

Home bias and mutual fund performance

-Evidence from the Swedish market

Abstract

We examine whether or not home bias exists among Swedish mutual fund managers. We find a more pronounced home bias than earlier studies, with Swedish managers of Europe funds allocating on average 5.97 percent of assets under management to Swedish securities versus 4.00 percent for foreign managers and 3.34 percent for the MSCI Europe Index. Following this result we attempt to identify the reasons behind this phenomenon. Is it caused by an information advantage for Swedish managers on their home court or is it the result of lower overall diversification? We also examine the rationality of this bias by comparing the performance, when investing in Swedish securities, of the two categories of managers. While we do not obtain any conclusive evidence our results suggest home bias is caused by a perceived information advantage. This advantage is however indeed perceived rather than real.

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1. Introduction

Investment in mutual funds is an important feature of the global economy. Not only do they allow people with smaller accounts easy access to the global capital markets, they also play a key role in supplying the capital needed for firms to start, grow and prosper. Swedes have in general been particularly inclined to allocate their savings to mutual funds ever since tax subsidies were implemented in 1978 to increase the propensity to save (Nilsson 2004). Mutual fund holdings, in Sweden alone, amounted to SEK 1 161 billion at the turn of year 2005/2006 (SCB 2005a). The vast importance of mutual funds is also evident from the amount of research devoted to it. From the pioneering studies in the 1960's, concentrating on pure performance evaluation, research has evolved more and more towards trying to identify factors affecting the investment decisions and performance of mutual fund managers.

The importance of mutual funds is also likely to increase in the near future. The dominant way of organizing pension systems in the world is for the elderly people to be supported through contributions from the workforce. Current demographic trends with declining fertility as well as mortality rates (UN 2004) will result in fewer and fewer workers having to support more and more elderly people. According to Ekvall (2005) the pension systems will have to change, or the result will be a "pension time bomb", with governments around the world being unable to honour the commitments to their citizens. This problem is recognized by an increasing number of countries. As a result of these problems a major change was made to the Swedish pension system 2000. A portion of the contributions to the pension system is now set aside in an individual account and each member of the workforce is given the power to decide how this money is invested. The result is an increase in the investment flows with Swedish net investments in mutual funds reaching SEK 25.7 billion during Q4 2005 alone (SCB 2005a).

With the importance of mutual funds continuously increasing the understanding of the factors determining investment behaviour and fund performance are also becoming ever more relevant. We would like to contribute to this understanding by examining the existence

and rationality of home bias among Swedish mutual funds. The presence of home bias could suggest a perceived information advantage for Swedish managers on their home turf. If such a bias is also rational, i.e. Swedish managers actually do possess superior information about domestic firms, the implications would be vast. It would suggest foreign managers would be better off piggy-backing on the security selections of Swedish managers and hence saving the cost of analyzing Swedish securities. Such piggy-backing would be possible since the holdings of Swedish mutual funds are made public by the government agency Finansinspektionen on a quarterly basis. Considering the huge amounts invested in mutual funds the result could well be capital flows in the billions!

The general structure of our thesis is as follows: Section two gives a brief background of our topic. In section three we present the purpose and a general outline of our study. The methods employed and key findings of the four papers our study is based upon are found in section four. The chosen data and some descriptive statistics are presented in section five. A description of the methods employed is found in section six. In section seven we present the empirical findings and our analysis thereof. Finally, sections eight and nine contain our conclusions and suggestions for further research.

2. Background

In the 1960's pioneering studies of mutual fund performance were made in three famous papers by Sharpe (1966), Treynor and Mazuy (1966), and Jensen (1968). Since then research has evolved by decomposing and evaluating the performance of funds from various perspectives such as asset allocation, market timing, and security selection. Researchers have also tried to identify factors affecting the investment decisions of fund managers.

Sharpe's (1966) study of mutual fund performance considered the ability of fund managers to select high performance stocks and thus outperform the market. Sharpe concluded that the risk evaluation and stock selection in practice contributed to better performance, and in addition that the expenses associated with this process could be motivated. In his article

Sharpe also introduced an often cited measure of risk adjusted return, the Sharpe index, relating return to standard deviation.

Treynor and Mazuy (1966) further developed the research about mutual fund performance by studying the ability to time the market by tilting investment towards high-beta securities in bull markets and low-beta securities in bear markets. In their study they concluded that none of the 57 mutual funds examined displayed a significant ability to time the market.

Jensen's (1968) analysis, a performance evaluation of 115 mutual funds, indicated that attempts to outperform relevant indices failed and funds did not perform better than pure chance. According to Jensen's paper the fund managers' ability to create significant value has to be related to resources spent and fees charged. Far more important than the actual findings of this paper was, however, the introduction of the alpha measure which has become the most widely used measure of risk adjusted return in mutual fund performance evaluation. The alpha measure is defined as the excess return over that predicted by the CAPM (Sharpe 1964) or, put in another way, the intercept in the CAPM-regression. A fund with a positive alpha is able to outperform the market portfolio in terms of risk-adjusted return.

In recent research a number of firm characteristics are reported to influence which securities investors choose to include in their portfolios. Investors are, according to Dahlqvist and Robertsson (2001), less likely to invest in smaller foreign companies. The authors argue that the main reason for this is that the smaller companies are not recognized by the foreign investors, e.g. due to less media coverage. Besides firm size, Dahlqvist and Robertsson (2001) conclude that market liquidity, large balance sheet cash positions, presence in international markets and a widespread ownership are also important in attracting foreign investors. Grinblatt and Keloharju (2000) showed that investors are more attracted to invest in companies where the annual reports are published in, and the CEO speaks, their mother tongue. French and Poterba (1991) and Coval and Moskowitz (1999), among others, found that investors are more likely to invest in geographically proximate companies.

3. Purpose and general outline

As stated above the purpose of this thesis is to investigate the existence of home bias among Swedish fund managers, the explanations for this bias and whether or not it is rational in terms of risk adjusted returns. To the best of our knowledge no previous study of this phenomenon among Swedish fund managers exists. The Swedish mutual fund industry is generally considered to be well developed. Hence it seems fair to assume that Swedish fund managers, although smaller and in possession of fewer resources than their global competitors, are rather sophisticated. Prior studies have also shown that the Swedish market offers an opportunity to generate excess returns on a risk adjusted basis (Engström 2004).

We start our analysis by comparing the weight of Swedish securities in the portfolios of Swedish and foreign managers to investigate whether the home bias phenomenon is present among Swedish fund managers. Both the overall average during the sample period and the average at each observation point in time are considered. Any difference in the weight of Swedish securities could be interpreted either as a sign of a perceived information advantage or as an overall difference in the amount of diversification between the two groups of managers. The literature on home bias generally attributes the difference to information advantages. The logic behind this reasoning is that geographic proximity leads to an increased opportunity for fund managers to build personal relationships with firm executives and market participants such as brokers and market makers. Through such relationships they might be able to obtain private information about the firms' state of affairs (Coval and Moskowitz 2001, Shukla and van Ingwegen 1995).

We would however like to suggest an alternative explanation. In most studies, like ours, the sample of funds is limited to funds available to domestic investors. A majority of the foreign funds available to domestic investors are managed by multinational giants. Domestic fund managers hence tend to be smaller both in terms of assets under management and the total number of funds offered to investors. Although transaction and administration costs increase with fund size, the cost of evaluating the investment possibilities of a country or a certain security can be assumed to be fairly independent thereof. Accordingly it seems fair to conclude that Swedish managers face more limited resources available for such analysis. One

way to cut costs might be to concentrate on a lower number of countries and/or securities. A smaller manager might for example concentrate on the 15 largest European countries when deciding how to invest the assets under management rather than all European countries. If fewer countries are covered, the weight of each country included is by logic also larger. This would save resources in several ways. First of all fewer countries to analyze obviously means fewer resources are needed. In addition the marginal profit of a dollar spent on analyzing a small country is likely to be lower since the number of companies offering profitable investment opportunities in a smaller economy by logic is lower. Many of the smaller countries in Eastern and Central Europe are also rather young democracies with less developed economies and institutions. Hence a more thorough analysis is mandated to account for increased political as well as business risks. We are not aware of any previous studies examining differences in the diversification, as measured by the number of securities held or the weight of individual securities, of domestic versus foreign fund managers and do hence believe this could be a valuable contribution of our study.

The existence of home bias might consequently be the result of lower overall diversification across countries. If Swedish managers hold a lower number of securities in their Swedish portfolio it could be interpreted as an indication that lower overall diversification, rather than a perceived information advantage explains the existence of home bias. Such an investment pattern could however also be a result of the Swedish managers' ability to obtain private information about not all, but just a few Swedish companies. Obviously the rational thing for them to do in such a situation would be to concentrate their investments to those few companies. One must keep in mind that it is illegal for company executives to share market sensitive information with friends and relatives before it is publicly disclosed. In one case recently covered by media a Swedish executive and his friend were found guilty of insider law violation after the executive sent a coded message to his friend warning him of bad news about his company about to be released (Stern 2006). Executives are still likely to disclose private information, if not intentionally then by mistake. The availability of such information to a fund manager might however be limited to a smaller number of domestic companies than previously thought. Consequently one cannot draw conclusions about the explanations for the existence of home bias based solely on the number of securities in the domestic

portfolio. For this reason we also studied the weight of the largest holding in the portfolios. If a manager bets heavily on one security it is easy to come to the conclusion that he is, or at least believes he is, in possession of strong and reliable indications of positive future performance. Accordingly we would interpret the finding of a lower average number of securities held by Swedish managers as support for the hypothesis of lower overall diversification and heavier bets on the largest holding as support for the hypothesis of perceived information advantages as the explanation for the overweighing of domestic securities.

