

MEDDELANDEN FRÅN
SVENSKA HANDELSHÖGSKOLAN
SWEDISH SCHOOL OF ECONOMICS
AND BUSINESS ADMINISTRATION
WORKING PAPERS

480

Mohammed Aba Al-Khail & Tom Berglund

THE IMPACT OF THE EMU ON
INTERNATIONAL PORTFOLIO INVESTMENTS

DECEMBER 2002

The Impact of the EMU on International Portfolio Investments

Key words: EMU, Portfolio Diversification, Home Bias

JEL Classification: G 15

© Swedish School of Economics and Business Administration,
Mohammed Aba Al-Khail & Tom Berglund

Mohammed Aba Al-Khail & Tom Berglund
Department of Finance and Statistics; Department of Economics
Swedish School of Economics and Business Administration
P.O.Box 479
00101 Helsinki, Finland

Distributor:

Library
Swedish School of Economics and Business Administration
P.O.Box 479
00101 Helsinki
Finland

Phone: +358-9-431 33 376, +358-9-431 33 265
Fax: +358-9-431 33 425
E-mail: publ@shh.fi
<http://www.shh.fi/services/biblio/papers/index.htm>

SHS intressebyrå IB (Oy Casa Security Ab), Helsingfors 2002

ISBN 951-555-757-7
ISSN 0357-4598

The Impact of the EMU

on

International Portfolio Investments

Mohammed Aba Al-Khail*

Tom Berglund*

Abstract

This paper analyses the impact of the launch of the European Monetary Union (EMU) on the allocation of international portfolio investments. The initiation of the EMU provides an opportunity for comparison of competing theoretical explanations for investment behavior. Models stressing the diversification motive would predict that the increased dependence between countries participating in the EMU should reduce the attractiveness of portfolio holdings in other EMU countries. Models based on asymmetric information would instead emphasize the increased intensity in the flow of information resulting from an increase in cross border transactions between the EMU countries. The consequent decline in information asymmetry should increase, rather than reduce portfolio holdings in other EMU countries. Our results based on the allocation of Finnish foreign portfolio investment support the information-based explanation against predictions based on the diversification motive.

Key words: EMU, Portfolio Diversification, Home Bias.

JEL code: G15.

* Department of Finance and Statistics, Swedish School of Economics and Business Administration, P.O. Box 479, 00101 Helsinki, Finland;
tel +359-9-43133 402; fax +358-9-431 33 393; e-mail mohammed.abaalkhail@shh.fi

* Department of Economics, Swedish School of Economics and Business Administration, P.O. Box 479, 00101 Helsinki, Finland;
tel +359-9-43133 345; fax +358-9-431 33 382; e-mail berglund@shh.fi

I. Introduction

A large number of empirical studies have documented what has become known as a "home bias" in international portfolio investments, that is investments are more concentrated in the home country than what optimal portfolio diversification would imply. The fact that domestic securities are heavily overweighed in asset portfolios around the world is documented by e.g. Cooper and Kaplanis (1994), French and Poterba (1991), and Tesar and Werner (1995). As shown by Baxter and Jermann (1997) the puzzle imposed by this lack of diversification deepens if we include return on human capital in asset portfolios held by individual investors¹. A survey of the literature on the "home bias" not only in asset markets but also in consumption is found in Lewis (1999).

Explanations that have been proposed for this phenomenon fall into two different categories. The first one refers to the fact that foreign investments not that long ago were subject to severe institutional restrictions, and to inertia that exists even in financial markets. Institutions that handle international transactions do not adjust to drastic changes like abolishment of restrictions on international investments overnight. Building up institutions able to properly channel those investments takes time. Once the adjustment has taken place, however, we would expect to see an allocation that is close to what the international capital asset pricing model would predict.

According to the alternative explanation the lack of international diversification is due to more deeply rooted informational problems. The fact that a distant foreign investor is less informed about local stocks makes this investor more susceptible to adverse selection, and moral hazard, which adds to expected investment costs for this investor.

