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THE IMPACT OF FDI ON INTERNATIONAL PORTFOLIO INVESTMENTS

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Key words: Portfolio Choice, International Investments, Multinational Firms, Information Asymmetry

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Mohammed Aba Al-Khail*

Abstract

Some empirical research has argued that part of the reason for the observed "home bias" is that investors are able to indirectly achieve internationally diversified portfolios via domestically listed multinational firms. Another branch of this research attributes the "home bias" and country allocations to more deeply rooted informational causes.

Using a four-year annual panel of Finnish international portfolios and Foreign Direct Investments in twenty-five countries, I provide evidence consistent with an information asymmetry explanation.

JEL Classification: F21; F23; G11.

Key Words: Portfolio Choice; International Investments; Multinational Firms; Information Asymmetry.

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I. Introduction

In recent years it has been well documented that investors exhibit a negative bias towards holding cross-border investments. This phenomenon, usually dubbed "home bias", goes against the long established benefits of international diversification as implied by conventional theories of international finance. Previous research has shown that the magnitude of the home bias is too large to be explained by differential taxation, transaction costs, PPP hedging, human capital hedging, and a number of other plausible remaining legal and institutional barriers to cross border investments.[1]

A popular explanation for this phenomenon evolves around an informational asymmetrical wedge that is driven by the spatial separation between investments and investors. Tesar and Werner (1995), Coval and Moskowitz (1999), and Grinblatt and Keloharju (2001) show that domestic and international portfolios of investors exhibit strong bias towards domestic and near-by stocks. These studies suggest that informational asymmetries between the local and non-local investors constitute an important indirect barrier that prohibits investment patterns conforming to modern finance theory.

Research that specifically address the country allocation bias in investors international portfolios attributes the observed country allocation in investors international portfolios to the intensity of information flow between the investment sending and the investment receiving country. Portes and Rey (1999) present support for the gravity model in explaining bilateral equity flows between fourteen (14) countries. They find a highly significant coefficient for distance in addition to obvious controlling variables like market capitalization of the receiving country. Since distance at least to some extent measures information costs this finding tends to support an explanation based on asymmetric information. Further support for the asymmetric information explanation is obtained from the fact that the variable "distance" in their regression drops in magnitude and significance with the addition of other information related variables, like telephone traffic volume to the gravity model formulation.[2]

[1] See Adler and Dumas (1983), Baxter and Jermann (1997), Cooper and Kaplanis (1994), French and Poterba (1991), Lewis (1999), Stulz (1994, 1981), Tesar and Werner (1995) and Uppal (1992).
[2] Explicitly for Finnish investors Aba Al-Khail (1999) finds that the basic form of a gravity equation explains about 80 percent of the variance in the dispersion in Finnish foreign portfolio holdings

In my recent work (2002), I show bilateral trading intensity in tangible goods as well as export and import intensities between countries seem to provide a good proxy for the intensity of the information flow channel of cross border equity investing. This paper associates the demand for and analysis of information that efficient trading in tangible goods requires with the level of commitment of resources, financial and otherwise, to activities that requires transmission of information. Once the channels of information flow are open they will also enhance cross border transmission of asset specific information leading to a positive proportional increase in allocation of portfolio investments into that country.

Another strand of the finance literature attempts to explain the observed low levels of cross border investments with opportunities available to investors in achieving geographical diversification via domestically listed equities. This literature points to the increasing role of multinational corporations in cross border transactions and argues that this multinational dimension of some domestically listed firms allows domestic investors to use these firms as vehicles to indirectly obtain substantial international diversification benefits.

The role of multinational corporations in the international production activity, through foreign direct investments (FDIs), has exploded in recent decades. In the year 2000 FDIs grew by some 18%, surpassing the growth of other economic aggregates like world GDP and trade. Specifically for Finland, the development of the FDI activities of firms is no less dramatic. During the last decade, Finland's outbound FDI stock has grown from 7.5 billion Euro in 1991 to 57 billion Euro in 2000, an average annual growth rate of 27 %. These figures become even more remarkable when compared to the simultaneous development of Finnish exports (15.6, 49.2, 14 %), and imports (14.7, 36.6, 11 %).

This paper uses a panel (1997 through 2000) of Finnish allocation of international equities and the outward FDIs of Finnish firms in an attempt to discriminate between

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between countries that received Finnish foreign portfolio investments in 1997. Sizeable and statistically significant parameter estimates were found for the market capitalization of the receiving country and the direct distance between the financial capitals of the sending country and the receiving country. In addition, the introduction of bilateral trade between the sending country, Finland, and the receiving country, into the model substantially reduces the significance of other variables that can be interpreted as proxies for information asymmetries.

these two explanations. According to investors' diversification via Finnish multinationals explanation, portfolio theory would predict that portfolio country allocation show an inverse relationship to FDI country allocation. On the other hand, the information asymmetry explanation states that the levels of FDI country allocation is an additional channel for information flow that contributes to the reduction of information asymmetry resulting in an increase in country portfolio allocation.

