The Home-Institution Bias: Evidence for and Determinants of an Investor Preference for Domestic Financial Institutions

Current Draft: January 2008

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Abstract

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Please send correspondence to Grant McQueen, mcqueen@byu.edu. Grant McQueen received financial support from the BYU Marriott School's Global Management Center and the William Edwards Professorship. Anders Karlsson received financial support from Jan Wallander and Tom Hedelius. We appreciate the research assistance of Troy Carpenter and Michael Murff and the comments of Woodrow Johnson and our colleagues and seminar participants at the University of Utah's Finance Department and BYU's Economics Department.

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1. Introduction

We document a new investor preference that we call the home-institution bias. The home-*institution* bias is a tendency of investors to invest with domestic financial institutions whereas the home-*asset* bias is a preference for domestic or local assets. We show that the home-institution bias is empirically distinct from the home-asset bias. For example, when Swedish investors seek exposure to international assets, they still prefer funds offered by domestic institutions to funds offered by foreign institutions.

Studying the home-institution bias is important for three reasons. First, the bias is economically important in and of itself since it constrains investors' utility maximization and impedes financial institutions' international expansion. Second, by controlling for international frictions and information asymmetries, tests of the home-institution preference indirectly allow better understanding of the home-asset preference. Third, the home-institution bias documents another instance of a preference for the familiar.

We study the preference for domestic institutions in two stages using two data sets from Sweden's introduction of a partially-privatized social security system in 2000 where participants were required to invest in individually-directed retirement accounts. In the first stage, we document the home-institution bias in cross-*fund* regressions as the participants (over 4 million) chose among 416 funds. In the second stage, we model the determinants of the home-institution bias in cross-*individual* regressions using a sample of 15,497 participants in the Swedish retirement system.

Approximately half of the mutual funds available in the Swedish retirement system were offered by Swedish institutions. Yet, over 96 percent of the money went to funds managed by Swedish institutions. The average fund offered by a foreign institution received only 10.8 million Swedish Crowns (SEKs); in contrast, the average Swedish institution's fund

received 155.4 million SEKs—over 14 times more. Foreign institutions' funds were virtually shut out. Of course, the preference for funds from Swedish institutions could arise if they had lower fees, higher past returns, or a longer history than their foreign counterparts. In the first stage of our paper we control for such determinants and our cross-fund regressions show that a typical fund offered by a Swedish institution received about 10 times more money than a similar foreign fund. The relative success of domestic institutions, together with our evidence about advertising, banking and insurance market shares, and geographic and trade proximity all support an underlying preference by individuals to deal with the familiar.

In the second stage of the paper, we explore the determinants of the preference for domestic institutions using individuals' choices along with demographic information including level of education, employment sector, nationality, and holdings of foreign assets. We perform cross-individual regressions where the dependent variable is a measure of the degree of home-institution biasedness. We find that the home-institution bias is inversely correlated with proxies for financial sophistication and positively correlated with proxies for familiarity, suggesting behavioral explanations for the bias.

In an article documenting the degree of and the mechanism by which advertising affects an individual's choice of mutual fund, Cronqvist (2006) finds that mutual funds run by domestic (Swedish) fund families received more money than their foreign-run counterparts. We extend Cronquist (2006) by documenting the size and significance of the home-institution bias, showing that frictions and information asymmetries are, at best, partial explanations, and linking the home-institution preference to measures of familiarity. We also extend the work of Karlsson and Nordén (2006), who document characteristics of home-asset-biased investors, by measuring the determinants of the home-institution bias.

Our article is organized as follows: In Section 2, we discuss why a study of the home-institution bias is important. In Section 3, we document the magnitude, significance, and robustness of the home-institution bias in cross-fund regressions using the choices of all 4.4 million participants. In Section 4, we explore the relationship between familiarity and the home-institution bias. In Section 5, we test for the determinants of the home-institution bias using a sample of 15,497 participants in cross-individual regressions. Section 6 concludes.

2. Economic and Theoretic Lessons

2.1 Economic Lessons

The economic consequence of the home-*asset* bias is obvious: foregone diversification. For three reasons, the home-*institution* bias is economically important.

First, constrained optimization cannot outperform unconstrained optimization; in effect, home-institution-biased investors in Sweden constrained themselves to invest in only a subset of the 416 funds. Over 83 percent of the investors were completely home-institution biased, meaning they did not invest any money with foreign institutions. Furthermore, the 185 funds that biased investors excluded tended to be large funds from the large international fund families—the type of funds that may have a competitive advantage.[1] Between January 2001 and August 2004, an equally-weighted portfolio of funds from Swedish institutions underperformed an equally-weighted portfolio of funds from international institutions. In unreported tests, the average monthly return on the domestically-managed portfolio of funds is

[1] The average internationally–managed fund in the retirement system had more than 5 times the assets under management than the average Swedish-managed fund. Large funds and fund families may have economies of scale in operations, information advantages associated with geographically diverse offices, and negotiating clout. For example, Baumol et al. (1990) finds a negative correlation between the size and expense ratio of mutual funds; Gao and Livingston (2008) show this economy of scale is found in only the smallest one third of funds.

statistically lower (p-value = 0.053) than that of internationally-managed funds. On an annual basis, the internationally-managed funds beat the domestically-managed funds by 5.3 percent. Furthermore, the average standard deviation of monthly returns for the domestically-managed funds is statistically higher (p-value = 0.051). In hindsight, home-institution-biased, and therefore constrained, investors lost utility in terms of both return and risk.

The second economic consequence is that home-institution-biased Swedes lost diversification and negotiation benefits. Collectively, the Swedish institutions did not cover all asset classes. For example, a participant unwilling to consider foreign-managed funds was unable to get exposure to the styles labeled "United Kingdom" equities and "Europe and Euroland" fixed income. Furthermore, a home-institution-biased investor had only one option in gaining exposure to the "Europe small cap" style, granting this one domestic institution a monopoly-like negotiating position. The home-institution bias also limited the diversification of Swedish investors who held Swedish assets outside of the PPM system. There are 16 equity styles with funds offered by both Swedish and international institutions. In all 16 instances, the funds managed by Swedish institutions had higher average correlation coefficients with the Swedish All Shares Index than the average international fund. Thus, by limiting options to Swedish institutions, an investor could miss out on exposure to certain styles and even when a style was offered by a domestic institution, the returns tended to be more correlated to the Swedish Index.

The third economic consequence is barriers to growth. Western countries have a comparative, and perhaps absolute, advantage in financial services. The rapidly growing economies in countries such as India and China may lead to an unprecedented increase in the demand for financial service products and opportunities for Western institutions. The home-

institution bias has the following three economic implications for financial institutions considering retail expansion into foreign countries: (1) our research suggests that such expansion will be difficult; (2) our tests inform strategies to overcome the home-institution bias such as expanding into nearby countries and advertising campaigns focused on increasing familiarity; and (3) our findings suggest which type of individuals will be most likely to do business with foreign financial institutions.

2.2 Home Bias Lessons

Since Levy and Sarnat (1970) and French and Poterba (1991), finance researchers have known that investors have a preference for assets in their own country. Financial explanations for this bias include hedging of human capital, international frictions (such as high transaction costs, capital controls, foreign taxes, and opaque firms), and information asymmetries. Baxter and Jermann (1997) and Massa and Simonov (2006) disprove the hedging explanation. Coval and Moskowitz (1999), Grinblatt and Keloharju (2000), and Huberman (2001) show that international frictions alone cannot explain the home-asset bias. Specifically, they abstract from international frictions by looking at only U.S. equities and find a bias for local or proximate assets. Whereas hedging and frictions are at best incomplete explanations, the information explanation has received some support. Coval and Moskowitz (1999, p. 2,045) suggest "that asymmetric information between local and nonlocal investors may drive the preference for geographically proximate investments…" and Massa and Simonov (2006, p. 633) find that the preference for closely-related stocks "is not a behavioral bias, but is information driven." This information explanation is supported by papers such as Coval and Moskowitz (2001), Ivković and Weisbenner (2005), Massimo and Simonov (2006), and Bae,

Stulz, and Tan (2008), who find that investors have better information or perform better when assets are nearby.

The following three concerns indicate that the information explanation may not be complete. First, papers such as Grinblatt and Keloharju (2000) and Seasholes and Zhu (2005) come to an opposite conclusion and find that individuals do not have information advantages with respect to local assets. Second, the home-asset bias states that investors buy and hold local assets, yet an information advantage should be bi-directional, implying that locals both buy undervalued and sell or short overvalued assets. Third, even if one accepts an information advantage for locals, such an advantage does not rule out a simultaneous explanation based on a behavioral preference.

