

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

LUCY F. ACKERT¹, BRYAN K. CHURCH², JAMES TOMPKINS¹ and PING ZHANG³

¹*Michael J. Coles College of Business, Kennesaw State University;* ²*College of Management, Georgia Tech;* ³*Rotman School of Management, University of Toronto*

Abstract. A fundamental unresolved issue is whether information asymmetries underlie investors' predisposition to invest close to home (i.e., domestically or locally). We 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 have a greater perceived familiarity with local and domestic securities and, in turn, invest more in such securities.

1. Introduction

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 stocks they perceive to be more familiar. 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 firm identity 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

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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. A firm's location or proximity may be important to investors because of language and cultural preferences or patriotic tendencies (Grinblatt and Keloharju, 2001; Morse and Shive, 2003). 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. Recent evidence suggests that familiarity, measured by product market advertising, can have a significant influence on the value of a firm (Grullon et al., 2004).

Although there is significant empirical evidence of home bias, the underlying causes 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 for the bias is that it 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 securities.

A related explanation is that home bias arises due to a preference for the familiar. Huberman (2001) reports that 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) argues 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. A problem with the familiarity explanation, however, is that it is ambiguous as to how familiarity is distinct from information asymmetries. For instance, agents may know more about local and domestic investment opportunities, in which case real knowledge differences exist (i.e., information asymmetries are present). Alternatively, agents may believe that they know more about investment opportunities close to home simply because the names of local or domestic companies are recognizable. In this case, knowledge differences may be largely imaginary (i.e., agents have heard of local or domestic companies, but know virtually nothing about them). Notably, 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)). Repeated exposure also 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).

Other research suggests that agents are likely to invest in companies close to home because the companies are recognizable (Goldstein and Gigereznar, 1999; Boyd, 2001). Recognition is distinct from familiarity in that it is binary and does not depend on level of knowledge (real or perceived): that is, a company is either recognized or not. Goldstein and Gigereznar (1999) argue that, in some circumstances, reasoning by recognition leads to good decision making because recognition exploits the structure of information in the environment. According to the recognition heuristic, a decision maker should pick the recognized stock when choosing one of two stocks where one is recognized and the other is not. The heuristic performs well when recognition is correlated with the criterion (i.e., an individual is more likely to recognize a firm that is performing well). But as Boyd (2001) demonstrates, the heuristic performs poorly when the correlation is low (e.g., in bear markets). Importantly, agents' use of the recognition heuristic may arise because agents perceive themselves to be more knowledgeable of firms that are recognized as opposed to those that are not. A drawback of focusing on recognition, however, is that it is a very coarse measure. Further, recognition does not indicate the level of knowledge, real or perceived, that agents possess about a firm. Thus, the recognition heuristic does not shed insight into whether information asymmetries ultimately underlie the home equity bias.

This paper provides insight into whether information asymmetries explain home bias. We experimentally investigate whether agents have a preference to invest in firms in close proximity for reasons others than information asymmetries, most notably a greater perceived familiarity or expertise for firms close to home. Arguably, agents may invest in local or domestic securities because they prefer to bet in a context that they *believe* themselves to be knowledgeable and competent (Heath and Tversky, 1991). Yet perceived expertise, does not explain why investors buy, rather than sell, local or domestic stocks. Importantly, evidence provided by Kilka and Weber (2001) and Strong and Xu (2003) suggests that agents are more optimistic about the home equity market, which in turn translates into greater investment in local and domestic firms.

We conduct two laboratory experiments to assess whether perceived 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

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.

markets because investors have disparate information sets.² Agents have experienced greater exposure to proximate firms and, thus, have more information and higher perceived 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 firm identity and geographic location on investment behavior, which is necessary to disentangle cultural or patriotic preferences from participants' perceptions of specific firms (e.g., Goldstein and Gigerezhner, 1999; Boyd, 2001; Grinblatt and Keloharju, 2001; Morse and Shive, 2003).

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. The recognition heuristic suggests that knowledge of a firm's name will impact investment decisions. We examine whether perceived familiarity (i.e., the degree of knowledge that participants' perceive to possess about a firm) provides further insight into investment behavior. In particular, we elicit participants' perceived familiarity with the available investment opportunities at the end of our experimental sessions and investigate whether it is associated with participants' investment decisions.

As mentioned earlier, we are interested in perceived differences in knowledge as opposed to real differences (i.e., information asymmetries): the set of information is held constant in our setting. Clearly we cannot control the information our participants bring to the experiment stored in their memories. However, our experiment is designed so that performance is determined completely by information provided to the participants. This fact is made explicit in the experimental instructions. Participants are fully aware that stock returns are endogenous and calculated by the experimenters using information contained in the instructions. Furthermore, we have no ex-ante reason to expect a bias in our results given our focus is changes in behavior in response to incremental information.

