After these years the Swedish inward FDI have been in line with the rest of the world¹⁶⁴. In our study, both of the investigated variables explained the variation in the FDI net flow during this time period (1998-2000).

The two time periods 1995-1997 and 1998-2000 both demonstrated significant distance variables. The fact that each of these time periods contained a peak in the FDI flow made us question if the large FDI flows in 1995 and 1999 were the underlying reason for this significant result. Therefore, two separate regressions were

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¹⁶⁰ Eklund K, cited in Södersten, (2000), page 86-87

¹⁶¹ World Investment Report 1996, 2004-05-19

¹⁶² Homepage of Svenska Dagbladet, 2004-05-23

¹⁶³ Homepage of UNCTAD, 2004-04-06

¹⁶⁴ Homepage of Svenska Dagbladet, 2004-05-23

run on the years of 1995 and 1999. Surprisingly, we found that the distance variables showed a much smaller correlation with FDI flows during these booming years. In fact, none of the variables were significant in 1999. These findings proved that cultural and geographical distances have minor impact on the location decision when the FDI flows are large. This indicates that investors apply a more courageous investment strategy when cross-border activities are high.

The recession that followed the boom in 1999-2000 was reflected by a large decline in FDI flows. This trend was recognised globally. Global FDI decreased with 41 percent in 2001. Sweden, as an earlier attractive investment partner, was severely hurt by the downturn in FDI. After 1999, Sweden went from being the 4th most attractive FDI country to a 17th rank in 2002. ¹⁶⁵

The expansion of the communication industry is one factor that could explain the geographic distance's diminishing explanatory effect on FDI flows since the mid 1990s. The reason is that business partners all over the world are able to communicate more easily and at a lower cost. Another explanatory factor is the abolition of trade barriers, which facilitates and lowers the cost of transportation. The cultural distance also seems to have less effect on the FDI location decision at the end of our time period. A possible explanation would be that the world is getting smaller as markets integrate and foreign business cultures are not that unfamiliar anymore.

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¹⁶⁵ Frycklund J, (2004), 2004-05-21

6. Conclusions

This chapter concludes the thesis and brings up the most important findings of the study. The chapter also includes criticism to the results and finishes with suggestions for further studies.

6.1 Final Conclusions of the Thesis

Countries have become more globally active as a result of increasing competition, liberalisation and opening of new investment areas. Today FDI is a major force influencing the globalization¹⁶⁶. Firms usually engage in FDI when they want to combine their ownership-specific advantages with their location-specific advantages of host countries through internalisation. The cultural distance as well as the geographical distance between the home and the host country are two factors that affect the location decision.

The overall results for all time periods show that the cultural as well as the geographical distance affects the FDI flow negatively. However, the regression models showed unambiguous results for the geographical distance variable, which was insignificant in the beginning and the end of the investigated eleven-year period. A pattern of decreasing correlation between FDI and cultural and geographical distance could be distinguished for the later part of the entire time period.

Increasing FDI flows during the 1990s has affected the investment behaviour of Swedish firms and firms investing in Sweden. One underlying reason for increased FDI activities is the integration of markets. The integration process implies that cultures are getting psychologically closer since it is easier to invest, work, study in foreign countries. It has been shown that years with large amounts of FDIs are not sensitive to cultural and geographical distances. This implies a tendency towards more distant seeking investors. However, this is not due to a less risk-averse investment strategy nor is it due to diminishing cultural and geographical distances in absolute terms. The explanation is rather an increased awareness of foreign cultures and an increased easiness to communicate, travel and to transport.

¹⁶⁶ World Investment Report 1996, 2004-05-19

The Swedish market was almost fully deregulated in the beginning of the 1990s but the membership of the EU meant a further step towards a total integrated market. The results from this study do not show a concrete pattern concerning the Swedish entrance of the EU. It is therefore difficult to express if the decreasing significance of the variables is a result of the EU membership or a general tendency of investments in more distance markets.

The countries that Sweden generates the largest FDI flows with are not changing considerably over time. The countries are, Finland, US, Norway, Netherlands and Denmark. The reason behind this finding is mainly due to large mergers and acquisitions with these countries.

