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What's in a name? An experimental examination of investment behavior

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**What's in a Name? An Experimental Examination
of Investment Behavior**

Lucy F. Ackert, Bryan K. Church, James Tompkins, and Ping Zhang

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What's in a Name? An Experimental Examination of Investment Behavior

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Abstract: A fundamental unresolved issue is whether information asymmetries underlie investors' predisposition to invest close to home (i.e., domestically or locally). The authors conduct experiments in the United States and Canada to investigate agents' portfolio allocation decisions, controlling for the availability of information. Providing participants with information about a firm's home base, without disclosing its specific identity, is not sufficient to change investment behavior. Rather, participants need to know a firm's name *and* home base. Additional evidence indicates that participants are more familiar with securities in which they chose to invest than other securities. Familiarity is a key determinant of investment behavior.

JEL classification: C92, G11, G15

Key words: home bias, asset markets, laboratory experiments

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What's in a Name? An Experimental Examination of Investment Behavior

Economic models assume that individuals take advantage of return-increasing, risk-sharing opportunities by diversifying their portfolios. Finance professionals also advocate diversification. Yet Statman (1987) concludes that individuals do not hold well-diversified portfolios and suggests that researchers need to gain insight into this puzzle. A particularly perplexing aspect is that investors do not diversify their holdings internationally, despite the benefits of such diversification and the increased integration of international markets. Investors view more favorably and, in turn, buy familiar stocks. This paper empirically examines whether economic agents invest more heavily in firms that are close to home when they have equal access to information on the universe of firms. Using an experimental method, we can separate the effects of geographic location and familiarity on investment behavior.

Home bias is empirically documented in the United States and abroad. French and Poterba (1991) report little cross-border diversification with investors in the United States holding 94 percent of their assets in U.S. securities. Kang and Stulz (1997) and Tesar and Werner (1995) provide evidence that the preference for domestic equity holdings is an international phenomenon. Recent evidence suggests that home bias is even localized. Coval and Moskowitz (1999) and Huberman (2001) find that investors are inclined to hold local securities or those located close to home.

Although there is significant empirical evidence of home bias, the underlying cause(s) of the phenomenon remain unresolved. The bias cannot be explained by the presence of non-traded goods, restrictions on capital flows, or market frictions (Lewis (1999)). The mystery intensifies when the importance of human capital is recognized, because investors should actually short sell domestic

securities (Baxter and Jermann 1997). Tesar and Werner (1995) conclude that a satisfactory explanation for home bias poses a serious challenge for portfolio theory.

A straightforward explanation is that the bias arises due to information asymmetries. That is, information is more readily available on local and domestic securities, which allows investors to refine their expectations about the prospects of such securities. Gehrig (1993) and Brennan and Cao (1997) use a noisy rational expectations framework and demonstrate analytically that an invest-at-home bias can result when domestic investors possess more precise information about domestic investment opportunities.

Although it is possible that investors have superior information about firms that are close to home, they may also choose to invest in firms in close proximity because of perceived expertise. This expertise can be real or imaginary. Agents may invest in familiar securities because they prefer to bet in a context that they *believe* themselves to be knowledgeable and competent (Heath and Tversky (1991)). Perceived expertise, however, does not explain why investors buy, rather than sell, familiar stocks. Importantly, evidence provided by Strong and Xu (1999) and Kilka and Weber (2001) suggests that agents are more optimistic about the familiar, home equity market. This optimism, in turn, translates into greater investment in familiar firms.

Huberman (2001) argues that home bias can simply be explained by preference for the familiar. Shareholders of a Regional Bell Operating Company (RBOC) tend to live in the area that it serves and an RBOC's customers tend to hold its shares as opposed to other RBOCs' equity. Huberman (2001, p. 676) suggests that by nature agents feel favorable about and charitable toward that with which they are comfortable or familiar, including investment opportunities that are close to home. Research in

marketing documents that repeated exposure to a stimulus (e.g., an advertisement) can influence *liking* for the stimulus (for a review of the relevant literature refer to Bornstein (1989)). In addition, repeated exposure appears to facilitate agents' ability to process information about a stimulus, which can create a preference for stimuli seen previously (e.g., Bornstein and D'Agostino (1992); Janiszewski (1993); Shapiro (1999)).

We conduct two laboratory experiments to investigate whether familiarity underlies home bias, controlling for the information available to participants.¹ Our focus is on the changes in investment choices that result from changes in the information set: specifically, the revelation of a firm's geographic location and actual identity (name). Such an investigation cannot be conducted in naturally occurring markets because investors have disparate information sets.² Agents have experienced greater exposure to proximate firms and, thus, have more information and familiarity with them. In the laboratory, we can control the set of investment opportunities, the availability of information, and the association between information and investment value (i.e., how the information is used to determine future returns).³ Importantly, we can separate the effects of familiarity and geographic location on investment behavior.