The results are that there is evidence in favor of the information asymmetry explanation. The result indicate that in addition to trade in tangible goods, FDIs are an important component of commercial trading transactions providing a proxy for the intensity of the information flow channel between countries. These channels of information contribute to the reduction of information asymmetry resulting in an increase in country portfolio allocation.

The paper proceeds as follows. The next section presents a brief review of the literature on the value of geographic diversification by multinational corporations. Section III describes the data and acknowledges their sources. Section IV describes the methodology of evaluating the relationship between FDIs and portfolio investments. Section V presents the results and section VI summarizes the major finding of this paper.

II. Foreign Direct Investment, The Geographical Diversification Benefits of Multinational Corporations, and The Influence of FDI on Portfolio Investment

The relationship between the international activity of firms and the potential indirect diversification benefits for investors has been the subject of a considerable research. The early approach in resolving this issue mainly addresses the relationship between international involvement on the exposure to the domestic and international indexes, and the risk reduction benefits. Agmon and Lessard (1977) use a sample of 217 securities and find that the higher the degree of a firm's international activity, the higher are the exposure of the firm's return to the international (excluding US) market index and the lower is the exposure to the US index. They associate this finding with

investors' recognition of corporate international diversification. Jacquillat and Solnik (1978) provide contradicting evidence finding that multinational firms behave very much like purely domestic firms. Fatemi (1984) relates the extent of international involvement of firms to their risk adjusted abnormal returns around the period of the initiation of these activities. Using event study methodology, this study shows that abnormal returns rise by 18% during the 14 months that precede the initial international diversification of firms.[3]

The proposition that is applied in the more recent research relates to investors recognition of the extent of the multinational activities of firms as reflected by their relative valuation. Researchers have applied a number of different approaches to test this proposition with the empirical evidence being somewhat supportive of the hypothesis that international diversification does provide investors with a certain extend of international diversification.

One approach has been to test the implications of the internationalization theory of FDI on the valuation of multinational firms. The internalization theory of FDI stipulates that FDI takes place as a mode for leveraging a firm's intangible assets through geographic expansion leading to an increase in the value of the firm.[4] These firm-specific intangible assets include brands, patents, managerial skills, research and development advantages, scale economies in manufacturing and advertising. The economics of information arising from the proprietary aspect of these assets elevates opportunistic behavior that hinders their exchange at arm's length and induce firms to internalize the markets for their cross border leveraging.[5] Morck and Yeung (1991) find strong evidence in favor of the internationalization theory in that the degree of the multinationality of firms is positively correlated with excess firm value. They find that their proxy of FDI investments of firms, the number of foreign subsidiaries, is positively related to the firms' excess valuation as measured by Tobin q. When they specifically associate the level of multi-nationality with firms intangible assets, R&D

[3] The results are based on data for 18 firms only.
[4] The definition of foreign direct investment (FDI), OECD 1996, encompass investments that reflect investors (direct investor) objectives of obtaining "a lasting interest" in the entity of the foreign economy … "The lasting interest implies the existence of a long term relationship between the direct investor and the enterprise and a significant degree of influence on the management of the enterprise, as evidenced by an ownership of at least 10 %" of the ordinary shares or voting power in the enterprise.
[5] For more detailed explanation, see Caves (1997), pages 3-5 and 144-147.

spending and advertising, they find that the former is only related to a positive Tobin q in the presence of the latter.

Errunza and Senbet (1981, 1984) provide evidence that investors are aware of the diversification benefits as reflected by the excess valuation of US internationally diversified firms. These authors argue that multinational firms offer investors the opportunity to gain international diversification exposure via their FDI investments because of the presence of barriers that investors face in achieving direct international diversification. Multinational firms, through their international business engagement and foreign operations maybe better placed to circumvent, among other things, capital market segmentation, constraints on capital flows and complicated taxation issues. Bondar, Tang, and Weintrop (1998) provide comprehensive and strong evidence that investors show preference to US multinationals geographic diversification as reflected by their excess valuations of these firms. Using large sample of industrially and geographically diversified firms for the period from 1987 through 1993, and controlling for possible business activity segment classification, self selection problems, industry effects and multinationality, they find that internationally diversified firms are valued at a 2.2% higher level than a single activity domestic firm.