By studying the home-institution bias, our paper indirectly sheds light on the home-asset bias. Moskowitz (1999), Grinblatt and Keloharju (2000), and Huberman (2001), by their choice of domestic assets, control for the international frictions explanation and find that the home-asset bias remains. Our choice of international mutual funds controls for not only the frictions explanation, but also the asymmetric-information explanation; we find that the home-institution bias remains. That is, something more than an information advantage is driving the domestic-institution preference. Specifically, we find that the home-institution bias is strongest when any information asymmetry works against the home institutions. For example, it is hard to argue that a Swedish institution has an information advantage over a Japanese institution when investing in Japanese equities. Yet, Swedes still had an overwhelming preference for funds offered by Swedish institutions. For example, Nomura offered a Japan equities fund that attracted only SEK 174,932. In contrast, the average Japan equities fund offered by the 6 Swedish institutions received over 220 times more money (SEK 38,792,994) than Nomura's

fund. Although this anecdotal evidence is an extreme illustration, regressions that control for factors such as fees, size, and past return confirm that information asymmetries do not drive the home-institution bias. Our finding about institutions provides indirect evidence that the home-asset bias is driven by more than information.

2.3 Theory Lessons

Financial economics historically puts consumption or wealth in investors' utility functions and has been reluctant to include behavioral preferences. By selectively including behavioral preferences in the utility function, one can prove anything and its opposite. However, if the preference is backed by psychological studies, is found in a variety of situations, and is used to make refutable predictions supported by new data, then the preference may belong in the utility function. For example, early work by Veblen (1899) and Duesenbery (1940) argues that utility from consumption is situational or behaviorally contextual. Campbell and Cochrane (1999) find that consumption utility depends on past levels of consumption (habits) and Abel (1990) finds that it depends on others' (the Jones') consumption.

Our documentation of the home-institution bias provides additional evidence of a consumption context—a behavioral preference for the familiar. Maslow (1937, p. 162) finds that, "Sheer repetition, leading to familiarity, may result in greater liking for the familiar thing or activity…" In a more formal study, Zajonc (1968) finds that an individual's attitude about an object is enhanced by mere repeated exposure to the object. Bornstein (1989, page 265) summarizes Zajonc's original finding as "familiarity leads to liking," and then reviews the plethora of articles in the psychology literature linking exposure and affect. Tajfel (1978 and 1979) and Tajfel and Turner's (1979) social identity theory suggests that individuals derive

psychic utility by being part of a distinctive group such as a successful team, tribe, religion, race, or country and by inflating the abilities and character of one's own group.

A preference for the familiar is consistent with the evidence that consumers prefer domestically-manufactured goods relative to imports (see the papers cited in Sharma, Shimp, and Shin (1995)). However, economic considerations such as local employment could also explain this form of home bias. Familiarity is consistent with the home-asset bias, although information asymmetries are also consistent with the evidence. We add to the home-bias evidence from goods and assets by showing that investors also prefer home institutions. Furthermore, the home-institution bias appears to exist when economic considerations and information asymmetries are unlikely. Collectively, these three home biases (goods, assets, and institutions) provide evidence for a new context, "familiarity," in addition to "habits" and "the Jones," for consumption. The utility from a locally-manufactured good, a proximate asset, and a domestic service provider may be greater than if the good, asset, or institution were not familiar.

3. Macro Evidence of Home-institution Bias

3.1 Swedish Pension System

In 2000, the Swedish government to change its pension program. In the first part of the new system, 16 percent of a worker's annual income funds a common pool that is used to pay current retirees and determine the worker's future pension benefits. In the second part, called "Premispensions" (Premier Pension), workers contribute 2.5 percent of their income into a self-directed 401(k)-like account. Whereas ongoing contributions are 2.5 percent of a worker's salary, the initial funding was 2.5 percent of the prior four years of an individual's income.

For five reasons, our Swedish pension data is uniquely suited for modeling the flow of money to mutual funds and testing for a home-institution bias. First, we have the portfolio choices of the complete working population of Sweden rather than a sample; 4,413,831 individuals participated and participation was mandatory. Thus, our data is free from self-selection biases. Second, since our data corresponds to the initiation of a system, participants made their choices at approximately the same time. In contrast, most mutual fund data reflects individual choices over time as people enter, exit, rebalance, or make new contributions. Third, all participants were given the same information and chose from the same list of mutual funds. Fourth, each fund was on equal information and simplicity footing with other funds. Each fund had the same coverage in the catalog and online system and was literally one mouse click or one darkened bubble away. The catalog was a prospectus-like 97 page document giving detailed information about the participating mutual funds (listed, by style, alphabetically,) and their sponsoring institutions. The choices were free from channel bias as all funds were offered and selected in the same way as the other funds. The Swedish government made no explicit or implicit guarantees and tried to create a level playing field. All funds had the opportunity to advertise. Fifth, for a sample of investors, we have a rich set of demographic variables that helps document why some individuals have a greater home-institution bias than other individuals.

We obtained data on each participant's initial choice from the Premie Pensions Myndigheten (Premium Retirement Authority, PPM hereafter), a government agency. Table 1, Panel A, reports that the average fund received 91 million SEK and had 22,872 investors. In late 2000, when the Swedes were choosing funds, a typical exchange rate was roughly 10 SEK to 1 U.S. Dollar. The relatively large standard deviations and the range between the maximum

and minimum amounts in Panel A suggest substantial variations in a fund's ability to attract money.

All participants were provided with a catalog containing 455 mutual funds. Participants could choose up to 5 funds.[2] These 455 funds were grouped into 4 major categories and 29 different asset classes as reported in Table 2. After the catalog was printed, 39 funds withdrew from the system leaving only 416. Of the 416 funds, 3 did not report their market capitalization.[3]

Table 1, Panel B, reports summary statistics for the mutual funds. We categorize a fund as being offered by a domestic institution if the parent company is Swedish.[4] 56 percent of the funds were offered by domestic institutions. Tesar and Werner (1995) suggest that investors are more familiar with neighboring than distant countries. Sweden's three bordering countries are Denmark, Finland, and Norway. Only 6% of the funds were offered by institutions in these three neighboring countries.

Management fees averaged just less than 1 percent and ranged from a high of 397 basis points (an emerging markets fund) to a low of 15 basis points (a bond fund). Fund returns in the first 8 months of 2000 averaged 9.51 percent. The average annual return in 1999 was high, 41.39 percent, for two reasons: first, 1999 was a good year for global equity returns and

[2] If no choice was made, participants' money was put into a default fund managed by the government.

[3] After the catalog was printed, an additional 40 funds were added to the system so that participants could choose between 456 different funds. We focus our analysis on the 413 funds that were in the initial catalog, did not drop out, and were not missing market capitalization information.

[4] In our robustness test, we use an alternative categorization based on the domicile of the fund *family* (rather than the *parent* institution). For example, Carlson Fondförvaltning AB is a Swedish institution that established a subsidiary, Carlson Fund Management Co., registered in Luxemburg. The Carlson parent company offered 11 funds that were registered in Sweden and 2 funds that were registered in Luxemburg (through Carlson Fund Management Co.). In regressions reported in the paper, all 13 funds are considered Swedish because their parent company has a Swedish domicile. Then, in our robustness test, we consider the latter 2 funds as foreign because the fund family is registered in Luxemburg.

second, fund families apparently selected their better performing funds to be included in the PPM system. Many funds in the system were relatively new, only 268 of the funds in the catalog existed at the beginning of 1999 and only 202 at the beginning of 1998.

The annualized standard deviation of the fund's prior 36 months' return is reported in the catalog, rounded to the nearest percent. Given the rounding, several funds in the fixed income asset class had reported standard deviations of 0. The age of the fund is based on the number of complete years of return history and is right-censored at 5 years in the catalog; thus, the reported average fund age was only 2 years. Fund market capitalizations ranged from 410,913 million SEK (Indocam's Mosais Japanese Equities fund) to brand new funds with no assets under management. Like fund capitalization, family size, as measured by the number of employees, had a wide range.[5] 57 percent of the funds were denominated in SEK; the others were denominated in Swiss franks, Euros, British pounds, Japanese yen, Norwegian crowns, or US dollars.

