Blekinge Institute of Technology
School of Management, BTH

Outward FDI and Trade Performance: An Indication from Sweden Perspective

Master Thesis in Business Administration

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Abstract:

In the global world FDI is the most prominent economic development factor for the growth of home and host countries GDP. FDI and Trade performances are positively engage in the complementarity or substitutability relationship depending on the country factors advantages and microeconomic and macroeconomic scale of economies in firm and industrial level. The main objective of this paper is to expose how outward FDI influence home country's export performance. Previously there have been conducted a lot of empirical studies on country's trade (export) performance and FDI flows. This project carries out to analyses aggregate regional level data and be tested by OLS and two stage-least-square (2SLS) time series regression analyses. The empirical analysis founds, outward FDI and exports are statistically positively significant in firm and industry level.

Keywords: FDI, export, aggregate regional level.

ACKNOWLEDGMENTS

I would like to offer my deep appreciation to my supervisor Anders Hederstierna to patiently review my thesis and other faculty members who have helped me to shape this paper and contributes economic ideas in different angel.

I specially am thanking to BTH library for being extremely kind and patient in supplying me with materials and extensive cooperation that were critical for conducting my investigations, and I also thank to UNCTAD, Riksbanken, Statistics Sweden, International Monetary Fund online resources and other sources who have helped me to find and process all this statistics data.

Thesis Summary

Title: Outward FDI and Trade Performance: An Indication from Sweden Perspective.

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Course: Master thesis in business administration, 10 credits.

Background and Problem Discussion: FDI and Trade are playing an important role for development of country's economy in different prospect. The effect of globalisation integrated economies facilitating cross-border trade and capital movement flows independently and creating a common huge market to serve customers geographically. Swedish outward FDI and export has positive impact on the Swedish economy. To look through the problem in this paper is that how Swedish outward FDI and exports are comprehensively performing into different regional level in the world using aggregate regional level data analyses.

Purpose: The main objective of this paper is to expose how outward FDI influence Swedish export performance.

Method: Quantitative research, using regional level aggregated data collected from UNCTAD, WorldBank, Riksbanken, Statistics Sweden and IMF to perform statistical analysis.

Theory: in the theory and literature section, the author reviews FDI and trade trends, different theories of international economies and trade, theoretical and

empirical studies by different researchers to support the primary aim of this paper.

Analysis: The author have used three models on the base of the gravity model analysis using ordinary least square OLS regression and two stage-least-square 2SLS regression to examine how outward FDI influence the trade-export performance abroad at regional level.

Conclusion: The performance of Swedish export positively associated with the outward foreign direct investment. Theoretically and empirically it has been proved by different scholars that outward FDI accelerates home country export positively and this is complementarity relationship between FDI and trade. It is a general concern that outward FDI would lead to substitution effect that reduces home country's exports, job, and prosperity. Empirical study is thus necessary to verify that and this thesis research is one of them in which to conduct analysis by using aggregated, regional-level Swedish data. There was significant relationship found between FDI and exports in the empirical analysis. GDP per capita and openness of foreign market have significant effect on FDI and export performance for Sweden. Being a developed country GDP and GDP per capita has influence on FDI and trade performance. Still there needs to be done more extensive research comparing developing and developed economies FDI and Trade performances.

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1. Introduction

Over the last two decades, foreign direct investment (FDI) has become an important factor for global economic integration and development. In the competitive world of today where all countries are out there trying to achieve greater economic growth. Foreign direct investment is one of the most important forms of international capital flows for global capital formation. The rising pace of FDI is far exceeding the volume of international trade and relative to other forms of investment. FDI rose drastically 34% in 2006, although the short of the record of US$ 1.4 Trillion set in 2000 (UNCTAD 2006). The continued rise in FDI largely reflects high economic growth and strong economic performance in many parts of the world. Such growth has occurred in both developed and developing countries. Various researches have been conducted to find the reasons for boosting the pace of FDI flows. Resulting the boosted value of the cross-border mergers and acquisitions (M&As) that constitute a large share of FDI flows. The value of cross-border mergers and acquisitions (M&As) rose by 88%, to $716 billion, and it was spurred by M&As of involving companies in developed countries. On the other hand, the world FDI inflows rose by 29% in 2005 and 27% in 2004 followed by the investment respectively US$916 and US$710 billions (UNCTAD 2006). Since 2000, FDI inflows have sharply fallen and this fall continued till 2003, with a decline of 18%. In particular developed economies, where inward FDI dropped respectively 46%, 27% and 18% since 2000 until 2003, afterwards FDI inflows accelerated where European countries have experienced another year of rapidly declined till 2004.

A common question is always rising from the dramatic trend of FDI in recent decades whether FDI is growing more rapidly than international trade. The answer is depend on the FDI flows of each period and from the close look on the inward and outward flows, FDI is growing more rapidly than international trade. The biggest blow of FDI flows has taken place in the year of 1999 to 2000. There must be a common linkage between global inflows and outflows of FDI. Mostly both flows are following the same direction of investment path except the

year of 2004. Outflows of FDI from EU25 rose by 65% in 2005, suggesting that European favorable investment policies made to an improvement in the European economy, also by increasing their investment in the EU and US. Besides, developing economies outflows rose by 8% in 2005, suggesting indication for this rise is for the economic boosting country India and China. Firms investment abroad effects both home and host country economy growth and development. FDI effects host country by the rate of economic growth, wages, productivity, exports, knowledge spillovers to domestic firms and introduction of new industries (Robert E. Lipsey, 2002).

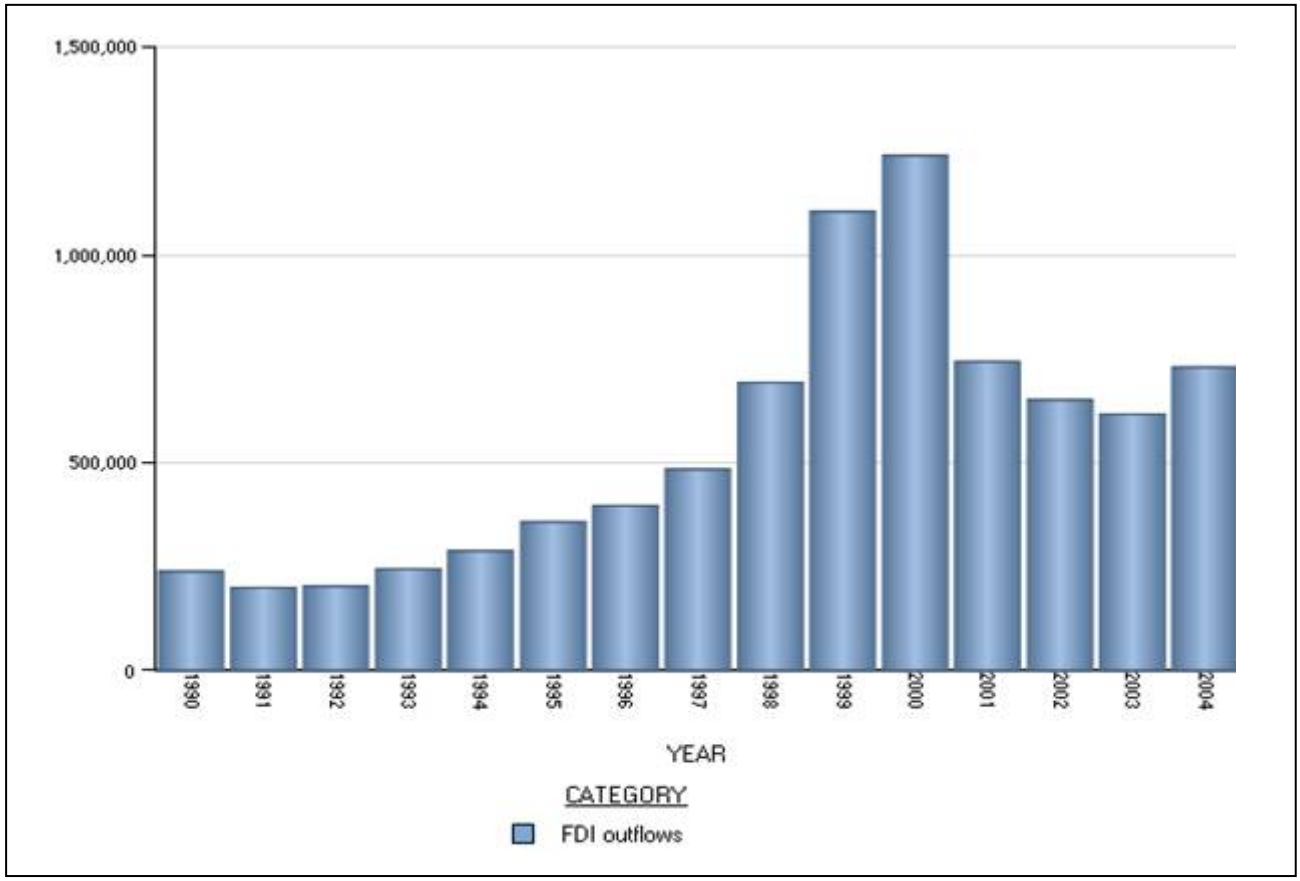
In the global economy exports and outward foreign direct investment have been differentiated as alternative strategies. In the theory of production, firms can either produce at home and export, or produce abroad and substitute local sales of foreign affiliates for exports. From literature points of view, outward FDI may cause loss of investment, exports and employment from the home economy and crowding out of domestic industries. But recent economic research, however, casts doubt on these assumptions and suggests that outward direct investment is beneficial to the home economy under certain conditions (OECD, Paris,1998).

The reason of this paper is to investigate the effects of FDI by Swedish companies in different regions of the world to the home country's exports performance. Swedish corporations have long history in multinational operation and the number of MNE per capita in Sweden is one of the highest in the world. For analytical purpose data has been collected from UNCTAD and RIKSBANK OF SWEDEN. This study is intended to identify the relationship between the outward Foreign Direct Investment and export performance of Sweden without hampering home market productivity. Swedish outward Foreign Direct investment has been dramatically increasing every year as we see from the table A-1. Developing economies countries are drastically boosting the flows of FDI and the total growth of global GDP also changing rapidly. In the year of 2000 most FDI outflows occurred for different reasons and for the boom of technology

and in the middle of 2000 and 2004 flows surprisingly declined but the acceleration of outward FDI have started again since 2004.

History says that developed countries have the most FDI flows because of their completive advantages among rest of the world. Actually technological developed and economically stable countries or regions attracting FDI most. The growth of India and china's FDI has been widely recognized the world. Both countries has the achieved the FDI flows and exports quality product all over the world.

Figure A.1
World FDI outflows: Selected years (1990-2004)
(Million of Dollars)



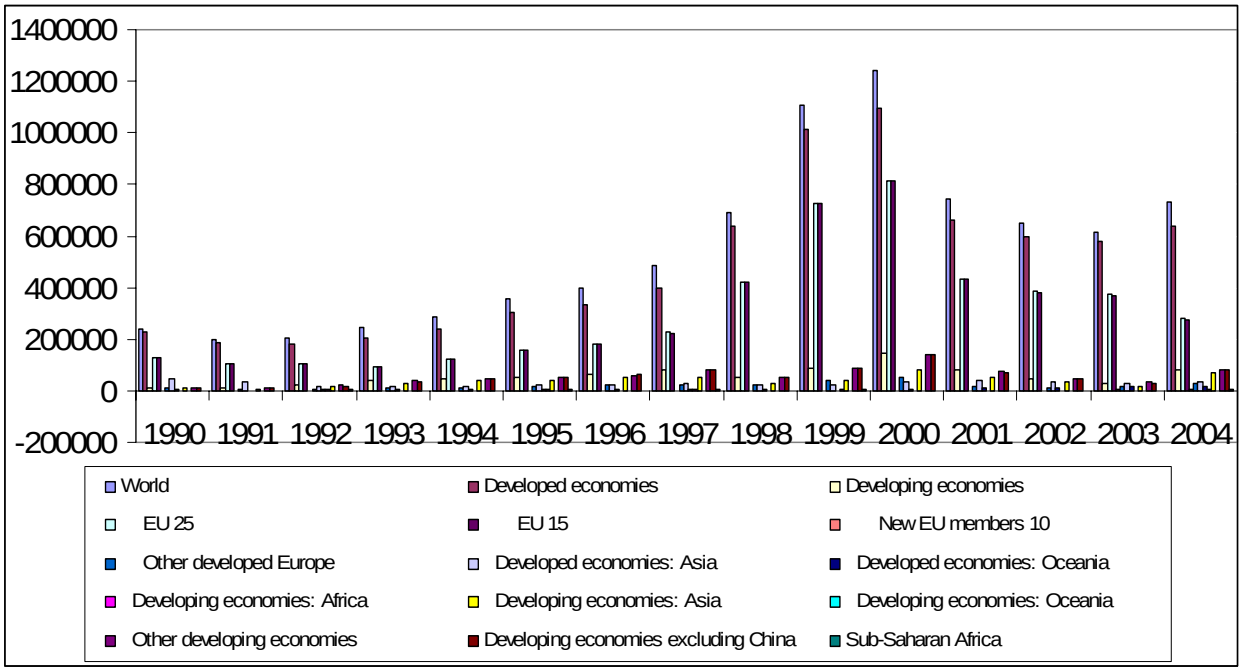
Source: Sources: UNCTAD, *World Investment Report 2006* ; online database www.unctad.org/wir or www.unctad.org/fdistatistic