Recent evidence also shows that investors can achieve a considerable level of international diversification without having to trade in financial markets outside their borders. Errunza, Hogan, and, Hung (1999) show that, for U.S. investors, domestically traded assets that include multinational corporations provide investors with internationally diversified portfolios that mimic the performance of foreign equities.

In summary, the evidence is that the increasing role of multinationals in world production and goods cross border movement activities is accompanied by an increase in the exposure of these firms to the international economic environment. This increased exposure can provide investors with some indirect diversification benefits. In this case modern portfolio theory would predict that investors positive disproportionate exposure to a country through the FDI of a domestically listed firm

will be accompanied by these same investors having a disproportionately negative exposure through their direct holding of the assets of the country.

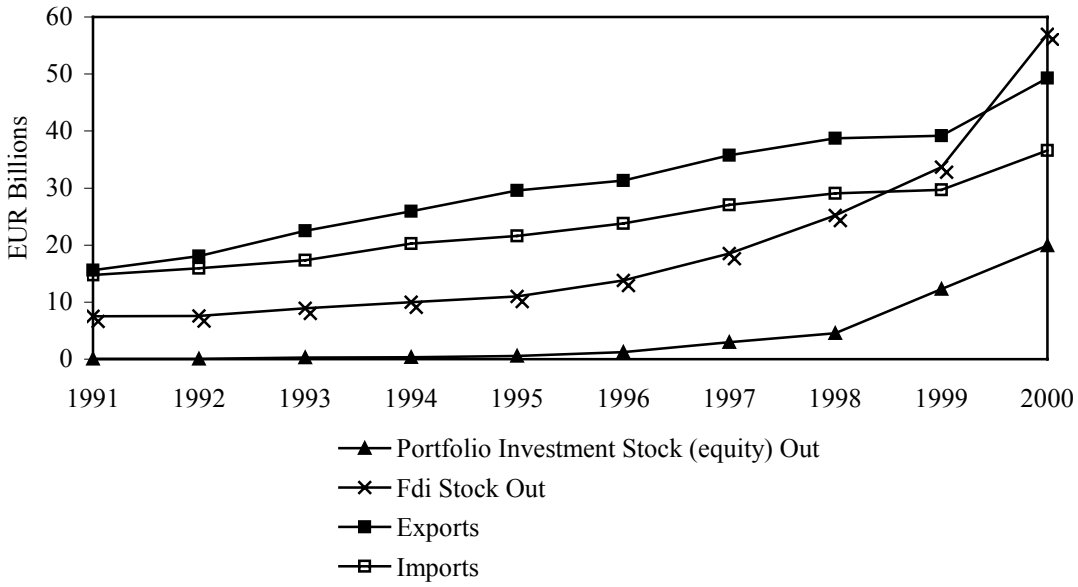
On the other hand FDI is also an important source of information flow relating to the economic conditions and the relative advantages of the familiarity with the business conditions, the institutions and norms of a country that are also important for portfolio investments. The Uppsala internationalization model offers important insights on the informational content of FDI.[6] This model portrays the internationalization process as an incremental learning process that cultivates into an FDI investment. Four processes are identified: i. Unorganized export activity, ii. Export activities are organized around distributors, iii. The establishment of an overseas subsidiary, and iv. Foreign direct investments in manufacturing. The implicit argument of this model is that the development of the internationalization of firms follows logical steps with a cumulative impact on the information gathered on foreign markets. Larimo (1985) provide support that this process plays an import role in the manner by which Finnish firms initiate their FDI investments. Therefore, according to an informational-based explanation this increase in the flow of information with a country will also lead to an increase in the portfolio allocations in that country.

III. Data Sources and Description

Our data for the international portfolio (equity) investment positions in more than 30 countries is from the Bank of Finland. The data covers all industrialized countries and a good number of newly industrialized and emerging countries. The data provides the position of Finnish investors in these countries as of the 31st of December for 1997 through 2000. Finnish Foreign direct investment data is also from the bank of Finland. The data set covers all European Union countries, nine other European countries including Norway and Switzerland, the United States and Canada, Mexico and Venezuela from South America, and thirteen Asian Pacific countries including Japan,

[6] Johanson and Vahlne (1977).

Figure 1 The development of Finland's balance of payments



Australia, Hong Kong and China. Table I.1 of the Appendix provides more details of the coverage of this data. In the analysis, I will use all the available data including those with zero values reported by the source. The merchandize exports and imports of Finland are from the database of the Organization of Corporation and Development (OECD). Financial data is from FIBV and DATASTREAM. Financial data is not available for Estonia, Latvia, and Lithuania.