We conduct experiments in the United States and Canada to investigate agents' portfolio allocation decisions. We investigate whether providing participants with information about a firm's home base is sufficient to change behavior (i.e., whether it predisposes participants to invest more in local or domestic securities). We also investigate the incremental effect of providing participants with information about a firm's identity. Knowledge of a firm's name may be necessary for participants to feel some connection or association with the firm (e.g., a feeling of "I know that firm" or "I like that

firm”). By manipulating the disclosure of firms’ identities across experimental sessions, we can directly investigate the role of familiarity in investment decision making.⁴

Our findings indicate that providing participants with information about a firm’s home base, without disclosing its specific identity, is not sufficient to change investment behavior. Agents are not inclined to invest in a company simply because it is located close to home. Importantly, this result arises controlling for the information available to participants (i.e., real information asymmetries are absent from our setting). Rather, participants need to know a firm’s specific identity: that is, its name *and* home base. Additional evidence indicates that participants are more familiar with securities in which they chose to invest than other securities.

The remainder of this paper is organized as follows. First, we describe the research method, including the experimental design, participants, and procedures. Subsequently, we present the experimental results. Finally, we provide a discussion of the results and offer concluding remarks.

Research Method

Overview

As mentioned earlier, we conduct experiments in the United States and Canada. In each experiment, participants are provided with financial information on ten investment opportunities and instructed to allocate funds among them: that is, make portfolio allocation decisions. The investment opportunities include publicly traded common stock of four firms headquartered in the United States and four in Canada, as well as American and Canadian traded stock index funds. These funds include the largest and most liquid firms in the United States and Canada.

Each experiment includes three treatment groups, with the design being identical across the two countries. Across the treatment groups, we vary information about the identity and home base for each corporation whose stock is presented as an investment opportunity. In one group (denoted Full ID), participants are informed of the firm's name and location (i.e., where corporate headquarters are situated) for each investment opportunity. In a second group (denoted Location), participants are informed of each firm's location, but not its name. In a third group (denoted No ID), the name and location are withheld from participants.⁵

The No ID group provides a benchmark or basis of comparison in that identical investment opportunities are offered, without providing information on firms' identities. We assess whether a firm's geographic location (Location) or name (Full ID) induce changes in investment behavior. To this end, we test whether the proportion of domestic and local investment is greater in the Location and Full ID treatment groups as compared to the No ID group.

Participants

For the experiment in the United States, 85 students are recruited from two medium-sized universities in the Atlanta metropolitan area. Students include undergraduates and graduates (masters), with the vast majority being in at least their third year of study. Participants have a mean age of 24.4 years and have completed or are currently enrolled in an average of 4.2 finance courses. Fifty participants (or 56 percent) have previously traded securities or taken part in the management of an investment portfolio. Eighty-three participants (98 percent) currently reside in the Atlanta metropolitan

area, with the average duration being 7.8 years. Seventy-six participants (or 89 percent) consider “home” to be a city in the United States.

For the experiment in Canada, 66 students are recruited from a large university in Toronto. Students include undergraduates and graduates (masters), with the vast majority being in at least their third year of studies. Participants have a mean age of 22.8 years and have completed or are currently enrolled in an average of 4.1 finance courses. Thirty participants (or 45 percent) have previously traded securities or taken part in the management of an investment portfolio. Sixty-three participants (or 95 percent) currently live in the Toronto metropolitan area, with the average duration being 7.5 years. Forty-two participants (or 64 percent) consider “home” to be a city in Canada.

Procedures

Instructions are distributed and read aloud by an experimenter.⁶ Participants are endowed with \$1m in cash, which must be allocated among the ten investment opportunities: eight stocks and two traded stock baskets. Participants are instructed that they may choose not to invest in a particular asset, but that they may not short sell. In addition, the entire cash endowment must be invested.

Participants are provided with an information sheet for each investment opportunity. The information sheet includes financial information compiled from various publicly available sources, including the stock exchanges, the *Wall Street Journal*, and YAHOO!FINANCE. The information sheet includes a narrative description of the firm or index fund, a price history (52-week high and low, year-end prices, and average daily trading volume), an earnings history, and other selected information (sales, price-earnings ratio, and common stock beta).⁷ Each information sheet is about one-half page.

At the time the experiments are conducted (March of 2001), the information sheets report the most recent financial information. An information sheet used in the experiments is shown in Exhibit 1.

As mentioned earlier, the investment opportunities include eight firms. Four firms are headquartered in the United States, with two being headquartered in the Atlanta metropolitan area. We include the Atlanta-based firms to assess local bias for the experiment conducted in the United States. Four firms also are headquartered in Canada, with two being headquartered in the Toronto metropolitan area. We include the Toronto-based firms to assess local bias for the experiment conducted in Canada. In choosing firms, we matched on industry, size, and beta. The firms include four in the radio/telephone communications industry (SIC 4812) and four in the commercial bank industry (SIC 6021). The set of available investment opportunities includes two firms from the two industries for each country. Likewise, each industry includes one Atlanta-based and one Toronto-based firm. The specific firms used are shown in Table 1.