Support for the information-based explanation can be found e.g. in the results reported by Tesar and Werner (1995). Their paper documents that Canadian investors had a significantly larger share in US securities than in securities from other countries, like Germany and Japan, although the diversification benefits would have been significantly higher from investing in Germany and Japan. Grinblatt and Keloharju

¹ A recent paper by Kocherlakota (1998), however, outlines the moral hazard based argument for why complete diversification would not be optimal. Selling claims on too large a part of ones future income would simply reduce ones incentives to produce that income.

(2001) show that in addition to distance, the language of the annual reports and the culture of the CEO's of Finnish corporations play an important role in the equity selection of Finnish investors. Huberman (2001) examines the geographical distributions of shareholders of the seven U.S. Regional Bell Operating Companies (RBOCs) and observes that an RBOC's customer holds more of its' share, in terms of both quantity and value of shares, than in the other RBOCs. He interprets this as a cognitive bias for the familiar.

There is also some evidence showing that geographic proximity seems to imply an informational advantage that show up in returns. Coval and Moskowitz (1999 and 2001) examining U.S. mutual funds show that fund managers bias their investments towards nearby equities and in the process earn substantial abnormal returns. Hau (2001) analyzing data from the electronic trading system Xetra of the German Security Exchange show that German professional traders obtain a significantly higher return than foreign traders do.

This paper takes a different approach to the home bias puzzle. In this paper we take the launching of the EMU as an experiment that allows us to discriminate between the above two categories of explanations. While "inertia" could explain why things are changing slowly in the direction predicted by the diversification motive, it can hardly explain investors' active portfolio allocation decisions. Based on portfolio theory investors should dislike the increase in correlation between stock returns, which should occur with the advent of the EMU, and consequently we should observe a drop in the relative share of portfolio investments from EMU countries that flow into the EMU area. The information-based explanation, on the other hand, holds that the increase in trade and related information flow that follow from the drop in transaction costs due to the EMU should increase the share of portfolio investments that flow into that area. That the launch of the EMU will increase trade between the included countries is further supported by the evidence in Rose (1999) who uses panel and cross sectional methods to study international trade between 186 countries for the period between 1970-1990. He finds that countries that share the same currency trade three times as much as they would with different currencies.

A third potential explanation that seems to have popular support is that the EMU is making portfolio investments into the area more attractive because it is reducing the foreign exchange risk of investments into these countries. However, based on literature on the international capital asset pricing model by Solnik (1974), Sercu (1980), and Adler & Dumas (1983) we know that for the hedging motive to justify a bias towards home currency denominated holdings these holdings should provide a hedge against domestic inflation. Empirically stock returns tend to be negatively rather than positively correlated with domestic inflation, though. Since the introduction of the monetary union will increase the correlation in country specific inflation rates the fact that the FX-risk is eliminated should again make portfolio holdings in the other EMU less, not more attractive.

In the following we will analyze data on the country allocation of Finnish portfolio investments at the launch the EMU to see which of the two competing hypotheses is better in explaining the data. The outline of this paper is the following: In next section we discuss the expected impact of the EMU on trade flows and the consequent impact on portfolio investments based on our two competing hypotheses. We then go on to present the data. The fourth section reports the results and section five concludes.

II. The EMU Impact

The main argument in favor of the EMU has been its impact on cross-border transaction costs within the area². The adoption of the common currency eliminates all costs from the use of different currencies in cross-border transactions within the area. In addition to any commissions and bid-ask-spreads charged by brokers these costs include costs for hedging any exchange risks between currencies. Estimates for the size of the savings produced by the EMU in this respect have been 0.5 - 1 % of the GDP in the area. Comparing different countries within the EMU these savings are higher for smaller countries with more exotic currencies than for countries like Germany and France.

² For a survey see e.g. Gross & Thygesen 2nd ed. (1998).

The fact that transaction costs are reduced for trades between countries within the EMU should affect trade flows in two respects. Firstly, there should be trade creation. Some trades that were not considered worthwhile previously will now become profitable. Secondly, there will be some redistribution of trade. That is, some trade that was previously done with countries outside of the EMU area will now be redirected towards EMU countries. Both of these factors will contribute to an increase in the share of the trade that goes to countries within the EMU, and consequently reduce the share of the trade with the rest of the world. Furthermore we would expect this redistribution to be stronger in relative terms for a small country like Finland than for larger countries simply because the transaction costs that are eliminated were higher.