The remaining part of this section provides a brief overview of the characteristics of Finnish international portfolio investment, foreign direct investments, and exports.

Finnish investors appetite for international investments only took shape during the second half of the nineties, with the average stock position during 1996-2000 about 3000 % more than the average position during 1991-1995 (Figure 1). The growth during the second half of the nineties is just as impressive. The total value of the

Finnish international portfolio investments increased from 2.8 billion Euro at the end of 1997 to 21.9 billion Euro at the end of the year 2000.

Table 1 shows the top twelve destinations of Finnish portfolio investments for the period of 1997 to 2000. Finnish investors show a resounding bias towards investments in European Union countries. These countries receive more than four times the investment in the US market, even though the former has the same gross domestic product and about a third of the market capitalization of the US. In 2000, Sweden took a resounding 30.6 % of the total Finnish investment surpassing the value of the total investment in the European Monetary union countries, 26.2%.

During the last decade, Finland's FDIs have evolved into a major force in the economy. During this period Finland's outbound FDI stock has grown from 7.5 billion Euro in 1991 to 57 billion Euro in 2000 (Figure 1), an average annual growth rate of 27 %. The European union countries are the largest recipients of Finnish FDI. Further, the value of this FDI stock has increased from 55 % in 1991 to 64% in 2000 of the total. On the country level, Sweden, Finland's traditional partner took in 24.3% followed by Netherlands 20.3%, the U.S. 15.2%, Germany 9% and France 3.8% of the total outbound FDI stock.

Larimo (1995) documents a number of features that characterize outbound Finnish FDIs. First, they are strongly related to the host country demand potential, with the majority of investments directed towards developed economies. Second, FDI investments are mostly horizontal in nature. Third, its growth in OECD (developed) countries is largely achieved through acquisitions.

Trade flow data shows that Europe has a dominant position in Finland's foreign trade. Trade with Europe accounts for more that 70 % of the total Finnish trade. On the individual country levels seven of the top ten trading partners, belong to the European Union (4 EMU members).

Table 1 The International portfolio investments (Equities) of Finnish residents in the European Union, European Monetary Union and the top ten countries.

1997		1998		1999		2000	
Region / country	% of total portfolio	Region / country	% of total portfolio	Region / country	% of total portfolio	Region / country	% of total portfolio
EU	66.2	EU	68.0	EU	64.7	EU	69.5
EMU	34.9	EMU	39.1	EMU	30.2	Sweden	30.6
Sweden	15.6	US	13.1	Sweden	21.4	EMU	26.2
US	14.2	Sweden	12.7	US	16.6	US	17.9
UK	12.4	UK	12.2	UK	10.3	UK	10.6
Luxembourg	11.9	France	9.5	France	8.6	France	8.2
Japan	6.4	Germany	8.4	Japan	7.1	Netherlands	5.3
France	6.2	Luxembourg	7.5	Germany	7.0	Germany	4.7
Netherlands	6.0	Netherlands	6.3	Netherlands	5.4	Japan	4.5
Germany	5.6	Switzerland	6.0	Luxembourg	4.3	Switzerland	4.3
Norway	4.1	Japan	5.0	Norway	4.2	Luxembourg	3.4
Switzerland	4.1	Denmark	4.0	Switzerland	3.7	Denmark	2.0
Total: Millions EURO	2,844	Total: Millions EURO	4,894	Total: Millions EURO	12,539	Total: Millions EURO	21,934

IV. The Relationship between FDIs and Portfolio Investments

The central building block of this paper addresses the role of the international activities of firms in investors' domestic portfolio, on the country allocations in their international portfolio investments. Specifically, I attempt to assess the association between these two forms of international allocation of investments. Investors' domestic portfolios of locally listed firms imply a certain international exposure as related to those firms' direct international investments. This international component of the domestic portfolio can have different implications on the manner by which investors formulate their international portfolio investments. From the perspective of portfolio theory, and after controlling for other country characteristics, investors direct allocation deviations from the prescribed world market portfolio should be related to allocation deviations implied by the domestic portfolio. That is apparent positive (negative) deviations in international portfolio allocations are balanced by negative

(positive) deviations in indirect allocations as reflected by the domestic firms' direct international investments. On the other hand, the intensity of the direct international investments in a foreign country by firms in the domestic portfolio also implies more information flows with this country. This increase in information flows enhances cross border transmission of asset specific information leading to a positive proportional increase in the allocation of portfolio investments into that country.