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 in-

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 et al. (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.

formation 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. We also find, as might be expected, that participants have higher perceived familiarity with domestic as opposed to foreign firms. The evidence indicates that participants perceive themselves to be more familiar with securities in which they invest than other securities. Thus, perceived knowledge appears to be a key determinant of investment behavior.

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.

2. Research Method

2.1. 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. 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.

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.

2.2. PARTICIPANTS

For the experiment in the United States, 85 students are recruited from two medium-sized universities in the Atlanta metropolitan area: 28 students in the No ID group, 28 in the Location group, and 29 in the Full ID group. The student participants 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: 25 students in the No ID group, 21 in the Location group, and 20 in the Full ID group. 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.

2.3. PROCEDURES

Instructions are distributed and read aloud by an experimenter.⁴ 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).⁵ 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 the Appendix.

⁴ A copy of the instructions is available from the first author upon request.

⁵ All figures are in U.S. dollars.

Table I. 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 ¹
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	–

¹ All figures are in U.S. dollars.

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 match 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 I.

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.⁶ 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 observing the outcomes of 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

⁶ We did not include idiosyncratic risk in our implementation of the CAPM, but the omission should not affect our findings. First, participants are not aware of the return-generating procedure in our experiment – specifically that idiosyncratic risk is not considered. It is highly unlikely that participants would be able to infer the absence of such risk after only 5 trials. In addition, if markets are not fully efficient, such that information is not immediately reflected in stock prices, uncertainty concerning returns persists. The uncertainty about mean returns is similar to idiosyncratic risk. Lastly, the return-generating procedure is the same across treatments and comparisons across the treatments form the basis for our hypothesis tests.

the trial used in computing participants' earnings. Participants are paid 0.000025 times the ending value of their portfolio for the binding trial.⁷

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.

3. Results

3.1. EXPERIMENT IN THE UNITED STATES

3.1.1. *Descriptive Data*

We compute the average proportion of funds invested domestically and locally per trial (2–5), as well as averaged over the trials. The average domestic and local investment is computed 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.⁸ The descriptive data by treatment group are shown graphically in Figures 1 and 2.

The average domestic investment is similar across trials 2–5, regardless of whether the index funds are included or excluded (refer to Figure 1). The proportion of domestic investment is always greatest in the Full ID group (names and locations) and noticeably larger than in the other two groups. By comparison, the proportion of domestic investment shows little difference between 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, but rather by perceived familiarity with specific firms. Now we turn to formal statistical tests.

3.1.2. *Domestic or Perceived Familiarity Bias?*

We perform a repeated measures 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 (i.e., a vector of four observations per participant).⁹ The independent variables include treatment group, trial, and the interaction term. Treatment group

⁷ Participants earned an average of \$27.91 for taking part in the experiments, which lasted approximately 90 minutes.

⁸ Note that across all sessions, participants allocated 72% to the eight individual stocks, even though they were given the opportunity to diversify using a stock index fund. Consistent with the findings of Statman (1987), individuals hold only a fraction of the securities available for investment. Additional research is required to shed light on this observed behavior.

⁹ We use a repeated measures ANOVA because observations may not be independent across trials. This procedure explicitly recognizes the potential for non-independence: a separate error term is com-