After studying the existence of home bias among Swedish managers and attempting to identify the explanations for our observations we turn to a performance evaluation of the funds. Is the observed overweighing of Swedish securities by Swedish managers rational, i.e. do Swedish managers generate excess risk adjusted returns when investing in Swedish securities? To answer this question we start by employing the standard Jensen's alpha measure and comparing the results for the two groups. Previous studies have, however, shown a negative bias to the alpha measure for successful market timers. In order to circumvent this problem and expand our understanding of the managers' performance we also study the market timing abilities of the managers.

4. Theoretical overview

The more recent evolution in the research about mutual fund performance has been the decomposition and attribution of performance across various dimensions. One such dimension is the impact of a fund's geographic location on its investment decisions and performance. In brief previous research can be said to have come to two main conclusions: Investors tend to overweigh investments in geographically proximate securities. This deviation from the more diversified market portfolio predicted by prevailing portfolio theories also appears rational, since these securities outperform other securities in their portfolios. Our study is based on the theories and methods developed and employed in the articles below.

4.1 French and Poterba (1991)

The theory of home bias was developed in a paper by French and Poterba (1991). By studying portfolio managers' investments over time, the authors concluded that investors tend to favour domestic securities over foreign. These findings indicate that investors have other preferences than pure rational risk and return and thus the diversification in their portfolios remains somewhat lower than predicted by the prevailing portfolio theories.

The proven lack of diversification seems to depend on investor preferences rather than the factors examined. These factors include institutional constraints, e.g. ownership barriers and taxes, transactions costs, or explicit limitations of portfolios, e.g. mutual fund regulations limiting the size of foreign holdings. French and Poterba argue that institutional constraints have no more than an insignificant effect on the securities selection process as barriers to foreign ownership is negligible. Moreover, taxes in the countries examined seem to be fairly similar or, when that is not the case, there seems to be ways for excess taxes to be effectively avoided. Concerning transaction costs these are considered to be fairly equal and hence of little importance for the choice of securities. Furthermore they seem to be lowered over time due to technological development and increased market integration. French and Poterba's tests revealed that investors such as those in the UK or Japan actually tended not to minimize their transaction costs as they overweighed investment on their domestic markets, where transaction costs, due to lower liquidity, were higher than on the NYSE. Finally, regarding explicit limitations the authors argue that most mutual funds are not even close to their stated limitations concerning securities holdings. Hence, this reason cannot explain the tendency by investors to hold excess amounts of domestic securities.

French and Poterba argue that behavioural explanations may account for most of the securities selections process. Investors may according to the paper find it hard to evaluate the performance of individual securities and furthermore they may have difficulties basing their risk considerations solely on rational measures such as standard deviation.

4.2 Coval and Moskowitz (2001)

The existence of informed investors is a key concept in virtually all asset pricing and market efficiency theories. In their 2001 paper Coval and Moskowitz compare the performance of fund managers' local investments to more distant ones, examining the suitability of geographical proximity as a proxy for information advantages. Local investments are defined as firms with their headquarters situated within 100 kilometres of the fund managers'. They use an impressively large sample obtained from the Investment Company Common Stock Holdings and Transactions database, containing the holdings of virtually all mutual funds in the US during the years 1974 to 1994.

The average return, in excess of the three month T-bill rate, of a fund's local holdings is found to be 8.71 percent p.a. Local holdings hence outperform the rest of the fund's portfolio by on average 2.67 percent per year. The risk adjusted return of local holdings, as measured by Jensen's alpha, is also higher for local holdings, 1.84 percent p.a., than for distant, 0.66 percent p.a. Worth noting is that the difference, using raw as well as risk adjusted return measures, is larger in the first half of the sample period, 5.50 percent p.a. and 2.32 percent p.a. respectively, than in the second half, 0.16 percent p.a. and 0.04 percent p.a.. This is consistent with the discussion in Shukla and van Ingwegen (1995) concerning the impact of technological development on the dissemination of information. Another finding is that local stocks not selected by local fund managers on average underperform passive benchmarks, showing a Jensen's alpha of -1.17 percent p.a. The authors attribute the apparent information advantage of local managers to the ability to visit the firm's operations, talk to suppliers and employees as well as the possibility of obtaining private information through personal relations with company executives.

The authors find a modest bias towards local investments, with the average fund investing seven percent of its assets locally despite an average market weight of local securities of 6.16 percent. Following the results discussed above this is a bit puzzling. It seems the rational thing for managers to do would be to focus solely on local investments to exploit the information advantage. The explanation given in the paper is that mutual fund investors tend

to be biased towards geographically proximate funds as well as concentrated in a small number of funds and hence managers cater to their need for diversification.

4.3 Shukla and van Ingwegen (1995)

In their 1995 paper Shukla & van Ingwegen compares the performance of UK and US mutual funds investing in the US market. They start by concluding that investors today have access to investments in most foreign markets, regardless of geographic distance, because of modern facilities and information technology. The most common rationale given for the home-bias of fund managers, expressed by for example French and Poterba (1991): delay of vital market information, is concluded not to be an issue using modern technology. However the authors still found that US fund managers outperformed UK fund managers as measured by average return as well as Sharpe's index and Jensen's alpha. Both US and UK funds were also outperformed by the S&P 500 index across all three measures. The mean average monthly return for US funds was 1.24 percent versus 1.06 percent for UK funds and a mean of 1.28 percent per month for S&P 500. The average Sharpe's index was 0.129 for US funds, 0.084 for UK funds and 0.149 for S&P 500. The difference in mean of US and UK funds was statistically significant at the five percent level. The average Jensen's alpha for US funds was -0.040 percent and for UK funds it amounted to -0.218 percent. This difference was also significant at the five percent level. Introducing timing ability into their regression the difference in the ability to generate alpha is no longer significant. The average timing ability of US funds is however, according to the authors, significantly higher than that of their UK competitors.

One of the explanations for the underperformance of UK funds provided by Shukla and van Ingwegen is that the UK fund managers are "further from the gossip", that is they do not have access to the informal exchange of information US managers might get through relations with company directors, brokers, market makers and investment bankers. For example US investment bankers underwriting oversubscribed initial public offerings are more likely to allocate shares to US funds since they are more important clients. US funds are, on average, both larger and more inclined to invest in US securities. The average US

fund size in their sample is about ten times the size of the average UK fund. The authors also suggest time-zone differences as another influential factor impairing the US performance of UK managers.

4.4 Engström (2003)

In his article Engström argues that the cost of obtaining information increases with the size of the investment universe and the geographic distance to the markets. Engström analyses the performance, from 1993 to 1998 of 299 European-based mutual funds investing in Western Europe and Asia. All funds were advertised and sold in Sweden, but were managed by foreign as well as Swedish fund managers.

The comparison employs the traditional Jensen's alpha measure, as well as a model capturing potential time-variations in the risk and expected returns. This is done by introducing the world dividend yield as an information variable in an attempt to capture the general level of the valuation of stocks.

In the conditional model, using a combination of five benchmark indices, the average (median) alpha of the Asia funds is -8.87 (-7.66). Using a single-index model the average alpha is -0.63 (-1.50). For Europe funds the five-index model gives an alpha of -1.57 (-1.53) and the single index model -1.32 (-1.34).

The difference is decomposed into timing and stock-picking. The timing, as well as the stock-picking abilities are higher for Europe funds than for Asia funds. The underperformance of Europe funds can be explained by the management fee, but not that of Asia funds. This is interpreted as support of the hypothesis that managers perform better on their home turf. Engström also found the underperformance to increase with the size of the investment universe, i.e. that region funds perform worse than country-specific funds.

5. Data

Our study is based on a sample of mutual equity funds available to Swedish investors, with Europe as their investment universe. Data for the years 2000-2005 has been collected from leading fund managers, Swedish as well as foreign. A number of fund managers agreed to participate in our study on the condition that their identity may not be revealed. The funds' holdings have been collected on a semi-annual basis from annual- and semi-annual reports in most cases. In some cases where the reports were not available data was contributed by the fund managers' information departments. One possible problem with using publicly available data is commonly referred to as "window dressing". There is a risk managers will alter their portfolios as the next reporting date approaches, selling securities that have underperformed and buying securities that have outperformed. There is no apparent way to circumvent this problem other than being aware of it when interpreting the results.

There are a number of reasons why we chose to focus on Europe funds. Firstly, global funds are likely to contain a low number of Swedish stocks. Using such funds would hence mean running the risk of our results being heavily influenced by random events for one or a few companies. Europe can be considered a suitable area for a study like ours, with developed as well as less developed countries and no apparent bias towards a single country or industry. The European capital markets, especially within the EU, are also highly developed with virtually no barriers, formal or non-formal, to foreign ownership. Funds investing on the North American market are likely to be heavily biased towards the US and Canada, both of which have well developed and rather homogenous economies. Funds investing on the Asian market are likely to be biased towards the Japanese market. South America- and Africa funds would have a heavy bias towards emerging markets. Studies on emerging markets may also be difficult to perform for data availability reasons and in addition a majority of these countries do not seem have any developed mutual fund markets to analyze.