In order to provide participants with the opportunity to fully diversify, the investment opportunities also include two traded stock baskets. We use Standard & Poor's Depository Receipts (SPDRs) and iUnits S&P/TSE Index Participation Fund (iUnits). The SPDRs are based on the United States' leading stock market barometer, consisting of stocks underlying the S&P500. The iUnits are based on Canada's leading stock market barometer, consisting of stocks underlying the S&P/TSE60 Index.

Participants are instructed to assume a one-year investment horizon: that is, investment decisions remain unchanged for a hypothetical one-year time period. At the end of the horizon, participants' portfolios are liquidated at period-end prices. Participants are informed that period-end prices are a

function of the S&P500 Index, which was 1,320.28 at the end of 2000. In addition, participants are provided with forecasts, by ten prominent financial analysts, of the S&P500 Index for the end of 2001.

The forecasts are current at the time the experiments are conducted with a mean of 1,612.5.

Participants are instructed that a market return is randomly generated for the S&P500 from a normal distribution using the mean forecast. They are told that the randomly selected market value is used in conjunction with the data on the information sheets to determine year-end prices for the investment opportunities. Unknown to participants, we use the capital-asset-pricing model to compute a year-end price for each investment opportunity. Price is computed using the randomly drawn market return, common stock beta (included on the information sheets), and a constant risk-free rate.

Initially, participants are given 20 minutes to study the information provided to them and make portfolio allocation decisions. In addition, they are given the opportunity to ask the experimenters any clarifying questions. Subsequently, year-end prices are announced and participants compute their profits. The procedures are repeated four more times, so that basically, participants relive the year 2001 five times. Hence, participants make portfolio allocation decisions over five trials. Participants are given five minutes to make portfolio allocation decisions after computing their profits for the previous trial. We use the same investment opportunities and information sheets for each trial. Participants are fully aware that the trials are completely independent. That is, participants are always endowed with \$1m in 2001 and their portfolios are always liquidated at the end of 2001. We conduct multiple trials to allow for learning and to provide for a more stringent test of whether investment behavior is affected by information on geographic location and firm identity. Specifically, participants make repeated decisions using the same set of information *after* having received feedback on their prior investment choices.

Participants are instructed that they will be compensated based on their portfolio allocation decisions for one randomly selected trial. We exclude the first trial to provide participants with a chance to become familiar with the experimental procedures. At the conclusion of the experiment, one participant selects a card from a set of four cards numbered two through five. The card drawn determines the trial used in computing participants' earnings. Participants are paid 0.000025 times the ending value of their portfolio for the binding trial.⁸

At the conclusion of the experimental session, participants complete a post-experiment questionnaire. The questionnaire is designed to collect demographic information as well as information about participants' familiarity with the investment opportunities. We paid participants \$2 for completing the questionnaire to encourage them to respond conscientiously.

Results

Experiment in the United States

Descriptive Data. We compute the average proportion of funds (i.e., averaged over trials 2-5) invested domestically and locally, including and excluding the two index funds. By excluding the traded stock baskets, we focus solely on monies allocated to specific firms, ignoring that allocated for diversification purposes. The descriptive data by treatment group are shown in Panel A of Table 2.

In the No ID group investors are unaware that half of their investment choices are Canadian and the other half are American. The observed proportion of domestic investment is approximately 47% and does not differ significantly from 50%. This result suggests that the investment choices we provide are well matched across American and Canadian firms.

Panel B of Table 2 shows the differences in the proportion of funds invested between treatment groups. The data suggest that, averaged over trials 2-5, participants in the Full ID group (names and locations) invest more domestically and locally than do those in the No ID (no names or locations) and Location (locations only) groups. The descriptive data suggest that bias toward home investment is not driven by geographic location. Rather, familiarity with specific firms impacts investment behavior. Now we turn to formal statistical tests.

Domestic or Familiarity Bias? We perform an analysis-of-variance (ANOVA) to investigate participants' willingness to invest domestically. The dependent variable is the average domestic investment, including the two index funds, per participant over trials 2-5. The independent variable is treatment group. We find that treatment group is significant at $p = 0.01$ ($F = 4.91$). Newman-Keuls pairwise tests indicate that the mean of the Full ID group (0.61) is significantly different from those of the Location (0.49) and No ID (0.47) groups at $p < 0.05$. We repeat the analysis substituting the average domestic investment, excluding the two index funds, as the dependent measure and find similar results ($F = 4.55$, $p = 0.013$). These results suggest that previously documented preference for domestic or close-to-home firms is an artifact of a bias toward the familiar. In our experiments, investment behavior changes when participants are provided with information about firms' specific identities.

Further inspection of the data indicates that, for the Full ID group, the proportion invested domestically is stable over trials 2-5: domestic investment per trial ranges from 59.5 to 62.3 percent. Slightly more variation is observed in the Location and No ID groups. We also note that the mean domestic investment in the Full ID group is greater than that in the other two groups over every trial, using either dependent measure.

Overall, our findings provide evidence of a familiarity bias even when investors have equal access to information on foreign and domestic investment opportunities. Participants need to know the firm's name, not just its location, for investment behavior to be affected. The name may provide participants with a tangible connection to the firm, which evokes affective associations and predisposes participants to invest larger amounts in domestic securities. After discussing local bias, bias toward the familiar is further examined.