Table A.1:
Foreign direct investment (FDI) overview, selected years (1990-2005)
(Million of Dollars)

FDI flows	1990-2000 (Annual Average)	2002	2003	2004	2005
Sweden:					
Inward	13960	12160	4986	12609	13389
Outward	13311	10599	21080	20985	25938
Memorandum:					
Germany:					
Inward	29354	53520	29202	-15113	32663
Outward	44323	18946	6174	1883	45634
United Kingdom					
Inward	40321	24 029	16 778	56 214	164530
Outward	73378	*50 300*	*62 187*	*94862*	*101099*
European Union					
Inward	207213	307 081	253 728	213 726	421899
Outward	276335	*265 815*	*286 106*	*334915*	*554802*
Europe					
Inward	215963	314 168	274 095	217 696	433628
Outward	296851	*281 692*	*316 956*	*36 989*	*618 810*
Developing Economies					
Inward	355153	441 238	358 539	396145	542312
Outward	434586	*485 111*	*514 806*	*686262*	*646 206*
World					
Inward	495391	617 732	557869	710755	916277
Outward	492566	*539 540*	*561104*	*813068*	*778725*

Sources: UNCTAD, *World Investment Report 2006* ; online database www.unctad.org/wir or www.unctad.org/fdistatistic

Figure A.2
Outward FDI flows 1990-2004
(Million of dollars)



Sources: UNCTAD, *World Investment Report 2006* ; online database www.unctad.org/wir or www.unctad.org/fdistatistic

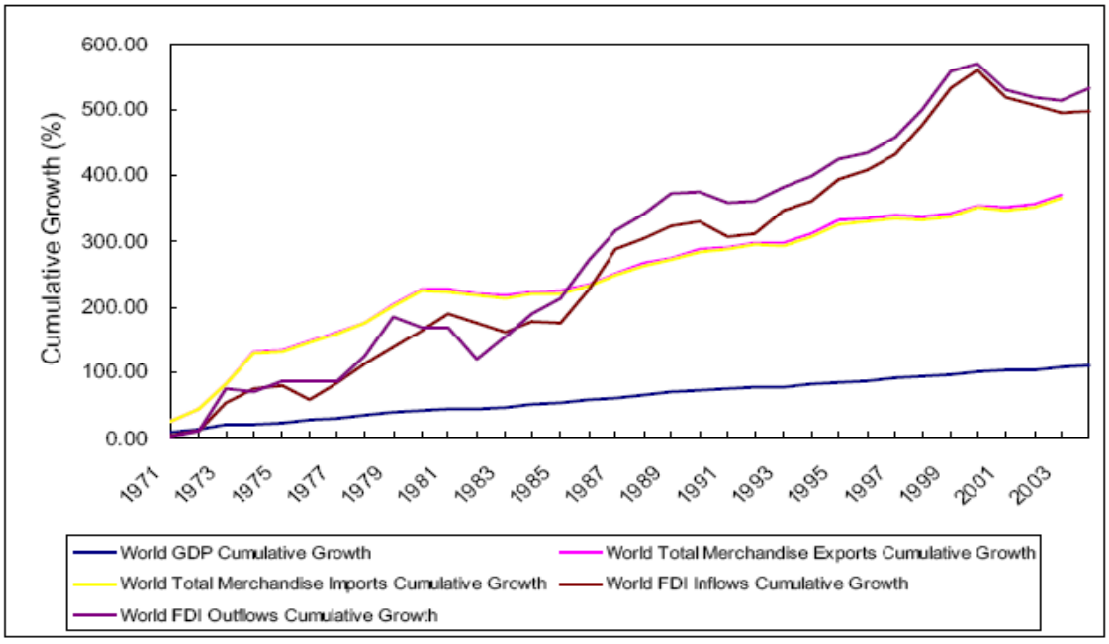
1.1 Why Study FDI

Foreign direct investment has come to be widely recognized over the past decade as a major potential contributor to growth and development. Foreign direct investment (FDI) has grown dramatically and is now the largest and most stable source of private capital for developing countries and economies in transition. The growing role of FDI in host countries has been accompanied by a change of attitude, from critical wariness toward multinational corporations to sometimes uncritical enthusiasm about their role in the development process. Figure A.3 shows the cumulative growth of the world FDI net flows from 1970 to 2004 compared with the cumulative growth of the world GDP and the total world merchandises imports and exports in the same period. Although there were severe drop in the FDI flows during 2001 and 2002, which can be explained by the burst of the stock market bubble and the uncertainty of the worldwide stability after a series of terrorism events in 2001, the cumulative growth of FDI still outpace the world GDP and merchandises trade in large extent. It is also

observed that although the growth of FDI and the world merchandises trade followed a similar trend in 1970's to mid of 1980's, the amount of FDI de-trended and ran in a much faster rate after 1985. That de-trending can be explained as a result of the liberalizations of cross-border capital flow control in the same period and the increase of cross-border corporation's mergers and acquisitions (M&A) activities [UNCTAD(2005)].

Multinational enterprise's (MNE) activities are important to the study of FDI and its role in the country's development. FDI by MNE accounts a large share of the total world FDI flow. Enterprises are always search for cross-border M&A business for the boosting benefit and find cheaper resources. When a multinational decides to establish new business in a foreign market, it typically starts out by exporting its product. Then, depending on its experience, it may open production facilities in the foreign market - do Foreign Direct Investment (FDI for short) - and start satisfying some of the local demand from these facilities. All along the multinational may continue to export its product and may gradually expand its local production facilities.

Figure A.3
Cumulative growth rates of world GDP, merchandise trade, and FDI flows



The above graph shows the cumulative growth rates of the world GDP, and world FDI inflows/outflows during the period 1970 to 2004, and world total merchandises imports/exports during the period 1970 to 2003.

Sources:
1. GDP: Development Data Group, The World Bank. World Development Indicators Online (http://www.worldbank.org/data/onlinedbs/onlinedbases.htm). Washington, D.C.: The World Bank.
2. World Merchandise Imports/Exports: The World Bank, World Development Indicators 2004. (http://devdata.worldbank.org/dataonline/). Washington, D.C.: The World Bank.
3. World FDI statistics: UNCTAD, UNCTAD Handbook of Statistics On-line (http://www.unctad.org/Templates/Page.asp?intItemID=1890&lang=1). Geneva: UNCTAD.

The growth of FDI does not only offer consumers more choices in the market and more business to the banking and finance industries but also arouses much political concerns. Politicians and labour unions often concern FDI and the growth of MNE would lead to losing jobs in the home country. Their worries are based on the belief that enterprises go abroad are profit-seeking by reallocating their productions to foreign countries where labour costs, and other factor costs, are comparative lower. Another worry to politicians is that as MNE are considered footloose, they would reallocate their headquarters from their home and result a severe impact to the economic structure and the lost of national identity. However, there are still many politicians react positively to the growth of FDI and MNE's activities such as investigating political measures to attractive inward FDI. Indeed, empirical studies concluded that inward FDI flows has significant positive impact to the host's economy especially in developing economy [Slaughter(2002)]. In previous several studies has proved that FDI and exports move together when goes from the company level to the model level. Innovation and customer desired product design one of the most important factors which accelerate foreign investment over cross-border with entry mode suits the best for the MNE's. While a number of factors, including political, may be contributing to such a pattern.

In this research paper, the next section reviews the definition of FDI and FDI statistics for both worldwide and Swedish data, in recent decades. Section 3 reviews theoretical studies on FDI and MNE's activities. In section 4 Literature reviews and Swedish export data is to be analyses. Section 5 presents the empirical studies and Section 6 conclusions are given.

2. Foreign Direct Investment

Foreign Direct Investment (FDI) is one of the most important forms of international capital flows. FDI has been growing steadily in its importance, relative to other forms of international investment (Portfolio investment). The movement of international capital is an important form of international integration and is closely studied in the discipline of international economics together with trade in goods and services, labour mobility, and other issues. FDI can provide a firm with new markets and marketing channels, cheaper production facilities, access to new technology, products, skills and financing. For a host country or the foreign firm which receives the investment, it can provide a source of new technologies, capital, processes, products, organizational technologies and management skills, and as such can provide a strong impetus to economic development.

According to the IMF definition, *"FDI as a category of international investment that reflects the objective of a resident in one economy (the direct investor) obtaining a lasting interest in an enterprise resident in another economy (the direct investment enterprise). The lasting interest implies the existence of a long-term relationship between the direct investor and the direct investment enterprise, and a significant degree of influence by the investor on the management of the enterprise. A direct investment relationship is established when the direct investor has acquired 10 percent or more of the ordinary shares or voting power of an enterprise abroad (The fifth edition of the IMF's Balance of Payments Manual)".*

According to UNCATD definition, "Foreign direct investment (FDI) is investment involving along-term relationship and lasting interest in and control by a resident entity in one economy in an enterprise resident in another economy. In FDI, the investor exerts significant influence on the management of the enterprise resident in the other economy. The ownership level required in order for a direct investment to exist is 10% of the voting shares. Such investment involves both the initial transaction between the two entities and all subsequent transactions between them and among foreign affiliates, both incorporated and unincorporated. FDI may be undertaken by individuals or by business entities. (Some countries use a definition of FDI that differs from the preceding one.)(UNCTAD, 2004, Development and Globalisation: Facts and Figures)

A direct investment is a long-term commitment to engage in economic activities in the host country and has been proven to be less volatile compared to other forms of international capital flows (IMF, 2003). In other words, foreign direct investors are not reacting as drastically to changes in the investment climate as others do. They usually aim at long-term profit and are unlikely to withdraw investment in short period due to high transaction costs. The nature of the market for FDI favours those investors who have the patience and capacity to actively work through the problems associated with the businesses in which they invest. The time between making an investment and its realisation can often take years as a result of many factors, including detailed and complex negotiations with the host country government and other parties involved. The main players in the foreign investment environment are the multinational corporations but not all the MNEs are invest direct to the foreign market, which contribute to over 90% of all foreign direct investment in the global market (Kruger J., 2001). The bigger national companies and a few smaller entrepreneurs account for the rest of FDI, and the investment motivation of these are mostly of a person nature and seldom similar to that of the multinationals, such as expansion of markets and sales and global competition.

Although the definition of FDI is rather straight forward as stated above, scholars have long expressed other views in defining FDI than just concerning capital-movement. Dunning (1970) suggested that FDI can be something other than money capital. Investment might be in form of informal managerial or technical guidance; different technical know-how; and other sales skills and experiences.

2.1 How Has FDI Changed in the Past Decade?

Foreign direct investment is made in the form of fixtures, machinery, equipment and buildings. This investment is achieved or accomplished mostly via mergers & acquisitions. In the case of traditional manufacturing, this has been the primary mechanism for investment and it has been heretofore very efficient. Within the past decade, however, there has been a dramatic increase in the number of technology startups and this**,** together with the rise in prominence of Internet usage, has fostered increasing changes in foreign investment patterns. Many of these high tech startups are very small companies that have grown out of research & development projects often affiliated with major universities and with some government sponsorship. Unlike traditional manufacturers, many of these companies do not require huge manufacturing plants and immense warehouses to store inventory. Another factor to consider is the number of companies whose primary product is an intellectual property right such as a software program or a software-based technology or process. Companies such as these can be housed almost anywhere and therefore making a capital investment in them does not require huge outlays for fixtures, machinery and plants (Jeffrey P. Graham and R. Barry Spaulding).