5.1 Data selection

The time period examined in our study includes both a general economic up-turn and down-turn, lending robustness to the results. Using a longer period would of course have been desirable, but obtaining data further back proved difficult and manually extracting data from annual- and semi-annual reports is rather arduous.

A majority of assets invested in mutual funds is allocated to equity funds. For example at the turn of year 2005, 59 percent of Swedish mutual fund holdings were invested in equity funds (SCB 2005a). Recognizing this fact we have concentrated on equity funds. In order to choose the most relevant funds and to avoid our own bias towards certain fund managers, we have followed the mutual fund ratings by Morningstar AB, the Swedish subsidiary of a US-based mutual funds rating company, Morningstar Inc. We have limited our choice to funds with a Morningstar “star” rating of five (the highest rating) and four (the second highest rating) stars. We have selected the funds based on the current rating, i.e. we have not been considering previous fund ratings by Morningstar.

The selected Morningstar categories of funds are European mid caps, European mixed companies, European small caps, European growth companies and European value companies. We have excluded the three Morningstar categories with the label Euroland since those by logic do not have any holdings directly in Sweden. In addition, the European funds category excluding holdings in the UK is not selected. Since the European funds in the other categories invest heavily in the UK, we do not consider these funds to be comparable. The category European Index funds is not chosen since the management of such funds by definition does not involve active stock picking decisions. Using these selection criteria our sample amounted to 102 funds. Some of these funds were not actively investing in Swedish securities during our sample period and hence they have been excluded from our analysis. Others have been excluded due to data unavailability. The total number of funds meeting all criteria and for which we were able to obtain data was 54, 18 under Swedish management and 36 under foreign. A fund is considered to be under Swedish management if the parent company is of Swedish origin, regardless of where the fund is registered as a legal entity. This definition is chosen since many Swedish managers have opted for registration of some or all

of their funds in e.g. Luxemburg for tax reasons. In general obtaining data from Swedish managers proved to be easier than for foreign managers. Obtaining data from foreign managers was especially difficult for the last year in our sample.

Through this procedure we are able to obtain a sample of funds that is not only independent of our own biases towards certain fund managers, all managers included are also considered having comparable overall management skills. They are also, at least by Morningstar AB, considered to be among the best performers in the industry. This allows us to single out and compare the performance when investing in Swedish securities, without having to consider different overall asset management abilities. One problem with this approach is that our sample suffers from survivorship bias. The ideal would be to conduct the study on all funds existing during the sample period. Identifying and collecting data on all funds would however be difficult and extremely time consuming. By selecting only top-class funds we do on the other hand believe to have mitigated this problem, since the survival rate can be expected to be high.

Data on individual Swedish securities have been collected from Reuters Kobra 3000 Xtra on a monthly basis. All data are adjusted for dividends, stock splits etc (Calvert 2006).

5.2 Descriptive statistics

Some descriptive statistics for our data set is shown in Table 1 below. At first glance the average annual returns seem rather good, 8.1 percent for Swedish managers versus 11.7 percent for foreign managers. We were surprised to see the vast difference between the average return for Swedish and foreign managers, with foreign managers showing returns almost 50 percent higher than the average return of Swedish managers, especially since the average beta is very close to one for both groups, 0.95 for Swedish managers versus 0.92 for foreign managers. We attribute the difference in the raw returns to an effect of data availability. As shown in the table we were able to obtain 162 snapshots from the 18 Swedish funds in our sample, on average nine per fund. For the 36 foreign funds we obtained 258 snapshots, or on average just above seven per fund. The majority of the missing

observations for the foreign funds were in the beginning of our sample period, when the OMX SPI showed a negative return, creating a positive bias for foreign funds.

The minimum and maximum monthly returns might seem extreme. Considering the time at which they occurred, August and September 2002, and that the funds showing the most extreme returns had only two securities in their portfolio at the time, Ericsson B and Skandia, it is however easy to explain. The price of both shares saw extraordinary development, losing 75 and 63 percent respectively in August and gaining 78 and 45 percent respectively in September. Such are the effects of limited diversification.

Table 1. Descriptive statistics

	Total	Swedish	Foreign
Number of funds	54	18	36
Number of Snapshots	420	162	258
Number of monthly observations	2 402	978	1 424
Average return	10.5%	8.1%	11.7%
Standard deviation of returns	28.2%	29.9%	27.0%
Max. monthly return	+73.8%	+73.8%	+37.7%
Min. monthly return	-49.9%	-48.4%	-49.9%

The average returns and standard deviations of return are reported on a yearly basis. Also included are the maximum and minimum monthly returns.

6. Method

The existence of home bias is easily investigated by comparing the weights of Swedish securities in the investors' portfolios using the weights reported by managers and standard t-tests for the difference in means. The two measures of diversification in the Swedish portfolio are examined in much the same way.

After trying to identify the explanation for home bias among Swedish fund managers we turn to a comparison of the performance of the funds in our sample. Is the overweighing of domestic securities rational, i.e. have Swedish managers outperformed foreign managers on the Swedish market? Following the methodology used by Coval & Moskowitz (2001) and by Engström (2004) we begin by forming replicating portfolios of the Swedish securities held by each mutual fund during each period. The replicating portfolios are formed by taking semi-annual snap-shots of the funds' holdings. Only securities listed on OMX Stockholmsbörsen are included in the replicating portfolios. Swedish companies whose shares are listed on foreign exchanges and unlisted companies are not included in the replicating portfolios for data availability reasons.

The replicating portfolios are then used to obtain time-series of fund returns using monthly data on securities prices. At the beginning of each six month period the replicating portfolio is formed using the weights reported by the funds. At the end of each month the securities' weights in the portfolio is rebalanced by allowing the weight of each security to vary with the return. The weight $w_{i,t}$ of security S_i in period t is obtained from equation 1 below. The number of securities in the portfolio is denoted n and each security's return is denoted r_t .

$$w_{i,t} = \frac{w_{i,t-1} * (1 + r_{i,t-1})}{\sum_1^n w_{i,t-1} * (1 + r_{i,t-1})} \quad (1)$$

The process is then repeated for each month until the beginning of the next six-month period, when a new snapshot is taken. In a few cases extraordinary rebalancing of a portfolio

is necessary, e.g. when an asset ceases to exist in the market. Extraordinary rebalancing might also be necessary in order for the funds to abide to regulations imposing limitations to the weight of each security in the funds portfolio. Such regulatory trading was, however, never necessary in our study (Byström 2006). This procedure allows us to build a data set containing monthly returns for each replicating portfolio and hence obtain more accurate estimates of the risk- and return characteristics of each fund.

The funds' return series are then used to compute Jensen's alpha (Jensen 1968). Jensen's alpha is the return in excess of that predicted by the CAPM model (Sharpe 1964) for a certain portfolio. A fund's alpha, α_i , is obtained through equation 2 where R_{it} is the return of fund i in period t , R_{mt} is the market return, R_{ft} is the risk free interest rate and ε_{it} is the error term. We have used the Swedish 30 day t-bill rate as reference rate.

$$R_{it} - R_{ft} = \alpha_i + \beta_i (R_{mt} - R_{ft}) + \varepsilon_{it} \quad (2)$$

Jensen's alpha is considered to be the most accurate measure when the portfolio studied is one of many sub-portfolios, due to its ability to price non-systematic risk. Hence Jensen's alpha seems best suited for our study, comparing the Swedish sub-portfolios. Jensen's alpha is also the dominant measure in the literature.

Furthermore, we also examine the market timing abilities of the fund managers. A successful market timer increases portfolio beta in bull markets and reduces beta in bear markets. We use the quadratic regression measure of timing ability introduced by Treynor and Mazuy (1966), shown in equation 3 below. Again R_{it} is the return of fund i in period t , R_{mt} is the market return, R_{ft} is the risk free interest rate and ε_{it} is the error term.

$$(R_{it} - R_{ft}) = \alpha_i + \beta_i (R_{mt} - R_{ft}) + \tau_i (R_{mt} - R_{ft})^2 + \varepsilon_{it} \quad (3)$$

For a manager with positive market timing abilities the tau (τ) parameter will be positive.

One problem with these methods is how to compare the results for the two groups of managers. Since alpha and tau are estimated variables they are contaminated by measurement errors. Hence caution is mandated in the interpretation of any statistical test thereof. To add robustness to our study we have therefore also applied the trading strategy approach used by Engström (2003) to compare the performance of regional and country specific funds. We begin by forming a Swedish and a foreign portfolio. The Swedish (foreign) portfolio is created by investing an equal amount in each Swedish (foreign) fund for which we have been able to obtain data. The return of the Swedish (foreign) portfolio at time t , R_{St} (R_{Ft}) is obtained through equation 4 below, where n is the number of funds and R_{it} is the return of fund i at time t .

$$R_{St} = \frac{\sum_{i=1}^n R_{it}}{n} \quad (4)$$

A zero cost trading strategy is then implemented by buying the Swedish portfolio and financing this position by selling an equal amount of the foreign portfolio. The return of the trading strategy at time t , R_{TS} is obtained through equation 5 below, where R_{St} is the return of the Swedish portfolio and R_{Ft} is the return of the foreign portfolio.

$$R_{TS} = R_{St} - R_{Ft} \quad (5)$$

The return series for the trading strategy is then used to perform the alpha and timing regressions explained above. Through this method we are able to obtain a more robust comparison of the relative performance of Swedish and foreign fund managers. If the trading strategy shows negative results the foreign managers have outperformed the Swedish and vice versa.