Next we turn to the impact on portfolio investments. In the case of these investments the reduction in transaction costs will also be relevant. However, compared to total transaction costs incurred when buying shares the additional transaction cost produced by the fact that the stock is quoted in another currency is small.³

Portfolio theory, as pioneered by Markowitz in 1952, and first applied on international portfolio holdings by Grubel (1968) and Levy & Sernat (1970), would lead us to expect that the correlation between returns on stocks listed in the foreign EMU country and returns on domestic stocks should be of decisive importance. If this correlation increases more than the correlation with stocks in other countries, then portfolio investments into the EMU area should become less attractive.

The crucial question then is: how is the EMU expected to affect the correlation between the stock returns for the countries included in the monetary union? Taking for granted that stock prices can be taken as the discounted sum of expected future earnings of the firm, the question translates into a question concerning expected future earnings. Will changes in expectations concerning future earnings become more, or possibly less, correlated between firms in the countries that decided to join the EMU than they were in the pre EMU era?

³ The fact that we analyze the changes only up till the end of 1998 means that trading securities in euros was not possible in our data period. Increases in investment spurred by a drop in transaction costs due to the euro should occur from the beginning of 1999. Since the date for the start of the Euro was known

The earnings of a firm are roughly the difference between its sales and its costs. If foreign trade will shift towards other EMU countries, then the launch of the Union should increase the part of total sales of EMU-based firms that go to other EMU countries. An increase in the cross-border correlation between sales of the firms within the union should result.

The same conclusion applies to the costs of EMU based firms. The Union is likely to enhance the exploitation of arbitrage between different countries in the market for input factors, meaning that costs will also become more correlated across borders. A higher correlation between sales as well as costs means a higher correlation in average future earnings, and thus stock prices, between firms residing in different Euro countries⁴.

Empirical support for the conjecture that stock returns do tend to correlate more strongly for countries which have strong economic ties than for those that have weak ties, is reported on an independent set of data in Chen and Zhang (1997). They investigate a number of stock markets in Pacific-basin area, and find that the flow of trade between countries is strongly related to the corresponding correlation coefficient between stock market returns.

In the information-based explanation trade also matters. In that explanation what makes trade important is the fact that more trade means more flow of information between the countries.⁵ The importance of information in explaining the country allocation of portfolio investments is supported by results reported by Portes and Rey (1999) who find strong support for a gravity model in explaining bilateral equity flows between 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

well in advance there might even have been an incentive to postpone planned acquisitions of securities within the area over the year-end into 1999.

⁴ Please note that an empirical analysis of the actual impact of the EMU on the correlation between stock returns is subject to a substantial measurement problem in the period prior to 1999. Any news that affected the likelihood that the EMU might fail should have affected stock returns in the EMU countries in the same direction producing an upward bias in the correlation.

⁵ See Gehrig (1993), and Kang & Stulz (1997).

the asymmetric information explanation is obtained from the fact that the variable "distance" in their regression drops in significance when other information related variables, like the phone call volume, are included in their regression equation.

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 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. Aba Al-Khail (1999) demonstrates that the introduction of bilateral trade between the sending country, Finland, and the receiving country, into the regression equation substantially reduces the significance of other variables that can be interpreted as proxies for information asymmetries.

On the basis of these results it seems that the information-based explanation has some support in the data. However, the problem is that most of these results also are consistent with an inertia augmented portfolio theory based explanation. This makes the experiment provided by the EMU of considerable interest. Using data on Finnish portfolio investments seems to be a reasonable choice since the changes implied by the EMU are expected to be stronger for small countries that joined the union than for the major ones. Below we will thus focus on how the Finnish investors changed their portfolio allocation decisions in response to the birth of the EMU.