The analysis of the relationship between international Portfolio investments and FDIs considers both the intensity of the country allocation in these investments as well as the relationship of this allocation to the size of the financial market and the economy of the country. Specifically, I am interested in showing how a deviation, from a certain benchmark, in relative portfolio investments in a country relates to the intensity of FDIs in the same country. Accordingly, I construct the following variables:

Portfolio investments deviation = $((\rho^{F}_{it} - \rho^{W}_{it}) - 1)$, where ρ^{F}_{it}, and ρ^{W}_{it} is the weight of country i in year t in the total international portfolio of Finnish investors and the world market portfolio, and

Firms investments intensity = $(\Phi^{F}_{it} / GDP_{it})$, where Φ^{F}_{it} is the outbound Finnish FDIs in country i in year t, and GDP_{it} is the gross domestic product of country i in year t, and

Firms income intensity = $(\pi^{F}_{it} / GDP_{it})$, where π^{F}_{it} is the outbound Finnish FDIs income in country i in year t, and GDP_{it} is the gross domestic product of country i in year t.

Therefore, the analysis will specifically address how a portfolio investment concentration in one country relative to that country's financial market size with respect to the world market portfolio, is related to an FDI concentration, in terms of both the level and the income of the investment, in the same country relative to that country's size of the economy.

To assess the relationship between the direct and indirect portfolio allocations of Finnish investors, I ran a multivariate regression of the portfolio investment deviation

against each of the proxies for the indirect portfolio allocation, firms' investments intensity and firms' income intensity. The regressions include a number of control variables to account for the nature of the construction of these ratios as well as other characteristics of countries that may have an impact on the level of allocations by both investors and firms. These are:

1. Distance: The direct (great circle) distance between Helsinki and the economic center of the countries that receives the portfolio and FDI investments, in natural logarithmic form. Portes and Rey (1999) relate distance to information costs and find that it accounts for a significant portion of the variance of portfolio flows between countries. Specifically for Finland, Aba Al-Khail (1999) shows this variable plays a similar role on the manner by which Finnish investors formulate their international portfolio investments.

2. Market Capitalization: The equity market capitalization of country C at the end of period t, in natural logarithmic form. The literature documents that investors seem to exhibit a preference for larger stocks and equity markets. For example Morck et al. (2000) present evidence that larger markets have more informative prices that reflect more company specific news of individual stocks. Brennan and Cao (1997) find that foreign inventors do not appear to face any informational disadvantage when investing in a large capital market such as that of the United States. This feature allows more informed investment decisions as well as lessens the information asymmetries that investors face in foreign markets.[7]

3. Per capita GDP: Per capita gross domestic product, during period t, in natural logarithmic form. This variable has been shown to provide a proxy for a country's respect for the rule of law, law enforcement and quality of accounting influence

[7] On a national level, Falkenstein (1996) using data on the holdings of US mutual funds finds that in addition to conventional risk proxies, funds prefer liquid and large stocks. He equates these preferences with information availability asymmetry between the large stocks and small stocks. Merton (1987) argues that investors hold shares in firms in which they are more familiar and investors are more likely to be familiar with large firms. Kang and Stulz (1997) find market value to be an important determinant of foreign holdings of Japanese firms.

on the level of portfolio investments.[8] In addition, Morck et al. (2000) show that the per capita GDP is highly correlated with their proxy measuring government respect for private property. They show that government respect for private property is the main driver of the more asynchronous stock prices observed in higher income countries that has the potential of reducing the extent of information asymmetry between local and foreign investors.

4. Market return is the annualized average daily return, %, of the equity market of country C during period t. This variable controls for both the changes in levels as a result of market performance and the performance induced new allocation.

5. Relative exports: The ratio (%) of the exports of Finland to country C relative to the total Finnish exports during period t. This variable is a component of the international activities of Finnish firms. In addition, previous research shows that the level and changes of this variable is a good proxy for information flows between countries that impacts portfolio allocations.

V. Empirical Results

I begin this analysis by showing the relationship between portfolio investments deviations with the country characteristics summarized in the previous section. Table 2 presents the results of this regression. The multivariate regressions are for each year from 1997 through 2000, as well as for the pooled data.[9] The constants for all regressions and the fixed effect dummies for the pooled regression are not shown. Further, to account for the relatively shorter distance between Helsinki and the other financial markets in Europe relative to the rest of the world markets, I also include in this regression a Europe dummy variable (=1 if the financial market is situated in Europe).[10]

[8] La Porta et al. (1997) report that the correlation between the per capita GDP and their measure of rule of law is 0.87. Also, La Porta et al. (1998) report that per capita GDP accounts for more then half the variation in their law enforcement and accounting standards measures.
[9] Considering it's tax haven status, Luxembourg is excluded from these regressions.
[10] The addition of a Europe dummy has a significant impact on the overall fit of the equation. I also ran two other separate regressions (not reported) with dummies that consider the location of the financial