Local or Familiarity Bias? Next we perform an ANOVA to investigate participants' willingness to invest locally (i.e., in Atlanta-based firms). The dependent variable is the average local investment, including the two index funds, per participant over trials 2-5. The independent variable is treatment group. We find that treatment group is not significant ($F = 1.91, p = 0.154$). Although participants in the Full ID group invest more locally, the difference is not statistically significant. Since investors do not have a choice of a local index fund, we repeat the analysis looking at the average local investment, excluding the two index funds, and find that treatment group is significant at $p = 0.028$ ($F = 3.75$). Newman-Keuls pairwise tests indicate that the mean of the Full ID group (0.33) is significantly different from those of the Location (0.22) and No ID (0.23) groups at $p < 0.05$. Again, investors need to know firms' specific identities before investment behavior responds.

The data also indicate that local investment is reasonably stable over trials 2-5 in the three treatment groups. Moreover, local investment per trial is generally greater in the Full ID group than in the other two groups. Hence, we provide some evidence that participants who know the name and location of the investment opportunity invest more locally than otherwise.

Familiarity with Investment Opportunities. We find that investors in the U.S. are more likely to invest in firms that are located close to home only when a firm's identity is known. We further investigate whether agents invest more in firms that are familiar, while controlling for geographic location. As Huberman (2001) posits, agents feel more positively about the familiar, which translates into greater investment.

As part of the post-experiment questionnaire, participants indicate their familiarity with 18 investment opportunities, including the ten used in the experiment. Participants respond on a 10-point scale, with endpoints 1=unfamiliar and 10=very familiar. We compute the average familiarity score assigned to investment opportunities located in the United States and Canada, including and excluding the two index funds. We also compute the average familiarity score assigned to domestic investment opportunities located in the Atlanta metropolitan area and outside the area (excluding the American index fund).

The descriptive data are presented in Panel A of Table 3. Participants are more familiar with domestic than foreign firms (including and excluding the index funds) and with local than non-local firms. We perform paired t-tests and find that, in all cases, the differences are significant at $p < 0.001$. Inferences are unaffected using Wilcoxon matched-pair tests.⁹

Subsequently we investigate whether participants' investment behavior in the Full ID group is associated with familiarity scores assigned to the investment opportunities. We restrict our examination to the Full ID group because this is the only group in which the investment opportunities are fully identified. For each participant, we compute the average familiarity score assigned to firms in which the participant invests (i.e., the proportion of investment exceeds zero at least once over trials 2-5) and

firms in which the participant never invests. For the former, we weight the familiarity score by the average proportion of investment over trials 2-5. In other words, familiarity scores are weighted more heavily if a participant invests a larger proportion of funds in a particular security.

As shown in Panel B of Table 3, we perform a paired t-test and find that participants are more familiar with firms in which they invest as compared to firms in which they do not invest ($t = 3.86$, $p = 0.001$): the means are 4.63 and 2.47, respectively.¹⁰ Wilcoxon matched-pairs tests produce similar results ($z = -3.30$, $p = 0.001$). Therefore, we provide direct evidence that familiarity affects participants' investment behavior in the absence of information asymmetries, which is consistent with

Experiment in Canada

Descriptive Data. We compute the proportion of funds invested in Canadian and Toronto-based opportunities (averaged over trials 2-5), including and excluding the two index funds. The descriptive data by treatment group are shown in Table 4. The descriptive data, although not consistent with a domestic or familiarity bias, support a local bias when investors are familiar with the investment opportunities. Participants in the Full ID group invest more heavily in Toronto-based firms than those in the Location or No ID groups.

Domestic or Familiarity Bias? We perform an ANOVA to investigate participants' willingness to invest in Canadian firms. We find that treatment group does not affect the proportion that participants invest domestically ($F = 0.65$, *ns* including the index funds and $F = 0.19$, *ns* excluding the

index funds). We repeat the analysis excluding participants who do not consider “home” to be a city in Canada and find similar results.

Further inspection of the data indicates modest variation in the average proportion invested domestically over trials 2-5. The mean proportion per trial is not consistently greater in any particular group. Hence, we do not have evidence that our Canadian participants are more likely to invest close to home, even when they are provided with information about a firm’s identity (i.e., name and location).

In our experiment, Canadian participants may be unaffected by information pertaining to the nationality of a firm because the foreign investment opportunities are restricted to American-based firms. Canadians are constantly exposed to American media and culture. They are likely very aware of the U.S. markets and American-based firms and, in turn, may have little reluctance to invest in such firms.¹¹ To further investigate this possible explanation of our results, we conducted additional experiments with Canadian subjects. The experimental design is similar to that described previously except that the participants are asked to allocate funds among Canadian and German stocks. Fifty-four students from the same Canadian university participated. Contrary to our initial expectation, we found no evidence of changes in investment behavior when participants learned a firm’s national origin (Canadian or German) or identity. Again Canadian participants are not more likely to invest close to home.