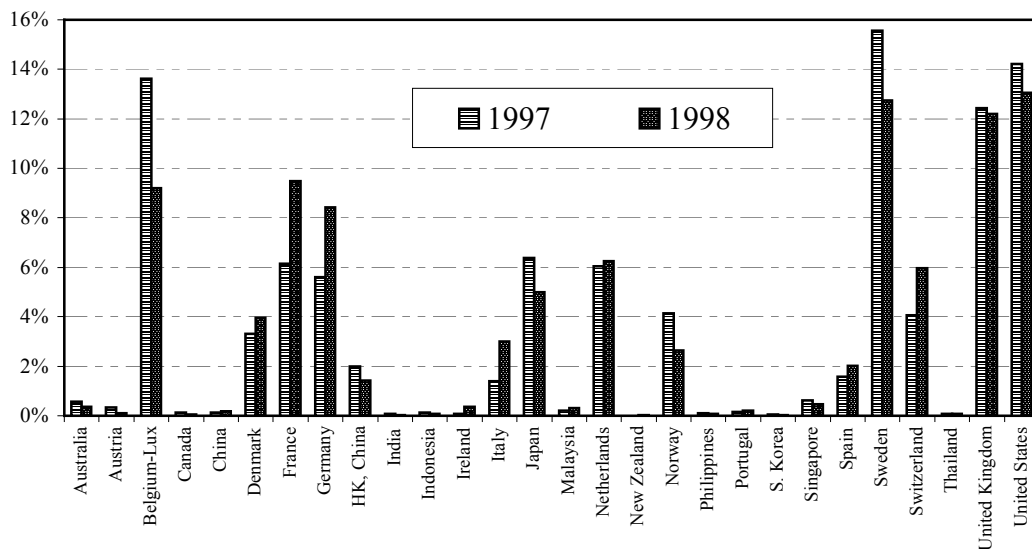
III. Data and Stylized Facts

Our data on outward international portfolio investment for Finnish residents (Finnish International Portfolio Investments, FIPI) is from the Bank of Finland. The data covers the stock positions as of 31 December 1997 and 31 December 1998. Since the Euro was introduced in the beginning of 1999 our data does not reflect the full change by the introduction of the monetary union. However, the most important step in actually creating the Union was when the exchange rates of the countries that joined the Union were unequivocally fixed in the beginning of May in 1998. A substantial

part of the adjustments to the Union were made in the period between this event and the 1998 year-end. It thus seems safe to assume that investors took the EMU into account throughout most of 1998, and that firms in the area started to plan for the new environment even before that. A direct advantage of not including the first year of the EMU is that any change that will be detected will not simply reflect the drop in tangible transaction costs at the introduction of the common currency.

The data covers Finnish stock positions of equities in 29 countries.⁶ It includes 15 European (13 EU members⁷, Norway and Switzerland), 2 North American (United States and Canada), 10 Asian (China, Hong Kong, India, Indonesia, Japan, Malaysia, Philippines, South Korea, Singapore, and Thailand), and finally Australia and New Zealand. We use bilateral trade (BT) data from the Finnish customs authority and Market capitalization values (MC) from the World Bank publications. Figure 1 shows the relative holdings of the Finnish international portfolio investment.

Figure 1 The allocation of Finnish portfolio holdings in foreign equity at the end of the years 1997, and 1998.



⁶ We combine the data for Belgium and Luxembourg. This leaves us with 28 observations in our analysis.

⁷ FIPI survey does not show any investment in Greece.

