MUTUAL FUND SHAREHOLDERS: CHARACTERISTICS, INVESTOR KNOWLEDGE, AND SOURCES OF INFORMATION

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Abstract

This paper analyzes the responses from a nationwide telephone survey of 2,000 randomly selected mutual fund investors who purchased shares using the services of six different intermediaries, referred to as distribution channels -- brokers, banks, mutual fund companies, insurance companies, employer-sponsored pension plans, and “other” (e.g., financial planners). The survey provides data on the demographic, financial, and fund ownership characteristics of mutual fund investors. Furthermore, it contains data on investors’ familiarity with the costs and certain investment risks associated with mutual funds and the information sources used to learn about these costs and risks. Accordingly, it is possible to create a measure of each mutual fund investor’s overall level of financial literacy. The results, given in Congressional testimony by OCC and SEC officials, discussed by the popular press, and cited in a recent SEC rule proposal, suggest that there is room for improvement in investor knowledge of the expenses and risks associated with mutual funds and that more can be done to make mutual fund prospectuses more useful to investors.

Mutual Fund Shareholders:

Characteristics, Investor Knowledge, and Sources of Information

Over the past 15 or so years, mutual funds have become an increasingly popular investment vehicle. Ownership of stock, bond, and money market mutual funds rose from 6 percent of U.S. households in 1980 to 37 percent in 1996, while the total assets held by mutual funds soared by nearly 2,100 percent, from $135 billion to roughly $3.5 trillion at year-end 1996.[1] The dramatic growth in the mutual fund industry has heightened policymakers' concern with the level of investor knowledge regarding the costs and risks associated with mutual funds. To provide perspective on this concern, the Office of the Comptroller of the Currency (OCC) and the Securities and Exchange Commission (SEC) contracted with a market research firm to conduct a nationwide telephone survey of a randomly selected sample of 2,000 mutual fund investors.[2]

The mutual fund survey was structured to collect two kinds of data on mutual fund shareholders. First, the survey collected data on the demographic, financial, and fund ownership characteristics of mutual fund shareholders. The data permit analysis of how these characteristics differ across the major distribution channels available to mutual fund purchasers. Second, the survey requested data on mutual fund investors' familiarity with the costs and certain investment risks associated with mutual funds and the information sources used to learn about these costs and risks. These data, together with other information from the questionnaire given to each respondent, provide some indication of the overall level of financial literacy of mutual fund investors.

In seeking to fulfill its mandate to protect investors, the SEC has over time developed numerous regulations designed to provide fund investors with relevant disclosure materials about funds so that they can make informed investment decisions. Similarly, the OCC has developed guidelines in seeking to fulfill its mandate of ensuring bank safety and soundness. As a broader segment of the population began to purchase mutual funds in recent years, the importance of providing investors with relevant disclosure materials has been heightened. This paper analyzes the mutual fund survey data to provide empirical guidance to banking and securities regulators on how knowledgeable fund investors are about the costs and certain investment risks associated with mutual fund purchases, and whether bank sales of mutual funds pose any special regulatory problems.[3] Indeed, this survey's results have been the subject of Congressional testimony, discussed in the popular press, and cited by the SEC as a justification in its recent three-part rule proposal that makes major changes in the existing regulations regarding mutual fund prospectuses.[4]

Between 1980 and 1996, the number of mutual funds increased over tenfold, from 564 to 6,243, and total mutual fund industry assets increased nearly 25-fold, from $134.8 billion to $3.5 trillion.[5] This growth stemmed from several factors. Notable among them has been growth in the use of defined contribution pension plans,[6] which covered 56 percent of pension plan participants in 1990 compared with 29 percent in 1982.[7] Another notable change has been an expansion in the variety of distribution channels, which now include banks,[8] savings and loans, and life insurance companies besides the traditional channels provided by the fund companies themselves and by stockbrokers.[9] Increased bank involvement in the mutual fund industry has been accompanied by changes in the legal landscape of bank activity during the past two decades,[10] although data limitations have made it difficult to determine the extent of banks' involvement in the mutual fund industry.[11]

The dramatic growth in the mutual fund industry has raised several important policy issues for financial regulators. An important concern is the level of investor knowledge of the costs and risks associated with mutual fund investments. A related concern involves sources of information and investors' use of them to acquire knowledge about these costs and risks. Analysis of the data provided in the mutual fund survey can be used to address these concerns.

For example, an important issue for fund regulators is whether fund investors understand the amount and nature of fees charged by their funds. Rules adopted by the SEC require clear and prominent disclosure in fund prospectuses of all fees and expenses.[12] Nonetheless, concerns have been raised about whether investors appreciate the level and kinds of fees associated with fund investments.[13] Understanding the fees and expenses of mutual funds may have been made more difficult recently as funds have increased the types of services they offer to investors and the way in which service providers are compensated for these services. The current mutual fund fee and expense structure includes fees designed to cover distribution or marketing expenses,[14] various sales charges, administrative fees, and advisory fees. New pricing structures have also emerged, with different classes of mutual fund shares, providing investors with more choices in purchasing fund shares, but at the same time adding to the complexity of the purchase decision.[15]

Several recent surveys have provided evidence on both investment risk disclosures and the level of investor knowledge relating to mutual fund purchases. A survey released in early 1994 by the American Association of Retired Persons stated that "the vast majority of American bank consumers are unaware of the risks and fees involved in the sale of uninsured investment products, such as mutual funds and annuities, that are increasingly available at U.S. banks and other financial institutions."[16] The *Investor Knowledge Survey: A Report of the Findings*, which was commissioned by the Investor Protection Trust (IPT) and conducted by Princeton Survey Research Associates during January 1996, found that fewer than one-fifth of all individual investors (in stocks, bonds, funds, or other securities) could be considered to be "financially literate" based on responses to a quiz.[17]