Local or Familiarity Bias? We perform an ANOVA to investigate participants’ willingness to invest in Toronto-based firms. We find that treatment group affects the proportion invested locally, including the two index funds in total investment ($F = 7.19, p = 0.002$). Newman-Keuls pairwise tests indicate that the mean of the Full ID group (0.17) is significantly different from the means of the Location

(0.11) and No ID (0.10) groups at $p < 0.05$. We repeat the analysis substituting the average local investment, excluding the two index funds, as the dependent measure and find similar results ($F = 12.07$, $p < 0.001$). As in the U. S. experiment, we find that Canadian investors are more likely to invest in local firms when they are aware of the firms' actual identities. We observe a familiarity bias at the local level, though we do not observe this bias when comparing across national borders.

Inspection of the data indicates modest variation in the proportion invested locally per trial in the three treatment groups. But, the mean local investment per trial is greater in the Full ID group than in the other two groups in every trial, using either dependent measure. Although Canadian participants do not appear to favor domestic investments, they invest more locally when provided with firms' names and locations.

Familiarity with Investment Opportunities. As before, we compute the average familiarity score assigned to investment opportunities located in the United States and Canada, including and excluding the two index funds. We also compute the average familiarity score assigned to Toronto-based firms and non-Toronto-based, Canadian firms (excluding the Canadian index fund).

The descriptive data are presented in Table 5. Participants are more familiar with domestic than foreign firms (including and excluding the index funds) and with local than non-local firms. We perform paired t-tests for each treatment group and find that, in all cases, the differences are significant at $p < 0.01$. Inferences are unaffected using Wilcoxon matched-pairs tests.¹²

We also investigate whether participants' investment behavior in the Full ID group is associated with their familiarity scores. For each participant, we compute the average familiarity score assigned to firms in which the participant invests and that assigned to firms in which the participant does not invest.

We perform a paired t-test and find that participants are more familiar with firms in which they invest as compared to firms in which they do not invest ($t = 3.27$, $p = 0.011$): the means are 3.71 and 1.91, respectively.¹³ Wilcoxon matched-pairs tests produce similar results ($z = -2.43$, $p = 0.015$). Again, we provide direct evidence that supports Huberman's (2001) contention that familiarity affects participants' investment behavior in the absence of information asymmetries.

To further investigate the role of familiarity in explaining investment choices in our experiment, we conducted an additional survey of Canadian students at the same Toronto university.¹⁴ Thirty-seven participants reported on their familiarity with 8 investment opportunities, including the four Canadian firms in our experiment and four additional Canadian firms. In addition, we asked them to provide an overall evaluation of each company, with endpoints 1=weak and 10=strong. This affective evaluation provides insight into why Canadian participants do not invest more in domestic securities. Paired t and Wilcoxon matched-pairs tests indicate significantly higher evaluations for Toronto as compared with non-Toronto, Canadian firms ($p < 0.05$). Familiarity scores are also higher for the Toronto-based firms. When the analysis is restricted to the four firms included in our experiments, the differences are all significant at $p < 0.01$.

The survey findings provide important insight into observed investment behavior in our Canadian experiments. Notably, participants indicate that they are more familiar with Canadian firms, but they do not necessarily invest more in Canadian firms. This result holds regardless of whether the choice set includes U.S. or German firms. Instead, our Canadian participants invest more in firms that they feel positively about.

Conclusion

This paper reports the results of two experiments designed to examine the role of familiarity in explaining investors' preference for firms that are close to home. We investigate whether the bias arises in the absence of information asymmetries, an examination that cannot be conducted in naturally occurring markets. Our setting provides for a stringent test in that participants make repeated investment decisions using the same information set, feedback is provided subsequent to each investment decision, and nuisance variables are avoided.

Our evidence indicates that familiarity plays an important role in investment decision making. Simply providing participants with firms' locations is not sufficient to produce changes in investment behavior. Participants need to know firms' names, presumably to establish a connection or association with particular firms. Firms' names likely evoke evaluative reactions, which affect participants' investment decisions.

We also provide evidence that Americans and Canadians are more familiar with domestic and local firms than with foreign and non-local firms. This finding is not surprising. However, additional analysis indicates that familiarity is associated with agents' investment decisions. Participants who are more familiar with firms in which they invest than with firms in which they do not invest. This result provides direct evidence in support of Huberman's (2001) assertion that agents are prone to invest in familiar firms, regardless of whether they actually know more about the firms. However, although a name may provide a tangible connection to a firm, affective associations lead to complex reactions. Our Canadian participants are more familiar with the Canadian

investment opportunities, but do not invest greater amounts in domestic securities. Investors' familiarity bias depends critically on a positive evaluation of the firm.

Future research may probe the familiarity effect to gain insight into how it arises. Researchers may investigate factors that cause agents to feel familiar with a firm (e.g., exposure to advertisements, interactions with the firm, employment of acquaintances with the firm, etc.). Researchers also may investigate whether certain factors have stronger effects and, in turn, impact investment decisions more significantly.