To test whether the Swedish investors prefer the familiar and to test whether measures of familiarity explain the home-institution bias, we gather data on several proxies for how familiar Swedes were with each mutual fund. Advertising expenditures come from MarketWatch, a Swedish institution that tracks advertising in Sweden's print (newspapers, magazines, journals, billboards, and banners) and broadcast media (television and radio). Advertising expenditures in 1999 and 2000 for fund families range from 159.9 million SEK to no advertising at all and averaged 18.1 million SEK. For fund families owned by or associated with a bank, the market share in the banking industry comes from the Swedish Banking Authority's publication *Kreditmarknadsstatistik* (*Credit Market Statistics*) 2000. Swedish

[5] Several new fund families reported zero employees.

banking is highly concentrated with the largest bank, Handelsbanken, having a 30.3 percent market share and the top four banks controlling a collective 86 percent of the industry. For fund families owned by or associated with an insurance company, the market share in the insurance industry comes from Sweden's Försäkringsförbundet's (Insurance Association) *Quarterly Statistics* for the third quarter of 2000. The shares are based on premiums in the life and property and casualty segments for the first 9 months of 2000. Familiarity with imported goods from a foreign country may lead to a general familiarity with the country and its financial institutions too. For the 185 funds managed by foreign institutions, we report the level of imports of goods into Sweden from the fund's home country in 2000. The import data are from Statistics Sweden and represent "countries of consignment."[6] Sweden imported 63.7 billion SEK worth of goods from the United Kingdom in 2000 and only 0.8 billion from Luxembourg. For the foreign institutions, the average distance away (direct-line distances between capitals) is 1.32 thousand kilometers and ranges between 1.66k kilometers and 0.40k kilometers. When measuring imports and distances for foreign-managed funds we use the county of registration. So, for example, the 12 funds offered by "JP Morgan Investment Management, Inc." receive the imports and distance of the UK, where they were registered, not the US.

Whereas Tables 1 and 2 describe the population of potential *choices* (mutual funds), Table 3 describes the population of *choosers* (individuals). Table 3, Panel A, reports summary statistics on all 4.4 million individuals who made their first allocation in 2000; in Panel B, we describe the 2.8 million individuals who did not end up in the default fund. We treat the

[6] Sweden entered the EU in 1995. Imports into Sweden that originate in a non-EU country (say the U.S.) but arrive via another EU country (say, France) are consigned to the other EU country. Consequently, Swedish imports from EU countries may be overstated and imports from non-EU countries may be understated.

default alternative as an entirely passive choice even though an individual could have considered the default fund to be the optimal choice.[7]

Table 3 Panel A reports that the average amount invested by an individual was 12,651 SEK. Participants ranged in age from 18 to 62 years, with the average participant being 42 years old. The average individual had over 96 percent of their money in funds managed by Swedish institutions and ended up with 2.6 funds. Panel B of Table 3 indicates that participants who made a conscious choice tended to have slightly higher incomes (as measured by the amount invested) and were slightly younger than those in the default fund. However, these differences in univariate means are not significant. The home-asset bias is also evident in Table 3, with the typical Swede investing 34.3 percent of their money in Swedish assets. Consistent with Huberman and Jiang (2006), who found that U.S. 401(k) participants typically chose between 3 and 4 funds, active participants chose 3.4 funds, on average.[8]

3.2 Home-Institution Bias Test Results

To measure the size and significance of the home-institution bias, we estimate cross-fund OLS regressions where the dependent variable is a measure of participants' preference for a fund and one of the independent variables measures whether the fund is offered by a domestic or foreign institution.

International diversification would call for a 1 to 2 percent exposure to Swedish assets, yet the average active participant had over a 34 percent exposure. For two reasons, care must be taken to control for the home-asset bias when testing for the home-institution bias. First, as

[7] For an analysis of default investors, see Engström and Westerberg (2003). The high proportion of individuals in the default fund is consistent with the findings of Choi, Laibson, Madrian, and Metrick (2001), who find that many 401(k) participants take "the path of least resistance."

[8] 35.1 percent of the participants invested in the default fund. 9.5 percent of the participants chose only 1 fund; the proportion choosing 2, 3, 4, and 5 funds were, 8.8, 13.4, 13.2, and 20.3 percent, respectively.

can be seen in Table 2, the 8 asset classes that were either exclusively or predominantly focused on Swedish assets (styles 1-4, 20, 21, 26, and 27) had no foreign institutions offering funds. Thus, an investor biased toward Swedish assets was forced to use Swedish institutions—a home-asset bias would spuriously show up as a home-institution bias. Second, fund families anticipated a strong bias for Swedish assets and supplied 108 funds that were restricted to Swedish assets. This anticipation and the associated supply of funds creates an endogenaity problem. The amount of money received by a fund is determined not only by the demand for the asset class but also by the supply of funds within that asset class.

To control for the spurious correlation and enogenaity problems, our dependent variable is *ln(RelAmt)*, the relative amount of money.

Ln(*RelAmt*) = Natural log of *Amt/MeanAmt*, the amount the mutual fund received in the initial allocation of money in 2000 relative to the mean amount of money received by funds with the same style.

Ln(*RelAmt*) is approximately the percent above or below the average amount received by funds of the same style. We take the natural log of the ratio of amounts to account for skewness and to obtain approximately normally distributed errors from our regressions. Specifically, we show that among funds with a similar investment objective and, consequently, similar exposure to Swedish assets, a fund offered by a Swedish institution attracted more money than the average fund.

Table 4 reports the estimated coefficients, p-values, and adjusted-R^2 for five different specifications of our regression model. Our particular interests are the coefficients, in the first row of Table 4, for the *Domestic* variable that equals 1 when the fund is managed by a Swedish institution and 0 otherwise. The *Domestic* coefficients are positive and significant (p-values less than 0.0001) in each of the five regressions. For the first regression, the coefficient on the

domestic variable is 2.42 with a t-statistic of 16.3 (not reported) that is higher than any other t-statistic in the regression. Thus, even after controlling for past returns, fees, fund, and fund family characteristics, participants are more likely to choose a fund managed by a domestic institution than a fund managed by its foreign counterpart. The interpretation of the coefficients indicates that a domestic manager is economically meaningful. Because the dependent variable is a natural log, the coefficients can be transformed using: $e^{2.42} = 11.25$. That is, the typical fund managed by a domestic institution received over 11 times more money than a similar fund managed by a foreign institution. If we consider that the default fund was also managed by a Swedish institution, the home-institution bias would be even stronger.[9] The significance of the *Neighbor* dummy (p-value less than 0.0001) indicates that the preference for Danish, Finish, and Norwegian institutions is less than the preference for Swedish institutions but greater than the preference for non-Nordic institutions. The preference for a neighbor country's institutions, not just domestic institutions, implies that aspects of familiarity beyond nationality, language, and local employment influence the flow of funds.

Before discussing the robustness of the *Domestic* coefficient, we comment on the overall significance of the regression, on the signs and significance of the control variables, and on various specifications of the model. The adjusted-R^2 on Model 1 in Table 4 indicates that collectively our covariates explain 56.7 percent of the variation in the relative amount of

[9] We control for the home asset bias by making the dependent variable the amount of money a fund received *relative* to funds of the same style and, consequently, similar exposure to Swedish assets. Following Cronquist (2006), we also estimate regressions where the dependent variable is the *absolute* amount of money a fund receives and where the home-asset bias is controlled for using 28 asset-class dummy variables. In this unreported regression, the *Domestic* coefficient is 2.87, even larger than in the regressions we report. We report the relative- rather than the absolute-amount regressions for three reasons. First, the relative regressions show weaker evidence of the home-institution bias; thus, we stack the deck against our new finding. Second, the relative regressions are more parsimonious since they avoid the need for 28 dummy variables. Third, the absolute regressions with 28 dummies have multicolinearity problems—for example, the variance inflation factor (VIF) in the absolute-amount regression is 2.9 for the *Domestic* variable and 16.7 for the *StdDev36* variable.

the money received by each fund. If the *Domestic* binary variable is dropped from the regression, the adjusted R^2 falls to just 28 percent. No other variable, when omitted, causes such a large drop in explanatory power. For comparison purposes, the adjusted-R^2 of a regression that omits all three style alpha return variables, but maintains *Domestic*, only drops to 52 percent. Formally, the p-value from an F-test restricting the three return coefficients to equal 0 is larger than the p-value from a t-test restricting the domestic manager coefficient to equal 0.