In many cases, large companies still play a dominant role in investment activities in small, high tech oriented companies. However, unlike in the past, these larger companies are not necessarily acquiring smaller companies outright. There are several reasons for this, but the most important one is most likely the risk associated with such high tech ventures. In the case of mature industries, the products are well defined. The manufacturer usually wants to get closer to its

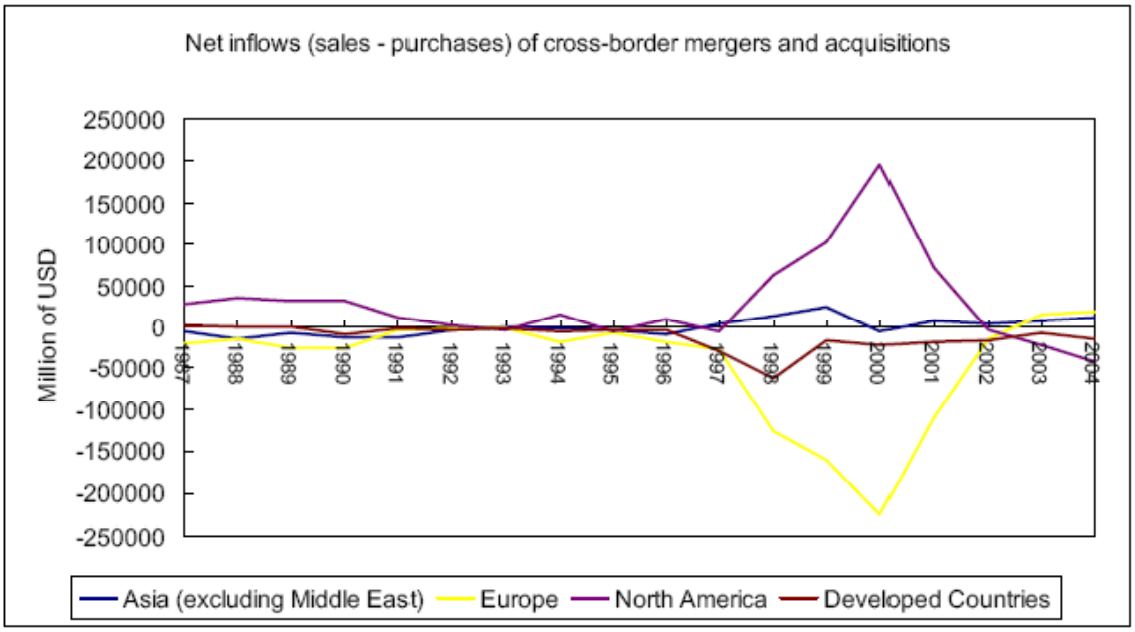
foreign market or wants to circumvent some trade barrier by making a direct foreign investment. The major risk here is that you do not sell enough of the product that you manufactured. However, you have added additional capacity and in the case of multinational corporations this capacity can be used in a variety of ways.

2.2 Global FDI and Trend

At the above Figure A.1 shows the cumulative growth rates of global GDP, FDI inflows/outflows, and merchandise imports/exports from 1970 to 2004. It is shown that both the global GDP and the pair of merchandise trades (imports and exports) grew steadily at a rate around 3.2% and 10.8% respectively. Both FDI inflows and outflows grew much faster at a rate around 14.6% and 15.6% for the same period. It is also observed that the growth rate of FDI inflows did not match with the rate of the outflows and it can be a reason due to the inconsistent of FDI valuation methodologies employed among countries. The FDI growth was much more fluctuating than the growth of GDP and merchandise trade. It is measured that the growth of the FDI pair grew at a much faster rate since 1985. The respective growth rates of FDI inflows and outflows were 28.8% and 36.2% respectively during the period 1985-89. The growth during that period might be a result of the worldwide relaxation in capital control which made cross border investment and capital transaction much easier. Soon after the slow down of the growth in early 1990s, the growth recovered and started to take off again in 1993 and reach the peak in 2000. The average growth rates of the FDI inflows/outflows were 30.8% and 26.3% respectively during that period. It is believed that the growth of FDI in 1990s was due to the advancement of information technology. Not only cross border transaction can be made effectively compared with the case in 1980s, corporate operation in different countries can be done more effective and at a lower cost. Moreover, the general reduction in the world tariff barrier and logistics costs made cross border investment favorable. It is also measured that the growth rates in late 1990s were

much sharper. It is generally agreed that that was a result due to the increased amount of cross border merger & acquisitions (M&A) activities.

Figure A.4
Cross border M&A activities during the period 1987 to 2004



The above graph shows the cross border M&A activities during the period 1987 to 2004. M&A activities were most active in the late 1990s followed by a significant drop in the following years. North America accounts for most of the net inflows during the period and Europe has the largest net outflows.

Sources:
1. United Nations Conference on Trade and Development (UNCTAD). 2005. World Investment Report 2005: Transnational Corporations and the Internationalization of R&D. Annex Table "B.4. Cross-border M&As, by region/economy of seller/purchaser, 2002-2004." New York and Geneva: UNCTAD. Available on-line at http://www.unctad.org/en/docs/wir2005_en.pdf.

Figure A.4 shows the cross border M&A activities from 1987-2004 and it is shown that cross-border M&A activities were much active in late 1990s. The FDI inflows/outflows grew negative since 2001 for 3 years. The dropping was much severe in 2001 which accounted 40% decrease compared with 2000 figures. The negative growth is as results of the worldwide correction in equity markets and sharp drop in cross border M&A activities such that the cross border M&A activities dropped from $1.1 trillion to $600 million in 2001 (IMF 2003).

Figure A.5
FDI Inflows of Selected Regions from 1980 to 2004

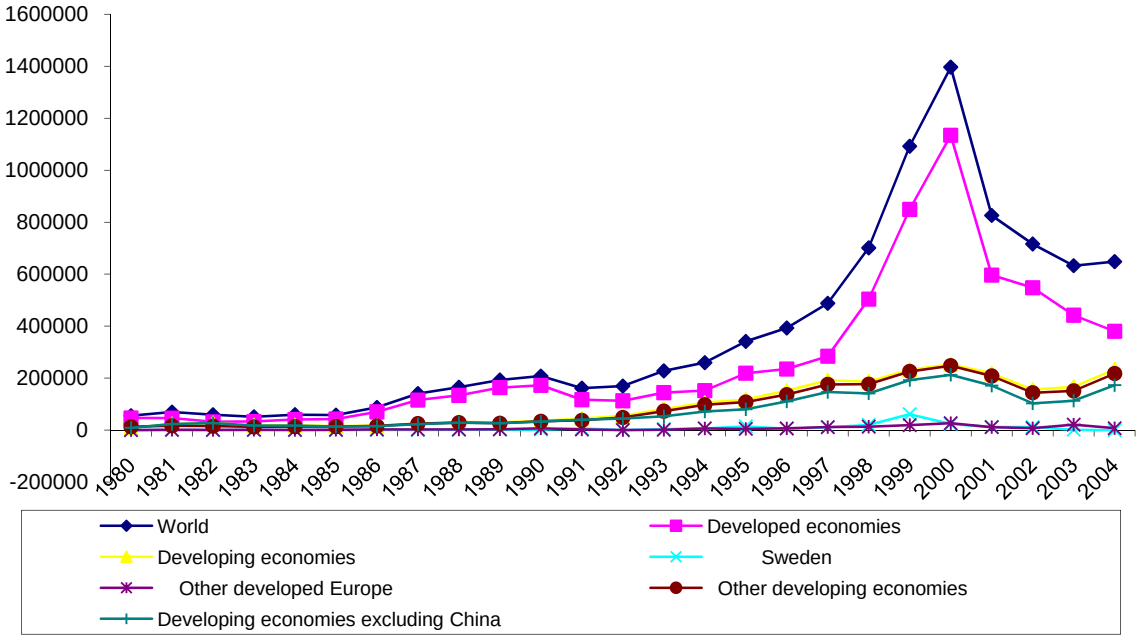
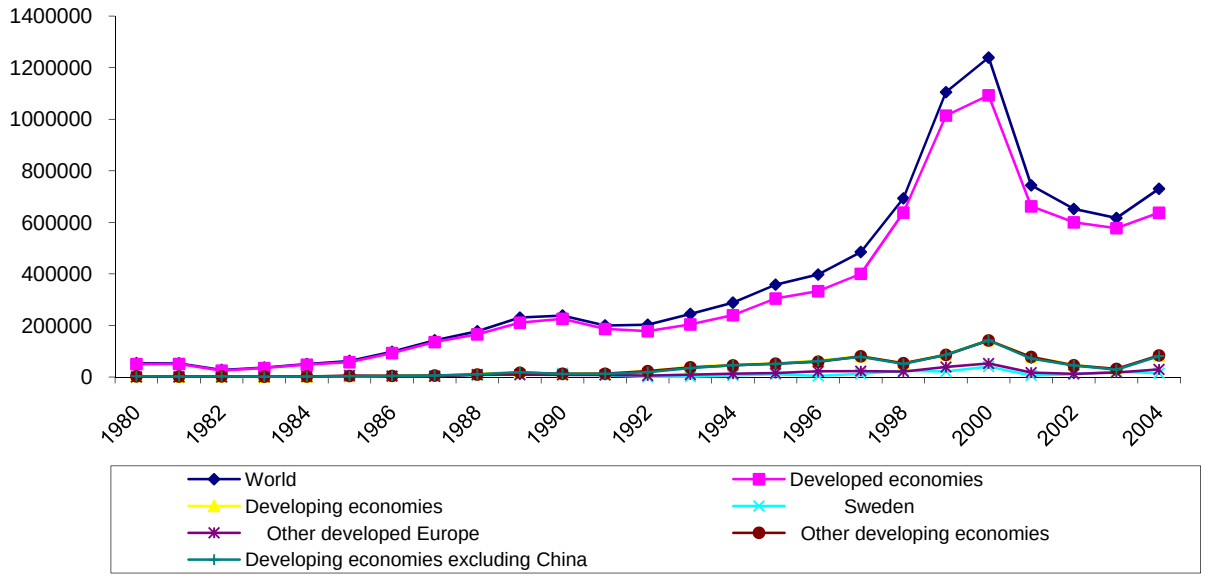


Figure A.6
FDI Outflows of Selected Regions from 1980 to 2004



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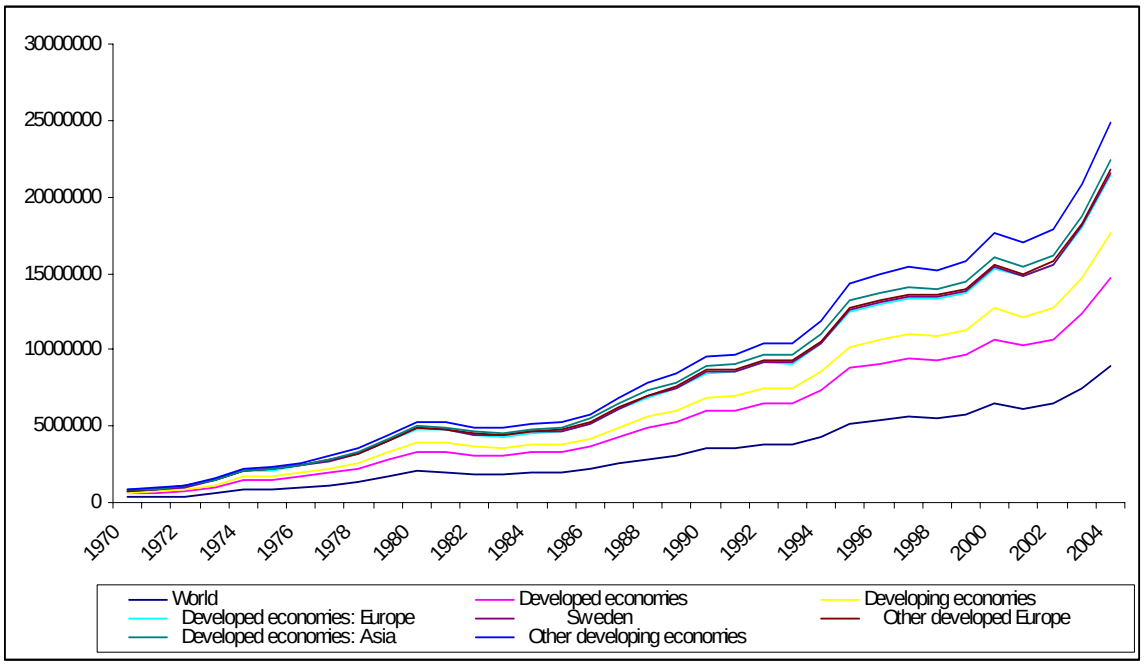
Sources:
1. World FDI statistics: UNCTAD, UNCTAD Handbook of Statistics On-line

Figures A.5 and A.6 show the breakdowns of FDI inflows/outflows statistics for selected regions. Throughout the period, developed economies and developed economies: Europe both have invested and received much more investment than

the developing countries and United States. The reason might be for the terrorist attract on the WTO in US. Developed economies accounted for 81.2% and 88.2% of the world total FDI inflows/outflows in 2000. In the figure A.6 shows the breakdown of FDI inflows and outflows for selected regions from 1970 to 2004. Both graphs indicate that the global FDI experienced a growing trend from mid-80s at an increasing rate, and reached the peak at 2000-2001. The peak followed by a significant drop in early 2000s and slightly recovery were observed in 2004. During the observed period, developed countries account for most of the FDI inflows and outflows especially in the Europe region. The pattern of FDI inflows/outflows shows significant different since the economic downturn in 2001. Shares of FDI inflows to developed economies decreased while the figure to developing economies increased. It reflects that investors increased the share of investment in developing countries especially to China and East Asia economies. On the contrary, the share of FDI outflows from developed economies did not drop at the same period and it indicates that developed economies still invest aboard more than the developing economies.