Exhibit 1 Sample Information Sheet

The information sheet shown below was presented to participants in the Full ID treatment group (i.e., the name and location of the firm is provided). In the Location group, the name is omitted and the investment opportunity is referred to as Company H. In the No ID group, the name is omitted and the location line is omitted. Participants receive an information sheet for each investment opportunity.

COMPANY H: SunTrust Banks, Inc.

Location: Atlanta, Georgia

Business and Financial Summary: SunTrust Banks, Inc. offers a full line of financial services for consumers and businesses. SunTrust serves 3.7 million households through a regional organizational structure and offers 24-hour delivery channels including internet and telephone banking. For the nine months ended September 2000, total interest income rose 15% to \$5.05 billion. Net interest income rose 1% to \$2.24 billion and net income rose 7% to \$963.7 million. Results reflect increased loans. Earnings reflect higher services charges.

Price History:

Current Price	52-Week Price		Average Daily Trading Volume	Year-End Prices			
	Low	High		2000	1999	1998	1997
\$63.00	\$41.63	\$66.00	1,020,000	\$63.00	\$68.81	\$76.50	\$71.38

Earnings History:

Estimated EPS	EPS History			
2001	2000*	1999	1998	1997
4.80	3.90	3.54	3.08	3.13

Other Information for the Year 2000:

Sales*	P/E*	Beta**
\$6.61 Billion	15.59	1.07

* Earnings and sales information use the trailing 12 months of data as of September 30, 2000.

** Beta is the measure of market risk from the Capital Asset Pricing Model.

Table 1
Investment Opportunity Set

This table lists the investment opportunities used in the two experiments. The table includes the name and location of the opportunity. The table also includes the industry and size of the investment opportunities, which were used to select comparable firms in the United States and Canada as well as in Atlanta and Toronto.

Firm Name	Location	Industry	Total Assets^a
Bank of Montreal	Montreal, Quebec	Financial Services	\$148b
FleetBoston Financial	Boston, MA	Financial Services	\$104b
Metrocall	Alexandria, VA	Telecommunications	\$1.3b
Powertel	West Point, GA	Telecommunications	\$1.4b
Rogers Communications	Toronto, ON	Telecommunications	\$4.3b
SunTrust Banks	Atlanta, GA	Financial Services	\$93.2b
Telesystem Wireless	Montreal, Quebec	Telecommunications	\$2.2b
Toronto Dominion Bank	Toronto, ON	Financial Services	\$121b
iUnits S&P/TSE Index Participation Fund	Canada	Broad-Based Market Index	-
Standard & Poor's Depository Receipts	United States	Broad-Based Market Index	-

^aAll figures are in U.S. dollars.

Table 2
Descriptive Data on Participants' Portfolio Allocation Decisions:
Experiment in the United States

Panel A reports the proportion (standard deviation) of funds invested domestically, including and excluding the two index funds and funds invested locally, including and excluding the two index funds. The reported proportions are computed based on the average investment over trials 2-5. The proportions are reported separately for each treatment group. The treatment groups are denoted as follows. No ID means that information about names and locations of investment opportunities is not provided. Location means that information about the locations of the investment opportunities is provided, but not names. Full ID means that information about names and locations is provided. Panel B shows the results of Newman-Keuls pairwise tests for differences in the proportion of funds invested across treatments.

Panel A: Proportion of Funds Invested

Treatment Group	Domestic Investment		Local Investment	
	Incl. Index Funds	Excl. Index Funds	Incl. Index Funds	Excl. Index Funds
No ID	0.472 (0.192)	0.460 (0.170)	0.150 (0.081)	0.227 (0.143)
Location	0.490 (0.200)	0.424 (0.217)	0.158 (0.129)	0.224 (0.184)
Full ID	0.614 (0.169)	0.570 (0.181)	0.202 (0.107)	0.330 (0.170)

Panel B: Tests of Differences in Proportion of Funds Invested

Treatment Group	Domestic Investment		Local Investment	
	Incl. Index Funds	Excl. Index Funds	Incl. Index Funds	Excl. Index Funds
Location – No ID	0.018	-0.036	0.008	-0.003
Full ID – Location	0.124*	0.146*	0.044	0.106*
Full ID - No ID	0.142*	0.110*	0.052	0.103*

*, ** denotes significance at the 5%, 1% level

Table 3
Familiarity with the Investment Set:
Experiment in the United States

Panel A of the table reports the mean and standard deviation of the familiarity scores assigned to domestic and foreign investment opportunities for all American experimental participants, including and excluding the two index funds. Panel A also reports the mean familiarity scores assigned to local and non-local domestic opportunities, excluding the index funds. Familiarity is scored as follows: 1.0 indicates unfamiliar with the investment opportunity and 10.0 indicates very familiar. Also shown are the results of a paired t-test to determine whether the familiarity score significantly differs between domestic and foreign (and local versus non-local) investment opportunities. Though not reported, the results are unchanged looking at each treatment group separately. Panel B provides a familiarity score for firms invested in, weighted by the percentage of investment, and a score for the familiarity of firms never invested in for participants in the Full ID treatment group.