In Model 1, the three coefficients on the style alphas for years 2000, 1999, and 1998 indicate that, contrary to the efficient markets theory and evidence that alphas tend to be serially uncorrelated; participants "chased" hot hands.[10] Style alphas equal a fund's return less the average return of funds with the same style; funds that did not yet exist in a given year receive an alpha of zero. The coefficients on style alphas are positive and, for 2000 and 1999, highly significant (p-values of 0.001 and less than 0.0001, respectively). An increase in a fund's 1999 style alpha of 1.0 (100%) is associated with the fund receiving $e^{1.76} = 6$ times more money than the average fund with the same style. The *Style Alpha 98* coefficient is positive, but not significant (p-value = 0.279). This weakening may not only be due to lack of recency, but also to the lack of data since the alphas of the newer funds are assumed to be zero.[11]

The positive and significant coefficient on *Std Dev 36* indicates that investors preferred the riskier funds within an asset class. *Std Dev 36* is the annualized standard deviation of the

[10] Hendricks, Patel, and Zeckhauser (1993) study "hot hands" and document persistence in poor performing mutual funds.

[11] The catalog included returns for 1995, 1996, and 1997. Our regressions generally found that the coefficients on these older returns were insignificant (but typically positive); consequently, we do not report regressions using the older return data in the paper. One explanation for the low significance of the older returns is the lack of recentcy (see Cromwell (1950) and Duncan and Murdock (2000)). An additional explanation is that the sample size decreases as one looks further into the past.

prior 36 monthly returns. We assign funds without 36 months of history the average standard deviation of funds with the same style. Regressions reported later in the paper show that the risk/fund flow relationship is not robust. The negative and significant coefficient on the relative management fee, *ln*(*RelFee*), indicates that participants avoided funds with fees greater than their competitors'. The coefficient on the three fund-age binary variables indicated a monotonic preference for older funds. We drop *FundAge 0*, new funds, from our regressions so that coefficients on the remaining age-related binary variables are interpreted as the increase in money relative to a new fund. Due to economies of scale, or perhaps broader awareness and lower search costs, the larger the fund the more money it received. Like fund size, fund family size, as measure by employees, has a significant and positive effect on the amount of money a fund receives. We add 1 before taking logs of fund cap and family employees because several funds were new and had no money under management and several reported zero employees.[12]

The positive and significant coefficient on binary variable *Rank1* indicates that being listed first in the catalog among funds of the same style results in $100(e^{0.52} - 1) = 68.2$ percent more money relative to the style average than otherwise. Evidence from psychology and marketing suggests that being first on the list may be an advantage. Lund (1925) first documents the primacy effect, Asch (1946) and Rosnow (1966) document the role of primacy in memory, and Glanzer and Cunitz (1966) find a related serial position effect.[13]

[12] When recording fund family characteristics (size, advertising, and market share), we combine the measures of related families. For example we combine the Robur with the Föreningssparbanken family (the companies had merged) and we combine the three divisions of the Folksam Company into one family. However, we do not combine related families if they reported different fund registration countries. For example we do not combine Carlson Fondförvalting with Carlson Fund Management Company because the former reports Sweden and the latter reports Luxemburg as its country of registration.

[13] In addition to testing for a primacy effect, we also test for two additional menu effects: a recentcy effect (last on the list, see Cromwell (1950)) and a page position effect (first on a page, see Hanssens and Weitz (1980) and Fankel and Solov (1963)). Neither menu effect's coefficient (not reported) is significant.

In the catalog, individual funds within an asset class generally have the same exposure to Swedish assets. For example, in the 1st class, "Swedish Normal," every fund must have 100 percent invested in Swedish assets and in the 14th class, "UK," every fund must have 0% in invested in Swedish assets. However, in asset classes where the exposure to Swedish assets can vary (the three industry classes, for example), 11 funds specifically mention a Swedish tilt in the catalog. Furthermore, 20 of the 28 funds in the 21st asset class, called "Swedish Equity, Swedish and Foreign Fixed Income," gave clues in the catalog indicating their exposure to Swedish assets. In Model 2, the relative nature of the dependent variable controls for variations in exposure to Swedish assets across asset classes and *Excess Swedish A* controls for the variations within asset classes. *Excess Swedish A* is the proportion of a fund's money invested in Swedish assets, as reported by Karlsson and Nordén (2006), less the average proportion for funds in the same asset class. The coefficient on *Excess Swedish A* is positive, indicating a home-asset bias, but it is not significant (p-value = 0.648). The lack of significance is not surprising given only 31 funds differentiated themselves from their same-style competition with regards to Swedish assets. In contrast, the 2.41 coefficient on *Domestic* is significant, indicating a home-institution bias even when a home-asset bias is controlled for both across and within asset classes.

To further control for the home-asset bias, in Model 3 we exclude all funds that have exposure to Swedish assets. Re-estimating the model with the 285 funds increases the domestic coefficient to 2.73. This significant coefficient (p-value less than 0.0001) indicates that the home-institution bias is distinct from the home-asset bias. In a group of funds that were prohibited from holding domestic *assets*--making a home-asset bias impossible--participants had a strong preference for domestic *institutions*. Just as Coval and Moskowitz

(1999), Moskowitz (1999), Grinblatt and Keloharju (2000), and Huberman (2001) control for the international frictions explanation by finding a home bias in domestic assets, we control for the asymmetric information explanation by finding a home-institution bias in funds without domestic assets. Bae, Stulz, and Tan (2008) show that resident stock analysts have an informational advantage over non-residents. Coval and Moskowitz (2001, p 811) find that fund managers "earn substantial abnormal returns in nearby investments." Consequently, when investing in foreign assets, if anything, Swedes should have a preference for foreign institutions. They do not; the home-institution bias is strongest when the foreigners may have an informational advantage—when the assets are outside of Sweden.[14]

To test whether the increase in the *Domestic* coefficient from 2.42, for all funds, to 2.73, for funds without Swedish assets, is statistically significant, in Model 4 we use a dummy variable to allow an investor's degree of home-institution bias to differ depending on whether Swedish asset were held in the fund. *Dom_ I & Swed_A* equals one when the institution is Swedish and the fund holds Swedish assets. The home-institution bias is actually smaller when Swedish assets are involved; the *Dom_ I & Swed_A* coefficient is negative (-0.74) and statistically significant (p-value less than 0.0001). Thus, the home-institution bias is weakest when better-understood Swedish assets are involved. One possible explanation for using domestic managers when investing in, say, Japanese assets is that Japanese assets are perceived as riskier, scarier, or more exotic and alien than investing in Swedish assets. In situations perceived as risky, scary, exotic, and alien the psychic utility of dealing with a familiar institution may be the greatest. The perceived benefits of a familiar hand to hold may be

[14] An unreported regression provides further evidence that the home-institution bias is not driven by an information asymmetry. In a regression using only index funds, a class where information is irrelevant, the *Domestic* coefficient is 3.05 with a p-value of 0.035.

greater when walking in a strange and seemingly dark alley than when walking up the driveway to one's own home.

In Table 5 we report information about the *Domestic* coefficient from separate regressions of *ln*(*RelAmt*) on fees, past style alphas, and fund age, for each asset class. Although there are 29 different classes of mutual funds, only 16 regressions are of full rank.[15] The domestic coefficient is positive in all 16 regressions and is significant at the 90 percent confidence level in 14 of the regressions. The two non-significant coefficients are from regressions with few observations: The Europe index class has only 2 out of 7 funds offered by foreign institutions and the Pharmaceutical class only has 2 out of 6 foreign-institution funds (see Table 2). Again, counter to a information asymmetry explanation, the four largest *Domestic* coefficients in Table 5 are for styles with little or no exposure to Swedish assets: Euroland (EMU members), Europe small cap, Foreign equity and fixed income, and Other (non-Swedish) fixed income.

The home-institution bias could be spuriously correlated to a behavioral preference for funds denominated in SEK. When investing in foreign assets, an investor is subject to exchange rate risk regardless of the fund's currency denomination; however, some investors may erroneously perceive a fund denominated in SEK as being less risky. Since funds sponsored by Swedish institutions tend to be denominated in SEKs, a spurious correlation between the amounts of money a fund receives and the nationality of the institution could result from an underlying correlation between Swedish institutions and funds denominated in SEKs. In Model 5 of Table 4, we exclude the 235 funds that report their results using SEK.

[15] For example, the first style, Swedish Normal, has 28 funds, but all of them are offered by domestic institutions (*Domestic* = 1) and of the 5 funds in the seventh style, United Kingdom, all are offered by a foreign institution (*Domestic* = 0).

The evidence for the home-institution bias actually increases. The *Domestic* coefficient is 2.56 with a p-value less than 0.0001. The home-institution bias is not driven by a currency preference.