Engström (2004) also computes the tactical performance of the funds, defined as the return of the fund in excess of their replicating portfolio during each period. This measure is used to evaluate the funds short term trading strategies. Though interesting, an evaluation of the tactical performance of the funds in our sample is not possible. Since we only examine the

Swedish part of the portfolios we do not have access to the actually realized return and the return in excess of the replicating portfolio's is unattainable. For the same reasons the impact of non-stock holdings, transaction costs and fees reported and analyzed by Wermers (2000) cannot be evaluated.

Using replicating portfolios provides risk and return measures that do not include the fees, expenses, trading costs or return of non-stock holdings, such as cash and money market positions held to cover the funds' liquidity needs. Using these portfolios is thus advantageous since it allows us to evaluate the managers' pure stock selection and market timing abilities. This as the benchmark index is not subject to such contamination. It will, however, lead to a slight over-estimation of the return earned by fund investors.

7. Empirical results and analysis

We generally conduct our analysis by comparing the mean values of each included measure for Swedish and foreign managers. We test for difference in the means of the two sub-samples using ordinary t-tests. For the performance measures we also apply the trading strategy methodology explained above.

7.1 Home bias

As previously stated, home bias is a well known phenomenon documented by for example French and Poterba (1991) and Coval and Moskowitz (2001). Home bias is also apparent in our mutual funds data. Swedish fund managers tend to allocate a larger portion of assets under management to Swedish securities, on average 5.97 percent versus an average of 4.00 percent for foreign managers and 3.34 percent for MSCI Europe. These differences are found to be significant at the one percent level. The home bias in our sample is thus more pronounced than that found by for example Coval and Moskowitz (2001) where 7 percent of the assets under management were held in local stocks while only 6.16 percent of the traded stocks were located on the local market.

In order to achieve a more complete picture, we also studied the time variation in the allocation to Swedish securities; the results are shown in figure 1 below. Swedish managers consistently allocate a larger proportion of assets to Swedish securities. The difference does however seem to decrease over time. This negative trend is significant at the one percent level. During the first two years of our analysis, i.e. December 2000 to December 2002, the difference is significant at the five percent level at each observation point in time. For later points in time the difference is not significant. The MSCI Europe index is a commonly used reference index for mutual funds focusing on European stocks. When comparing the securities holdings managed by Swedish funds with those in the MSCI Europe index large differences are found in terms of portfolio weights invested in Sweden. As seen in figure 1 below, Swedish managers' portfolio weight in Sweden is larger than that of the MSCI at each individual observation during our sample period. Each difference, except in December 2005, is significant at the five percent level. In addition the difference in overall average is significant at the five percent level. Foreign portfolio managers' Swedish holdings are also, as figure 1 shows, consistently larger than the Swedish weight in the MSCI Europe index. The individual observations from June 2003 to June 2005 are significant at the five percent level and so is the average for the entire period.

The finding that both Swedish and foreign portfolio managers have been overweighing investments in Swedish securities is remarkable. The possible explanations discussed, and largely rejected by French and Poterba (1991) are all likely to be even less valid in Sweden today. We do not believe legal barriers to hold certain stocks are having any effect in causing home bias. These barriers and institutional constraints have largely been abandoned as a consequence of the integration and harmonization of financial markets worldwide, especially within the EU. Moreover such barriers, if they existed, would induce foreign managers to under weigh Swedish securities, not overweigh them as in our sample. French and Poterba did not find transaction costs to have any significant effect on the allocation of investments to different markets. The continuous integration of securities markets and the technological development have also lowered transaction costs drastically since 1991 and hence they are even less likely to be an issue today. As shown in figure 2 below the developments of the

MSCI Europe and OMX SPI indices are highly correlated, with a correlation coefficient of 0.961, significant at the one percent level (For comparability reasons both indices are set to 100 in December 2000 in the figure). Hence the overweighing of Swedish securities cannot be explained by a better general return on the Swedish market.

We believe the overweighing of Swedish securities by foreign managers can be explained by the findings of three previous studies. Dahlqvist and Robertsson (2001) did, as mentioned above, identify a number of firm characteristics attracting foreign investors. We believe two of these are common among Swedish companies. The first is presence in international markets. Sweden is generally considered to be an open economy. During 2005 Swedish exports amounted to SEK 1 299 billion or roughly 49 percent of BNP (SCB 2005b). The second is firm size. For a small country, Sweden's ability to foster large companies is extraordinary. Ericsson, Electrolux, Hennes & Mauritz, SCA and SKF are just a few examples, from different industries, of Swedish companies competing for top five positions in their respective markets globally. Another explanation could be the finding by Engström (2004) that the Swedish market does, or at least did during the years 1996 to 2000, offer good possibilities to generate positive alphas. The vast majority of Swedish listed companies also publish their reports and press releases in English as well as Swedish. Even though English might not be the mother tongue of all foreign managers they can all comfortably be assumed to speak fluent English. Hence foreign managers preference for companies communicating information to the market in their mother tongue documented by Grinblatt and Keloharju (2000) is catered to, at least enough not to be an obstacle for foreign investments.

The diminishing difference between Sweden's weight in the portfolios of Swedish and foreign managers might be viewed as supporting the prevailing explanation of home bias: the availability of private information. The law prohibiting the distribution of inside information to friends and relatives was changed 2005 (SFS 2005:377). The previously mentioned case recently covered by media (Stern 2006) was the first example of a conviction according to the new, stricter law. Although the law was implemented in 2005, it was preceded by a government inquiry (SOU 2004:69) and an EU directive (Direktiv 2003/6/EG). Considering

the time required to mill such documents through the bureaucracies of EU and Sweden we consider it fair to assume that the core contents of the new law has been known to fund managers and company executives for the better part of our sample period. Accordingly it seems rational to assume executives have gradually become more careful about the information they share with friends and relatives. The decreased availability of private information could explain Swedish managers' diminishing weight in Swedish securities as compared to both foreign managers and the MSCI Europe index.

Figure 1. Fraction of portfolio invested in Sweden

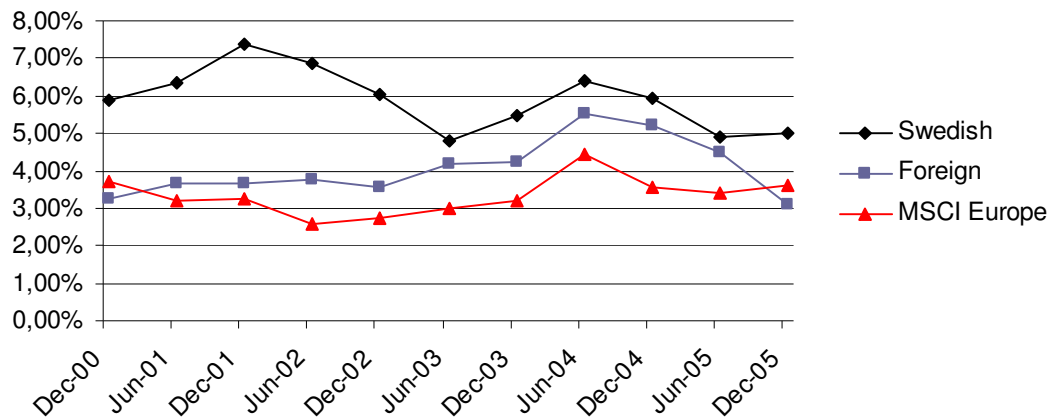
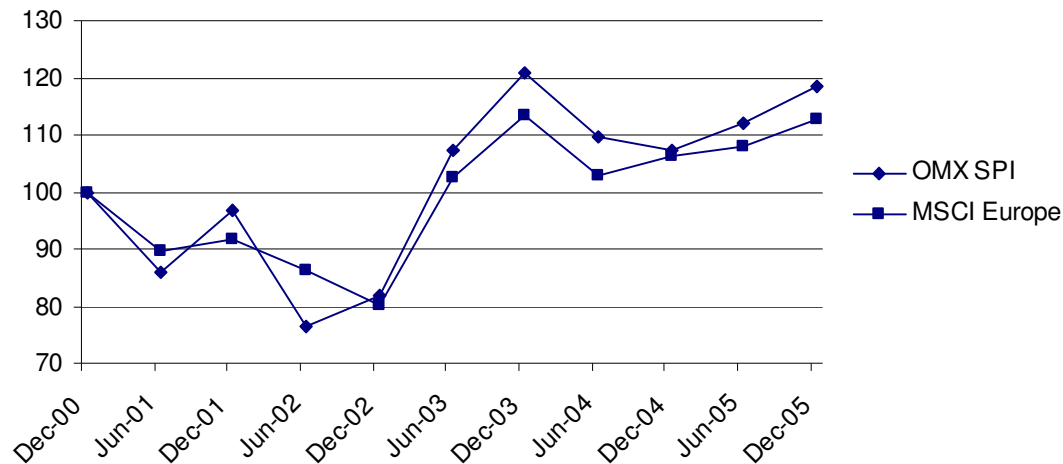