Panel A: Familiarity with Firms across U.S. Experiment

Investment		Mean (Std. Dev.)	t-statistic (p-value)
Total Including Index Funds	Domestic	4.49 (1.95)	15.13 (0.000)
	Foreign	1.61 (1.20)	
Total Excluding Index Funds	Domestic	4.80 (1.91)	16.19 (0.000)
	Foreign	1.65 (1.32)	
Domestic Investment Excluding Index Funds	Local	6.84 (2.60)	15.11 (0.000)
	Non-Local	2.74 (1.86)	

Panel B: Familiarity with Firms in Full ID Group

Investment	Familiarity	t-statistic for difference (p-value)	Wilcoxon z-statistic for difference (p-value)
Greater than zero	4.63	3.86 (0.001)	-3.30 (0.001)
None	2.47		

Table 4
Descriptive Data on Participants' Portfolio Allocation Decisions:
Experiment in Canada

This table reports the proportion (standard deviation) of funds invested domestically, including and excluding the two index funds and funds invested locally, including and excluding the two index funds. The reported proportions are computed based on the average investment over trials 2-5. The proportions are reported separately for each treatment group. The treatment groups are denoted as follows. No ID means that information about names and locations of investment opportunities is not provided. Location means that information about the locations of the investment opportunities is provided, but not names. Full ID means that information about names and locations is provided. For the proportion of funds invested domestically, Newman-Keuls pairwise tests indicate that the means of the three groups are not significantly different at conventional levels, including or excluding the index funds. For the proportion of funds invested locally, pairwise tests indicate that the mean of the Full ID group is significantly different from those of the Location and No ID groups at $p < 0.05$, including or excluding the index funds.

Panel A: Proportion of Funds Invested

Treatment Group	Domestic Investment		Local Investment	
	Incl. Index Funds	Excl. Index Funds	Incl. Index Funds	Excl. Index Funds
No ID	0.501 (0.181)	0.544 (0.178)	0.096 (0.078)	0.127 (0.098)
Location	0.554 (0.153)	0.571 (0.167)	0.114 (0.076)	0.161 (0.113)
Full ID	0.518 (0.134)	0.566 (0.122)	0.174 (0.054)	0.277 (0.105)

Panel B: Tests of Differences in Proportion of Funds Invested

Treatment Group	Domestic Investment		Local Investment	
	Incl. Index Funds	Excl. Index Funds	Incl. Index Funds	Excl. Index Funds
Location – No ID	0.053	0.027	0.018	0.034
Full ID – Location	-0.036	-0.005	0.060**	0.116**
Full ID - No ID	0.017	0.022	0.078**	0.150**

*, ** denotes significance at the 5%, 1% level

Table 5
Familiarity with the Investment Set:
Experiment in Canada

The table reports the mean and standard deviation of the familiarity scores assigned to domestic and foreign investment opportunities, including and excluding the two index funds. The table also reports the mean familiarity scores assigned to local and non-local domestic opportunities, excluding the index funds. Familiarity is scored as follows: 1.0 indicates unfamiliar with the investment opportunity and 10.0 indicates very familiar. Finally, the table reports the results of a paired t-test to determine whether the familiarity score assigned to domestic versus foreign (and local versus non-local) investment opportunities. Though not reported, the results are unchanged looking at each treatment group separately.

Panel A: Familiarity with Firms across Canadian Experiment

Investment		Mean (Std. Dev.)	t-statistic (p-value)
Total Including Index Funds	Domestic	4.20 (1.98)	10.78 (0.000)
	Foreign	2.24 (1.60)	
Total Excluding Index Funds	Domestic	4.85 (2.31)	11.05 (0.000)
	Foreign	2.28 (1.70)	
Domestic Investment Excluding Index Funds	Local	5.70 (2.80)	6.87 (0.010)
	Non-Local	3.99 (2.12)	

Panel B: Familiarity with Firms in Full ID Group

Investment	Familiarity	t-statistic for difference (p-value)	Wilcoxon z-statistic for difference (p-value)
Greater than zero	3.71	3.27	-2.43
None	1.91	(0.011)	(0.015)

References

- Baxter, M., and U. J. Jermann, 1997, "The International Diversification Puzzle Is Worse than You
American Economic Review 87, 170-180.
- Bornstein, R.F., 1989, "Exposure and Affect: Overview and Meta-Analysis of Research,"
Psychological Bulletin 106, 265-289.
- Bornstein, R.F., and P.R. Agostino, 1992, "Stimulus Recognition and the Mere Exposure Effect,"
Journal of Personality and Social Psychology 63, 545-552.
- Bossaerts, P., 2001, "Experiments with Financial Markets: Implications for Asset Pricing Theory,"
American Economist 45, 17-32.
- Brennan, M.J., 1995, "The Individual Investor," *Journal of Financial Research* 18, 59-74.
- Brennan, M.J., and H.H. Cao, 1997, "International Portfolio Investment Flows," *Journal of Finance*
52, 1851-1880.
- Coval, J.D., and T.J. Moskowitz, 1999, "Home Bias at Home: Local Equity Preference in Domestic
Portfolios," *Journal of Finance* 54, 2045-2073.
- French, K.R., and J.M. Poterba, 1991, "Investor Diversification and International Equity Markets,"
American Economic Review 81, 222-226.
- Gehrig, T.P., 1993, "An Information Based Explanation of the Domestic Bias in International Equity
Investment," *Scandinavian Journal of Economics* 95, 97-109.
- Heath, C. and Tversky, A., 1991, "Preferences and Beliefs: Ambiguity and Competence in Choice
Journal of Risk and Uncertainty 4, 5-28.
- Huberman, G., 2001, "Familiarity Breeds Investment," *Review of Financial Studies* 14, 659-680.