3.3 Robustness of the Home-institution Bias

In Model 1 of Table 4, we made several choices regarding the measurement and inclusion of the dependent variables. Our choices were guided by theory and prior empirical work. We now examine the robustness of the *Domestic* coefficient using Model 1 as the base case. We change the number of observations by (1) excluding the independent variable measuring market cap since it has three missing observations, (2) excluding the premix or generational funds, (3) including only equity funds, and (4) including only non-equity funds. These changes cause the *Domestic* coefficient to vary around the base case of 2.42 between a low of 2.30 and a high of 2.55 with p-values always less than 0.0001. Switching measurements by (1) using a fund's reported age rather than the age-based binary variables, (2) using the family market cap to measure size rather than the number of employees, (3) using the total management fee rather than relative fee, and (4) dropping the number of employees (because some families reported no employees), causes the *Domestic* coefficient to vary between 1.98 and 2.44 with p-values always below 0.0001. Omitting the 2000 returns (because they were not in the catalog) leaves the coefficient on *Domestic* unchanged at 2.42. Given that around 95 percent of the money went to Swedish institutions, it is not surprising that the *Domestic* coefficient is robust.

When we re-estimate the 5 models in Table 4 using the number of investors in a fund as the dependent variable in lieu of the amount of money a fund received, the switch from money

to investors has little effect on the strong evidence in favor of the home-institution bias. We also redefine whether a fund is from a Swedish institution based on the domicile of the fund's country of registration rather than the domicile of the fund's parent institution. This new definition switches 13 funds (3 percent) from domestic to foreign. Typically these are funds from Swedish parent institutions that are registered in Luxemburg, perhaps for tax purposes. The *Domestic* coefficient remains statistically significant in all 5 models reported in Table 4.

The data in Tables 4 and 5 document the home-institution bias as of 2000 when the PPM system started; however, the home-institution bias is still strong. According to recent PPM statistics, all ten funds with the most money on December 31, 2006 were offered by Swedish institutions. Nine of the ten funds with the least amount of money were offered by non-Swedish institutions. The one Swedish fund with a relatively low funding was a brand-new fund that entered the PPM system during 2006.

4. Familiarity

Zajonc's (1968) exposure/affect theory and Tajfel (1978 and 1979) and Tajfel and Turner's (1979) social identity theory suggest that an explanation for the home biases (both assets and institutions) is a preference for the familiar. In the home-asset case, Grinblatt and Keloharju (2001) find a preference for assets in countries sharing a language, and both Bhattacharya and Groznik (2008) and Morse and Shive (2006) find a preference for assets in countries with a large expatriate population. Cronquist (2006) finds a preference for mutual funds that advertise or gain exposure through a related bank or insurance company. Thus, theory and evidence suggest a link between proxies for familiarity and investment choices. We add to this evidence.

The familiarity explanation receives support from the size and age coefficients in Table 4. Older and larger funds and larger fund families are probability more familiar than their newer and smaller counterparts. The first three regressions in Table 6 show how three proxies for familiarity (advertising, banking market share, and insurance market share) increase the relative amount of money received by a Swedish institution's mutual fund. The last three regressions in Table 6 show how two proxies for familiarity (imports from and distance to a country) influence the flow of money to international institutions' mutual funds.

To conserve space, in Table 6 we do not report the coefficients for the alpha, risk, fee, age, rank, and size independent variables. In Model 1 of Table 6, we confirm Cronqvist's (2006) finding that advertising by a fund family is positively correlated with the amount of money received by the fund. *Ln*(*RelAds*) equals the log of 1 plus the amount of SEK spent by a fund's family and its parent company on advertisements in Sweden during 1999 and 2000 divided by the mean amount spent on advertising for funds with the same asset class. The coefficient on *Ln*(*RelAds*) is positive and significant (p-value less than 0.0001); thus, advertising more than the other funds of the same style increases the relative amount of money flowing to the fund. Furthermore, Cronqvist (2006) finds that the advertisements generally did not give information about relevant variables such as fees. Rather, Cronqvist (2006, p. 28) concludes that "…individuals' investment choices [are] determined by a mix of cognition and emotions. In particular, fund advertising can arouse certain key positive emotions in investors, which make their attitudes towards a fund more favorable."

An investor obviously becomes familiar with an institution when he or she makes a deposit, borrows money, or purchases insurance. Thus, the significant and positive coefficients on the market share (as of 2000) variables in Model 2 are consistent with a preference for

familiar institutions.[16] The banking and insurance coefficients could also be an indication of a convenience advantage. A Swede may prefer to deal with an institution that has nearby offices and employees that speak Swedish. However, the PPM system was structured to minimize such advantages. For example, PPM statements could not be consolidated with previously established accounts at other institutions. Post-investment reporting on performance, service, support for individuals, and opportunities for reallocation, deposits, and withdrawals all went through the PPM system and followed identical procedures for funds sponsored by foreign and domestic institutions. In Model 3, both advertising and the market share variable are included and the relative advertising coefficient loses its significance.[17]

In Models 4 through 6 we test whether, among foreign-managed funds, higher goods imports and closer proximity lead to more money under management. These proxies for familiarity are significant; p-value for *Imports* is 0.066 in Model 4 and the p-value for *Distance* is 0.001 in Model 5. When both proxies for familiarity are included, the coefficient on *Imports* loses some of its significance (p-value = 0.102). The evidence in Table 6 is consistent with familiarity influencing the flow of money to funds. The Swedish institutions appear to increase their familiarity among investors by advertising and through market share in related industries. Foreign institutions' familiarity appears to increases with both economic ties and geographic proximity.

[16] For the UBS fund family we use bank market share from 1999 and for Banque Invik we use the market share from 2001 because these two banks were not included in the 2000 market share statistics.

[17] As a general rule, only Swedish fund families advertised in Sweden or were part of a banking or insurance institution with a presence in Sweden; thus, the domestic institution variable is correlated with advertising and market share in banking and insurance. To avoid problems with multicollinearity, the first three regressions in Table 6 include funds from Swedish institutions only. In an unreported regression using all 413 observations, the coefficients on the domestic institution dummy, advertising, and the banking and insurance variables all have positive signs and are statistically significant. The variance inflation factor for the *Domestic* coefficient in this regression is 2.75.

The main points of the cross-fund regressions are: (1) the home-institution bias is large, significant, and robust; (2) the home-institution bias is not driven by a home-asset bias and is actually strongest in asset classes (foreign assets only) where a home-asset bias is impossible and where information asymmetries work against the home institutions, and (3) the home institution bias may be part of a underlying preference for the familiar.

5. Micro Determinants of the Home-institution Bias

5.1 Data

Whereas in Sections 3 and 4 we presented evidence of the home-institution bias in cross-fund regressions modeling the flow of money to 416 mutual funds, in Section 5 we switch our focus to the determinants of the home-institution bias in regressions modeling the degree of bias in 15,497 individuals. The intention is to relate the share of domestically-managed money (*Home-institution*) to a set of explanatory variables including demographic characteristics related to proxies for investor sophistication and familiarity with foreign institutions. We use the same data set and methodology as Karlsson and Nordén (2006). Whereas Karlsson and Nordén (2006) test for the determinants of the home-asset bias, we test for the determinants of the home-institution bias.

For these 15,497 individuals, investment choices are linked to individual demographics for the year 2000. Data on individuals comes from Statistics Sweden, the Swedish version of the U.S. Census Bureau. Data sources include HEK 2000 (a report on household economics), IoF 2000 (a report on individual and household measures of income), and SUN 2000 (a report on educational status). Data from these three population reports are linked to an in-depth survey of 15,000 households, also made by Statistics Sweden, which represents a cross section

of the Swedish population. This survey reports more detailed information, including the amount of foreign assets held by each individual in the households.

From the survey of 15,000 *households*, 17,591 *individuals* map into the PPM data. 2,454 of these individuals were either too young or unemployed and did not make a selection in the PPM system during 2000, leaving 15,497 individuals who invested money. Of these, 5,124 individuals did not make an active investment decision and were assigned to the default fund. To test which demographic and economic characteristics lead to a home-institution bias, we define our dependent variable, *Home-institution*, as the weighted (by the amount of money an individual invested in each fund) average of each fund in the portfolio's measure of *Domestic*. For example, if an individual put 3,000 SEK in a domestically-managed fund and 1,000 SEK in a foreign-managed fund, the level of *Home-institution* would be: ¾(1) + ¼(0) = 0.75; meaning that 75 percent of the money is managed domestically.