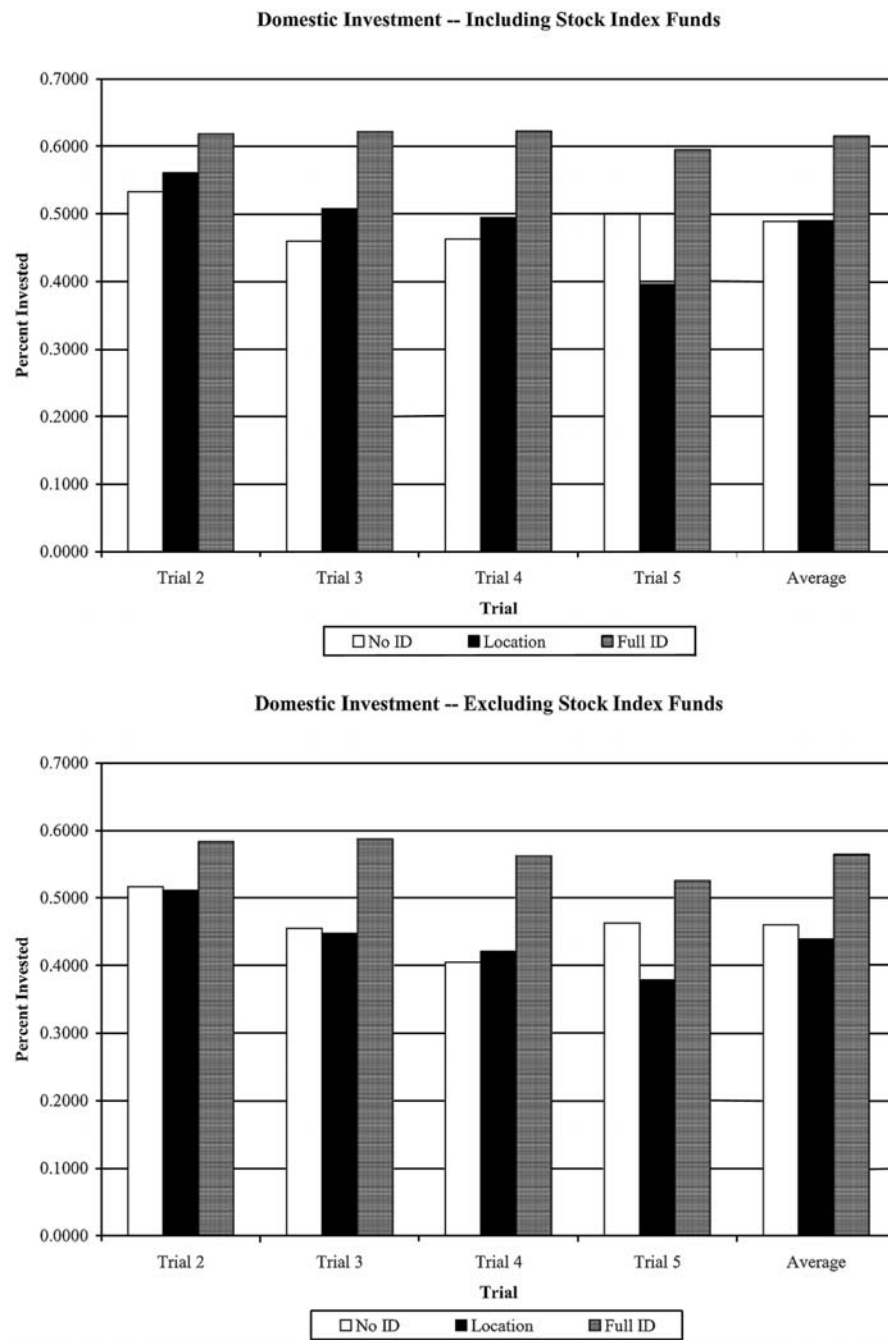


Figure 1. Experiment in the United States: Domestic investment.