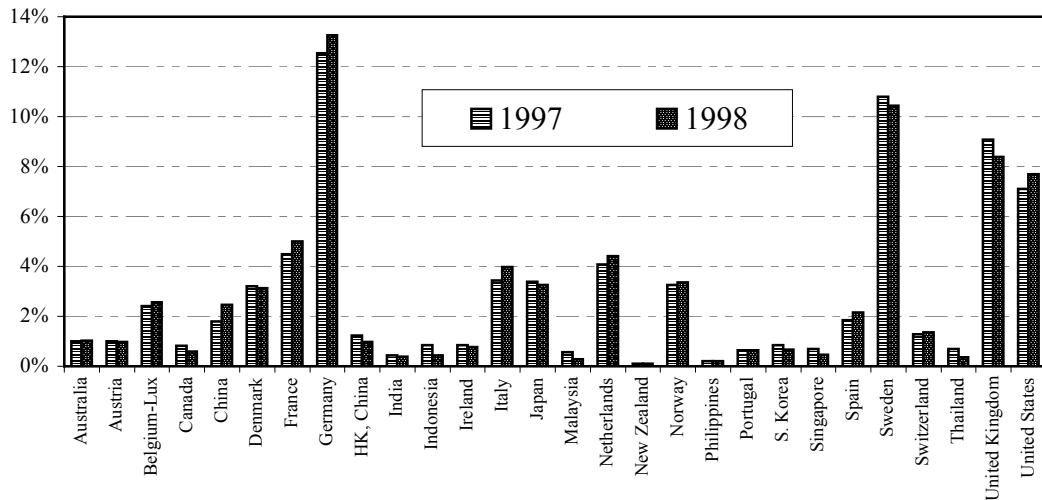
What clearly stands out is that the bulk of the investment holdings are in European countries. In 1998 investment levels were increasing in European markets and most notably in the Euro area, while decreasing in the remaining world regions. The five largest Euro countries, Germany, France, Italy, the Netherlands, and Spain experienced a surge in investment of 158.5%, 165.6%, 270.2%, and 78.6% that propelled the Euro countries to a 39% proportion of the FIPI, an increase of more than 4 %-units from their weight at the end of 1997. This should be contrasted with a decrease of 2.4%, in relative terms, in the allocation of investments in the EU countries that did not participate in the EMU, and a decrease of 1.2% and 2.3% in the allocation of investments into North America and Asia.⁸

The other important set of data used in this study is on trade flows. Finland's most important trading partners are naturally European countries. In 1998 Europe's share of total Finnish foreign trade was 60.4%, an increase of 1.5%, in percentage units, relative to the previous year. The largest increase was with the Euro countries, 2.5% in percentage units, relative to the 1997 period, resulting in a share of 33.7%. As in the case of FIPI, the largest drop of 1.2%, in absolute terms, was with EU countries that did not join the EMU, reducing their relative share to 22%. For the five largest EMU countries 1998 brought an increase in bilateral trade of 17.8%. Figure 2 shows the relative importance of our sample countries as Finnish trading partners in 1997, and 1998.

Finally looking at changes in market capitalization during the 1997-1998 period, except for Italy, all the other major Euro countries lagged behind the United States in market capitalization development and growth, while smaller countries like Ireland and Portugal outpaced the United States. The less developed markets like Italy, Spain, and Portugal outperformed the more developed markets like Germany and France.

⁸ Asia, for the purpose of this exposition, also includes Australia and New Zealand.

Figure 2 The allocation of Finnish trade with foreign countries in 1997, and 1998.



IV. Results

To find out what the crude data tells us about the reallocation of Finnish portfolio holdings in 1998, the year when the final decision on launching the EMU was taken, we ran a regression of the change in the relative share of Finnish holdings for all countries in our data on an EMU dummy. A dummy value of one stands for a country that joined the union and a zero for those that did not. As a robustness check we ran the regression on a corresponding EU-dummy as well as on a Europe dummy. To control for the fact that more rapidly increasing share prices in any country automatically add to the weight of the holdings in that country the change in the market capitalization is also included as a controlling variable. Specifically, we use the relative change in the share of the market capitalization measured as the change in the foreign country's relative share in the world market capitalization at the end of 1998 from the end of 1997. As shown in Aba Al-Khail (1999), on Finnish data at the end of 1997, market capitalization of the country that receives the investment is an important determinant of the observed country allocation.

Table 1 The impact of the EMU on Finnish international portfolio investments.

This table reports parameter coefficients, standard errors (hetroscedasticity-consistent, White 1980), in parentheses, and adjusted R^2 for the regression in which the dependent variable is the relative change in the allocation of Finnish international portfolio investments (equity) between foreign countries, measured as the relative change in the foreign country's share of Finnish international portfolio investments from the end of 1997 to the end of 1998. The independent variables are a constant, the change in the share of the global market capitalization of this foreign country (ΔMC), measured as the difference of the foreign country's relative share in the world market capitalization from the end of 1997 to the end of 1998, and a foreign country dummy, column (1): European Monetary Union (EMU) membership dummy (1 if the foreign country belong to the EMU, 0 otherwise), column (2): European Union (EU) membership dummy (1 if the foreign country belong to the EU, 0 otherwise), and column (3): European dummy (1 if the foreign country is situated in Europe, 0 otherwise).