The mean for *Home-institution* is 0.949. On average, nearly 95 percent of an investor's money went to funds run by Swedish institutions. In fact, 83.1 percent of the individuals in our sample invested all their money with domestic institutions (*Home-institution* = 1). In contrast, only 0.4 percent (just 42 individuals) invested all their money with foreign institutions--even though almost half of the funds were sponsored by foreign institutions. The remaining 16.5 percent split their money between domestic and foreign institutions (0 < *Home-institution* > 1).

The distribution of the dependent variable makes standard OLS or Probit/Logit models problematic. Consequently, we follow Karlsson and Nordén (2006) and test for the determinants of the home-institution bias using a multinomial logit model by dividing the portfolio choice, *y*, into the following four categories:

$y = 1$ if $0.0 \leq$ *Home-institution* < 0.5
$y = 2$ if $0.5 \leq$ *Home-institution* < 1.0

y = 3 if *Home-institution* = 1.0
y = 4 if no choice (default fund)

To avoid a selection bias, we jointly model the likelihood of home-institution bias and the likelihood of making an active choice. By including the default outcome, we presume that each individual simultaneously considers two investment choices: the choice of whether to be active or passive and the choice of how much to allocate to domestic institutions.

To model the home-institution bias, we need measures of other covariates believed to influence investors' choices of managers. Our list of covariates are informed by the work of Karlsson and Nordén (2006), Dhar and Zhu, (2002), and Engström and Westerberg (2003), who test whether sophistication, experience, and other demographic characteristics influence the home-asset bias, the disposition effect, and the degree of active management, respectively.

Our data includes several measures associated with the degree of financial sophistication: wealth, education, big city domicile, and frequent trading. If the home-institution bias is due to behavioral preferences such as familiarity, one would expect that the less financially-sophisticated investors would exhibit a stronger preference for domestic institutions than the more sophisticated. We have several indirect proxies for an individual's familiarity with international fund families. If the home-institution bias is driven by familiarity, then an individual who already owned foreign investments at the time of the PPM choice should be less home-institution biased than someone who did not own foreign assets. Likewise, a worker in Sweden who is an immigrant or married to an immigrant may be more familiar with international institutions and/or less concerned about national (Swedish) identity. Finally, evidence in Sharma, Shimp, and Shin (1995), Hjerm (2005), and Smith and Kim (2006), among others, suggests that younger individuals (perhaps due to advances in

communications, travel, economic unions, common currencies, and the time since the world wars) tend to be more comfortable with international people and institutions.

5.2 Determinants of Home-institution Bias

The results of the estimation of the multinomial logit model are presented in Table 7. For each explanatory variable, three coefficients are estimated. Each coefficient represents the effect of the variable on the probability of obtaining the outcome y = 2, 3, or 4 relative to the probability of obtaining y = 1 (i.e., a low level of home-institution bias where *Home-institution* < 0.5). Table 7 also reports a Wald test statistic for each explanatory variable that is χ^2-distributed under the null hypothesis that the variable does not affect the allocation between domestic and foreign institutions.

The multinomial results in Table 7 indicate that investor sophistication measures help explain an individual's choice regarding the proportion of funds allocated to domestic institutions. The Wald tests indicate significance for income levels, urban dwellers, education levels, and trading frequency. Furthermore, the signs of the coefficients are in the direction predicted by behavioral explanations—the unsophisticated are more biased. For example, as income increases, individuals become less likely to end up in the biased outcomes 2 and 3 and more likely to have consciously chosen some foreign institutions. Increased wealth also reduces the likelihood of ending up in outcome 2. City dwellers and individuals with post-high school education have relatively lower probability of ending up in outcomes 2 and 3 and thus higher probability of allocating money to foreign-managed funds. The more an individual trades, the less likely they are to be completely home-institution biased, y = 3.[18] Overall, our proxies for sophistication indicate that financially-sophisticated individuals are more likely to

[18] Data on the number of trades, as well as the other control variables at the bottom of Table 7, are only available for individuals who made a conscious choice (non-defaulters).

make a conscious choice and less likely to choose domestically-managed funds. This negative correlation between the home-institution bias and financial sophistication suggests that behavioural reasons, such as familiarity, rather than economic reasons drive the home-institution bias.

The variables associated with familiarity generally add to the explanatory power of the model. Specifically, the Wald tests for prior exposure to foreign assets, age, and a Swedish man married to an immigrant, are all statistically significant in the model. If the home-institution bias is caused by an unobserved convenience or simplicity in choosing a domestic-institution fund or even by an information asymmetry or desire to boost the local economy, then the coefficients on *Immigrant*, *ImmigrantW*, *ImmigrantH*, *ForeignA* and *Age* should all be insignificant. In contrast, we find that individuals that may be more familiar with or open to international influences are less likely to be home-institution biased.

The coefficients on *Married*, and *OCC3*, indicate that non-married individuals who are self employed are more likely to be in the least home-institution-biased outcome, $y = 1$, than are investors who are married and employed in the public sector.

The last four variables in Table 7 control for characteristics of the funds chosen other than the domicile of the sponsoring institutions. Possibly, individuals in, say, outcome $y = 3$ were really expressing a preference for high past return, low risk, low fee, small-cap funds, rather than a preference for domestically-managed funds. The inclusion of the last four variables control for this possibility and indicated that individuals with a relatively strong home-institution bias tend to choose funds with high past returns, low risks and fees, and smaller market caps.

Our Table 7 results are consistent with a behavioural preference explanation for the home-institution bias because the bias is strong among the financially unsophisticated and internationally naive.

6. Conclusions

We find a strong preference for mutual funds offered by domestic institutions relative to those offered by foreign institutions. We call this preference for domestic institutions, as opposed to assets, the home-institution bias. Cross-*fund* regressions using Sweden's privatized retirement system data show that funds offered by domestic institutions received around 10 times more money than similar (same fee, age, return history, size, and style) funds from international institutions. This home-institution bias would be even stronger if we considered the fact that the default fund was managed by a Swedish institution. The home-institution bias is empirically distinct from the home-asset bias. It exist when the location of assets is controlled and when domestic assets are eliminated from the sample.

The home-institution bias is not driven by information asymmetries or currency denomination. The bias is actually strongest when domestic managers are at an information disadvantage. For example, when shopping for exposure to, say, Asian or North American assets, the Swedes still prefer a Swedish institution over an international institution. In contrast, the familiarity explanation receives indirect support. Among Swedish institutions, advertising and market share in the banking and insurance industries, proxies for familiarity, increase the flow of money into a fund. Among international institutions, familiarity proxies of exports to and distance from Sweden influence the amount of money received by a fund. In support of a behavioral explanation, our cross-*individual* regressions find that financially

unsophisticated and provincial (not familiar with or comfortable with international people and institutions) individuals are the most home-institution biased.

In and of itself, the home-institution bias is important since it constrains utility maximization and impedes the ability of financial institutions to expand internationally. The home-institution bias is also important because it informs related literature. In the home-asset literature, differentiating between an information asymmetry explanation and a familiarity explanation is difficult. In our home-institution setting we control for information asymmetries and still find a preference for home institutions. We add a new category, home-institutions, to the home goods and home assets evidence consistent with a familiarity preference. Collectively this evidence suggests that familiarity, like "habits" and "the Jones," provides a new context for the utility of consumption.

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Table 1
Summary Statistics for Mutual Funds in Sweden's PPM Catalog

Variable	N	Mean	StdDev	Skew	Max	Min
Dependent Variables	*Panel A: Data on Fund Allocation*					
Amount Invested in a Fund (millions of SEK)	416	91.07	225.79	5.36	2,254.85	0.11
Number of Investors Choosing a Fund	416	22,872	55,767	6.19	665,303	36
Fund and Family Independent Variables	*Panel B: Data on Funds Offered in the PPM's System*					
Domestic Manager = 1, 0 otherwise	416	0.56	0.50	-0.22	1	0
Border Country Manager = 1, 0 otherwise	416	0.06	0.25	3.54	1	0
Management Fee (%)	416	0.93	0.42	0.94	3.97	0.15
Return 2000 (% through August)	416	9.51	10.98	2.13	105.23	-16.99
Return 1999 (%)	268	41.39	41.53	1.83	272	-14
Return 1998 (%)	202	12.74	21.46	-0.61	86	-81
Return Standard Deviation over 36 months	416	18.18	9.14	0.24	53	0
Age (discrete years, censored at 5)	416	2.08	2.05	0.41	5	0
Market Capitalization (millions of SEK)	413	2,808	22,867	15.65	410,913	0
# of Employees in Fund Family	416	2,058	9,034	4.96	48,623	0
Currency SEK = 1, 0 otherwise	416	0.57	0.50	-0.27	1	0
Familiarity Independent Variables						
Advertising in 1999 and 2000 (100 mill. SEK)	416	0.18	0.33	1.98	1.60	0
Banking Industry Market Share in Sweden (%)	416	3.90	8.40	1.98	30.31	0
Insurance Industry Market Share in Sweden (%)	416	2.95	4.80	1.36	16.24	0
Imports from Fund's Home Country (bill. of SEK)	185	29.5	24.3	0.19	63.7	0.80
Distance from Fund's Home Country (thou. of km.)	185	1.32	0.39	-1.60	1.66	0.40

Panel A reports summary statistics measuring the amount of money given to and the number of investors attracted by a fund after all 4.4 million participants made their initial choice in 2000. Panel B reports summary statistics for the active (not dropped from the system) mutual funds in the 2000 catalog.