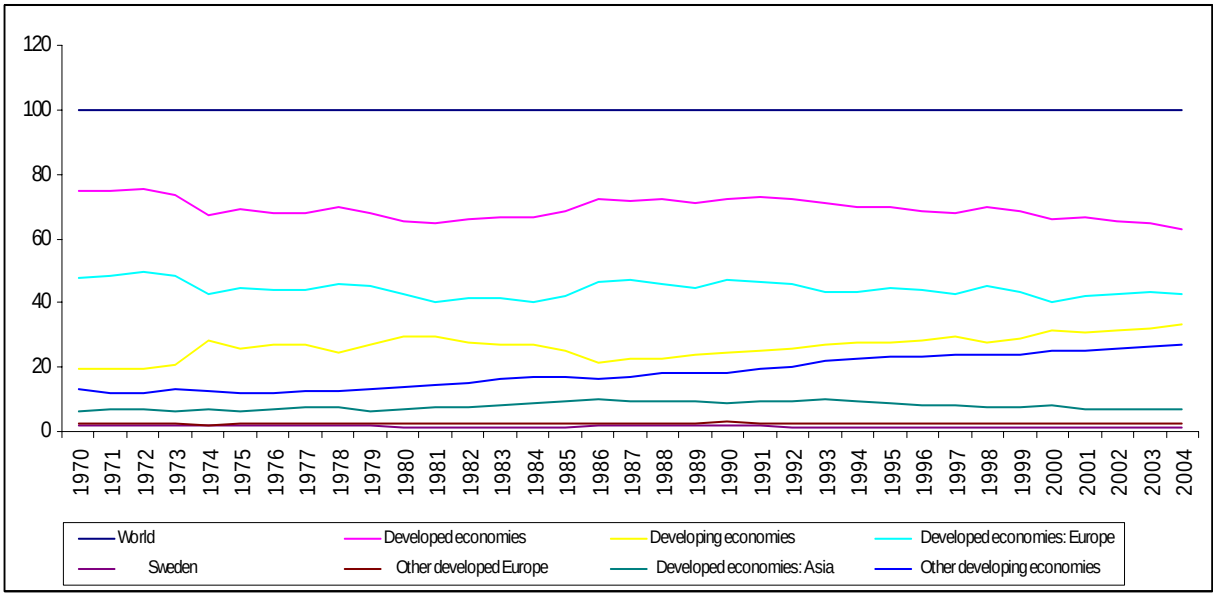
Among the developed economies, Europe was the largest FDI contributors and recipients. Europe accounted for 51.8% and 69.9% of worldwide FDI inflows/outflows in 2000 while the U.S. accounted for 22.5% and 11.5% only. These statistics reflect the vigorous intra-Europe business operations and M&A activities, and also the integration phase of the Europe where firms repositioned themselves due to a new market situation. In 2004, developing economies accounted for 36% and 11.4% of worldwide FDI inflows/outflows respectively, and Asian economies receive around 60% of those inflows. This pattern supports our general impression that the western world has increased their investment in Asia, especially to China and India, to explore lower production cost and larger market.

Figure A.7
Value of Merchandise Exports, Years 1970 to 2004
(Millions of Dollars)



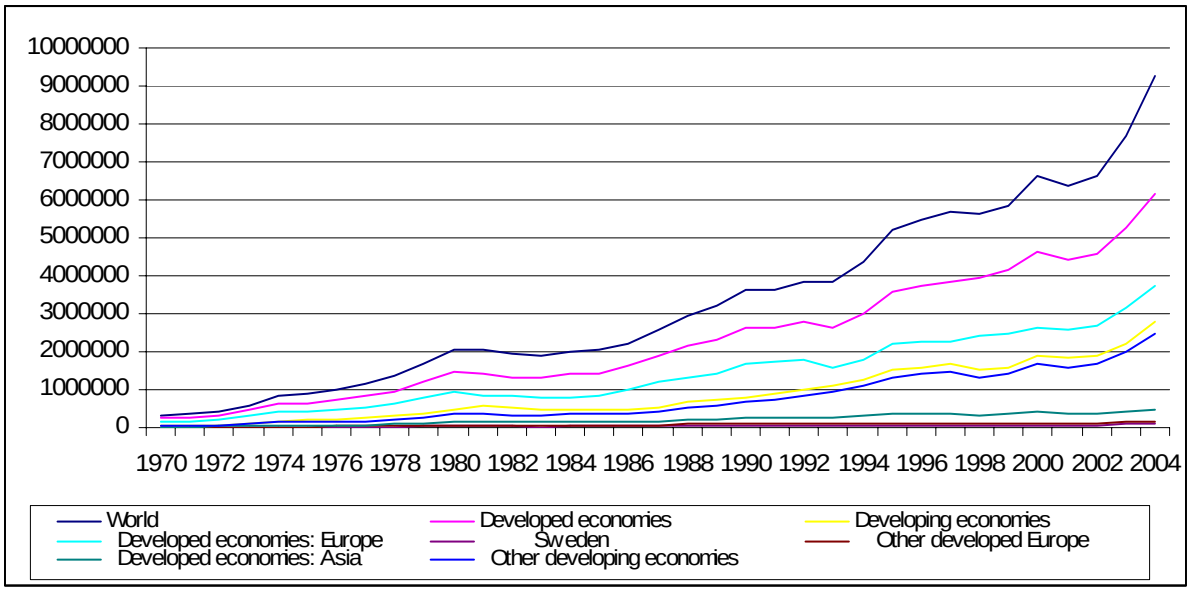
Sources:
1. World FDI statistics: UNCTAD, UNCTAD Handbook of Statistics On-line

Figure A.8
Shares of Merchandise Exports, Years 1970 to 2004
(Percentage of merchandise exports, %)



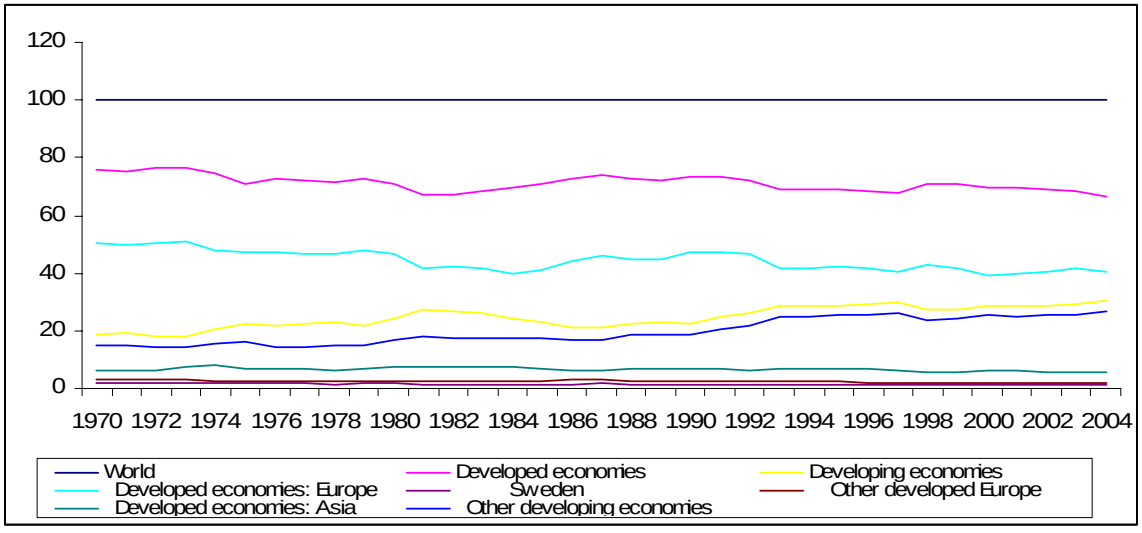
Sources:
1. World FDI statistics: UNCTAD, UNCTAD Handbook of Statistics On-line

Figure A.9
Value of Merchandise Imports, Years 1970 to 2004
(Millions of Dollars)



Sources:
1. World FDI statistics: UNCTAD, UNCTAD Handbook of Statistics On-line

Figure A.10
Shares of Merchandise Imports, Years 1970 to 2004
(Percentage of the imports merchandise, %)



Sources:
1. World FDI statistics: UNCTAD, UNCTAD Handbook of Statistics On-line

According to the UNCTAD development and globalization report and the statistics, the value of total merchandise exports from all countries of the world was $ 8975589 Million (in current US dollars) in 2004. Two-thirds of these exports were from developed countries. Figure A.7 describe that the merchandise exports has been increasing every year in all type of economies. Developed countries have the most success for export performances of the merchandise and along with Sweden exports growth increased significantly. In 1960 the share of world merchandise exports in the world gross domestic product was 10%. By 2000 it had climbed to 20% (UNCTAD, 2005). Shares of developed counties and developing countries merchandise exports are steadily increased and stable (Figure A.8). Where as Sweden's values and shares of the exports are convincingly remarkable steady. Between 1970 and 2004, the merchandise exports grew at an average annual rate of 12%. Beside exports, merchandise imports also being dramatically increased all of the countries in the world. Developed countries, especially European countries are the most importer of the merchandise along with U.S but the share percentage are slightly decreasing every year since 1970s. If we look closely to the data, we find that Sweden export performance is always greater than imports in merchandise. In the Year of 2000, both export and import were high since 1970 but within 2001 to 2003, after declined both trade 2004 become the highest trading year (Figure A.9 and A.10).

2.3 Outward FDI statistics, Sweden

In this section, Swedish outward FDI statistics presented from various available record in the UNCTAD, RIKSBANK the Central Bank of Sweden database and their published literature. Some analytical work has been done in this section. Table A.2 shows inward and outward investment of Sweden in a given period. Due to conversion problem the author has kept the original denomination in Kronos. The highest inward investment occurred in the 1999 and outward investment occurred in 2000. Due to the international political reason outward investment dramatically been declined and increased since 2002 onwards.

Table A.2
FDI stocks, by type of investment, 1989-2004
(Millions of Kronos)

	Inward investment				Outward investment			
Year	Equity	Reinvested earnings	Intra-company loans	Total	Equity	Reinvested earnings	Intra-company loans	Total
1989	..	.	..	11 657	..	..	..	66 316
1990	..	- 426	..	11 667	..	..	..	87 280
1991	..	216	..	38 421	..	..	..	92 663
1992	11 782	-5 585	-6 437	- 240	3 370	-3 134	2 145	2 381
1993	15 400	7 760	6 800	29 900	9 800	-1 500	2 300	10 600
1994	15 500	11 377	22 100	48 994	15 700	23 400	12 600	51 700
1995	78 100	17 139	7 800	103 064	38 000	37 000	5 000	80 000
1996	19 961	3 810	12 692	36 463	19 961	28 947	12 692	33 701
1997	50 498	10 920	22 318	83 736	50 498	34 720	22 318	96 564
1998	117 434	19 798	20 458	157 690	34 720	44 740	20 458	193 743
1999	387 834	32 791	82 771	503 396	70 204	69 672	41 299	181 174
2000	33 813	28 756	150 383	212 952	226 384	78 924	67 245	372 553
2001	96 124	5 558	32 456	123 023	69 909	21 811	25 816	65 904
2002	98 597	-1 886	17 579	114 290	124 584	43 571	-64 619	103 536
2003	-27 028	11 388	26 058	10 418	120 304	73 718	-22 285	171 737
2004	8 541	20 982	-32 247	-2 724	44 778	53 125	13 412	111 315

Source : Sveriges Riksbank (Central Bank of Sweden), *Balance of Payments* , various issues.
Note : Short-term intra-company loans and trade credits are included in FDI only from 1997 onwards.