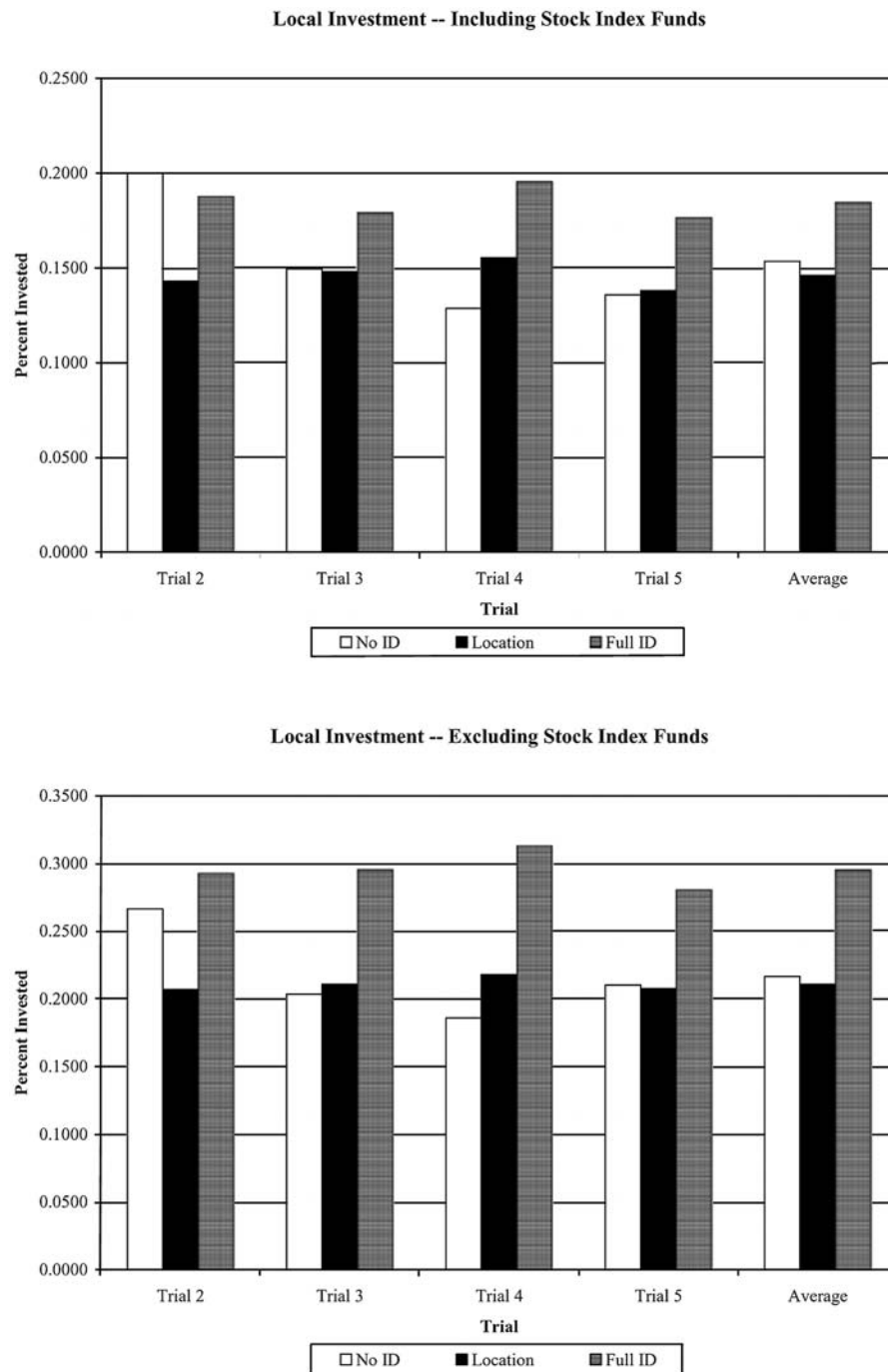


Figure 2. Experiment in the United States: Local investment.

is a between-subject variable, whereas trial and the interaction term are within-subject variables. We are primarily interested in the effect of treatment group on domestic investment. We include trial to control for learning effects (e.g., home bias may dissipate over time as participants observe their earlier performance). We include the interaction term to control for the possibility that differences between treatment groups vary over time. In discussing the results, we focus on the effects of treatment group and the interaction term. We do so because our interest is in determining whether geographic location and firm identity affect participants' investment behavior.

The ANOVA results indicate that treatment group is statistically significant at $p = 0.010$ ($F = 4.91$). Pairwise comparisons 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 $p < 0.05$. The ANOVA results also indicate that the interaction term is significant at $p = 0.057$ ($F = 2.40$). Post hoc analysis indicates that domestic investment declines over the four trials for the Location group ($p = 0.015$), but not for the other two groups. After gaining experience in our experiment participants with knowledge of geographic location (and not firm identity) reduce domestic investment over time.

We repeat the ANOVA substituting the average domestic investment, excluding the two index funds, as the dependent measure and find similar results. Treatment group is statistically significant ($F = 3.53$, $p = 0.034$) and pairwise comparisons indicate that the mean of the Full ID group (0.57) is significantly different from those of the Location (0.45) and No ID (0.44) groups at $p < 0.05$. In this analysis, the interaction term is not statistically significant ($F = 1.08$, $p = 0.372$).

Overall, our findings provide evidence of a perceived familiarity bias 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, we return to this issue.

3.1.3. *Local or Perceived Familiarity Bias?*

Next we perform a repeated measures 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 (i.e., a vector of four observations per participant). The independent variables include treatment group, trial, and the interaction term. As before, we focus on treatment group and the interaction term in discussing the results.

puted for within-subject variation (arising because participants make portfolio allocation decisions repeatedly over trials).

We find that treatment group is not statistically significant ($F = 1.92$, $p = 0.154$), whereas the interaction term is significant at $p = 0.099$ ($F = 1.88$). Post hoc analysis indicates that local investment differs between treatment groups in trials 3 and 4, but not trials 2 and 5. In trial 3, the Full ID group invests more locally than the other two groups ($p < 0.10$). In trial 4, the Full ID group invests more locally than the No ID group ($p < 0.05$). Our findings provide weak evidence that investors having knowledge of a firm's home base and identity invest more locally than otherwise.

Because investors do not have a choice of a local index fund, we repeat the ANOVA looking at the average local investment, excluding the two index funds, and find that treatment group is significant at $p = 0.060$ ($F = 2.91$). Pairwise tests indicate that the mean of the Full ID group (0.28) is significantly different from that of the No ID group (0.20) at $p = 0.029$ and from that of the Location group (0.21) at $p = 0.060$. We also note that the interaction term is not statistically significant ($F = 1.47$, $p = 0.209$). The results provide further evidence that investors need to know firms' specific identities, which includes knowledge of geographic location, before investment behavior responds.

3.1.4. *Perceived 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 perceived to be familiar, while controlling for geographic location. As Huberman (2001) posits, agents feel more positively about the familiar, which translates into greater investment.