An important finding in the study is that the distance variables are dominating in explaining the FDI location decision among the explanatory variables in the models. Finally, culture has greater impact on the FDI location decision than the geographical distance. This implies that Swedish firms investing abroad and foreign firms investing in Sweden find cultural differences as a larger risk than geographical distances.

6.2 Personal Reflections

In this study the geographical distance is measured as the number of kilometres between capital cities. This makes the distance between Copenhagen and Stockholm much more sensitive to the margin of error than the distance between New Delhi and Stockholm. The countries could have been clustered into different groups depending on their geographical distance from Stockholm. By doing this we might have been able to prove more significant results for physical distance.

Another margin of error that concerns the impact of specific countries' FDI flows. In the regression models the only variable that distinguishes country specific influences was the US-dummy. Afterwards, it was evident that Finland and Great Britain also had large FDI flows with Sweden, which implies that these countries should have been tested as dummy variables.

The finding that Iran and Tanzania have been classified as countries culturally closer to Sweden than the US and Great Britain is weakness in the cultural distance index.

The consequence of this matter is that the study does not fully reflect the reality. It is important to keep this in mind when interpreting the results.

The effect of the Swedish EU membership was difficult to interpret. Therefore, regression models including only EU countries could have been included. This would have led to a better understanding of EU's influence on the FDI location decision.

6.3 Suggestions for Further Studies

We chose to do our study on a country specific level. It would be interesting to make a similar, but qualitative research, on a firm specific level and divide the firms into different line of business. By doing this it is possible to specifically distinguish certain patterns in investment behaviour and to study differences between industries.

The time period studied in this thesis is rather short, which makes large investments too dominating. It also leads to a somewhat biased result. As a consequence it is hard to draw any definite conclusions about the trends. A suggestion for further studies would be to conduct a similar study for a longer time period, in order to avoid this difficulty.

As we already mentioned in personal reflections, the effect of the Swedish EU membership was difficult to interpret. It is therefore suitable to make a study on the time period after and before the Swedish entrance, when only the EU countries are included. This would facilitate the interpretation of the EU effect on the FDI location decision.

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Appendix 1 Cultural Distance Index

No	Country	Cultural Distance Index
1	Denmark	0,21
2	Norway	0,25
3	Netherlands	0,44
4	Finland	0,87
5	Estonia	1,12
6	Canada	2,04
7	Iran	2,48
8	New Zealand	2,54
9	Luxembourg	2,63
10	Tanzania (East Africa)	2,86
11	Australia	2,97
12	USA	3,00
13	South Africa	3,11
14	Great Britain	3,17
15	Israel	3,19
16	Thailand	3,20
17	Ireland	3,21
18	Spain	3,41
19	India	3,56
20	France	3,65
21	Germany	3,70
22	Czech Republic	3,71
23	Bulgaria	3,71
24	Morocco	3,80
25	Slovenia	3,85
26	Switzerland	3,85
27	Chile	3,86
28	Hong Kong	3,95
29	Taiwan	3,97
30	Singapore	4,00
31	Croatia	4,05
32	Brazil	4,06
33	Liberia (West Africa)	4,10
34	Turkey	4,20
35	Malta	4,24
36	Argentina	4,32
37	Indonesia	4,33
38	Pakistan	4,43
39	South Korea	4,45

Appendix 1 Cultural Distance Index

No	Country	Cultural Distance Index
40	Algeria (Arab country)	4,50
41	Egypt (Arab country)	4,50
42	Lebanon (Arab country)	4,50
43	Saudi Arabia (Arab country)	4,50
44	Tunisia (Arab country)	4,50
45	United Arab Emirates (Arab country)	4,50
46	Uruguay	4,68
47	Italy	4,74
48	Belgium	4,83
49	Peru	4,98
50	Portugal	5,07
51	El Salvador	5,25
52	Malaysia	5,53
53	China	5,56
54	Austria	5,64
55	Russia	5,70
56	Poland	5,80
57	Philippines	5,81
58	Romania	5,81
59	Serbia Montenegro	5,97
60	Ecuador	6,62
61	Panama	6,95
62	Greece	6,97
63	Mexico	6,98
64	Hungary	7,20
65	Venezuela	7,96
66	Japan	9,23
67	Slovakia	12,17