	(1)	(2)	(3)
Constant	-0.003 (0.002)	-0.002 (0.002)	-0.003 (0.001)
ΔMC	0.044 (0.115)	0.046 (0.125)	0.044 (0.119)
EMU dummy	0.007 (0.007)		
EU dummy		0.003 (0.006)	
Europe dummy			0.004 (0.005)
Adjusted R^2	-0.015	-0.063	-0.057

Our first results do not allow us to reject the null hypothesis that the EMU had no impact on the distribution of Finnish portfolio holdings in foreign countries. Looking at the sign of the coefficient for the dummy variable the results seem to be somewhat more in line with our asymmetric information related explanation than with our portfolio theory based explanation. Also note, though, that our results do not allow us to reject the claim that it is a Europe-wide rather than an EMU related change that is being observed.

The results of the simple regression reported in Table 1 are, however, biased against our information-based hypothesis. The reason is that the use of the dummy variable assumes that the impact of the EMU will be exactly the same for all countries that joined the monetary union. If information were the driving force we should instead observe an impact, which is strongly related to the EMU's impact on trade flows. We would not expect the EMU impact on Finnish foreign trade flows to be the same for all the EMU-countries.⁹

In order to investigate this link a little closer we use data on bilateral trade flows between Finland and the countries included in our sample. In congruence with the regressions reported in Table 1 we regressed the relative share of Finnish foreign trade for all countries in our sample on the EMU dummy. Again regressions on an EU-dummy as well as on a Europe-dummy are included as a robustness check. The results are reported in Table 2. In order to control for any mechanical consequences stemming from the fact that more rapidly growing economies tend to increase their share of total trade, relative growth in the country's GNP was also included in the regression.

The results clearly support the prediction that Finnish foreign trade was reallocated towards EMU countries. It is also clear that this is not an EU encompassing impact. On the contrary a detailed look at the data indicates that there was as substantial reallocation within the EU towards EMU-countries.

The final step in our argument is to find out whether the change in the allocation of Finnish portfolio holdings traced the change in trade flows as the information related explanation would predict. As a first step in this direction we regressed the change in the country allocation of Finnish portfolio investments on the corresponding change in Finnish foreign trade flows and our controlling variable,

$$\Delta \text{FIPI}_m = \alpha + \beta_1 \Delta \text{BT}_m + \beta_2 \Delta \text{MC}_m + \varepsilon_m \quad (1)$$

where, α , β_1 and β_2 are constants, (β_1 and $\beta_2 > 0$), and

⁹ The impact on trade flows will depend on the price elasticities of cross-border demand in addition to the size of the reduction in transaction costs.

Table 2 The impact of the EMU on Finnish international trade.

This table reports parameter coefficients, standard errors (heteroscedasticity-consistent, White 1980), in parentheses, and adjusted R^2 for the regression in which the dependent variable is the change of the relative share of Finnish international trade for each foreign country in our sample, measured as the change in the foreign country's relative share of total Finnish international trade from 1997 to 1998. The independent variables are the relative change of the gross national product of the foreign country (Δ GNP), measured as the difference in the foreign country's relative share of the world GNP from 1997 to 1998, and a foreign country dummy, column (1): European Monetary Union (EMU) membership dummy (1 if the foreign country belong to the EMU, 0 otherwise), column (2): European Union (EU) membership dummy (1 if the foreign country belong to the EU, 0 otherwise), and column (3): European dummy (1 if the foreign country is situated in Europe, 0 otherwise).

	(1)	(2)	(3)
Constant	0.0010 (0.0007)	-0.00049 (0.00072)	-0.007 0.0008)
Δ GNP	0.1081 (0.1473)	0.1014 (0.1378)	0.0996 (0.1452)
EMU dummy	0.0041 *** (0.0011)		
EU dummy		0.0018 (0.0014)	
Europe dummy			0.0020 (0.0013)
Adjusted R^2	0.262	0.015	0.033

*** Significant at the 1 percent level.

Δ FIPI_m = the relative change in the allocation of Finnish international portfolio investments into foreign equities, measured as the foreign country's [m] relative share of Finnish international portfolio investments at the end of 1998 from the end of 1997.