At the completion of the experiment and 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. This allows us to map perceived familiarity into observed investing behavior. We compute the average perceived 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 perceived 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 II.¹⁰ Participants indicate that they 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.¹¹

¹⁰ As shown in Table II, the number of observations is 82, whereas 85 students participated in the experiment in the U.S. Three students failed to respond to all of the perceived familiarity questions and are excluded from the analysis.

¹¹ We also perform tests for each treatment group separately and inferences are unaffected.

Table II. Perceived familiarity with the investment set: Experiment in the United States

Panel A of the table reports the mean, standard deviation, and number of observations of the perceived 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 perceived familiarity scores assigned to local and non-local domestic opportunities, excluding the index funds. Perceived 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 perceived 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 perceived familiarity score for firms invested in, weighted by the percentage of investment, and a score for the perceived familiarity of firms never invested in for participants in the Full ID treatment group.

Panel A: Perceived familiarity with firms across U.S. experiment			
Investment		Mean (Std. Dev.)	<i>t</i> -statistic (<i>p</i> -value)
Total including index funds	Domestic	4.49 (1.95)	15.13 (0.000)
	Foreign	1.61 (1.20)	<i>n</i> = 82
Total excluding index funds	Domestic	4.80 (1.91)	16.19 (0.000)
	Foreign	1.65 (1.32)	<i>n</i> = 82
Domestic investment excluding index funds	Local	6.84 (2.60)	15.11 (0.000)
	Non-Local	2.74	<i>n</i> = 82 (1.86)
Panel B: Perceived familiarity with firms in full ID group			
Investment	Familiarity	<i>t</i> -statistic for difference (<i>p</i> -value)	Wilcoxon <i>z</i> -statistic for difference (<i>p</i> -value)
Greater than zero	4.63	3.86	−3.30
None	2.47	(0.001) <i>n</i> = 22	(0.001) <i>n</i> = 22

Subsequently we investigate whether participants' investment behavior in the Full ID group is associated with the perceived 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 perceived 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 perceived familiarity score by the average proportion of investment over trials 2–5. In other words, the perceived 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 II, 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.¹² Wilcoxon matched-pairs tests produce similar results ($z = -3.30$, $p = 0.001$).¹³

We conduct additional analysis to investigate whether participants in the Full ID group invest more in domestic or local firms holding perceived familiarity constant. Participants responded as to the perceived familiarity of each security (firm) on a ten-point scale, where 1 = unfamiliar and 10 = very familiar. We code participants' responses into three categories: 1–3 is coded as low perceived familiarity, 4–7 as moderate, and 8–10 as high. We code responses into three categories to obtain sufficient observations for each.¹⁴ We conduct an analysis of variance to determine whether investment (including and excluding the index funds) is affected by perceived familiarity. The independent variables include perceived familiarity (low, moderate, or high) and firm location (domestic or foreign).

When the index funds are included in computing the proportion of investment, we find that perceived familiarity is statistically significant at $p = 0.003$ ($F = 6.29$). Pairwise comparisons indicate that the mean of the low category (0.08) is significantly different from that of the moderate (0.15) and high (0.14) categories at $p < 0.05$. Interestingly, location is not statistically significant ($F = 0.28$, $p = 0.601$). We repeat the analysis excluding the index funds and find similar results: perceived familiarity is statistically significant ($F = 4.87$, $p = 0.010$), whereas location is not ($F = 0.57$, $p = 0.451$). Again, pairwise tests indicate that the mean of the low perceived familiarity category (0.09) is significantly different from that of the

¹² We lose seven participants (observations) in the analysis because these participants invest in all securities at least once over the course of the experiment. We also perform independent sample comparisons to retain all participants (who responded to all of the perceived familiarity questions) in the analysis and find that inferences are unaffected.

¹³ Inferences are unaffected if familiarity scores (assigned to firms in which participants invest) are equally weighted.

¹⁴ Many participants respond that their perceived familiarity of foreign firms is low, with far fewer providing responses in the moderate and high categories. We do not have sufficient observations to use each response level (i.e., each numeric response) as a category.

moderate (0.16) and high (0.16) categories. Our results indicate that participants invest more in firms that have greater perceived familiarity, regardless of the firm's location. Though not reported, the results are similar when we control for local versus non-local firms in the analysis. Our findings provide direct evidence that perceived familiarity affects participants' investment behavior in the absence of information asymmetries.

3.2. EXPERIMENT IN CANADA

3.2.1. *Descriptive Data*

We compute the proportion of funds invested in Canadian and Toronto-based opportunities per trial (2–5), as well as averaged over the trials. As before, the average domestic and local investment is computed including and excluding the two index funds. The descriptive data by treatment group are shown in Figures 3 and 4. The descriptive data, although not consistent with a domestic bias, support a local bias. Participants in the Full ID group invest more heavily in Toronto-based firms than those in the Location or No ID groups.