Table A.3
FDI outflows from Sweden, regional statistics
(Millions of Kronos)

Region	1990	2000	2001	2002	2003	2004	1990 – 2004 average
EU-15 excluding Scandinavia	63,978	97,639	680	-13,364	64,816	98,875	29,819
EU-10 excluding Baltic Sea Countries	79	7,826	5,194	3,091	-570	88	1,839
Scandinavia & Baltic Sea Countries	2,942	133,151	23,091	63,886	49,217	2,809	27,591
Eastern Europe & Turkey	1	1,072	2,575	2,741	1,204	3,759	981
North America	3,369	30,734	28,166	4,846	-16,713	-2,450	9,944
Central America	530	2,707	5,603	-4,005	-2,699	1,988	419
South America	299	4,390	-6,815	-1,960	-571	1,421	646
Sub-Saharan Africa	3	582	439	64	380	404	194
Oceania	408	-917	-989	-65	-435	2,297	36
India	5	495	444	511	-320	580	192
South-East Asia	82	-1,436	-6,284	-142	4,010	1,088	-77
Japan and Korea	-73	1,971	1,534	1,178	98	-446	468
Great China	9	4,923	5,965	7,228	-50	640	1,561
Mid-East	-23	1,517	147	159	197	-87	134
Total	71,611	286,654	61,751	66,170	100,567	112,970	

(A negative sign (-) indicates that disinvestment exceeded investment)

FDI statistics: Sveriges Riksbank/Riksbanken balance of payments statistics. Available online at http://www.riksbank.com/templates/ItemList.aspx?id=12865.

Table A.3 summarizes the Swedish FDI outflow statistics at regional-level specially between 1990s to 2004. The highest outward investment has taken part in the 2000 and Scandinavia and Baltic Sea countries have attracted most of the investment from Sweden. Distance and communications are one of the most important factors for investors investing abroad. Net FDI is defined as the capital

transactions credits less debits between direct investor and their investment or foreign affiliates. Transactions credits include net decrease in assets (FDI outward) or net increase in liabilities (FDI inward) while debits include net increase in assets or net decrease in liabilities. Hence negative sign in the table indicates reverse investment or disinvestment. The importance of the North America has decreased since 2001 and nearly all FDI was destined within Europe in recent years. Share of outward FDI to Asian countries was not significant and Great China region was the largest recipient in the region.

Table A.4
Top 10 countries for the Swedish Outward FDI 1990 -2005

Country	1990	2000	2001	2002	2003	2004	2005
Finland	1,220	50,091	27,966	77,559	-4,653	-6,991	11,634
United Kingdom	21,472	10,183	11,887	-6,752	41,642	34,510	25,295
USA	3,245	31,542	26,780	4,686	-14,976	-3,891	-18,852
Norway	1,868	33,904	4,957	2,540	20,508	28,495	-1,795
Netherlands	10,432	-5,340	-1,006	10,080	679	19,895	11,728
Denmark	681	46,947	-8,994	2,898	35,516	-5,452	15,451
Luxembourg	425	20,771	5,433	887	15,861	23,142	2,089
Germany	16,161	32,860	10,412	-912	-3,575	13,900	5,735
France	2,482	3,956	-3,634	1,208	8,350	1,395	-978
Estonia	0	1,204	1,118	1,017	874	18	15,714

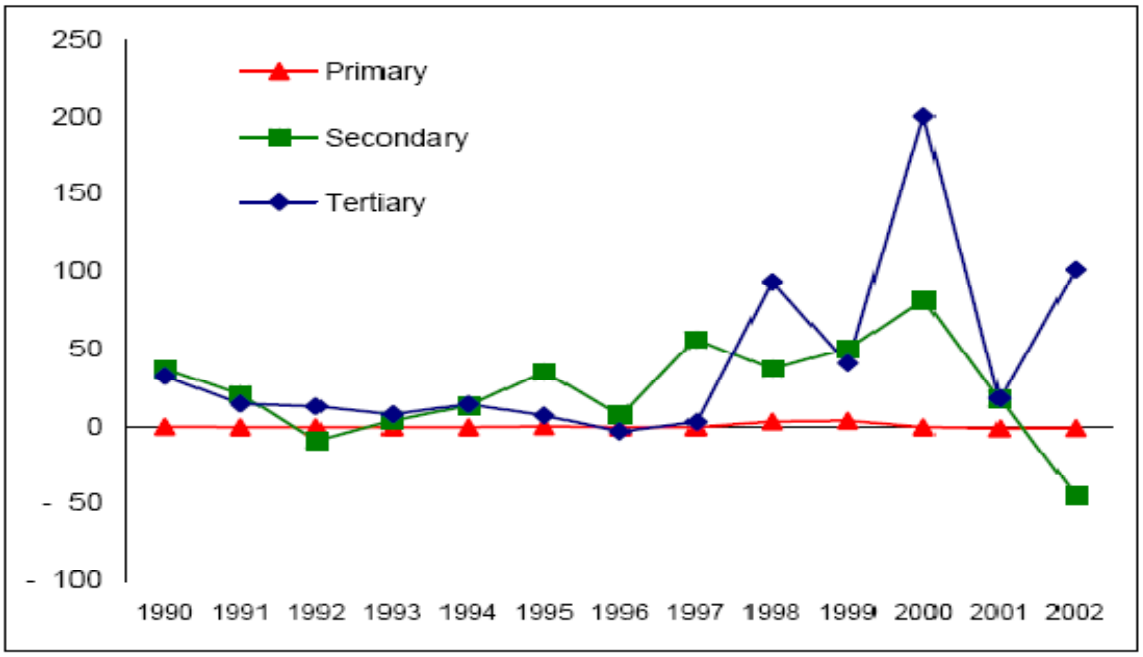
(A negative (-) sign indicates that disinvestment exceeded investment)

Source: FDI statistics: Sveriges Riksbank/Riksbanken balance of payments statistics. Available online at http://www.riksbank.com/templates/ItemList.aspx?id=12865.

The table above shows the top 10 destinations of Swedish FDI outflows. European countries account for 9 out of 10 and USA is the only non-Europe countries in the table in which it ranked no. 3. The statistics vary year from year which might be a result of the vibrant financial market and cross-border M&A activities. However, statistics to countries generally follow a huge decrease in early 2000's and a moderately recover in mid-2000's (Riskbanen, balance of payments statistics report). If closely observe this table, we see that the FDI

outflow to Norway was reported 28.5 billion in 2004 and -1.8 million in 2005. These large yearly differences may be due to the fact that the overall outward FDI from Sweden is small and regional or country-level FDI statistics can be highly affected by few significant cross-border M&A transactions. In 2002, FDI outflows from Sweden increased by more than 50 per cent, to Kronor 106 billion ($ 10.9 billion). This was partly due to the acquisition of Sonora (Finland) by Telia, accounting for about one third of the increase. However, flows were below the average level of 1998-2000, characterized by several large M&As (including the merger of Nordbanken and Merita, and other transactions related to establishing the financial services group Nordea) (UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT, 2002).

Figure A.11
Swedish FDI outflow by industries, 1990-2002
(Billions of Kronor)



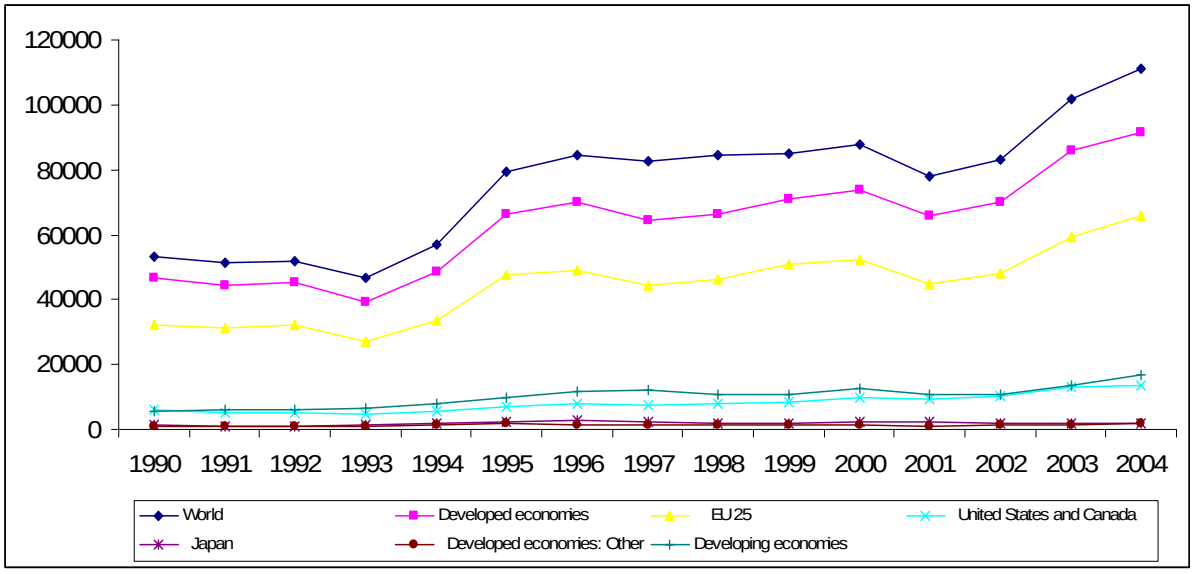
Source: UNCTAD, World Investment Directory online, Developed countries, 2005.

The tertiary industry known as a service industry and this is one of three industry types in a developed economy, the other two being the primary (raw materials) and secondary (goods production) industries. As an economy becomes more developed, it will shift its focus from primary to secondary and tertiary industries. The tertiary industry is split into two main categories.

The first is made up of companies that are in the business of making money, such as those in the financial industry. The second comprises the non-profit segment, wich includes services such as state education.

Figure A.11, summarizes the FDI outflows from Sweden by industrial sectors in overseas. The tertiary sector has become increasingly important outflows of FDI since the late 1990s. In the year of 2000 this industry's outward investment has increased by billions Kronor. After dramatically declined tertiary industry has geared up again. Outward investment in primary industry is as usual rest of the year since 1990 but secondary industry investment has fallen down sharply in 2002. According to the SCB Swedish Statistical report 2005, it has been highlighted that exports is the most prominent factor for the growth of Swedish GDP which is increasing 2.7% yearly since 2000. This section discussed the definition of FDI and its valuation method. Recent worldwide FDI trend and the development of Swedish FDI are also briefly reported. The next section is a review of theoretical studies done on FDI and MNE activities and also some previous empirical studies in this context.

Figure A.12
Swedish Exports to the destination countries 1990 – 2004
(Millions of Dollars)



Source: UNCTAD handbook (http://stats.unctad.org/Handbook/TableViewer/tableView.aspx)

In the structure of international trade, Sweden exports are increasing to its destination regions each year (Figure A.12). As we have seen before in the earlier reading that developed economies countries are the biggest market for Swedish exports and also EU25. Although some developed countries in the EU25 are also member of the developed economies.

3 Trade Theories, MNE and FDI

3.1 Why study trade theory?

Profits or benefits are the source for the trade nationally and internationally. The benefits of trade theories describe below shows why countries should trade cross-border for products or services even when they can produce them domestically. Several theoretical and empirical works have explained the reason convincingly for cross-border trade. Patterns of international trade theories show why countries are become specialise in different sectors which give benefits the way they do trade and the role of the government theories help articulate the role of government policy for the sophistication of trade between countries.

3.2 An overview of Trade Theory:

The very early thinking economic **theory mercantilism** emphasis on the importance of gold and silver holdings as a sign of a nation's wealth and power led to policies designed to obtain precious metals through trade, meaning encourage exports, discourage imports. The fundamental weakness is trade seen as a zero-sum game but later development of trade theories showed a positive-sum game.

The theory of absolute advantage by Adam smith (1776) attacks zero-sum game assumption. Countries should specialize in the production of goods for which they have an absolute advantage and trade for others with other countries.

The theory of comparative advantage by Ricardo (1817) points out what happens if one country has an absolute advantage in all goods. As he suggested

the principle of comparative advantage is to produce only those goods which can be made most efficiently than other countries. The key assumptions of the theory are diminishing returns to specialization and changes in the stock of resources or in the efficiency with resources are being used.