Table 2 Regressions of portfolio investments deviation on country characteristics and investors' preferences

	1997	1998	1999	2000	Pooled
Distance	-5.12	-5.54	-7.83	-8.95	-7.05
	(1.43)	(0.95)	(2.13)	(3.86)	(1.32)
Market capitalization	-0.59	-0.61	-1.39	-0.18	-0.64
	(0.34)	(0.47)	(1.08)	(0.83)	(0.32)
Per capita GDP	1.10	0.93	1.49	-0.23	0.76
	(0.52)	(0.60)	(1.50)	(1.00)	(0.40)
Return	1.11	-1.46	5.40	-2.26	0.33
	(0.85)	(0.85)	(3.43)	(2.91)	(0.59)
Relative exports	10.28	5.11	16.11	19.75	12.68
	(18.23)	(15.45)	(33.31)	(43.13)	(13.66)
Europe dummy	-7.75	-6.98	-9.30	-11.58	-9.65
	(2.07)	(1.38)	(2.61)	(5.03)	(1.85)
Adjusted R^2	0.59	0.71	0.65	0.48	0.60
Number of observations	29	29	23	24	105

This table reports parameter coefficients, white corrected standard errors (in parenthesis) and adjusted R^2 for the regression in which the dependent variable is the Portfolio investments deviation $((\rho^F_{it} - \rho^W_{it}) - 1)$, where ρ^F_{it}, and ρ^W_{it} is the weight of country i in year t in the total international portfolio of Finnish investors' and the world market portfolio respectively. The independent variables are [Distance] the direct (great circle) distance between Helsinki and the economic center of the investment receiving country, in natural logarithmic form, [Market capitalization] the market capitalization of the investment receiving country, in natural logarithmic form, [Per capita GDP] per capita gross domestic product of the investment receiving country, in natural logarithmic form, [Return] the annualized daily returns of the equity market index of the investment receiving country measured in US dollars, [Relative exports] the ratio of the exports of Finland to the investment receiving country relative to total Finnish exports, and [Europe dummy] a dummy variable that equals 1 if the receiving country is locate in Europe, and 0 otherwise. The regressions are for a year-by-year basis, as well as on data pooled over the years from 1997 to 2000. The pooled regression allows for fixed effects by year. Constants and year-dummies in the regressions are not shown.

market as part of the European Union, and European Monetary Union. The results were inferior to the

It is apparent from this table that the portfolio investment deviation is strongly influenced by both regional factors and the distance between the financial center of the investment receiving country and Helsinki. Both of these parameters are persistent across all years as well as the pooled sample. In the pooled regression the estimated coefficient for the logged distance between Helsinki, the financial center of Finland, and the financial capital of the investment receiving country is about -7. That is the Finnish portfolio investments in a country with a distance of about 2.7 times further from Helsinki than an otherwise identical country is on average 7 percent lower. In other words deviations away from the world portfolio allocations are strongly influenced by the distance separating Finland from the portfolio investment destination. Another observation from this result is the relatively smaller influence of market capitalization variable. In the pooled regression, market capitalization enters the regression with a negative sign implying that investment levels deviations from what is warranted by the market capitalization of the country are more influenced by the distance of Finland from the country and European location than its' capital market size.

I performed several robustness checks on these results (not reported). First I excluded Switzerland, considering it's potential tax haven status, and Sweden, a country that receives the highest portfolio investments relative to the size of its capital market. Further, I used dummy variables in the pooled regression to account for Finnish portfolio investments into developed countries, developing country and non-European countries. I also checked if the results are affected by outliers in the independent variable, that is countries with zero direct portfolio investments or heavily overweighed countries like Sweden and Denmark. The results of all of these regressions are not significantly different than for the pooled data that I report.

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one that I report.

Table 3 **Regressions of portfolio investments deviation on firms' investments intensity, firms' income intensity, country characteristics, and investors' preferences.**

	3.1	3.2	3.3	3.4	3.5
Distance	-4.63		-8.51	-5.76	-5.23
	(1.03)		(1.76)	(1.25)	(1.35)
Market capitalization	-0.59	-1.35	-0.91	-0.96	-1.01
	(0.29)	(0.45)	(0.55)	(0.47)	(0.46)
Per capita GDP	0.73	1.41	0.80	1.80	2.35
	(0.34)	(0.49)	(1.07)	(1.11)	(1.17)
Return	0.15	0.52	0.69	-0.24	-0.84
	(0.52)	(0.62)	(2.34)	(2.44)	(2.51)
Relative exports	6.37	43.09	13.45	12.60	11.28
	(8.69)	(14.47)	(16.43)	(11.88)	(11.56)
Europe dummy	-6.35	-0.81	-13.02	-9.22	-8.62
	(1.51)	(0.59)	(2.62)	(2.11)	(2.34)
Firms investment intensity	201.06	313.16		162.25	
	(81.20)	(71.07)		(87.17)	
Firms income intensity					2327.89
					(919.45)
Adjusted R^2	0.68	0.60	0.63	0.67	0.70
Number of observations	105	105	58	58	58