Δ BT_m = the relative change in the allocation of Finnish trade with [m], measured as the change in the foreign country relative share of the total Finnish trade in 1998 from 1997.

Δ MC_m = the relative change in the market capitalization of the foreign country [m], measured as the change in the foreign country's [m] relative share

in the world market capitalization at the end of 1998 from the end of 1997.

ε_m = Error term.

The coefficient of the ΔBT parameter is a measure of the sensitivity of the Finnish investors country allocation to the change in trade related dependence with that country. Our results in panel A confirm the presence of a significant reallocation of FIPI towards the trading partners that increased in attractiveness in the year that led to the start of the EMU (Table 3).

In order to explicitly test for an EMU impact we then augmented equation (1) with a multiplicative dummy:

$$\Delta FIPI_m = \alpha^* + \beta_1^* \Delta MC_m + \beta_2^* \Delta BT_m + \beta_3^* \Delta BT_m I_m (EMU) + \varepsilon_m \quad (2)$$

where α^* , β_i^* ($i=1,2,3$) are constants and I_m an indicator function taking the value 1 if country m joined the EMU, 0 otherwise. The results of this regression are reported in Table 3, Panel B. Interestingly the multiplicative dummy absorbs all the explanatory power of the change in bilateral trade variable as such, and is highly statistically significant. The last set of results, Panel C, in Table 3 further confirms that the original trade variable obtained its explanatory power from changes related to the EMU, and not to a more general shift towards European countries.

V. Summary and Concluding Comments

This paper looks at the impact of the EMU on the allocation of foreign portfolio investments. The paper argues that the launch of the EMU allows us to discriminate between different theories for what drives international portfolio investments. The reason is that the EMU is expected to simultaneously increase the correlation in cross border stock returns and reduce information asymmetries between included countries. Portfolio theory thus implies that expected increase in correlation between stock returns should make stock market investments in the rest of the countries in the EMU less attractive. Information based theories, on the other hand, imply that reduced

Table 3 The reallocation of the Finish international portfolio investments and the change in international trade flows.

This table reports coefficient estimates, standard errors (heteroscedasticity-consistent see White 1980), in parentheses, and adjusted R^2 for the regression in which the dependent variable is the relative change in the country allocation of Finnish international portfolio investments. The relative change is measured as the relative change in the foreign country's share at the end of 1998 from the end of 1997. The independent variables are in column (1): the change in the market capitalization of the foreign country (ΔMC), and the change in the allocation of Finnish international trade with each of the foreign countries (ΔBT). ΔMC is measured as the difference of the foreign country's share of the world market portfolio from the end of 1997 to the end of 1998. ΔBT is measured as the relative change in the foreign country's share of total Finnish international trade from 1997 to 1998. In columns (2) & (3) we add $\Delta BTEMU$, the product $\Delta BT_m \times I_m(EMU)$, where $I_m(EMU)$ is an indicator function taking the value 1 if country m is part of the EMU, 0 otherwise.

	(1)	(2)	(3)
Constant	-0.001 (0.002)	-0.004 * (0.003)	-0.004 * (0.002)
ΔMC	-0.047 (0.182)	0.041 (0.102)	0.039 (0.101)
ΔBT	1.536 ** (0.752)	-0.018 (0.641)	
$\Delta BT \times I_m(EMU)$		3.736 *** (1.114)	3.715 *** (0.880)
Adjusted R^2	0.060	0.176	0.209

***, **, * Significant at the 1, 5 and 10 percent level.

information asymmetries should make portfolio investments into those countries more rather than less attractive.

Our empirical analysis focuses on Finnish foreign portfolio holdings. Finland, being a small country with relatively high foreign exchange related transaction costs in the pre EMU era, should be well suited for this study. Any impact that the EMU will have should be easier to identify for Finland than for a larger country where foreign exchange related transaction costs are of less importance.

Our results reveal that if anything the EMU seems to have increased the attractiveness of investing in countries that joined the monetary union. A closer analysis furthermore, revealed that the impact on the allocation of portfolio investments was significantly related to the impact on trade flows. Over all our results can thus be taken to lend support for the hypothesis that considerations related to the flow of information between countries tend to have substantially more power than hedging motives in explaining the distribution of foreign portfolio investments at the introduction of the EMU.