Table 2
Number of Mutual Funds, by Style, In Sweden's Original 2000 PPM Catalog

Level 1 Category	Level 2 Category	Asset Class Number	Style Name	Funds in Catalog	Dropped from System	Swedish Institution	Foreign Institution
Equity	Sweden	1	Sweden (normal)	30	2	28	0
		2	Sweden small cap	6	0	6	0
		3	Sweden index	7	0	7	0
	Regional	4	Swedish equity and foreign equity	9	0	9	0
		5	Nordic countries	10	1	5	4
		6	Europe	36	5	14	17
		7	Euroland (EMU members)	9	1	3	5
		8	Europe small cap	8	1	1	6
		9	Europe index	7	0	5	2
		10	North America and USA	26	3	9	14
		11	Asia and Far East	18	3	5	10
		12	Global	33	2	13	18
		13	Emerging markets	17	0	6	11
	Countries	14	Japan	21	3	6	12
		15	UK	7	2	0	5
		16	Other countries	13	0	2	11
	Industry	17	IT and communication	15	0	9	6
		18	Pharmaceutical	6	0	4	2
		19	Other industries	14	0	4	10
Mixture	Mixture	20	Swedish equity and fixed income	3	0	3	0
		21	Swedish equity, Swedish and foreign fixed income	28	1	27	0
		22	Foreign equity and fixed income	24	2	2	20
Preset mix	Preset mix	23	Retirement in less than 10 years	4	0	4	0
		24	Retirement in less than 20 years	7	0	7	0
		25	Retirement in more than 20 years	21	0	21	0
Fixed income	Fixed income	26	Sweden, short maturity	17	2	15	0
		27	Sweden, long maturity	17	2	15	0
		28	Europe and Euroland	23	5	0	18
		29	Others	19	4	1	14
All funds				455	39	231	185

The category levels and styles of the 455 mutual funds in Sweden's *Fund Catalog for the Premium Retirement Choice* published by the Premium Retirement Authority in 2000 as part of Sweden's reformed social security system. Between the times the catalog was printed and participants made their investments, 39 funds were dropped from the system leaving 416 that received money.

Table 3
Summary Statistics for Individuals Investing in Mutual Funds in 2000

Variable	Mean	StdDev	Skew	Max	Min
	Panel A: Data on all 4,413,831 Participants				
Amount Invested by Individual (SEK)	12,651	6,727	0.142	26,202	167
Age of Individual in 2000	42.1	11.3	-0.011	62	18
Proportion Allocated to Domestic Institutions	0.964	0.120	-4.353	1	0
Number of Funds Held by Individual	2.6	1.6	0.385	5	1
	Panel B: Data on the 2,863,711 Non-Defaulters				
Amount Invested by Individual (SEK)	13,506	6,580	0.055	26,202	167
Age of Individual in 2000	42.0	11.0	-0.011	62	18
Proportion Allocated to Domestic Institutions	0.945	0.145	-3.381	1	0
Proportion Allocated to Swedish Assets	0.343	0.248	0.467	1	0
Number of Funds Chosen by Individual	3.4	1.4	-0.390	5	1

Panel A reports summary statistics for all participants that invested money in Sweden's Premium Pension plan during 2000. Panel B summarizes the participants who did not end up in the default fund (made a conscious choice). The Proportion Allocated to Swedish Assets is not available in Panel A because the asset allocation of the default fund was not known in 2000.

Table 4
Determinants of a Mutual Fund's Ability to Attract Money

Independent Variables	Base Case 1	Proportion of Swedish Assets 2	No Swedish Assets 3	Swedish Asset Interaction 4	No Swedish Currency 5
Domestic	2.42	2.41	2.73	2.81	2.56
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Excess Swedish A	---	0.34	---	---	---
		(0.648)			
Dom_ I & Swed_A	---	---	---	-0.74	---
				(0.000)	
Neighbor	1.10	1.09	0.97	1.06	0.97
	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)
Style Alpha 00	2.35	2.34	2.13	2.47	1.68
	(0.001)	(0.001)	(0.005)	(0.001)	(0.086)
Style Alpha 99	1.76	1.76	1.72	1.74	1.66
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
Style Alpha 98	0.62	0.60	0.39	0.67	0.20
	(0.279)	(0.294)	(0.517)	(0.228)	(0.796)
Std Dev 36	1.32	1.32	0.41	0.43	0.44
	(0.036)	(0.037)	(0.589)	(0.507)	(0.633)
ln(RelFee)	–1.54	–1.54	–1.37	–1.48	–1.35
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
FundAge 1&2	0.18	0.18	0.40	0.17	0.29
	(0.301)	(0.289)	(0.036)	(0.322)	(0.243)
FundAge 3&4	1.00	1.00	1.41	1.01	1.43
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
FundAge 5	1.25	1.25	1.80	1.30	1.95
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
*ln(*1 + *FundCap)*	0.08	0.08	0.05	0.09	0.11
	(0.009)	(0.009)	(0.176)	(0.003)	(0.063)
*ln(*1 +*NumEmp)*	0.23	0.23	0.19	0.22	0.15
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
Rank1	0.52	0.50	0.12	0.62	-0.20
	(0.024)	(0.029)	(0.676)	(0.006)	(0.552)
Constant	–4.93	–4.93	–4.59	–4.77	–4.72
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Adjusted R^2	0.567	0.567	0.637	0.589	0.549
N	413	413	285	413	178

Entries in each cell are OLS regression coefficients and p-values are in parenthesis. The dependent variable is the natural log of the amount of money received by the mutual fund relative to funds with a similar style, *ln(RelAmt) =ln(Amt/MeanAmt)*, where *Amt* is the amount of money received by the fund and *MeanAmt* is the mean amount of money received by funds of the same style. *Domestic* = 1 if the fund is managed by a Swedish institution and zero otherwise. *Neighbor* = 1 if the fund is managed by a Danish, Finish, or Norwegian institution and zero otherwise. *Dom_I & Swed_A* = 1 if the fund is both managed by a Swedish institution and holds some Swedish assets. *Excess Swed _A*= the proportion of a fund's money invested in Swedish assets less the average proportion for funds with the same style. *Style AlphaYY* = style alpha, in basis points, for the fund in year 19YY. Newer funds that did not exist in 19YY received a style alpha of zero. *Ln*(*RelFee)* = natural log of the relative management fee, *Ln(Fee/MeanFee)*, where *MeanFee* is the mean fee for funds of the same style. *FundAge 1&2*, *FundAge 3&4*, and *FundAge 5* are binary variables for the age of the fund. *Ln(1+ FundCap)* = natural log of 1 plus a fund's market capitalization measured in SEK as of December 31, 1999. *Ln(1+ NumEmp)* = natural log of 1 plus the number of employees for the fund family. *Rank1* indicates whether the fund was listed first in its style in the catalog.

Table 5
Results, by Asset Class, for only the *Domestic* Coefficient from OLS Regressions of *Ln(RelAmt)* on Fees, Past Style Alphas, Fund Age, and the Domestic Binary Variable.