Appendix 2 Geographic Distance Index

		Distance from
No	Country	Stockholm (in km)
1	Estonia	383
2	Finland	396
3	Norway	417
4	Denmark	526
5	Poland	781
6	Germany	818
7	Czech Republic	1060
8	Netherlands	1132
9	Russia	1236
10	Austria	1247
11	Slovakia	1252
12	Belgium	1284
13	Luxembourg	1325
14	Hungary	1333
15	Great Britain	1436
16	Slovenia	1502
17	Croatia	1518
18	France	1549
19	Switzerland	1553
20	Serbia Montenegro	1619
21	Ireland	1625
22	Romania	1758
23	Bulgaria	1890
24	Italy	1984
25	Turkey	2393
26	Greece	2410
27	Tunisia (Arab country)	2568
28	Spain	2596
29	Malta	2631
30	9	2738
	Portugal	2993
32	Lebanon (Arab country)	3113
	Israel	3292
	Morocco	3350
	Egypt (Arab country)	3416
	Iran	3570
37	• • • • • • • • • • • • • • • • • • • •	4475
	United Arab Emirates (Arab country)	4788
39	Pakistan	4903
40	Venezuela	5421
41	India	5557
42	Canada	6004

Appendix 2 Geographic Distance Index

		Distance from
No	Country	Stockholm (in km)
43	Liberia (West Africa)	6368
44	USA	6646
45	China	6725
46	South Korea	7453
47	Tanzania (East Africa)	7586
48	Japan	8191
49	Thailand	8268
50	Hong Kong	8336
51	Taiwan	8377
52	Philippines	9324
53	Malaysia	9351
54	Panama	9561
55	Mexico	9590
56	Singapore	9635
57	El Salvador	9640
58	South Africa	10327
59	Ecuador	10387
60	Indonesia	10526
61	Brazil	10614
62	Peru	11433
63	Uruguay	12451
64	Argentina	12518
65	Chile	13064
66	Australia	15609
67	New Zealand	17427

Appendix 3 Rank of countries in size of FDI flow

1992-1994	1995-1997	1998-2000	2001-2002	
Great Britain	USA	Great Britain	Finland	
Netherlands	Norway	Finland	Germany	
USA	Finland	USA	USA	
Finland	Netherlands	Germany	Norway	
Switzerland	Great Britain	Norway	Netherlands	
Denmark	Germany	Denmark	Hongkong	
Italy	Denmark	Netherlands	Luxembourg	
Norway	France	Ireland	Canada	
Austria	Belgium	Luxembourg	Denmark	
Japan	Brazil	Belgium	Belgium	
Singapore	Switzerland	Brazil	Poland	
Liberia (West Africa)	Morocco	Poland	France	
Hungary	Luxembourg	France	Italy	
China	Czech Republic	Italy	Spain	
Poland	Poland	Hongkong	Turkey	
Czech Republic	Italy	Canada	Liberia (West Africa)	
Argentina	China	Japan	Estonia	
Estonia	Saudi Arabia (Arab country)	Austria	Japan	
Mexico	Japan	Spain	Russia	
Australia	Slovakia	Estonia	South Korea	
Thailand	Thailand	Mexico	China	
Greece	India	South Korea	India	
Slovakia	Austria	Turkey	Czech Republic	
India	Spain	Saudi Arabia (Arab country)	South Africa	
Brazil	Estonia	Israel	Argentina	

Appendix 4 Regression model 1992-1994

Table 1

Model Summary^b

		_				
Model	R	R Square	df1	df2	Sig. F Change	Durbin-Watson
1	,555 ^a	,308	5	61	,000	2,381

a. Predictors: (Constant), GPC92_94, US_DUMMY, Distance from Stockholm (in km), Cultural Distance Index, GDP92_94