3.2.2. *Domestic or Perceived Familiarity Bias?*

We perform a repeated measures ANOVA to investigate participants' willingness to invest in Canadian firms. Including the index funds in the computation of the dependent measure, we find that neither treatment group ($F = 0.65$, $p = 0.524$) nor the interaction term ($F = 1.22$, $p = 0.33$) is statistically significant. We repeat the analysis excluding the index funds in the computation of the dependent measure and find similar results. 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.¹⁵ 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

¹⁵ The popular press suggests that Americans know very little about Canada (e.g., "Ignorance of Canada a Laughing Matter", *Houston Chronicle*, July 15, 2001; "They Don't Just Play Hockey Up There, Eh?" *New York Times*, April 14, 2000; "Canada? That's Someplace Up North, Isn't It? 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.

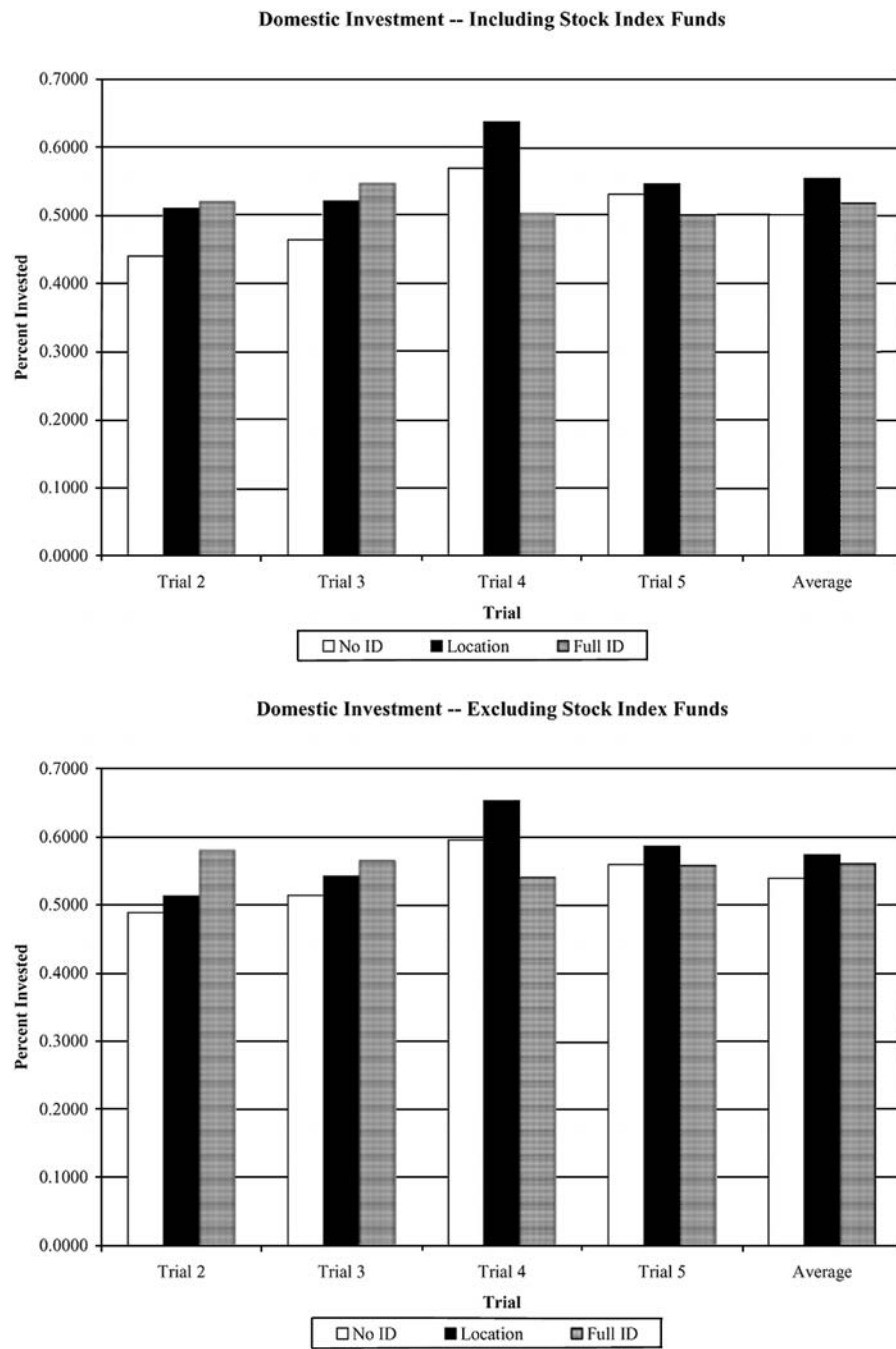


Figure 3. Experiments in Canada: Domestic investment.