Figure 2. Development of the MSCI Europe and OMX SPI indices



7.2 Diversification

A key concept in portfolio theory is the gains from diversification. According to this theory an investor can obtain a higher expected return as well as a lower variability of returns through holding a more diversified portfolio with respect to individual securities, sectors and countries. The most efficient portfolio, regardless of the investors risk appetite is the market portfolio. The desired level of risk and return is then obtained by combining this portfolio with a long or short position in bonds (Bodie et al. 2005, pp. 223-258). The significantly larger fraction of total portfolio holdings allocated to Swedish securities by Swedish managers compared to the MSCI Europe weights is obviously a deviation from this principle. As discussed above it can be interpreted as a sign of Swedish managers perceiving an information advantage on the Swedish market. This is the standard interpretation in the literature. It could however also be interpreted as a sign of lower average diversification. Do Swedish managers have less diversification in their portfolios? To answer this question, we examine the diversification of the Swedish portfolios using two measures; the number of securities held and the weight of the largest holding in the portfolio.

7.2.1 Number of securities held

The average number of Swedish securities held by Swedish fund managers in our sample is 5.05 versus 4.84 for foreign managers. We do not find this difference to be significant at the ten percent level. Figure 3 below also shows there is no apparent trend in the number of securities held. The average number of Swedish securities, for both classes of managers, is fairly constant around five with a few exceptions at both ends of our sample period. As expected the average number of securities in the Swedish sub-portfolio is far below what is generally considered to be necessary in order to achieve the full gains from diversification. Although early studies suggest 10 to 15 securities are enough (Archer and Evans 1968), a more recent paper concluded a well diversified portfolio must contain at least 30 to 40 securities. The standard deviation of returns in our sample is also in line with what could be expected from a portfolio of roughly 5 securities (Statman 1987).

We tested the difference at each observation point separately but found no differences to be significant at the five percent level. Two individual differences were significant at the ten percent level; December 2000 and December 2005. In December 2000 foreign managers held a higher number of securities and in December 2005 Swedish managers held a higher number of securities. We would however advise caution when interpreting the results at both ends of the sample period since the number of funds, for data availability reasons, is limited. We also found the distribution of the average number of securities held by each manager, shown in figures 4a and 4b below, to be similar in the two sub-samples. Our results do consequently not indicate any differences in the diversification as measured by the number of Swedish securities held.

Figure 3. Average number of securities in the Swedish portfolio

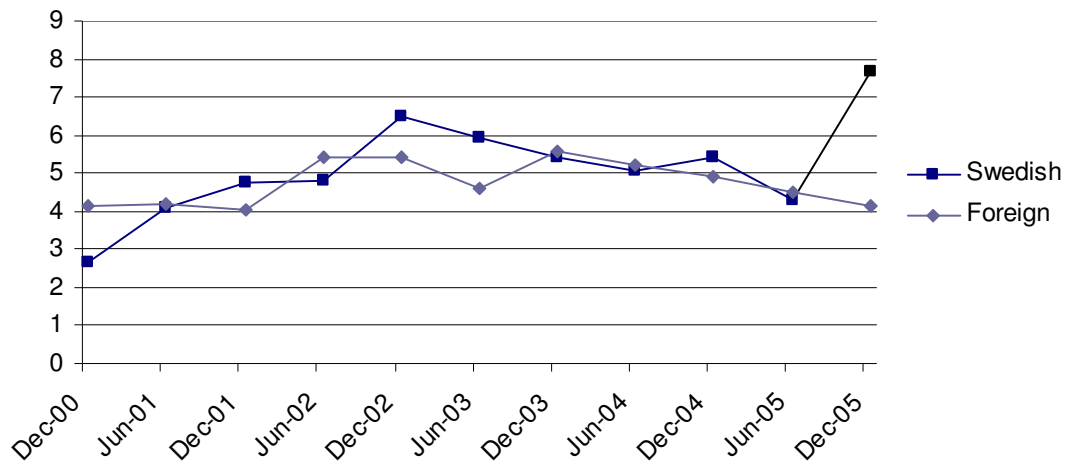


Figure 4a. Distribution of the number of securities held

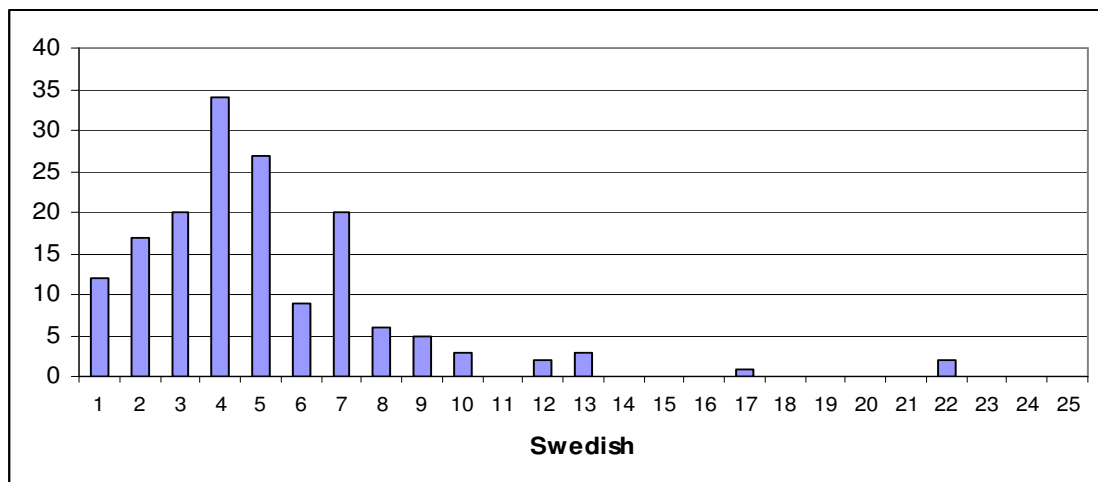
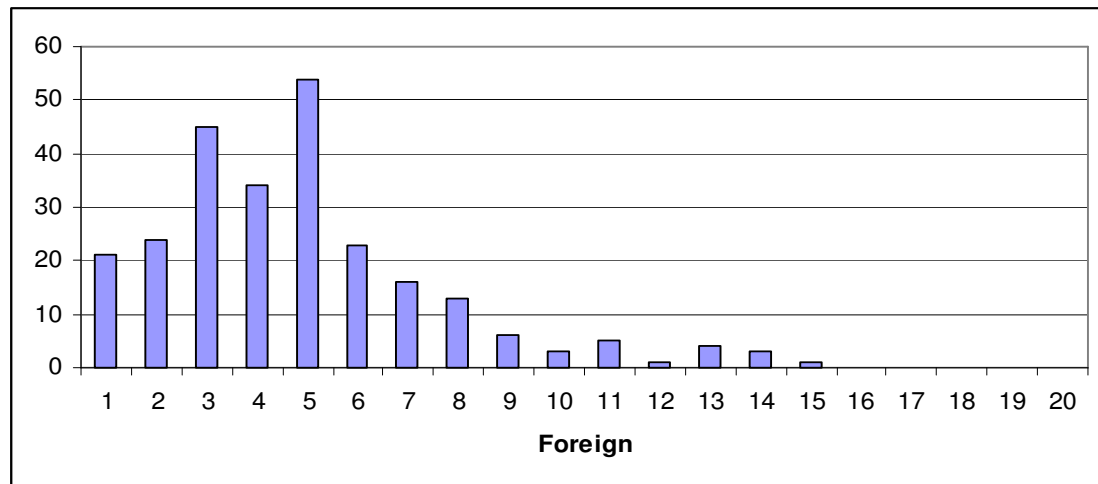


Figure 4b. Distribution of the number of securities held



7.2.2 Weight of largest portfolio holdings

As another measure of diversification, we studied the weight of the largest holding of each fund. Even though the managers held a comparable number of securities in their portfolios, the diversification could still differ among them if one of the groups was more inclined to take a heavy position in a single security. We started by comparing the overall average weight, for the entire sample period, of the largest holding in the portfolio for the two groups. The overall average weight of the largest holding for Swedish managers was 41.17 percent versus 41.83 percent for foreign managers. The difference is not significant at the ten percent level. We also studied the development of the average weight of the largest portfolio holding over time, comparing the weights at each observation point. The difference between the two groups of managers was not significant at the ten percent level at any observation point. The development of the average weight of the largest holding for the two groups of managers over time is shown in figure 5 below. Turning our attention to the distributions of the largest holdings they are, once again, fairly similar. For both groups of managers, the bulk of observations lie in the 0.20 to 0.60 range. Both samples do however display a surprisingly

large number of cases where the Swedish portfolio consists of a single security. The distributions are shown in figures 6a and 6b below.