Table 2

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1,31E+18	5	2,625E+17	5,438	,000 ^a
	Residual	2,94E+18	61	4,826E+16		
	Total	4,26E+18	66	i		

a. Predictors: (Constant), GPC92_94, US_DUMMY, Distance from Stockholm (in km), Cultural Distance Index, GDP92_94

Table 3

Coefficient®

			dardized icients	Standardized Coefficients			Collinearity	Statistics
Model		В	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	1,71E+08	95155653		1,797	,077		
	Distance from Stockholm (in km)	-7860,609	6585,710	-,131	-1,194	,237	,935	1,070
	Cultural Distance Ind	le -2,8E+07	15766296	-,214	-1,757	,084	,764	1,308
	US_DUMMY	6,77E+08	3,98E+08	,326	1,702	,094	,310	3,227
	GDP92_94	1,415E-05	,000	,055	,255	,799	,245	4,076
	GPC92_94	4518,459	3572,562	,179	1,265	,211	,565	1,771

a. Dependent Variable: FDI92_94

b. Dependent Variable: FDI92_94

b. Dependent Variable: FDI92_94

Appendix 4 Regression model 1992-1994

Table 4

Correlations

			Distance from				
			Stockholm (in				
		FDI92_94	km)	Distance Index	S_DUMMY	GDP92_94	GPC92_94
Pearson Correlat	ionFDI92_94	1,000	-,174	-,306	,415	,375	,358
	Distance from Stockholm (in km)	-,174	1,000	,096	,044	,028	-,213
	Cultural Distance Inde	-,306	,096	1,000	-,085	,052	-,304
	US_DUMMY	,415	,044	-,085	1,000	,787	,190
	GDP92_94	,375	,028	,052	,787	1,000	,438
	GPC92_94	,358	-,213	-,304	,190	,438	1,000
Sig. (1-tailed)	FDI92_94	,	,079	,006	,000	,001	,001
	Distance from Stockholm (in km)	,079	,	,220	,363	,411	,041
	Cultural Distance Inde	,006	,220	,	,248	,337	,006
	US_DUMMY	,000	,363	,248	,	,000	,062
	GDP92_94	,001	,411	,337	,000	,	,000
	GPC92_94	,001	,041	,006	,062	,000	,
N	FDI92_94	67	67	67	67	67	67
	Distance from Stockholm (in km)	67	67	67	67	67	67
	Cultural Distance Inde	e 67	67	67	67	67	67
	US_DUMMY	67	67	67	67	67	67
	GDP92_94	67	67	67	67	67	67
	GPC92_94	67	67	67	67	67	67

Appendix 5 Regression model 1995-1997

Table 1

Model Summary^b

		_	C			
Model	R	R Square	df1	df2	Sig. F Change	Durbin-Watson
1	,946 ^a	,895	5	61	,000	2,097

a. Predictors: (Constant), GPC95_97, US_DUMMY, Distance from Stockholm (in km), Cultural Distance Index, GDP95_97

Table 2

ANOVAb

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3,17E+19	5	6,343E+18	103,947	,000 ^a
	Residual	3,72E+18	61	6,102E+16		
	Total	3,54E+19	66	;		

a. Predictors: (Constant), GPC95_97, US_DUMMY, Distance from Stockholm (in km), Cultural Distance Index, GDP95_97

Table 3

Coefficientsa

		Unstandardized Coefficients		Standardized Coefficients			Collinearity S	Statistics
Model		В	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	345644352	106672016		3,240	,002		
	Distance from Stockholm (in km)	-16651,827	7380,287	-,097	-2,256	,028	,941	1,062
	Cultural Distance Index	-55430109	17672876,0	-,148	-3,136	,003	,769	1,300
	US_DUMMY	5,058E+09	455123403	,843	11,113	,000	,299	3,344
	GDP95_97	3,183E-05	,000	,049	,595	,554	,250	4,006
	GPC95_97	7086,780	3314,580	,114	2,138	,037	,608	1,646