This table reports parameter coefficients, white corrected standard errors (in parenthesis) and adjusted R^2 for the regression in which the dependent variable is the Portfolio investments deviation $((\rho^F_{it} - \rho^W_{it}) - 1)$, where ρ^F_{it}, and ρ^W_{it} is the weight of country i in year t in the total international portfolio of Finnish investors' and the world market portfolio respectively. The independent variables are [Firms' investments intensity] (Φ^F_{it} / GDP_{it}), where Φ^F_{it} is the outbound FDIs in country i in year t, and GDP_{it} is the gross domestic product of country i in year t, [Firms, income intensity] (π^F_{it} / GDP_{it}), where π^F_{it} is the outbound FDIs income in country i in year t, and GDP_{it} is the gross domestic product of country i in year t. Other independent variables are as defined in Table 2. The regressions are for data pooled over the years from 1997 to 2000. The regressions allow for fixed effects by year. Constants and year-dummies in the regressions are not shown.

Having confirmed the adequacy of the regression model in capturing the dynamics of the country characteristics influence on the portfolio investment deviations, I will complement the pooled regression with the firms' investment intensity variable. Column 3.1 of table 3 presents the results of this regression.[11] The first observation from these results is the substantial improvement in the fit of the regression. The adjusted R^2 increases from 0.60 to 0.68 indicating that the addition of the firms' investment intensity contributes substantially to the information that is necessary in explaining the characteristics of the portfolio investment deviation. In addition, these results show a clear positive relationship between portfolio investment deviation and the firm investment intensity. A 1% increase in level of the firms investment relative to the size of the economy in a country, all else equal, leads to about 200% increase in Portfolio investment deviation. That is both investors' portfolio investments and their indirect portfolio exposure to a country via the shares of their domestically listed multinational firms move in the same direction. In other words, an over (under) exposure to the market fundamentals of a country is further increased (decreased) by the indirect exposure through the international activity of the domestic firms in that country. This increase in the deviations in the allocation of the assets of a country implies an increase in the deviations away from what it's market size and economy warrants with respect to the world market portfolio, a clear contradiction of the international CAPM[12]. On the other hand, if one relates firms FDIs investment in a country relative to the size of its economy, with the level of information flows that result from this activity, then one would expect that an increase in firms investment intensity, would generate more information flows that will lead to an increase in the allocation of the assets of the country. The results provide a clear support of this hypothesis.[13]

The results also show a substantial reduction in the coefficient estimate of the distance parameter. To further investigate this, I ran the same regression without the distance parameter. The results of this regression are presented in column 3.2 of table 3. As is

[11] The constant and the fixed effects dummies for this pooled regression are not shown.
[12] This is of course with the usual assumption of perfectly integrated capital and goods markets.
[13] For this regression I performed similar robustness checks as those reported for the country characteristics regression. The results of this analysis are not significantly different from the results that I report.

apparent from the results the exclusion of the distance parameter has no effect on the sign of the firms' investment intensity. Since distance at least to some extent measures information costs, this finding tends to also provide support for an explanation centered on asymmetric information.

Another measure that I use to gauge the exposure of the domestic portfolio to the direct international investments of locally listed firms is the income that these firms' generate from these investments. This measure can potentially provide a more accurate proxy of this exposure since income provides a more direct measure of the extent of the firms' profitability from cross-border investments.

Column 3.5 of table 3 presents the results of the basic regression complemented with the firms' income intensity.[14,15] Similarly to the results of the regression of firms' investment intensity, the addition of the firms' income intensity results in a substantial improvement in the fit of the regression, and has a very strong positive relationship with portfolio investment deviation.

These results provide further evidence that the intensity of firms FDIs seem to provide a good proxy for the intensity of the information flow channels of cross border equity investing. The insights of the Uppsala internationalization model on the informational content of FDI through it's cumulative impact on the information gathered on foreign markets by definition requires a high level of commitment of resources, financial and otherwise, to activities that require transmission of information. Once the channels of information flow are open they will also enhance cross border transmission of asset specific information leading to a positive proportional increase in allocation of portfolio investments into that country.