- Janiszewski, C., 1993, "Preattentive Mere Exposure Effects," *Journal of Consumer Research* 20, 376-392.
- Kang, J.-K., and R.M. Stulz, 1997, "Why Is There a Home Bias? An Analysis of Foreign Portfolio Equity Ownership on Japan," *Journal of Financial Economics* 46, 3-28.
- Kilka, M., and M. Weber, 2000. "Home Bias in International Stock Return Expectations," *Journal of Psychology and Financial Markets* 1, 176-192.
- Lewis, K.K., 1999, "Trying to Explain Home Bias in Equity and Consumption," *Journal of Economic Literature* 37, 571-608.
- Shapiro, S., 1999, "When an Ad's Influence is Beyond Our Conscious Control: Perceptual and Conceptual Fluency Effects Caused by Incidental Ad Exposure," *Journal of Consumer Research* 26, 16-36.
- Smith, V.L., G.L. Suchanek, and A.W. Williams, 1988, "Bubbles, Crashes, and Endogenous Expectations in Experimental Spot Asset Markets," *Econometrica* 56, 1119-1151.
- Statman, M., 1987, "How Many Stocks Make a Diversified Portfolio?" *Journal of Financial and Quantitative Analysis* 22, 353-363.
- Strong, N., and X. Xu, 1999, "Understanding the Home Equity Bias: Evidence From Survey Data." Working Paper, University of Manchester.
- Tesar, L.L., and I.M. Werner, 1995, "Home Bias and High Turnover," *Journal of International Money and Finance* 14(4), 467-92.

Endnotes

¹ In another experimental study, Kilka and Weber (2001) elicit participants' beliefs about the future prospects of domestic and foreign firms. They find that participants are more optimistic about the prospects of domestic firms. They do not, however, investigate participants' investment decisions. Further, their setting does not control for information asymmetries. Instead, participants self report their *knowledge* of various investment opportunities.

² Our focus is on individual investors whose behavior is critical to understanding market outcomes (Brennan (1995); Bossaerts (2001)). To this end, we examine the behavior of our experimental subjects in a laboratory setting. The practice of using students as participants in economics and finance experiments is widely accepted. In fact, Smith, Suchanek, and Williams (1988) find that markets with student subjects perform better than those with professional traders.

³ A laboratory investigation also allows for the control of potential nuisance variables such as transactions costs and currency differences.

⁴ We carefully examine the incremental impact of information relating to a firm's home base and specific identity. Clearly we cannot control the information our participants bring to the experiment that is stored in their memories. However, we have no ex-ante reason to expect a bias in our results given our focus on changes in behavior in response to incremental information.

⁵ Logistically, each experiment consists of several sessions. In total we conducted ten sessions, with three to 25 participants per session. Within a particular session, participants are assigned to the same treatment group (i.e., all participants in the same session receive the same experimental materials). The experiments were conducted such that the data were collected for the treatment group without names and locations first, with locations only next, and with names and locations last.

⁶ A copy of the instructions is available from the first author upon request.

⁷ All figures are in U.S. dollars.

⁸ Participants earned an average of \$27.91 for taking part in the experiments, which lasted approximately 90 minutes.

⁹ We also perform tests for each treatment group separately and inferences are unaffected.

¹⁰ Inferences are unaffected if familiarity scores (assigned to firms in which participants invest) are equally weighted.

¹¹ The popular press suggests that Americans know very little about Canada (e.g., "Ignorance of *Houston Chronicle*, July 15, 2001; "They Don't Just Play Hockey Up *New York Times*, April 14, 2000; "Canada? That's Someplace Up North Americans' Knowledge of Their Neighbor is Limited but Benign, Survey Shows," *Milwaukee Journal*

Sentinel, August 29, 1999). Further, two of the authors, after having lived in the United States and Canada, are keenly aware that Canadians are inundated with the American culture, whereas Americans' knowledge of Canada is very limited.

¹² As before, we perform tests for each treatment group separately and inferences are unaffected.

¹³ As before, a weighted average familiarity score is computed for firms in which a participant invests. Inferences are unaffected if familiarity scores are equally weighted.

¹⁴ Although the students who completed the additional questionnaire are not the same students who participated in the decision-making experiments, they are from the same subject pool. Comparison of demographics indicates that the participants are drawn from similar populations.