a. Dependent Variable: FDI95_97

b. Dependent Variable: FDI95_97

b. Dependent Variable: FDI95_97

Appendix 5 Regression model 1995-1997

Table 4

Correlations

			Distance				
			Distance from Stockholm (in				
		FDI95_97	km)	Distance Index	S_DUMMY	GDP95_97	GPC95_97
Pearson Correlation	onFDI95_97	1,000	-,096	-,264	,912	,761	,353
	Distance from Stockholm (in km)	-,096	1,000	,096	,044	,035	-,205
	Cultural Distance Inde	-,264	,096	1,000	-,085	,042	-,327
	US_DUMMY	,912	,044	-,085	1,000	,803	,179
	GDP95_97	,761	,035	,042	,803	1,000	,392
	GPC95_97	,353	-,205	-,327	,179	,392	1,000
Sig. (1-tailed)	FDI95_97	,	,221	,015	,000	,000	,002
	Distance from Stockholm (in km)	,221	,	,220	,363	,390	,048
	Cultural Distance Inde	,015	,220	,	,248	,369	,003
	US_DUMMY	,000	,363	,248	,	,000	,073
	GDP95_97	,000	,390	,369	,000	,	,001
	GPC95_97	,002	,048	,003	,073	,001	,
N	FDI95_97	67	67	67	67	67	67
	Distance from Stockholm (in km)	67	67	67	67	67	67
	Cultural Distance Inde	67	67	67	67	67	67
	US_DUMMY	67	67	67	67	67	67
	GDP95_97	67	67	67	67	67	67
	GPC95_97	67	67	67	67	67	67

Appendix 6 Regression model 1998-2000

Table 1

Model Summary^b

					Change Statistics					
Model	R	R Square	Adjusted R Square	R Square Change	df1		df2	Sig. F Change	Durbin-Watson	
1	.559 ^a	.312	.256	.312		5	61	.000	2.047	

a. Predictors: (Constant), GDP/cap98-00, Distance from Stockholm (in km), US_DUMMY, Cultural Distance Index, GDP98-00

Table 2

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1,17E+20	5	2,340E+19	5.544	.000 ^a
	Residual	2,57E+20	61	4,220E+18		
	Total	3,74E+20	66			

a. Predictors: (Constant), GDP/cap98-00, Distance from Stockholm (in km), US_DUMMY, Cultural Distance Index, GDP98-00

Table 3

Coefficients

			dardized cients	Standardized Coefficients			Collinearity Statistics	
Model		В	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	2,07E+09	8,98E+08		2.303	.025		
	Cultural Distance Inc	de-3,2E+08	1,47E+08	267	-2.204	.031	.768	1.301
	Distance from Stockholm (in km)	-109411,3	1821.760	195	-1.770	.082	.928	1.078
	US_DUMMY	-3,2E+09	4,48E+09	162	706	.483	.213	4.694
	GDP98-00	.001	.000	.475	1.911	.061	.182	5.484
	GDP/cap98-00	6958.049	8631.533	.129	.942	.350	.599	1.671

a. Dependent Variable: FDI98-00

b. Dependent Variable: FDI98-00

b. Dependent Variable: FDI98-00

Appendix 6 Regression model 1998-2000

Table 4

Correlations

				Distance from			
		FDI98-00	Cultural Distance Index	Stockholm (in km)	S DUMMY	GDP98-00	DP/cap98-00
Pearson Correlat	ionFDI98-00	1.000		240	.293	.374	.414
	Cultural Distance Inde	307	1.000	.096	085	.018	340
	Distance from Stockholm (in km)	240	.096	1.000	.044	.036	227
	US_DUMMY	.293	085	.044	1.000	.865	.234
	GDP98-00	.374	.018	.036	.865	1.000	.396
	GDP/cap98-00	.414	340	227	.234	.396	1.000
Sig. (1-tailed)	FDI98-00		.006	.025	.008	.001	.000
	Cultural Distance Inde	.006		.220	.248	.443	.002
	Distance from Stockholm (in km)	.025	.220		.363	.386	.032
	US_DUMMY	.008	.248	.363		.000	.029
	GDP98-00	.001	.443	.386	.000		.000
	GDP/cap98-00	.000	.002	.032	.029	.000	
N	FDI98-00	67	67	67	67	67	67
	Cultural Distance Inde	67	67	67	67	67	67
	Distance from Stockholm (in km)	67	67	67	67	67	67
	US_DUMMY	67	67	67	67	67	67
	GDP98-00	67	67	67	67	67	67
	GDP/cap98-00	67	67	67	67	67	67