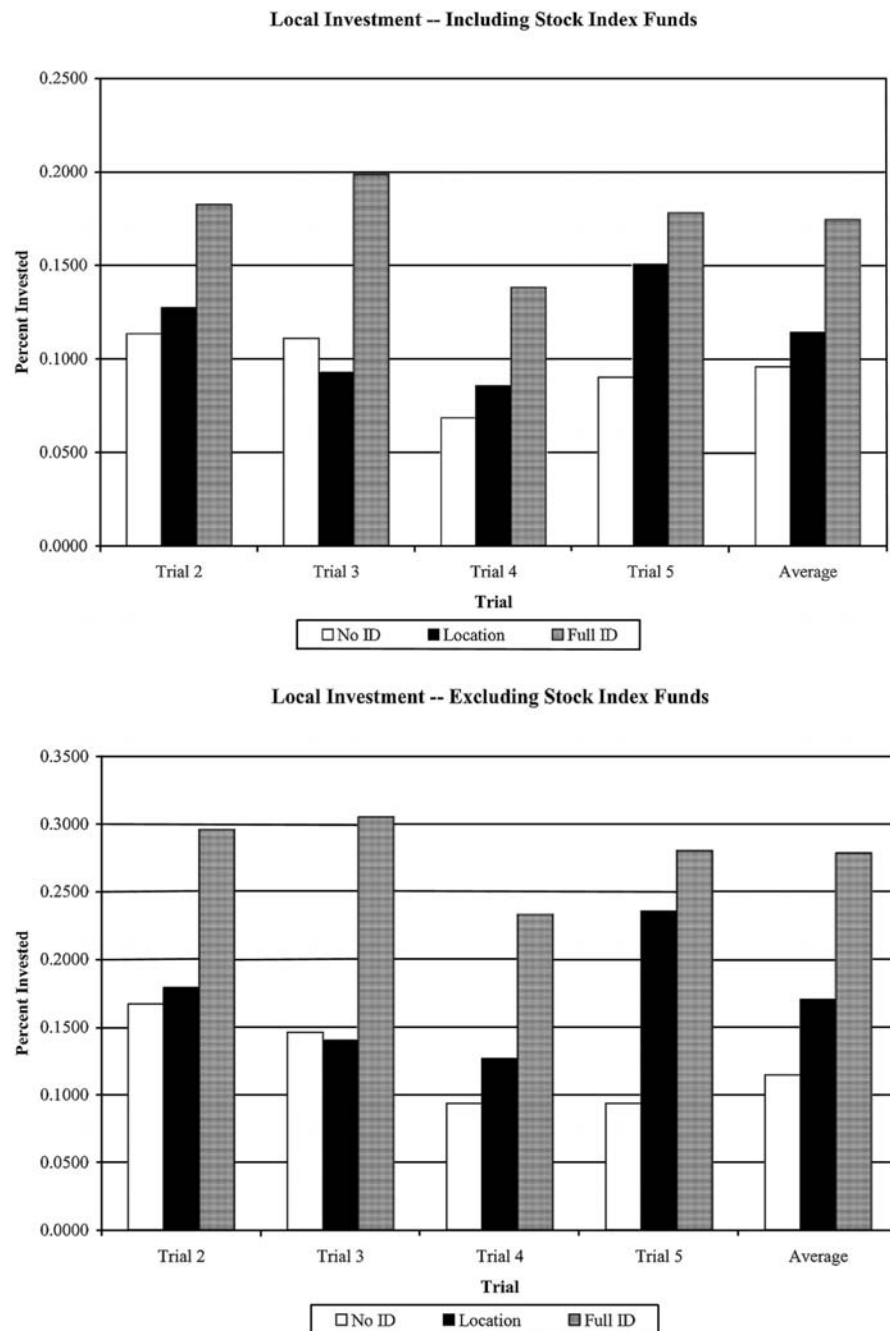


Figure 4. Experiment in Canada: Local investment.

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.

3.2.3. *Local or Perceived Familiarity Bias?*

We perform a repeated measures ANOVA to investigate participants' willingness to invest in Toronto-based firms, including the two index funds, and find that treatment group is statistically significant at $p = 0.002$ ($F = 7.20$). 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 $p < 0.01$. We also note that the interaction term is not statistically significant ($F = 0.84$, $p = 0.531$). We repeat the analysis excluding the index funds in the computation of the dependent measure and find similar results. Treatment group is statistically significant ($F = 10.35$, $p < 0.001$), whereas the interaction term is not ($F = 1.04$, $p = 0.399$). Pairwise tests indicate that participants in the Full ID group (0.21) invest more locally than participants in the Location (0.13) and No ID (0.10) groups at $p < 0.01$.