To sum up there is no apparent difference in the diversification within the Swedish portfolio of Swedish and foreign managers, neither as measured by the number of securities held nor the weight of the largest holding. Hence our suggestion that home bias might be caused by a lower overall level of diversification is not supported by the data. This lends further support to the standard explanation for home bias: a perceived information advantage when investing in domestic securities.

Figure 5. Average weight of largest holding in the Swedish portfolio

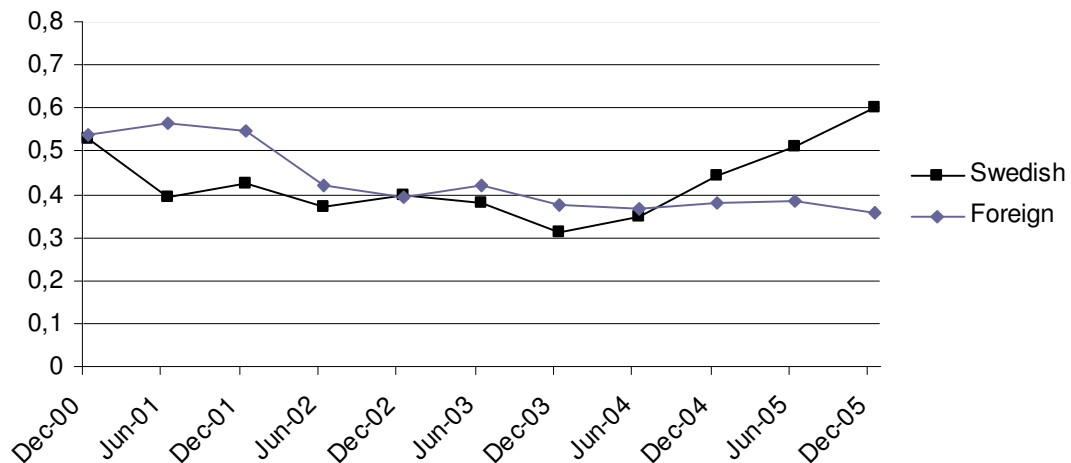


Figure 6a. Distribution of the weight of the largest holding in the Swedish portfolio

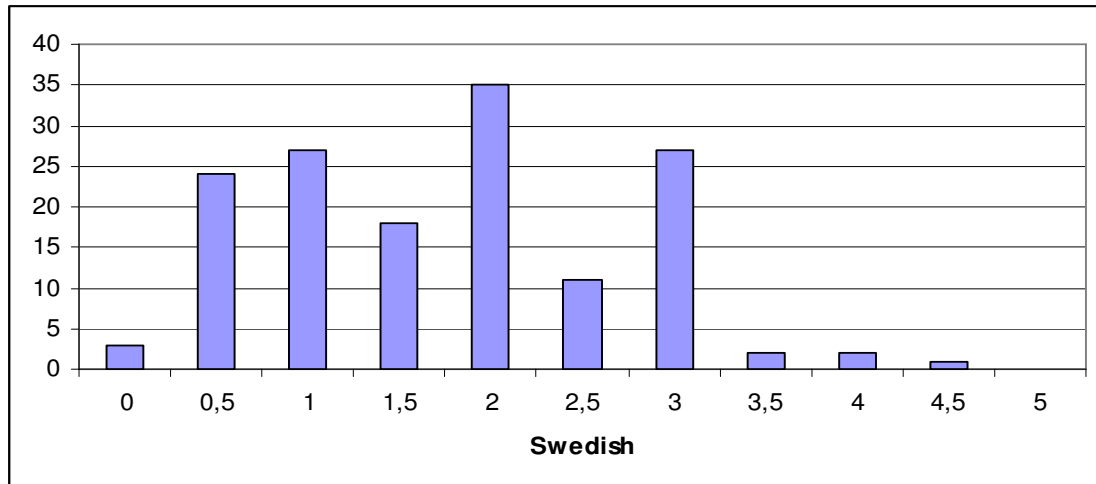
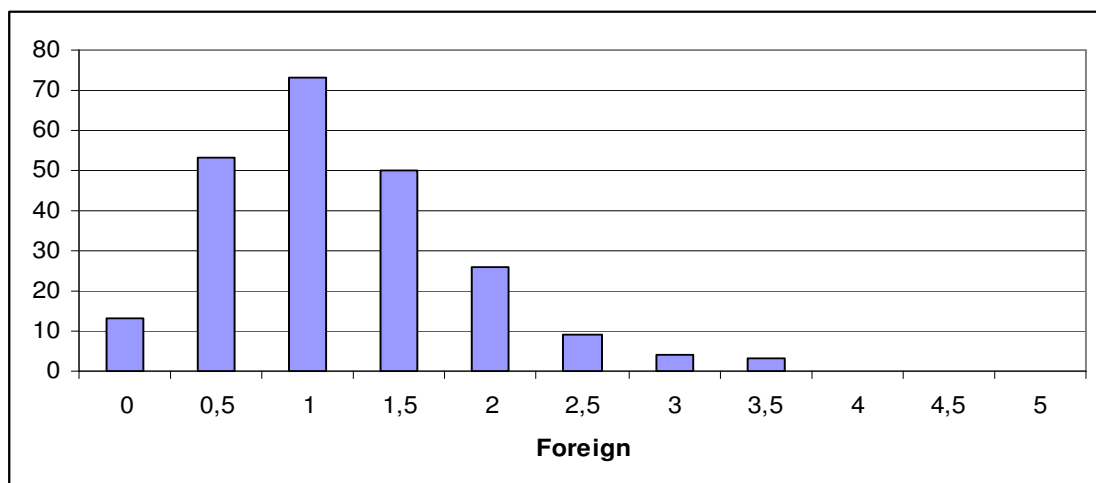


Figure 6b. Distribution of the weight of the largest holding in the Swedish portfolio



7.3 Performance

So far our results have shown two things: home bias is present among Swedish fund managers and seems to be caused by a perceived information advantage when investing in domestic securities rather than differences in overall diversification. We now turn to the

question whether or not this bias is rational. Do Swedish managers have a home court advantage?

7.3.1 Alpha generation

We start our analysis of the funds' performance by computing Jensen's alpha for each of the funds using standard OLS regressions. The average alpha measure for Swedish funds is 4.96 percent versus 4.97 percent for foreign funds. The difference is not significant at the ten percent level. The trading strategy provides an insignificant negative alpha of -0.1 percent. A summary of the results is shown in table 2 below.

We were slightly surprised to see the high average alphas. As stated above, previous studies have indeed found evidence that funds are in general able to generate positive alphas on the Swedish market, but not of this magnitude. For example Engström (2004) found an average alpha of 3.23 percent for small cap funds and 1.74 percent for regular equity funds. Worth noting is, however, that Engström studied the full portfolios of the funds, whereas we only study the Swedish sub-portfolio of Europe funds. In our view there could be two explanations for this difference. Either the possibility to generate positive alpha in the Swedish market has increased since the five years preceding our sample period or the lower number of Swedish securities in a European portfolio allow a higher degree of cherry-picking. By logic the number of outperforming securities in any one country is limited. Since the investment universe is larger the manager has the opportunity to pick only the securities most likely to outperform in each country. For the total portfolio sufficient diversification is still achieved through the inclusion of shares from numerous countries. The latter is however inconsistent with the findings in Engström (2003) where regional funds are shown to perform inferior compared to country specific funds. From this one can conclude that the benefits of cherry-picking fail to outweigh negative effects of a larger investment universe. One main negative effect is that fewer resources will be available for the analysis of the macroeconomic trends in each country. Engström (2003) compared funds investing in Asia and specific Asian countries. Such negative effects are likely to be far less severe for a fund investing in Europe. The main European economies are far more homogenous than the

Asian counterparties through the harmonisation within the EU and EMU. While Sweden is not fully incorporated into the EMU its economy tracks the rest of Europe very closely (Chong 2006). Hence the raisin-picking benefits might well outweigh the negative effects of a larger investment universe for Europe funds.

We were also surprised to see that Swedish and foreign managers have achieved almost exactly the same average alphas and that the trading strategy showed a negative, albeit small and insignificant alpha. The home court advantage found by for example Shukla and van Ingwegen (1995) and Coval and Moskowitz (2001) is thus not present in our sample. We also studied the sample proportions of significant positive and negative alphas for the two groups. While there was only a small difference in the proportion of significant positive alphas of Swedish managers, 0.444, and foreign managers, 0.361, the proportion of significant negative alphas was considerably higher for foreign managers, 0.139, than for Swedish managers, 0.055. While not significant at the 10% level this difference does however suggest a lower frequency of underperformance among Swedish managers, more in line with the afore mentioned previous research.

To achieve a more thorough understanding of the performance of the funds we also studied the distributions of alpha for Swedish and foreign managers, shown in figures 7a and 7b below. One immediate reflection is the vast variability of alphas, with Swedish managers achieving alphas ranging from +20 percent to -15 percent and foreign managers +35 percent to -30 percent. These might be extreme figures, but recall the maximum and minimum one-month return: +73.8 percent versus -49.9 percent. One must also keep in mind that each portfolio in our study represents only one sub portfolio of many for each fund. This means that not only is the contribution to total portfolio return much lower, but the number of securities held in the sub portfolio is also very low, limiting the stabilizing effects of diversification. Fund managers' main focus is of course the total return and hence the diversification within a single country might very well be low.