Appendix 7 Regression model 2001-2002

Table 1

Model Summary^b

				Change Statistics						
Model	R	R Square	R Square Change	df1	df2	Sig. F Change	Durbin-Watson			
1	.418 ^a	.175	.175	Ę	61	.035	2.246			

a. Predictors: (Constant), GDP/cap01-02, Distance from Stockholm (in km), US_DUMMY, Cultural Distance Index, GDP01-02

Table 2

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1,71E+19	5	3,419E+18	2.584	.035 ^a
	Residual	8,07E+19	61	1,323E+18		
	Total	9,78E+19	66			

a. Predictors: (Constant), GDP/cap01-02, Distance from Stockholm (in km), US_DUMMY, Cultural Distance Index, GDP01-02

Table 3

Coefficients a

		Unstand Coeffi		Standardized Coefficients		_	Collinearity Statistics	
Model		В	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	1,029E+09	506409644		2.033	.046		
	Cultural Distance Index	-164591046	82244108,7	265	-2.001	.050	.770	1.299
	Distance from Stockholm (in km)	-42310,703	34908.687	148	-1.212	.230	.912	1.096
	US_DUMMY	244935165	2,804E+09	.025	.087	.931	.171	5.856
	GDP01-02	.000	.000	.169	.565	.574	.151	6.642
	GDP/cap01-02	8504.386	15697.100	.081	.542	.590	.603	1.657

a. Dependent Variable: FDI01-02

b. Dependent Variable: FDI01-02

b. Dependent Variable: FDI01-02

Appendix 7 Regression model 2001-2002

Table 4

Correlations

			Cultural	Distance from			
		FDI01-02	Distance Index	Stockholm (in km)	S_DUMMY	GDP01-02	DP/cap01-02
Pearson Correlation	onFDI01-02	1.000	310	187	.213	.217	.284
	Cultural Distance Inde	310	1.000	.096	085	.003	354
	Distance from Stockholm (in km)	187	.096	1.000	.044	.033	257
	US_DUMMY	.213	085	.044	1.000	.896	.257
	GDP01-02	.217	.003	.033	.896	1.000	.384
	GDP/cap01-02	.284	354	257	.257	.384	1.000
Sig. (1-tailed)	FDI01-02		.005	.065	.042	.039	.010
	Cultural Distance Inde	.005		.220	.248	.489	.002
	Distance from Stockholm (in km)	.065	.220		.363	.396	.018
	US_DUMMY	.042	.248	.363		.000	.018
	GDP01-02	.039	.489	.396	.000		.001
	GDP/cap01-02	.010	.002	.018	.018	.001	•
N	FDI01-02	67	67	67	67	67	67
	Cultural Distance Inde	67	67	67	67	67	67
	Distance from Stockholm (in km)	67	67	67	67	67	67
	US_DUMMY	67	67	67	67	67	67
	GDP01-02	67	67	67	67	67	67
	GDP/cap01-02	67	67	67	67	67	67

Appendix 8 Regression model 1992-2002

Table 1

Model Summary^b

		_		Change S	stics		
Model	R	R Square	df1	df2		Sig. F Change	Durbin-Watson
1	.656 ^a	.430	;	5	61	.000	2.142

a. Predictors: (Constant), US_DUMMY, Distance from Stockholm (in km), Cultural Distance Index, GDPcap92-02, GDP92_02

Table 2

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2,67E+19	5	5,349E+18	9.203	.000 ^a
	Residual	3,55E+19	61	5,813E+17		
	Total	6,22E+19	66	i		

a. Predictors: (Constant), US_DUMMY, Distance from Stockholm (in km), Cultural Distance Index, GDPcap92-02, GDP92_02