Heckscher-Ohlin theory with the different explanation but same result, Heckscher-Ohlin theory explains why countries trade goods and services with each other. One condition for trade between two countries is that the countries differ with respect to the availability of the factors of production. They differ if one country, for example, has many machines (capital) but few workers, while another country has a lot of workers but few machines. According to the Heckscher-Ohlin theory, a country specialises in the production of goods that it is particularly suited to produce. Countries in which capital is abundant and workers are few, therefore, specialize in production of goods that, in particular, require capital. Specialisation in production and trade between countries generates, according to this theory, a higher standard-of-living for the countries involved.

Product Life Cycle theory: In the 20th century Product Life Cycle theory by Vernon explained that the patters of international trade are influenced by product innovation and subsequent diffusion of product innovation. A country that produces technically superior goods will sell these first to its domestic market, then to other technically advanced countries. In time, developing countries will import and later manufacture these goods, by which stage the original innovator will have produced new products. On a smaller scale, individual products pass through distinct phases: after a period of research and development, and trial manufacture, there is a period of introduction characterized by slow growth and high development costs. This is followed by a period of growth as sales and profits rise. A phase of maturity and saturation is then experienced as sales level off and the first signs of decline occur. The final phase is decline, characterized by lower sales and reduced profits, and perhaps final disappearance from the market. The duration of each stage of the cycle varies with the product and the type of management supporting it.

New trade theory: Economists empirically illustrated that countries with similar factor endowments or similar level factor of technology have a propensity to trade the most with each other. But there was no suggestion for the extent of comparative advantages. Krugman (1979) introduced the New Trade Theory with supporting argument for the increasing return to scale actually provide a better for the international specialisation and trade. Krugman (1980) proposed a framework for the new trade theory consisting economics of scale, product differentiation, transport costs and different taste pattern, imperfect competition or monopolistic competition and comparative advantages with the adoption of Dixit-Stiglitz's (1977) idea of love-of-variety approach. These are totally opposite to the old trade theories. (Brander 1981, Krugman 1983) further added to the theory with identical products and law transportation costs influence two way trade on arbitrary demand conditions. (Krugman 1984, 1986; Brander and Spencer 1985; Eaton and Grossman 1986; Grossman and Horn 1988; and Grossman and Helpman 1991) New trade models incorporate with market imperfections, export subsidy and export tax for the national welfare, strategic behaviour and the new industrial economics, new growth theory and political economy arguments. Many of the models based on market imperfections and strategic behaviour justify interventionist or dominant trade policy. Helpman and Krugman (1985), stress the changes in the distribution of income among industrialized countries as a major cause of the expansion of trade relative to income. They have establish the relation in income and trade in a way that if the distribution of national income become more equal, the size of the trade also rise.

OLI Model: The OLI framework has implemented by Dunning (1977) noted that there was a growing convergence between the theories of international trade and production. Different approaches (theories) being used to explain the international trade and MNEs investment activities. Hence he argued, implemented and developed in subsequent years for an integrated approach to international economic involvement. The integration approach was based on the location-specific endowments of countries and the ownership-specific

advantages of firms. Dunning's framework implies that if a firm undertakes foreign production, location-specific (L) advantages must favour the foreign country for location benefits, and ownership-specific (O) advantages must favour the domestic firm . In addition to L and O advantages, another set of choices is available to firms, relating to the way firms generate and use their resources and capabilities. These choices refer to the internalisation (I) advantages.

Ownership-specific (O) advantages: A foreign firm has certain disadvantages in the foreign market relative to its local competitors. Those disadvantages could be related to language and cultural barriers, limited knowledge about local tastes and institutions, etc. So, in these situations still firms are investing and operating locally into foreign market must acquire some advantage over local firms in order for foreign production, or indeed international sales of any kind, to be profitable. These advantages could be in the form of a more cost efficient production process, a unique product, better access to international capital market, international marketing facilities and can be others sources.

Locational (L) advantages. A location may offer various kinds of benefits to firms. The more the natural resources and endowments, low costs and qualified labour force, and a location offers proximity to local customers, the more firms need to use jointly with their own competitive advantages, favour a presence in a foreign location, the more firms will choose to make use of their O specific advantage through engaging in both vertical and horizontal FDI. Firms are seeking for resources, efficiency and market through their FDI involvement in foreign country. Locational advantages thus influence extent to which firms choose to locate production outside of national boundaries.

Internalisation (I) advantages: Explain how a company can exploit its owner-specific advantages focusing on how assets can be transferred from headquarters to subsidiaries. For MNEs to choose FDI there must exist some advantage of conducting the business internally within the firm. These

advantages include greater control over the technology and quality of the product. Firms get benefits deriving from producing internally to the firms, since they allow it to bypass external markets and the associated transaction costs. Internalisation advantages thus affect the ways that firms may organise the creation and exploitation of their core competencies.

The eclectic, or OLI, paradigm suggests that the greater the O and I advantages possessed by firms and the more the L advantages of creating, acquiring (or augmenting) and exploiting these advantages from a location outside its home country, the more FDI will be undertaken. Where firms possess substantial O and I advantages but the L advantages, as described above, favor the home country, then domestic investment will be preferred to FDI, and any foreign markets will be supplied by exports. Where firms acquire O advantages which are best acquired, augmented and exploited from a foreign market through inter-firm alliances or the open market, FDI will be replaced by both a transfer of at least some of the assets normally associated with FDI (e.g. technology, capital, management skills, etc.) and a transfer of ownership of these assets or the right to their use. Dunning OLI paradigm framework cleanout and given sunshine to the arguments of old trade theories for MNEs to determined FDI.

Knowledge-Capital Model: From the theoretical point of view and empirically distinguishably proved that the very important MNEs determinants for FDI patterns are Horizontal and Vertical approaches. These approaches quantify the relationship between MNEs activities and country factors (e.g. market size, endowments, technology, etc). Horizontal FDI integration and Vertical FDI integration approaches of General Equilibrium model were used to unify the Knowledge-Capital Model developed by Markusen (1997, 2002). It is a difficult model to be totally explained because it combines the both horizontal and vertical integrated model into one model. This model consists of two goods, two products of production factors and two countries and also follows single-plant and multi-plants level of economies of scale. In this two countries model, horizontal

multinationals firms production plants located in both countries, but headquarters (R&D, marketing, advertisement, etc.) situated in skilled-labour abundant country. And vertical multinationals firms located in comparative advantages country with single plant production facilities without hosting headquarters. This model helps a single firm to become multinationals and gives the strength to decide whether to build their firms head-quarters into another foreign market or not. Since, the headquarters services can be situated separately from the production firms or plants geographically to serve simultaneously to these production firms or plants to produce at low cost.

3.3 Conclusion: above definitions and discussions are required to understand the trend between MNEs, FDI and trade theories. Trade theories attempt to explain why countries should trade with each other and FDI theirs try to explain why firms should produce abroad and invest in particular country. The old two country trade theory H-O framework was developed Mundell (1957) with replacing the idea of factor mobility may substitute for trade in imperfect competition market. Vertical and horizontal FDI for international trade may explain substitutability or complementarity relationship. Moreover, theoretically explained horizontal multinationals are more likely to be substituted for international trade while vertical multinationals are complement to trade. Economists were arguing about old trade theories for the internationalisation of firms and FDI. Hence, Dunning OLI paradigm framework presented evolutionary model which gives new path to clarify all the arguments of old trade theories and given a new era to MNEs to determined FDI. The patterns of FDI for MNEs activities further explain with vertical and horizontal integration model for international trade because of vertical and horizontal FDI plays different role in the international trade. Markusen (1984), Markusen and Venables (1998), originated and developed horizontal model that distinguished the plant and firm level scale economies and existence of fixed costs tariffs and transportation costs in a imperfect competition of international trade. Horizontal FDI pattern shows up if the transportation costs are high than trade costs goes up otherwise

vertical FDI pattern plays the role. Vertical FDI pattern proposed and developed by Helpman (1984) and Helpman and Krugman (1985). In this model, a single production firm has a corporate sector which may produce management services, marketing and R&D, and a production facility that can be separated geographically at no trade cost with equal factor price in perfect competition. Brainard (1993, 1997) established a link between the multi-plant scale economies and transportation costs relative to plant scale economies for the reason of FDI both horizontally or vertically. He described that the higher the multi-plant scale economies and trade barrier costs (transportation costs) relative to the plant scale economies, the higher the presence of FDI and the higher the elasticity of the substitution of varieties (Brainard 1993). His models based on two-sector and two country model, where the trade-off between the advantages of proximity and concentration of single stage production and multi stage production assumes substitution and complementary between trade and FDI. Markusen (1997, 2002) originates and developed Knowledge-Capital Model integrating two FDI patterns into one to give the perfect international trade map for firms to step into MNEs and spread out geographically for achieving greater profits or benefits, and to what extend foreign investment strategies fluctuate with the sector and factor activities of home or host country.

4 Literature review

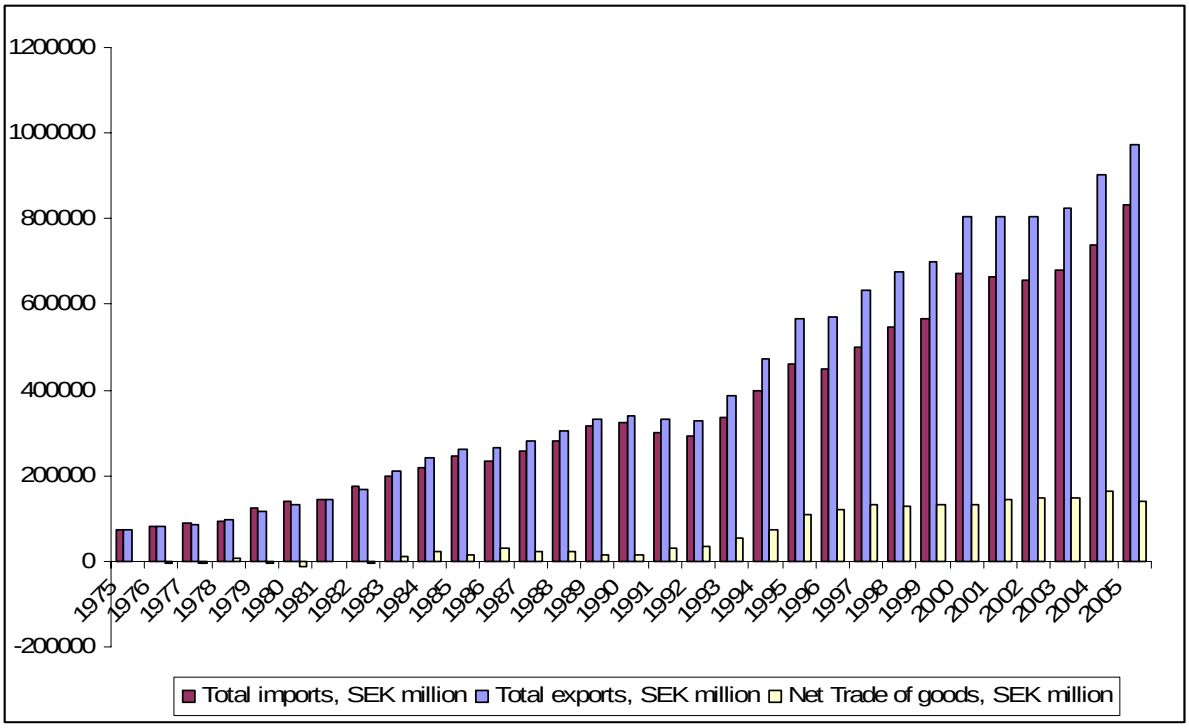
This section is a review of various empirical studies done previously and tried to reveal the relationship between FDI and home country's export performance. Among all the studies, Horst is considered one of the first who conducted empirical studies in this area. In his empirical study (Horst (1972)) between U.S. exports and foreign direct investment to the Canadian market, he indirectly suggested that there was a substitution nature of foreign trade and investment opportunities. Horst found that R&D is more closely related to total U.S. sales to the Canadian market which indirectly support his hypothesis that, "*exporting and foreign investing are alternative methods by which U.S. firms exploit the same technology advantages over their Canadian competitors*". His paper also suggested that tariff is a significant factor for U.S. firms in deciding either directly export goods to their Canadian customers or supply goods by setting up subsidiary in Canada. However, one of his latter publications, Horst (1976) suggested a possibility that FDI and exports are complementary. He expanded the general impression on foreign investment that investing abroad must be a motive moving out production plants from home and exporting jobs. Indeed, Horst proposed that MNE investing in the host countries can involve a series of "ancillary" activities including direct selling, advertising, sales distribution, after-sales services, etc., that can promote the demand of the goods in host countries. As a result exports from the home can be increased and a complementary relationship formed. Lipsey (1981, 1984) conducted several empirical studies using U.S. manufacturing data and complementary relationships were found. His results show that in general, the higher the foreign production by an U.S. firm, the larger the exports to that region would be. This relationship is stronger especially in the export of intermediate goods for further production. Similar analyses conducted by Lipsey (1999, 2000) using Japanese manufacturing data found similar complementary effects also. Several empirical studies by using Swedish data were conducted also, and one of the most influencing and leading study was done by Swedenborg's (1979, 1982). Swenborg's conducted the analysis by using Swedish firm-level data and made an innovative step by conducting the