Table 2. Alpha regression results

	Average Alpha	P alpha +	P alpha -
Swedish	4.96%	0.444	0.055
Foreign	4.97%	0.361	0.139
Difference	-0.01%	0.083	-0.083
	(-0.27)	(0.55)	(-1.36)
Trading	-0.10%		
Strategy	(-0.92)		

Average alpha values for Swedish, foreign funds and the difference between the two groups. *T* values for the differences are shown in brackets. *P* alpha + and *P* alpha - denotes the population proportion with positive and negative alphas, significant at the 10 percent level.

Figure 7a. Distribution of alpha values

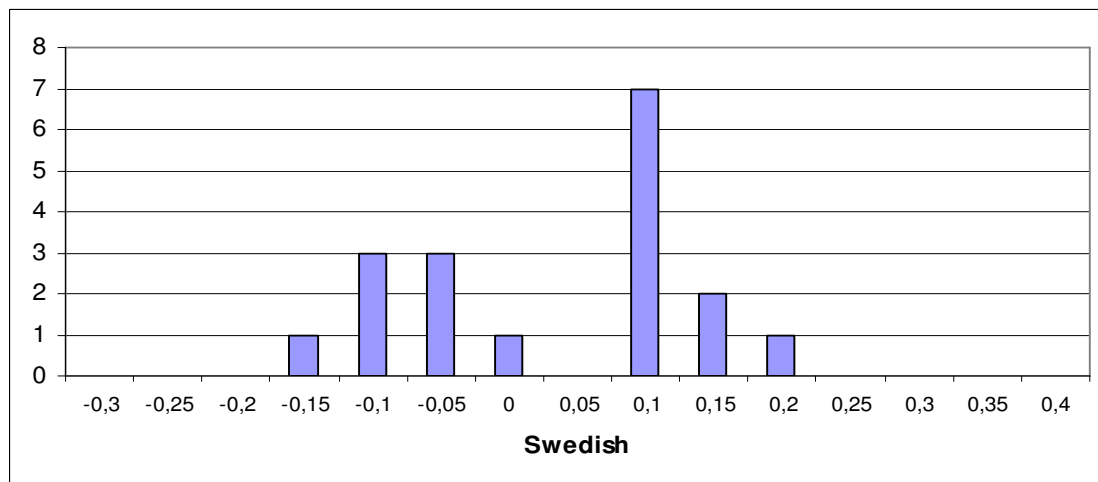
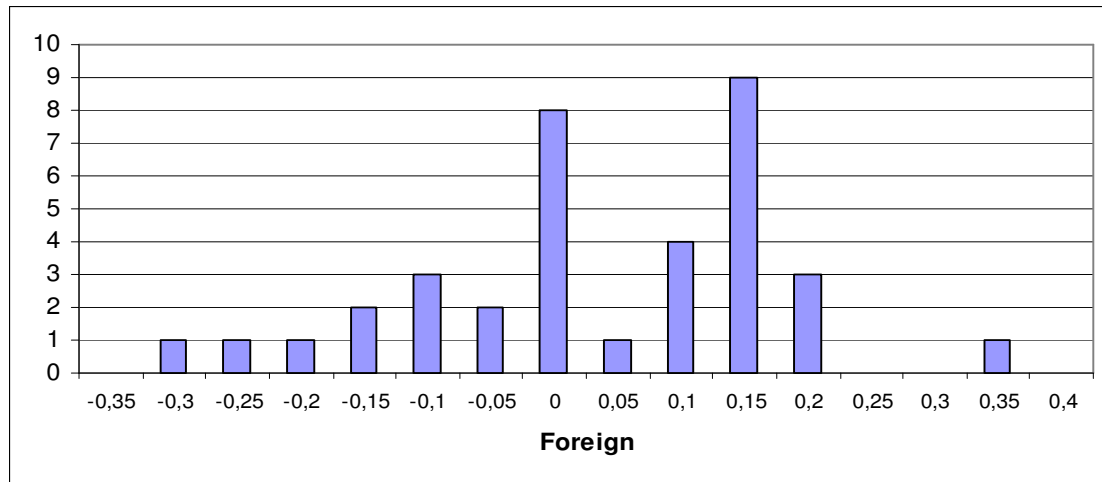


Figure 7b. Distribution of alpha values



7.3.2 Market timing

We also studied the timing abilities of the managers. This is useful not only because a successful market timer can earn substantial excess returns (Bodie et al. 2005, pp. 984-986), but also since positive market timing abilities has been shown to create a negative bias to alpha estimates (Grinblatt and Titman 1989). Hence the funds in our sample could, despite the similar alphas, differ in terms of both timing abilities and stock selectivity. Using the quadratic regression developed by Treynor and Mazuy (1966), explained above, one immediate reflection is the very good market timing abilities of both Swedish and foreign managers, with all Swedish and 94 percent of foreign managers achieving significant positive tau parameters. We found the average tau parameter for Swedish managers to be 0.91 and for foreign managers 1.01. The trading strategy shows a tau parameter of -0.07. Including the timing measure in the regression somewhat lowers the average alpha for Swedish managers, from 4.96 to 4.23 percent per annum. The effect on the average alpha of foreign managers is however remarkable; the average alpha increases from 4.97 to 8.90 percent per annum. The trading strategy achieves an alpha of -1.00 percent per annum.

The better average timing ability, and certainly the much higher average alpha of the foreign funds is a direct contradiction of the results in Shukla and van Ingwegen (1995) and Coval and Moskowitz (2001). The previously found outperformance of domestic managers is reversed, with foreign managers vastly outperforming Swedish managers. As mentioned above caution is however mandated when drawing conclusions from a comparison of averages of estimated variables, since they contain measurement errors. Turning to our preferred measure of relative performance, the trading strategy, to as far as possible mitigate these effects, the magnitude of the difference is decreased. Although not statistically significant, the magnitude still makes it impossible to dismiss from an economical significance point of view. The zero-cost trading strategy has generated 1.00 percent return per annum!

Studying the sample proportions of significantly positive tau- and alpha parameters a somewhat different picture emerges. A higher proportion of Swedish managers have achieved significant positive tau parameters, while a higher proportion of foreign managers have achieved significant positive alphas. None of the differences are significant at the 10% level. Turning to the distribution of taus, shown in figures 8a and 8b below, we note that the taus for foreign managers are more dispersed, ranging from -1.2 to 2, than those for Swedish managers, ranging from 0.4 to 2. The bulk of observations are in the range 0.4 to 1.4 for foreign managers and 0.6 to 1 for Swedish managers.

These results largely contradict the hypothesis of private information about companies as an explanation for home bias. If Swedish managers were able to obtain private information from company executives the effect would primarily appear in the non-systematic return. The Swedish financial market is generally considered to be efficient and transparent. The “golf-and-country-club” culture whereby top level executives and fund managers meet and socialise in an informal setting might also be less common in Sweden than for example in the US and many Asian countries. Hence the information advantage previously found for domestic managers could be sufficiently less pronounced to be offset by the greater research resources of the usually larger foreign managers. The difference in timing ability we found, using both the average- and trading strategy methods of comparison, shows slightly better

performance for foreign managers compared to Swedish. This is less surprising since the scope for private information affecting macroeconomic analysis is much narrower than for analysis of individual securities. Hence this is the area where we would have expected to see the largest payoff from the larger resources of multinational giants.

Table 3. Timing regression results

	Alpha	Tau	P alpha+	P tau+
Swedish	4.23%	0.91	0.11	1.00
Foreign	8.90%	1.01	0.25	0.94
Difference	-4.67%	0.0214	-0.14	0.06
	(1.24)	(0.63)	(-1.35)	(1.57)
Trading	-1.00%	-0.07		
Strategy	(-0.20)	(-1.43)		

The average alpha and tau statistic for Swedish and foreign managers, the difference between them, the alpha and tau statistic for the trading strategy. P alpha+ is the sample proportions of positive alphas significant at the 10 percent level. P tau+ is the sample proportions of positive taus significant at the 10 percent level.