Table 3

Coefficients

			dardized icients	Standardized Coefficients			Collinearity Statistics	
Model		В	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	9,14E+08	3,32E+08		2.750	.008		
	GDP92_02	.000	.000	.331	1.558	.125	.207	4.835
	GDPcap92-02	11509.779	10940.721	.132	1.052	.297	.594	1.684
	Cultural Distance Ind	lex -1,4E+08	54639751	288	-2.606	.011	.767	1.305
	Distance from Stockholm (in km)	44642,094	22911.403	195	-1.948	.056	.930	1.075
	US_DUMMY	1,11E+09	1,55E+09	.140	.716	.477	.246	4.069

a. Dependent Variable: FDI92-02

b. Dependent Variable: FDI92-02

b. Dependent Variable: FDI92-02

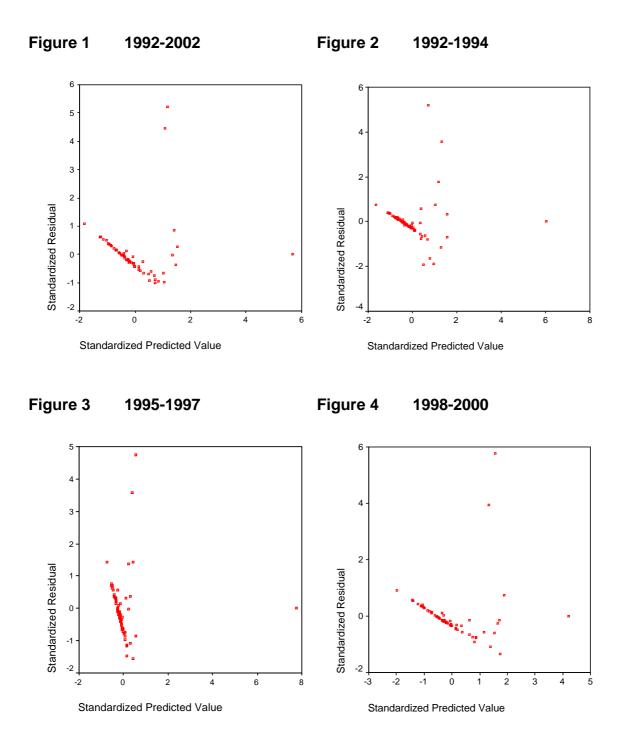
Appendix 8 Regression model 1992-2002

Table 4

Correlations

						Distance from	
					Cultural	Stockholm (in	
		FDI92-02	GDP92_02	GDPcap92-02	Distance Index	km)	US_DUMMY
Pearson Correlation FDI92-02		1.000	.486	.433	352	235	.462
	GDP92_02	.486	1.000	.400	.029	.033	.840
	GDPcap92-02	.433	.400	1.000	331	224	.213
	Cultural Distance Index	352	.029	331	1.000	.096	085
	Distance from Stockholm (in km)	235	.033	224	.096	1.000	.044
	US_DUMMY	.462	.840	.213	085	.044	1.000
Sig. (1-tailed)	FDI92-02		.000	.000	.002	.028	.000
	GDP92_02	.000		.000	.407	.395	.000
	GDPcap92-02	.000	.000		.003	.034	.042
	Cultural Distance Index	.002	.407	.003		.220	.248
	Distance from Stockholm (in km)	.028	.395	.034	.220		.363
	US_DUMMY	.000	.000	.042	.248	.363	
N	FDI92-02	67	67	67	67	67	67
	GDP92_02	67	67	67	67	67	67
	GDPcap92-02	67	67	67	67	67	67
	Cultural Distance Index	67	67	67	67	67	67
	Distance from Stockholm (in km)	67	67	67	67	67	67
	US_DUMMY	67	67	67	67	67	67

Appendix 9 Test for Homoscedasticity



Appendix 9 Test for Homoscedasticity

Figure 5 2001-2002