regression with 2-stage-least-square (2SLS) method. The 1st stage of the model estimates the size of foreign production and the 2nd stage makes use of the estimated foreign production in 1st stage as an independent variable. Her analysis found outward foreign direct investment caused positive effect to the home export, yet the total output is not statistical significant. However, Swedenborg's studies were argued by Blomstrom, Lipsey, Kulchycky (1988) as they considered that the 2SLS method used gave low explanation power in the 1st stage of regression. They employed OLS and focused on the changes in variables to eliminate the effect of omitted variables simultaneously affecting export and direct investment. However, their results were not different much from Swenborg's work. No sign of substitution effect was found for all considered industries, and some industries showed complementary effect exists. A later Swedish study by Svensson (1993) took the consideration of export-platform into account and found substitution effect between Swedish outward investment and home export. However since his regression model used the ratio between parent exports to company's total sale as dependent variable, which is different from those above mentioned previous work that using absolute value of export from firm, and therefore his finding can only explain as outward investment reduce the importance of home export. A latter study by Ries (2001) and Blonigen (2001) used Japanese firm level data found that substitution and complementary effects were co-existing. In general, vertical-FDI leads to complementary effect and horizontal-FDI leads to substitution effect. Studies by Braunerhjelm & Oxelheim (2000) and Braunerhjelm, Oxelheim & Thulin (2005) using Swedish data found similar results also. This section reviews some of the empirical studies in this subject and we can conclude that studies in general FDI is in favor to the complementary effect instead of substitution. Outward FDI by firms usually lead to expansion of foreign market and increased sales of intermediate products leading to an overall home export increase.

4.1 Exports from Sweden

This section discusses the recent pattern of Swedish's export distribution and development. All data was obtained from the Statistics Sweden website. From the Sweden exports and imports statistics (Figure A.13), it is obvious that the export performance of Sweden has been tremendously increased every year since 1984 compare to imports goods. About 7% of export growth within 2004 to 2005 which is the highest export year since trade started with other countries in the world. Table A.5 shows the breakdowns of Swedish export to each regions and it is observed that EU-15, Scandinavia & Baltic seas countries, and North America are the top 3 destinations of Swedish export and they account for almost 80% of the total exports each year. This observation reveals that that Swedish exports are heavily targeted to neighboring and developed countries. Exports to Great China and Asia regions account for a small share only and exports to India grew slowly despite the high economy growth in India in recently years. World export increased by almost 220 percent in twenty years.

Figure A.13
Sweden's Exports and Imports Statistics
Millions of Kronor)



Source: Export Statistics: Statistics Sweden. Available online at http://www.scb.se

Table A.5
Swedish export statistics, Regional Level
(Millions of Kronors)

	1990	2000	2001	2002	2003	2004
EU-15 excluding Scandinavia	167,350	349,340	333,460	332,320	336,910	370,380
Scandinavia & Baltic Seas Countries & Switizerland	83,060	163,390	174,370	182,360	189,290	208,520
North America	34,160	91,140	97,880	101,400	105,210	106,840
Great China	5,050	29,390	29,650	24,190	26,610	27,800
Japan & Korea	9,300	26,840	29,370	24,050	20,960	21,370
EU-10	2,880	24,540	23,300	23,970	25,590	28,710
Eastern Europe & Turkey	1,790	19,300	18,180	20,730	23,430	28,860
Mid-East	6,500	18,780	19,220	20,650	18,980	21,080
South-East Asia	5,780	16,920	17,990	17,460	14,230	14,620
South America	3,550	13,520	12,460	8,450	7,880	10,030
Oceania	4,980	9,100	8,520	9,620	10,520	11,010
Sub-Saharan Africa	2,910	6,750	8,010	8,180	10,200	11,720
Central America	2,700	10,880	8,160	4,710	7,080	7,550
India	1,710	2,620	3,710	6,250	7,110	8,300

Source: Export Statistics: Statistics Sweden. Available online at http://www.scb.se

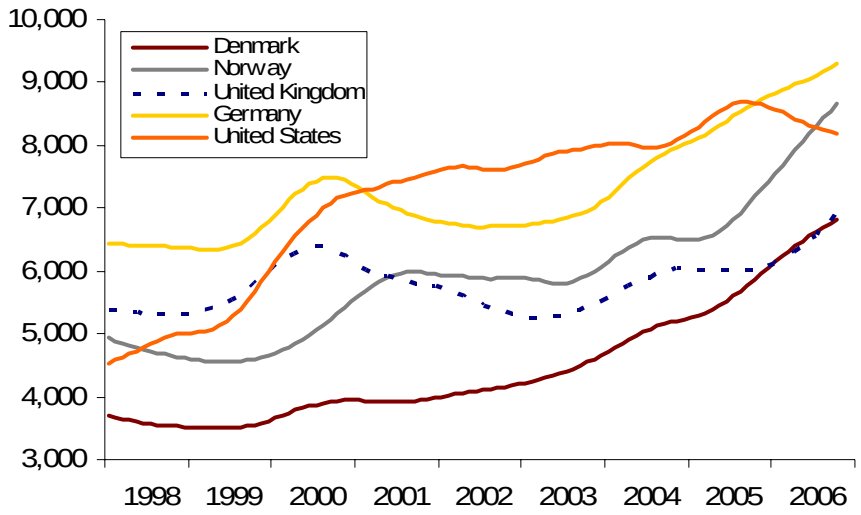
Table A.6
Top-15 products categories of Swedish export 1998 - 2004
(Thousands of Kronor)

Products Catagories	1998	1999	2000	2001	2002	2003	2004	2005
78 road vehicles (incl.air cushio	84496579	86788942	97694990	100259589	100138873	113774988	128950152	133591686
76 telecom, sound recording and reprod. app.	86158732	105676119	126832283	89371578	76157538	69558650	84513983	92526062
64 paper and paperboard, articles thereof	55311816	55898969	62904560	66839573	66894482	66623589	66686382	69205652
74 general indust.machinery	44599117	44116153	46734490	50522292	52989782	54102042	58698835	63165640
77 electr.machines,apparatus and appliances	39454495	41164400	49322112	46040569	43779605	42794809	43034771	42873779
54 medicinal and pharmaceutical	28605443	33494843	35903388	43167526	44835236	53298897	52960777	53872695
67 iron and steel	33788929	31972291	38499577	39604291	40517962	41644908	51643566	57833898
72 machinery for particular indus	29469593	28848997	33477800	33837769	34823388	36679071	37496126	41357954
71 power generating machinery and equipment	27300463	27606774	29588561	31173163	31655331	31887120	34578765	34222556
89 miscellaneous manufactured art	19735754	21309115	21498303	24921655	27931463	27841160	29425240	30145858
33 petroleum, petrol. prod. and r	10234168	14756103	25520655	23378318	21117645	24031859	31955612	45207626
69 manufactures of metal, n.e.s.	20136668	20428486	22174757	23119446	24242337	24302935	26340047	27602671
24 cork and wood	19327352	19423024	20788554	20813004	22617413	22255030	22008691	23746261
87Professional,scientific,contro	14778389	14922710	17133015	19515992	19998542	19522586	19738146	20969363
25 pulp and waste paper	10537236	11408164	17538511	15795513	14459450	13685584	14870499	14364628

Data source: Export Statistics: Statistics Sweden. Available online at http://www.scb.se

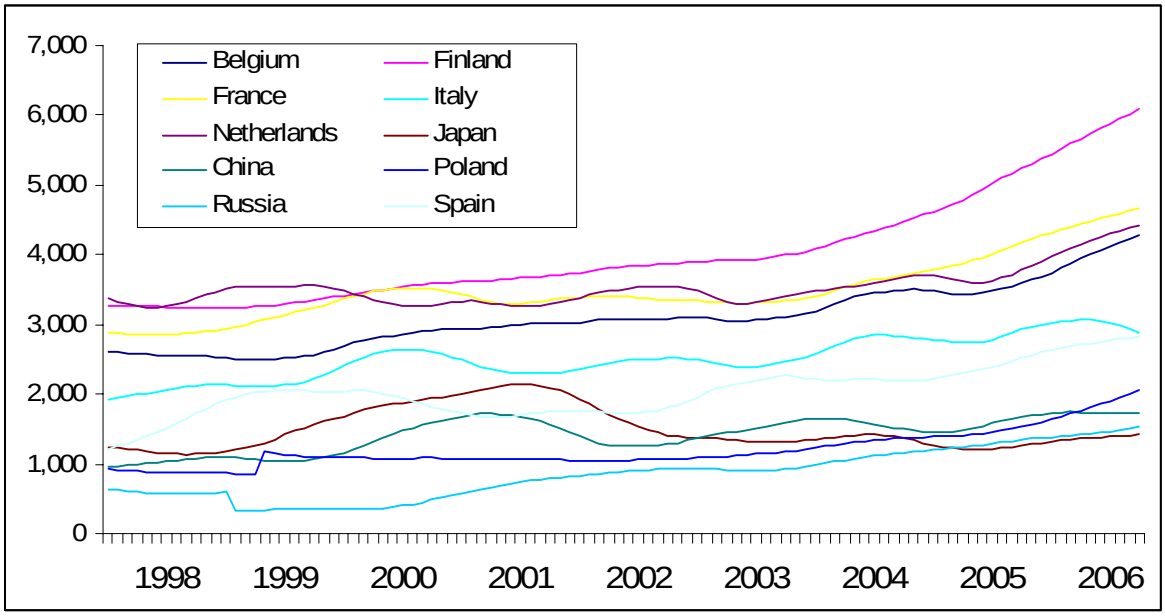
Table A.6 shows the breakdown of the Swedish exports statistics in different commodity groups under the Standard International Trade Classification (SITC) classification system. It is shown that road vehicles (SITC group 78) ranked the top in the table, followed by telecom equipment and paper manufacturing (SITC group 76 and 64 respectively). Four out of the top fifteen commodity groups are known as high-tech or advanced manufacturing and accounts for around 26% to the total Swedish exports. Although the total value of those exports is not comparable with other countries, it is indeed a significant share in the Swedish exports. The high shares of high-tech and transportation manufacturing in the Swedish exports tells that Swedish exports rely much on high value-added manufacturing. This implies exports are targeted to developed and wealthy economies where consumers can afford high-value products. Growth of Road vehicles industries exports performance has significant effects on the commodities economic developments.

Figure A.14
Exports by country of destination –1st Top Five Countries
(Millions of Kronor)



Data source: Export Statistics: Statistics Sweden. Available online at http://www.scb.se

Figure A.15
Exports by country of destination – 2nd Top Ten Countries
(Millions of Kronor)



Data source: Export Statistics: Statistics Sweden. Available online at http://www.scb.se

Swedish exports of goods flows to the top five country of destination in the world. Data for figure A.14 and A.15 has been updated till October of the 2006. Most of the exports of Sweden outflows to Germany and United States where a declined noticeable for the United States after September 2005 but rest of the countries imports from Sweden are uprising. Finland, France and Netherlands are top three countries importing goods and commodities from Sweden (Figure A.15). Although few declines presents during these trading years where export to Russia has fallen in the mid 1998 but exports increased from year 2000 till present. Sweden has good success in trade globally and has enjoyed a positive trade balance for twenty three years consecutively. This success is depend on that Swedish companies continue to have strong exports, continuous innovations and R&D intensity of the firms. EU-15 and Scandinavian countries are the major export markets of Swedish industries which have been achieved through competitive product costs and innovative ideas of production.

5 Empirical Analysis and results

The dataset used for this empirical analysis has been obtained from various sources including UNCTAD, Statistics Sweden, Riksbank, and World Bank, etc. The dataset contains years from 1990 to 2004, in total 14 periods of years. All collected data has been organized by the Microsoft Excel program and analysis those data using a statistical program named STATA 9.0 version package. OLS and 2SLS time series regression analysis have been conducted to test the outward FDI from Sweden and its export performance to different regional level. Three equations has been used to test the null hypothesis for the analysis.