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 perceived familiarity bias at the local level, though we do not observe this bias when comparing across national borders.

3.2.4. *Perceived Familiarity with Investment Opportunities*

As before, we compute the average perceived familiarity score assigned to investment opportunities located in the U.S. and Canada, including and excluding the two index funds. We also compute the average perceived familiarity score assigned to Toronto-based firms and non-Toronto-based, Canadian firms (excluding the Canadian index fund).

The descriptive data are presented in Panel A of Table III.¹⁶ Participants indicate that they 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.¹⁷

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 perceived familiarity score assigned to firms in which the participant invests and that assigned to firms in which the participant does not invest. We

¹⁶ As shown in Table III, the number of observations is 54, whereas 66 students participated in the experiment in Canada. Twelve students failed to respond to all of the perceived familiarity questions and are excluded from the analysis.

¹⁷ As before, we perform tests for each treatment group separately and inferences are unaffected.

Table III. Perceived familiarity with the investment set: Experiment in Canada

The table reports the mean, standard deviation, and number of observations of the perceived familiarity scores assigned to domestic and foreign investment opportunities, including and excluding the two index funds. The table also reports the mean perceived familiarity scores assigned to local and non-local domestic opportunities, excluding the index funds. Perceived 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 perceived familiarity score assigned to domestic versus foreign (and local versus non-local) investment opportunities differs significantly. Though not reported, the results are unchanged looking at each treatment group separately. Panel B provides a perceived familiarity score for firms invested in, weighted by the percentage of investment, and a score for the perceived familiarity of firms never invested in for the Full ID group.

Panel A: Perceived familiarity with firms across Canadian experiment

Investment		Mean (Std. Dev.)	<i>t</i> -statistic (<i>p</i> -value)
Total including index funds	Domestic	4.20 (1.98)	10.78 (0.000)
	Foreign	2.24 (1.60)	<i>n</i> = 54
Total excluding index funds	Domestic	4.85 (2.31)	11.05 (0.000)
	Foreign	2.28 (1.70)	<i>n</i> = 54
Domestic investment excluding index funds	Local	5.70 (2.80)	6.87 (0.010)
	Non-Local	3.99	<i>n</i> = 54 (2.12)

Panel B: Perceived familiarity with firms in full ID group

Investment	Familiarity	<i>t</i> -statistic for difference (<i>p</i> -value)	Wilcoxon <i>z</i> -statistic for difference (<i>p</i> -value)
Greater than zero	3.71	3.27	−2.43
None	1.91	(0.011) <i>n</i> = 9	(0.015) <i>n</i> = 9

perform a paired t -test, with results shown in Panel B of Table III, and find that participants have a higher perceived familiarity 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.¹⁸ Wilcoxon matched-pairs tests produce similar results ($z = -2.43$, $p = 0.015$).¹⁹

As with the U.S. experiment, we also investigate whether participants in the Full ID group invest more in domestic or local firms holding perceived familiarity constant. We perform the same sort of analysis and, though not reported, find similar results. That is, perceived familiarity affects domestic and local investment, whereas location does not.

Lastly, to further investigate the role of perceived familiarity in explaining investment choices in our experiment, we conduct an additional survey of Canadian students at the same Toronto university (as those participating in the experiment).²⁰ Thirty-seven participants reported on their familiarity with 8 investment opportunities, including the four Canadian firms in our experiment and four additional Canadian firms. We also 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 ($p < 0.05$). Perceived familiarity scores also are 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. Instead, our Canadian participants invest more in firms that they feel positively about.

4. 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

¹⁸ We lose ten participants (observations) in the analysis because these participants invest in all securities at least once over the course of the experiment. We also perform independent sample comparisons to retain all participants (who responded to all of the perceived familiarity questions) in the analysis and find that inferences are unaffected.

¹⁹ 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.

²⁰ 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.

provides for a stringent test in that participants make repeated investment decisions using the same information set, performance is revealed after each investment decision, and nuisance variables are avoided.

Our evidence indicates that perceived 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, for Americans and Canadians, perceived familiarity is higher for domestic and local firms as compared to foreign and non-local firms. This finding is not surprising. However, additional analysis indicates that perceived familiarity is associated with agents' investment decisions. Participants who are provided with firms' names and locations have higher perceived familiarity 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, though we find that such behavior arises regardless of whether participants actually know more about the firms. Moreover, although a name may provide a tangible connection to a firm, affective associations lead to complex reactions. Our Canadian participants indicate that they are more familiar with the Canadian investment opportunities, but do not invest greater amounts in domestic securities. Investors' perceived familiarity bias depends critically on a positive evaluation of the firm. Future research may probe the perceived familiarity effect to gain insight into how it arises. Researchers may investigate factors that cause agents to perceive familiarity 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.

Appendix: 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 1rose 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.

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