Category			----------*Domestic* Coefficient----------		
Level 1	Asset Class Name	N	Coefficient	t-value	p-value
Equities:	Nordic countries	9	3.47	4.73	0.009
	Europe	31	2.85	5.99	0.000
	Euroland (EMU members)	8	4.09	3.03	0.056
	Europe small cap	7	4.66	7.13	0.019
	Europe index	7	0.73	0.32	0.779
	North America and USA	23	2.22	4.80	0.001
	Asia and Far East	15	2.71	5.84	0.001
	Global	31	2.91	6.10	0.000
	Emerging markets	17	2.18	4.06	0.002
	Japan	18	2.25	3.84	0.002
	Other countries	13	2.78	2.17	0.062
	IT and communication	15	1.47	3.61	0.005
	Pharmaceuticals	6	2.00	4.58	0.137
	Other industries	14	2.32	4.38	0.002
Mixed:	Foreign equity and fixed income	22	4.93	4.93	0.001
Fixed Income:	Others	15	5.04	9.65	0.000

The dependent variable, *Ln(RelAmt)*, is the natural log of the amount of money (in millions of SEK) received by the mutual fund in the first allocation of participants in 2000 divided by the mean amount for funds of the same style. The independent variables are the binary variable indicating a domestic manager, *Domestic*, the relative (to funds of the same style) fee, *ln*(*RelFee)*, the age of the fund, and the style alphas in 2000, *Style Alpha00*, and in 1999, *Style Alpha99*. The table reports information on the *Domestic* coefficient only.

Table 6
Determinants of a Mutual Fund's Ability to Attract Money and Measures of Familiarity

	Funds from Swedish Institutions			Funds from International Institutions		
Independent Variables	1	2	3	4	5	6
Constant	-2.521	-2.441	-2.358	-4.861	-3.298	-3.785
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
.						
.						
.						
Ln(RelAd)	0.068	---	0.017	---	---	---
	(0.000)		(0.332)			
Bank Share	---	0.032	0.031	---	---	---
		(0.000)	(0.000)			
Insurance Share	---	0.096	0.088	---	---	---
		(0.000)	(0.000)			
Imports	---	---	---	7.360	---	6.574
				(0.066)		(0.102
Distance	---	---	---	---	-0.860	-0.748
					(0.001)	(0.004)
Adjusted R^2	0.448	0.534	0.534	0.532	0.532	0.537
N	230	230	230	183	183	183

Entries in each cell are OLS regression coefficients and p-values are in parenthesis. The dependent variable is the natural log of the amount of money received by the mutual fund relative to funds with a similar style, *ln(RelAmt).* The coefficients of the variables from *Neighbor* to *Rank1* (listed in Table 4) are not reported. *Ln(RelAd*) is the natural log of the of the amount of money spent by a fund's parent company on advertisement relative to the amount for funds with a similar style. *Bank Share* = the market share of a fund's parent bank and *Insurance Share* = the market share of a fund's parent insurance company. *Imports* = the amount of imports into Sweden of goods from a fund's country of registration, measured in billions of SEK and Distance = distance from Sweden to a fund's country of registration, measured in thousands of kilometers.

Table 7
Multinomial Logit Model of an Individual's Degree of Home-institution Bias

Variables associated with investor sophistication:	Medium Bias Pr(y = 2)	High Bias Pr(y = 3)	Default Pr(y = 4)	Wald
Income, SEK	-0.0973	-0.1208	-0.0845	8.9265
	0.030	*0.004*	*0.402*	*0.012*
Wealth, SEK	-0.0290	-0.0246	-0.0285	3.5023
	0.066	*0.113*	*0.450*	*0.174*
Urban, metropolitan area	-0.3673	-0.7299	-0.2218	35.4200
	0.063	*0.000*	*0.646*	*0.000*
Rural, country	0.0891	0.2456	0.1235	4.4775
	0.707	*0.294*	*0.849*	*0.107*
EDL1, education less than High School	0.0459	0.4045	0.3257	12.4951
	0.881	*0.175*	*0.658*	*0.002*
EDL3, education more than High School	-0.9580	-1.2587	-0.7143	58.2465
	0.000	*0.000*	*0.142*	*0.000*
PPMTrades, average number per year	-0.0373	-0.6497	-	97.9223
	0.780	*0.000*	-	*0.000*
Variables associated with familiarity and nationalism:				
ForeignA, previously owned foreign assets	-0.6141	-0.7338	-0.6451	13.5724
	0.004	*0.000*	*0.187*	*0.001*
Age, in 2000	0.0175	0.0339	0.0218	36.0506
	0.039	*0.000*	*0.324*	*0.000*
Immigrant	-0.2036	-0.3721	-0.0104	4.0311
	0.427	*0.138*	*0.986*	*0.133*
ImmigrantW, married to immigrant wife	-1.6077	-2.0603	-1.0161	24.9736
	0.000	*0.000*	*0.219*	*0.000*
ImmigrantH, married to immigrant husband	1.4670	1.1200	0.9292	3.3160
	0.168	*0.288*	*0.856*	*0.191*
Control variables for investor characteristics:				
Male	-0.0199	-0.1824	-0.0653	6.3026
	0.915	*0.322*	*0.891*	*0.043*
Married	0.7271	0.7309	0.0833	13.7511
	0.000	*0.000*	*0.863*	*0.001*
OCC2, employed in private sector	0.0006	-0.0676	-0.1542	0.8272
	0.998	*0.751*	*0.793*	*0.661*
OCC3, self employed	-1.1228	-1.2680	-0.6403	13.0626
	0.002	*0.000*	*0.393*	*0.001*
OCC4, employment unknown	-0.8739	-0.7086	-0.3999	3.7632
	0.054	*0.104*	*0.672*	*0.152*
Control variables for portfolio characteristics:				
PastReturn, return of portfolio from 1997 to 1999	0.1391	0.2812	-	10.4205
	0.234	*0.007*	-	*0.005*
StdDev, Weighted average standard deviation	-3.7862	-6.2865	-	47.7122
	0.005	*0.000*	-	*0.000*
AveFee, Weighted average fee	-1.2372	-2.7382	-	261.7570
	0.000	*0.000*	-	*0.000*
AveCap, Weighted average market cap	-0.0122	-0.0996	-	150.0624
	0.000	*0.000*	-	*0.000*
Constant	8.3681	11.8863	4.1645	-
	0.000	*0.000*	*0.013*	

Table 7 contains results from the estimation of the multinomial logit model. The dependent variable, y, has four possible outcomes (m = 1, 2, 3, 4), where each of the first three corresponds to an "active" choice in the range of the individual's

domestically-managed share of invested pension funds, *Home-institution*, according to {low bias, *Home-institution* < 0.5; medium bias 0.5 ≤ *Home-institution* < 1.0; and high bias, *Home-institution* = 1.0}, and $y = 4$ represents the "passive" default alternative. The estimated coefficients are presented for each probability and explanatory variable, with p-values below the coefficient. The Wald tests are distributed CHI-square with four degrees of freedom for the null hypothesis that each explanatory variable does not affect the likelihoods of outcomes $y = 2$ through $y = 4$, relative to the first outcome, $y = 1$. *Income* represents gross income in 2000 including capital gains/losses. *Wealth* represents net wealth in 2000, which is comprised of the market value of all risky + non risk assets (cash) + an assessed value of real estate – market value of debt. *Urban, Town* and *Rural* are dummy variables indicating whether the investor lives in an urban, town or rural setting. We drop *Town* in our regressions so the coefficients for *Urban* and *Rural* are interpreted relative to *Town*. EDL *1-3* represents level of education, where 1 = less than High School, 2 = High School and 3 = more than High School. We drop *EDL2* in our regressions so the coefficients for *EDL1* and *EDL3* are interpreted relative to *EDL2*. *PPM Trades* represents the average number of trades per year within the PPM system from 2000 to 2004. *ForeignA* is a dummy variable indicating whether an investor holds foreign assets outside the PPM system in 2000. Age is the investor's age in 2000. *Immigrant* = 1 if the investor is not born in Sweden. *ImmigrantW* = 1 if the investor is a Swedish man married to an immigrant woman and *ImmigrantH* = 1 if the investor is a Swedish woman married to an immigrant man, zero otherwise. *Male* = 1 if the investor is male and *Married* = 1 if the investor is married, zero otherwise. *OCC* contains four occupation dummies. *OCC1* = employed in the public sector, *OCC2* = employed in the private sector, *OCC3* = self employed and *OCC4* = unemployed or employment unknown and zero otherwise. We drop *OCC1* in our regressions so the coefficients for *OCC 2-4* are interpreted relative to *OCC1*. *PastReturn* = weighted average past return for each investors' initial portfolio. *StdDev* = the annualized standard deviation on the monthly returns for 1997 – 1999 on the initial portfolio of the investor. *AveFee* is the weighted average fee of the funds chosen in the initial portfolio of the investor. *AveCap* = Weighted average market cap of the funds chosen in the initial portfolio of the investor.