Figure 8a. Distribution of taus

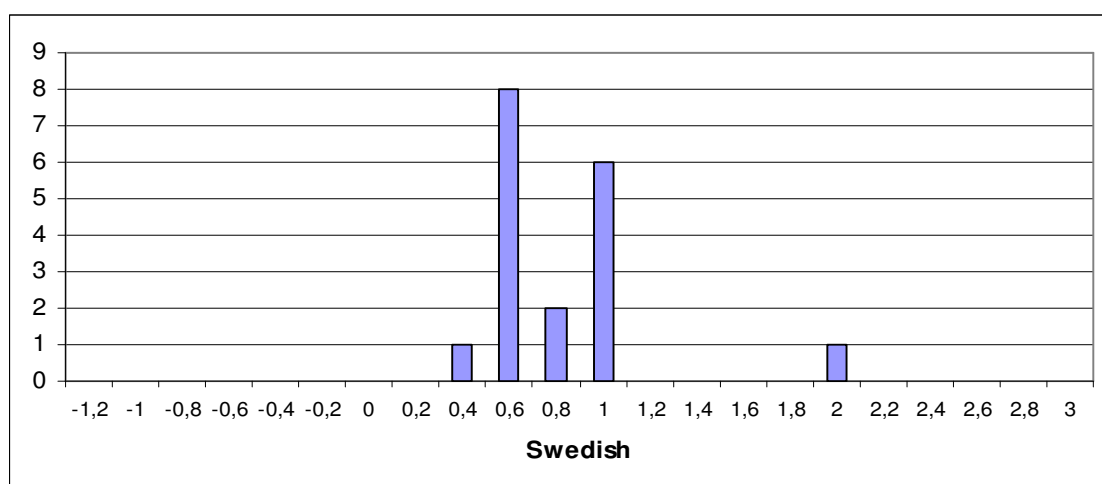
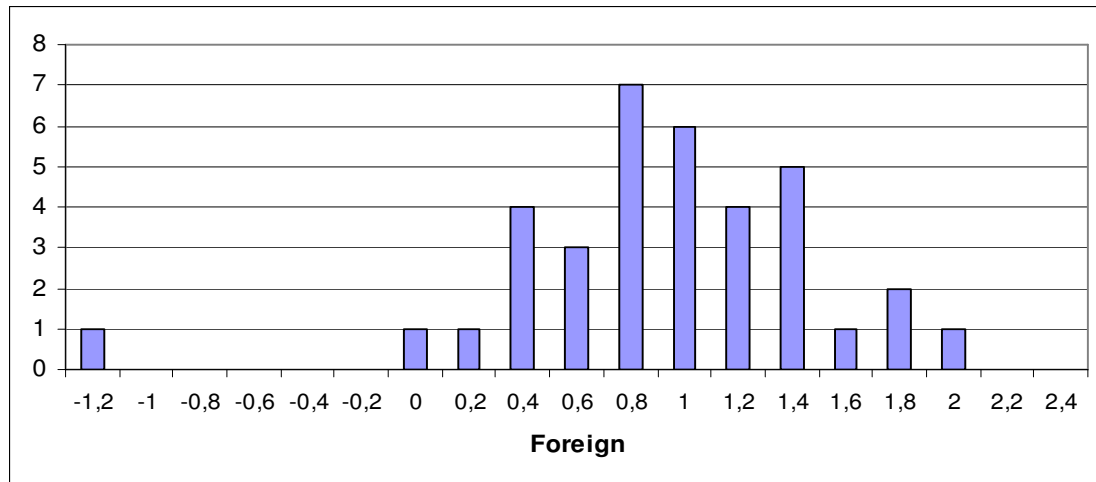


Figure 8b. Distribution of taus



8. Conclusions

The first question we posed was whether or not home bias is present among Swedish mutual fund managers. The answer to this question is clearly yes, with Swedish managers allocating a roughly 50 percent larger share of assets under management to Swedish securities. This result is consistent with our expectations, although we find a more pronounced difference than previous studies.

Turning to the explanations for this bias we suggested lower overall diversification as an alternative to the standard explanation for home bias: a perceived information advantage when investing in domestic securities. Our results do however support the standard explanation. There are no signs of other differences in the diversification. The home bias also diminishes during our sample period. One possible explanation could be the new, stricter law on insider trading recently adopted, rendering company executives more reluctant to share private information. Consequently we conclude that home bias is caused by a perceived information advantage.

The performance of the funds, as measured by Jensen's alpha, does not suggest any significant information advantages for Swedish managers. When market timing ability is added to the performance evaluation it reveals a vast outperformance for foreign managers. Although not statistically significant, the magnitude of the outperformance, as measured by average alpha as well as through the trading strategy, is too large to ignore. This leads us to conclude that the perceived information advantage causing home bias is indeed perceived rather than real.

9. Suggestions for further research

One of the explanations we suggest for the outperformance of foreign managers is the inability of private information to offset the resource advantage of the larger foreign managers. It would be very interesting to study this subject more in depth. One example could be a comparison of possible sources of informal exchange of information between company executives and fund managers, e.g. through memberships in common clubs, residing in common areas etc. in Sweden and other parts of the world.

We have used the traditional method of comparing the return of each fund to a benchmark index. This method has been widely accepted but Roll (1978) showed that the results are sensitive to the selection of benchmark. Grinblatt and Titman (1993) paved the way for performance evaluation methods where no benchmark is used. Instead they introduced the Event Study Measure, where the return of each security when it is included in the portfolio is compared to when it is not included. Applying such a method would of course add robustness to a study.

10. References

10.1 Literature and academic papers

Archer, S. H. and Evans, J. L. (1968) "Diversification and the Reduction of Dispersion: An Empirical Analysis", *Journal of Finance*, no. 23.

Bodie, Z, Kane, A. and Marcus A. J. (2005): *Investments*, 6 ed. Mc Graw-Hill, Boston.

Coval, J. D. and Moskowitz, T. J. (1999): "Home Bias at Home: Local Equity Preferences in Domestic Portfolios" *Journal of Finance*, vol. 54, no. 106.

Coval, J. D. and Moskowitz, T. J. (2001): "The Geography of Investment: Informed Trading and Asset Prices", *Journal of Political Economy*, vol. 109 no. 41.

Dahlqvist, M, Engström, S. and Söderlind, P. (2000): "Performance Characteristics of Swedish Mutual funds", *The Journal of Financial and Quantitative Analysis*, vol. 35, no. 3.

Dahlqvist, M. and Robertsson, G. (2001): "Direct foreign ownership, institutional investors, and firm characteristics" in *Journal of Financial Economics*, no. 59.

Daniel, K, Grinblatt, M, Titman, S. and Wermers, R. (1997): "Measuring mutual fund performance with characteristic-based benchmarks", *The Journal of Finance*, vol. 52, no. 3.

Engström, S. (2003): "Costly information, diversification and international mutual fund performance", *Pacific Basin Finance Journal*, vol. 11.

Engström, S. (2004): "Does Active Portfolio Management Create Value? An Evaluation of Fund Managers' Decisions", *SSE/EFI Working Paper Series in Economics and Finance* no. 553.

French, K. and Poterba, J. (1991): "Investor diversification and international equity markets", *American Economic Review*, vol. 81(2).

Grinblatt, M. and Titman, S. (1989): "Portfolio performance evaluation: Old issues and new insights", *The Review of Financial Studies*, vol. 2, no.3.

Grinblatt, M. and Titman, S. (1993): "Performance measurements without benchmarks: An examination of mutual fund returns", *Journal of Business*, vol 66, no. 1.

Grinblatt, M. and Keloharju, M. (2000): "Distance, Language, and Culture Bias: the Role of Investor Sophistication" *Yale ICF Working Paper* no. 00-04.

Jensen, M. (1968): "Risk, the pricing of capital assets and the evaluation of investment" portfolios", *Journal of Business* 42(2).

Nilsson, P. (2004): *Fondboken: fakta & regler*, Sellin & partner/fondbolagens förening, Stockholm.

Roll, R. (1978): "Ambiguity when performance is measured by the securities market line", *the Journal of Finance*, 33.

Sharpe, W. (1964): "Capital asset prices: A theory of market equilibrium under conditions of risk", *the Journal of Finance* no. 19.

Sharpe, W. (1966): "Mutual fund performance", *Journal of Business* 39(1).

Shukla, R. K. and van Ingwegen, G. B. (1995) "Do locals perform better than Foreigners?: An analysis of UK and US mutual fund managers", *Journal of Economics and Business*, vol. 47.

Statman, M. (1987): "How Many Stocks Make a Diversified Portfolio", *Journal of Financial and Quantitative analysis*, vol. 22, no. 3.

Treynor, J. and Mazuy, K. (1966): “Can mutual funds outguess the market”, *Harvard Business Review*, 44(4).

Wermers, R. (2000): “Mutual Fund Performance: An Empirical Decomposition into Stock-Picking Talent, Style, Transactions Costs and Expenses”. In *Journal of Finance*, vol. 55, no. 4.

10.2 Official statistics

Statistiska Centralbyrån (2005): *Värdepappersfonder, tillgångar och skulder kvartal 4/2005. (SCB 2005a).*

Statistiska Centralbyrån (2005): *BNP, försörjningsbalans – löpande priser, 4/2005. (SCB 2005b).*

United Nations World Population Division (2004): *The World Population Projects: The 2004 Revision*, vol. I-III.

10.3 Laws and commissions of inquiries

Direktiv 2003/6/EG (2003), European Commission.

SFS 2005: 377 (2005): *Lag om straff för marknadsmissbruk vid handel av finansiella instrument*, Finansdepartementet.

SOU 2004:69 (2004): *Marknadsmissbruk*, Finansdepartementet.

10.4 Other sources

Byström, Anna: Operating Manager, HQ Bank AB/HQ Fonder AB. Telephone interview, Sweden 6 April 2006.

Calvert, Christina: Reuters support Sverige. Telephone interview, Sweden 20 April 2006.

Chong, Wee-Khoon: Economist, Bank of America, interview, United Kingdom, 22 September 2006.

Ekvall, Niklas (2005): "A Global Asset manager: Structure the Operation of the Business" Lecture in Investments, course no. 4101, SSE 26 September 2005.

Stern, Eleonora (2006), "Så försökte Tivox-toppen blåsa börsen", Dagens Industri, 12 April 2006.

www.fidelity.com

www.stockholmsborsen.se