[14] The data on the income from FDI investment has substantially less coverage than the FDI stock data. Income data is available for 1997 through 2000 on FDI investment for Austria, Canada, Denmark, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Sweden, Switzerland, United Kingdom and USA. Data for Belgium only covers 1999 and 2000. For the benefit of the reader, I ran the characteristic regression (column 3.3 of table 3) and the firms investment intensity regression (column 3.4 of table 3) for this data set.

[15] The constants and the fixed effects dummies for these pooled regressions are not shown.

VI. Summary

This paper looks at the influences of foreign direct investments (FDIs) on the country allocation in the international portfolios of investors. Specifically, the paper tests and discriminates between two alternative explanations for the observed relationship between these two variables. The first explanation relies on an information asymmetry explanation. According to this explanation, FDIs provides an additional information channel between countries that contributes to the reduction of information related transaction costs leading to an increase in portfolio investments. The second explanations builds on the idea that FDIs provide investors the opportunity to attain international diversification benefits via purchasing the shares of domestically listed multinational firms making the countries that receive the FDIs less attractive for investors.

Empirical results using a new four-year annual panel of Finnish international portfolio and FDI investments in twenty-five countries provide evidence consistent with an information asymmetry explanation. The results indicate that the direct international investments of locally listed firms in investors' domestic portfolios have a substantial impact on the country allocations in their international portfolio investments. In other words, an over (under) exposure to the market fundamentals of a country in the international portfolio is further increased (decreased) by the indirect exposure through the direct international investments of the domestic firms in that country. These results are consistent for both firms' investments intensity as well as the income it generates in a country.

Overall the results can be taken to lend support that considerations related to the flow of information between countries tends to have a substantial impact on the manner by which investors allocate their direct international portfolio investment. That is the level of FDIs country allocation is an additional channel for information flow that contribute to the reduction of information asymmetry resulting in an increase in country portfolio allocation.

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Appendix I

Table I.1 The Finnish International Portfolio Investments and FDI Data Coverage

	Portfolio Investments				FDI Stock (outbound)			
	1997	1998	1999	2000	1997	1998	1999	2000
European Union Countries								
European Monetary Union								
Austria	X	X	X	X	X	X	X	X
Belgium	X	X	X	X	X	X	X	X
France	X	X	X	X	X	X	X	X
Germany	X	X	X	X	X	X	X	X
Greece	Y	Y	X	Y	X	Z	X	X
Ireland	X	X	X	X	X	X	X	X
Italy	X	X	X	X	X	X	X	X
Luxembourg	X	X	X	X	X	X	X	X
Netherlands	X	X	X	X	X	X	X	X
Portugal	X	X	X	X	X	X	X	X
Spain	X	X	X	X	X	X	X	X
Others European union								
Denmark	X	X	X	X	X	X	X	X
Sweden	X	X	X	X	X	X	X	X
United Kingdom	X	X	X	X	X	X	X	X
Other Europe								
Estonia	X	X	Z	Z	X	X	X	X
Iceland	Y	Y	Y	X	Z	Z	Z	Z
Latvia	X	X	Z	Z	X	X	X	X
Lithuania	X	X	Z	Z	X	X	X	X
Norway	X	X	X	X	X	X	X	X
Poland	Y	X	Z	Z	X	X	X	X
Russia	X	X	X	X	X	X	X	X
Switzerland	X	X	X	X	X	X	X	X
Turkey	Y	Y	Z	Z	X	X	X	X
Americas								
Canada	X	X	X	X	X	X	X	X
Mexico	Y	Y	Z	Z	X	X	X	X
United States	X	X	X	X	X	X	X	X
Venezuela	Y	Y	Z	Z	Z	Z	Z	Z
Asia and Pacific								
Australia	X	X	X	X	X	X	X	X
China	X	X	Z	X	X	X	X	X
China, Hong Kong	X	X	X	X	X	X	X	X
India	X	X	Z	Z	Z	Z	Z	Z
Indonesia	X	X	X	Z	Z	Z	Z	Z
Japan	X	X	X	X	X	X	X	X
Malaysia	X	X	Z	Z	X	X	X	X
New Zealand	X	X	X	X	Z	Z	Z	Z
Philippines	X	X	Z	Z	Z	Z	Z	Z
Singapore	X	X	Z	X	X	X	X	X
South Korea	X	X	X	X	X	X	X	X
Taiwan	X	X	X	X	Z	Z	Z	Z
Thailand	X	X	X	Z	Y	X	X	X
Africa								
South Africa	Y	Y	Y	Y	X	X	X	X

Notes:

- X: Available data.
- Y: A zero value is reported by the data source (The Bank of Finland).
- Z: Data is not available.