References

- Aba Al-Khail, M. (1999): The Determinants of International Portfolio (Equity) Investment of Finnish Based Investors. Working paper 410, Swedish School of Economics and Business Administration.
- Adler, M. and B. Dumas (1983): International Portfolio Choice and Corporation Finance: A Synthesis, *Journal of Finance*, Vol. 38, No. 3, June, 925-985.
- Baxter, M. and U. J. Jermann (1997): The International Diversification Puzzle is Worse Than You Think, *American Economic Review*, Vol. 87, No. 1, 170-180.
- Chen, N. and F. Zhang (1997): Correlations, Trades and Stock Returns of the Pacific-Basin Markets, *Pacific-Basin Finance Journal*, Vol. 5, No. 5, 559-577.
- Cooper, I. and E. Kaplanis (1994): What Explains the Home Bias in Portfolio Investment?, *Review of Financial Studies*, Vol. 7, spring, 45-60.
- Coval, J. D., and T. J. Moskowitz (2001): The Geography of Investment: Informed Trading and Asset Prices, *Journal of Political Economy*, Vol. 109, No. 4, 811-841.
- Coval, J. D., and T. J. Moskowitz (1999): Home bias at home: Local equity preference in domestic portfolios, *Journal of Finance*, Vol. 54, No. 6, 2045-2073.
- French, K. and J. Poterba (1991): Investor Diversification and International Equity Markets, *American Economic Review*, Vol. 81, December, 222-226.
- Gehrig, T. (1993): An information based explanation of the domestic bias in international equity investment, *Scandinavian Journal of Economics*, 95, 97-109.
- Grinblatt, M., and M. Keloharju (2001): How distance, language, and culture influence stockholdings and trades, *Journal of Finance*, Vol. 56, No. 3, 1053-1073.
- Gros, D. and N. Thygesen (1998): European monetary integration, 2nd ed., Longman, UK.
- Grubel, H.G. (1968): Internationally Diversified Portfolios, *American Economic Review*, Vol. 58, December, 1299-1314.
- Hau, H. (2001): Location Matters: An Examination of Trading Profits, *Journal of Finance*, Vol. 56, No. 5, 1959-1983.
- Kang, Jun-Koo, and R. M. Stulz (1997), Why is there a home bias? An analysis of foreign portfolio equity in Japan, *Journal of Financial Economics*, Vol. 46, 3-28.
- Kocherlakota, N. R. (1998): The Effects of Moral Hazard on Asset Prices when Financial Markets are Complete, *Journal of Monetary Economics*, Vol. 41, 39-56.

- Lewis, K. K. (1999): Trying to Explain Home Bias in Equities and Consumption, *Journal of Economic Literature*, Vol. 37, No. 2(June), 571-608.
- Levy, H. and M. Sarnat (1970): International Diversification of Investment Portfolios, *American Economic Review*, Vol. 60, 668-675.
- Markowitz, H. (1952): Portfolio Selection, *Journal of Finance*, Vol. 7, 1, March, 77-91.
- Obstfeldt, M. and K. Rogoff (2000): The Six Major Puzzles in International Macroeconomics: Is There a Common Cause?, NBER working paper 7777.
- Portes, R. and H. Rey (1999): The Determinants of Cross-Border Equity Flows, NBER working paper 7336.
- Rose, A. K. (1999): One Money, One Market: Estimating the Effect of Common Currencies on Trade, NBER working paper 7432.
- Sercu, P. (1980): A Generalization of the International Asset Pricing Model, *Revue de l'Association Francaise de Finance*, Vol. 1, June, 91-135.
- Solnik, B. (1993): The Performance of International Asset Pricing Strategies Using Conditioning Information, *Journal of Empirical Finance*, Vol. 1, No. 1, June, 33-55.
- Tesar, L. L. and I. M. Werner (1995): Home bias and high turnover, *Journal of International Money and Finance*, Vol. 14, No. 4, 467-492.
- White, H. (1980): A heteroscedasticity-consistent covariance matrix estimator and a direct test for heteroscedasticity, *Econometrica*, Vol. 48, No. 4, 817-838.