Eq.1: OLS

$$FDI\_Swe^{x}_{t} = \beta_0 + \beta_1 Distance^{X} + \beta_2 Distance^{X} + \beta_3 GDP^{X}_{t} + \beta_4 GDP\_C^{X}_{t} + \beta_5 Edu^{X}_{t} + \varepsilon_t$$

Eq.2: 2SLS

$$Export\_Swe^{X}_{t} = \beta_0 + \beta_1 FDI^{x}_{t} + \beta_2 Distance^{X} + \beta_3 GDP\_C^{X}_{t} + \beta_4 r\_exchange^{X}_{t} + \beta_5 Oppenness^{x}_{t} + \varepsilon_t$$

Eq.3: 2SLS

$$Export\_Swe^{X}_{t} = \beta_0 + \beta_1 FDI^{x}_{t} + \beta_2 Distance^{X} + \beta_3 GDP^{X}_{t} + \beta_4 GDP\_C^{X}_{t} + \beta_5 r\_exchange^{X}_{t} + \beta_6 Oppenness^{x}_{t} + \beta_7 Distancesq^{x} + \varepsilon_t$$

Null Hypothesis, $H_0 = \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = 0$

Variables Declaration:

$FDI\_Swe^{X}_{t}$: Estimation of FDI from Sweden to region X at time period of t

$Distance^{X}$: Weighted distance to region X.

GDP^{X}_{t} : Total GDP (constant dollar, PPP adjusted) of region X at time period t. It is a proxy to the total output of a region.

$GDP\_C^{X}_{t}$: Weighted average GDP per capita (constant dollar, PPP adjusted) in region X at time period t. It is a proxy to the wealth of a region.

Edu^{X}_{t} : Weighted average of secondary school enrollment rate in region X at time period t. It is a proxy to the education level of a region.

FDI^{X}_{t} : Amount of FDI from Sweden to region X at time period t.

$r\_exchange_t$:Real exchange rate of Swedish Krona to U.S. dollar at period t.

$Oppenness^X_t$: Weighted openness of region X at time period t.

ε_t : Unobserved error term

Data sources: UNCTAD, Riksbanken, Worldbank, Statistics Sweden. After collection of data has been rearranged and weighted for the analysis.

Table A.7
Summarize of all variables.

Variable	Obs	Mean	Std. Dev.	Min	Max
distance	210	6311.246	4171.947	802.98	15909.67
fdi swe	210	5.27e+09	1.77e+10	-1.67e+10	1.33e+11
export swe	210	4.24e+10	7.54e+10	9.25e+08	3.70e+11
gdp	210	2.78e+12	2.80e+12	4.05e+11	1.16e+13
gdp_c	210	79146.52	71485.29	1686.02	356025.3
openness	210	.473	.2633462	.06	1.38
edu	210	.7980476	.2713223	.28	1.51
r exchange	210	107.238	11.5819	91.61	129.99
distancesq	210	5.72e+07	6.52e+07	644776.9	2.53e+08

1st equation has analysed with OLS regression to capture the estimate amount of FDI from Sweden to a region every year. Distance, GDP, GDP per capita and education has considered for the equation. Economic geography models suggest distance has a negative effect to the amount of foreign investment for short to medium distance and a positive effect where the distance between the home and host is far because the increase of trade costs favors firms to setup affiliates abroad. GDP and GDP per capita represents the economic strength of a region. Most of the Swedish exports are in High-tech equipments and manufacturing sectors, both are capital and labour skilled intensive.

Table A.8

OLS regression of Eq.1

Source	SS	df	MS	Number of obs =	210
				F(5, 204) =	16.73
Model	1.9134e+22	5	3.8269e+21	Prob > F =	0.0000
Residual	4.6677e+22	204	2.2881e+20	R-squared =	0.2907
				Adj R-squared =	0.2734
Total	6.5811e+22	209	3.1489e+20	Root MSE =	1.5e+10

fdi_swe	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
distance	-786819.2	1384310	-0.57	0.570	-3516210	1942571
distancesq	26.76984	90.44208	0.30	0.768	-151.5513	205.091
gdp	.0005881	.0005382	1.09	0.276	-.0004729	.0016492
gdp c	101516.4	19531.76	5.20	0.000	63006.4	140026.4
edu	4.85e+09	6.76e+09	0.72	0.474	-8.48e+09	1.82e+10
_cons	-4.84e+09	8.04e+09	-0.60	0.548	-2.07e+10	1.10e+10

From the above regression (Table A.8) it is clear that distance has effect on the outward FDI from Sweden to the destination region. GDP per capita has significant impact for attracting FDI from home country. In this equitation GDP per capita is well correlated with FDI outflow of Sweden.

Table A.9
2SLS regression of Eq.2

Instrumental variables (2SLS) regression

Source	SS	df	MS	Number of obs =	210
				F(5, 204) =	162.23
Model	1.0274e+24	5	2.0549e+23	Prob > F =	0.0000
Residual	1.6156e+23	204	7.9194e+20	R-squared =	0.8641
				Adj R-squared =	0.8608
Total	1.1890e+24	209	5.6890e+21	Root MSE =	2.8e+10

export_swe	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
fdi_swe	.629964	.1294469	4.87	0.000	.3747387	.8851894
gdp c	857407.8	34285.89	25.01	0.000	789807.7	925008
distance	-989961.9	526497.4	-1.88	0.061	-2028036	48112.56
openness	-1.92e+10	7.60e+09	-2.52	0.012	-3.42e+10	-4.20e+09
r exchange	-5.43e+08	1.72e+08	-3.16	0.002	-8.83e+08	-2.04e+08
_cons	4.48e+10	2.05e+10	2.19	0.030	4.38e+09	8.53e+10

Equation 2 estimates the amount of export from Sweden to a region in each year. Since the investigation is focused in the relationship between outward FDI and home export performance, equation 2 takes the amount of outward FDI from Sweden to respective region. The equation also considered the yearly averaged real exchange rate of Swedish Krona to U.S. dollar and the openness of each region as independent variables and also GDP per capita of respective region. Table A.9, shows that distance is considered negatively correlated with the amount of export due to the increase in trade costs and the knowledge to foreign market as the distance increase. The GDP per capita are proxies for the development and wealth of a region and it is believed as shown in the regression that is positive correlated to the Swedish exports. The reason is due to the fact that Swedish exports are influenced to high-tech and manufacturing which are targeted to wealthy and advanced countries/regions. Negative sign is expected for the real exchange rate of SEK as the higher the exchange rate, the more expensive the Swedish products are compared with products from other countries.

Table A.10
2SLS regression of Eq.3

Instrumental variables (2SLS) regression

Source	SS	df	MS	Number of obs =	210
				F(7, 202) =	34.52
Model	9.9185e+23	7	1.4169e+23	Prob > F =	0.0000
Residual	1.9715e+23	202	9.7601e+20	R-squared =	0.8342
				Adj R-squared =	0.8284
Total	1.1890e+24	209	5.6890e+21	Root MSE =	3.1e+10

export_swe	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
fdi_swe	-1.059067	5.084273	-0.21	0.835	-11.08412	8.965988
gdp	.0098766	.0040826	2.42	0.016	.0018266	.0179267
gdp_c	847754.1	508806.7	1.67	0.097	-155499.3	1851008
distance	-1.07e+07	8044162	-1.33	0.185	-2.66e+07	5169915
distancesq	597.5791	411.6342	1.45	0.148	-214.0718	1409.23
openness	1.06e+10	9.15e+09	1.16	0.249	-7.47e+09	2.86e+10
r_exchange	-4.33e+08	5.17e+08	-0.84	0.404	-1.45e+09	5.87e+08
_cons	2.82e+10	5.84e+10	0.48	0.629	-8.70e+10	1.43e+11

The regression of equation 3 shows that as distance increased the export performance of Sweden decreased. All three equations have shown all the expected coefficient signs from the regression. Outward FDI is statistically significant for the export performance of Sweden within favorable distance. Now, it can be understood that we can successfully reject the null hypothesis in all the equations due to support the results. Each coefficient measured by the 1%, 5% and 10% significance level of t statistics.

Table a.11
Correlations of variables in the equations.

	fdi_swe	gdp	gdp_c	edu	distance	distan~q
fdi swe	1.0000					
gdp	0.2661	1.0000				
gdp_c	0.5209	0.3630	1.0000			
edu	0.2740	0.2523	0.3705	1.0000		
distance	-0.2906	-0.1533	-0.4456	-0.0271	1.0000	
distancesq	-0.2144	-0.2269	-0.3226	0.2020	0.9444	1.0000

	export~e	fdi_swe	gdp	gdp_c	distance	distan~q	openness	r_exch~e
export swe	1.0000							
fdi swe	0.5937	1.0000						
gdp	0.5649	0.2661	1.0000					
gdp c	0.9134	0.5209	0.3630	1.0000				
distance	-0.4508	-0.2906	-0.1533	-0.4456	1.0000			
distancesq	-0.3365	-0.2144	-0.2269	-0.3226	0.9444	1.0000		
openness	0.0532	0.0407	-0.2319	0.1127	-0.1373	-0.1400	1.0000	
r_exchange	-0.1530	-0.1087	-0.1147	-0.0807	-0.0000	-0.0000	-0.1810	1.0000

Above table indicates correlations with each other variables of all equations. There might be biased in the equations but analysis shows the significant value of outward FDI and export performance of Sweden.

The empirical analysis has been completed by OLS and 2SLS regression model above discussed. It is believed through analysis that outward foreign direct investment of Sweden has positive effects on the exports performance to the respective regions. All the estimated coefficients in equation 1 show the expected signs although only the coefficient of GDP per capita is statistically significant. It

reinforces our belief that Swedish's FDI is biased to high-tech and manufacturing industry and is more likely destined to developed, wealthy economies as we have understood from reading different sections, figures and tables above.

6. Conclusions

The performance of Swedish export positively associated with the outward foreign direct investment. Theoretically and empirically it has been proved by different scholars that outward FDI accelerates home country export positively and this is complementarity relationship between FDI and trade. It is a general concern that outward FDI would lead to substitution effect that reduces home country's exports, job, and prosperity. Empirical study is thus necessary to verify that and this thesis research is one of them in which to conduct analysis by using aggregated, regional-level Swedish data. There was significant relationship found between FDI and exports in the empirical analysis. GDP per capita and openness of foreign market have significant effect on FDI and export performance for Sweden. Being a developed country GDP and GDP per capita has influence on FDI and trade performance. Still there needs to be done more extensive research comparing developing and developed economies FDI and Trade performances.

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Appendix

EU-15 excluding Scandinavia (12): Austria, Italy, Belgium, Luxembourg, France, Netherlands, Germany, Portugal, Greece, Spain, Ireland, United Kingdom.

EU-10 excluding Baltic Sea countries (7): Cyprus, Poland, Czech Republic Slovakia, Hungary, Slovenia, Malta.

Scandinavia & Baltic Seas Countries & Switzerland (8): Denmark, Latvia, Estonia, Lithuania, Finland, Norway, Iceland, Switzerland.

Eastern Europe & Turkey (10): Belarus, Romania, Bosnia, Herzegovina, Russia Bulgaria, Turkey, Croatia, Ukraine, Former Yugoslav Republic of Macedonia Yugoslavia.

North America (2): Canada , United States,

Central America (14): The Bahamas, Guatemala, Bermuda, Honduras, Cayman Islands, Mexico, Costa Rica, Panama, Dominica, Puerto Rico, Dominican, Republic Saint Kitts and Nevis, El Salvador, Trinidad and Tobago

South America (10): Argentina, Ecuador, Bolivia, Paraguay, Brazil, Peru, Chile , Uruguay, Colombia, Venezuela, Sub-Saharan Africa (28), Algeria, Mozambique Botswana, Namibia, Burkina, Faso, Niger, Cameroon, Nigeria, Congo, Sierra Leone, Côte d'Ivoire, South Africa, Democratic Republic of the Congo Sudan, Ghana, Tanzania, Guinea-Bissau, The Gambia, Kenya, Togo, Liberia, Tunisia, Mali, Uganda, Malta, Zambia, Mauritius, Zimbabwe,

Oceania (2): Australia, New Zealand,

India (1): India

South-East Asia (7): Indonesia, Singapore, Laos, Thailand, Malaysia, Vietnam, Philippines.

Japan and Korea (2): Japan, South Korea.

Great China (3): China, Taiwan, Hong Kong.

Mid-East (8): Bahrain, Lebanon, Egypt, Saudi, Arabia, Iran, Syria, Israel, United Arab Emirates