A 1995 "mystery shopping" study by Prophet Market Research, a San Francisco-based market research company, concluded that banks do a better job than brokerage houses and insurance companies in educating customers about the risk of investment products.[18] Prophet completed a second round of mystery shopping at banks in January 1996 which yielded less favorable conclusions about bank sales representatives' disclosures of risks, fees, and expenses. However, bank representatives countered that such disclosures are not typically made until the sales are about to be closed.[19] In a recent Consumer Bankers Association survey, few bank customers were found to hold the misconception that mutual funds purchased through a bank are insured by the FDIC.[20] Most recently, a shopping survey of nondeposit investment sales at FDIC-insured depository institutions, conducted by Market Trends, Inc. for the FDIC, found that bank sales representatives were more likely to make required disclosures in face-to-face discussions with investors than over the phone.[21]

Concerns about investors' understanding of the costs and risks of mutual funds extend beyond investors who obtain their fund shares through a bank-related channel. For example, a recent survey of pension plan participants (which are mostly 401(k) plan participants) by John Hancock Mutual Life Insurance Co. found that more than one-third of the respondents believed it was impossible to lose money in a bond fund (an additional 12 percent were not sure), while 12 percent believed it was impossible to lose money in a stock fund or said they did not know.[22]

Although the surveys discussed above differ in their construction and scope, the primary difference is methodological. Mystery shopping, in seeking to discover what information a salesperson provides to potential investors, typically focuses on disclosure. A survey of actual investors, in seeking information regarding what they believe about investing in general and their own investments in particular, typically focuses on knowledge. Because the primary function of the joint OCC/SEC survey was to ascertain the level of investor knowledge in order to assist in the formulation of policy, the two agencies decided to survey actual investors.

The remainder of this paper is organized as follows. Section 1 analyzes the demographic and financial characteristics of mutual fund shareholders. Section 2 examines investors' familiarity with the costs and certain investment risks associated with mutual funds, along with the information sources used by investors in making mutual fund purchases. Section 3 presents a measure of financial literacy of mutual fund investors and examines its determinants. Section 4 discusses the policy implications of the survey results and draws conclusions.

1. Demographic and Financial Characteristics of Mutual Fund Investors

The major demographic characteristics considered in the survey are age, income, education, and gender. Purchasers from six distribution channels, including stockbrokers (both full-service and discount), banks, mutual fund companies, insurance companies, employer-sponsored pension plans, and "other" (e.g., financial planners) are examined. These distribution channels are not mutually exclusive.[23] That is, an investor who purchases a mutual fund directly from a fund company may purchase another one from a bank or a brokerage firm. As a result, the percentages reported in any given row for a table often sum to more than 100 percent.[24] Panel A of table 1 presents the number of respondents for each of the six channels; note that while there were 2,000 respondents to the survey, the sum of the respondents in the channels is 3,232, indicating there are a large number of multiple-channel purchasers.

Table 1 presents both demographic and financial data on investors. As shown in panel B of the table, 58.6 percent of survey respondents were males, whereas males represent 48 percent of the U.S. voting-age population.[25] Investors who purchased mutual funds directly from a fund company were significantly more likely to be male (69.4 percent). In contrast, survey respondents who purchased mutual funds through banks were equally divided between male and female, indicating that banks reach a somewhat different segment of the population than that reached by other mutual fund providers. Furthermore, the median age of a mutual fund shareholder is 43 years, which is greater than the median age (38 years) of the U.S. voting-age population.[26] Younger investors are significantly more likely to invest in mutual funds through their pension plans (e.g., 401(k) plans), reflecting the recent increased usage of defined contribution plans,[27] while bank, broker, and direct fund company purchasers are each significantly older as a group than are their counterparts who purchase their mutual fund shares elsewhere. In terms of income, mutual fund investors have a median household income of $58,800, which is close to the median household income of fund owners reported elsewhere.[28] This income level is substantially higher than the 1994 median household income of $32,264 that was reported by the U.S. Census Bureau.[29] Mutual fund purchasers using brokers, those buying directly from the fund company, and those buying through pension plans report notably higher median incomes than those purchasing through other distribution channels. Finally, in terms of education, mutual fund investors are well educated, with 54.6 percent having at least completed college, compared with 39.4 percent of the U.S. voting-age population.[30] Broker and direct fund company customers are more likely to have at least a college degree than customers in the other distribution channels while bank customers are less likely.

Panel C of table 1 first reports survey findings on the length of time respondents have been fund investors, i.e., investor seasoning. As shown in the table, the average mutual fund shareholder was not a new investor in mutual funds, since about 85 percent of survey respondents purchased a mutual fund before 1993.[31] Purchasers of mutual funds from brokers, fund companies, and insurance companies were significantly more likely to be experienced investors. The panel also indicates that the typical mutual fund shareholder owned several other types of financial assets besides mutual funds. Roughly 50 percent owned individual stocks, 30 percent owned individual bonds, 35 percent owned certificates of deposit (CDs), 40 percent had money market deposit accounts (MMDAs), and 25 percent owned annuities.[32] Furthermore, slightly more than 80 percent of the sample owned their primary residence, compared with 64 percent of the U.S. population.[33] Purchasers of mutual funds from brokers were significantly more likely than all other purchasers to own each type of financial asset and their primary residence.[34] In contrast, bank purchasers were significantly less likely to own individual stocks but were significantly more likely to own CDs and MMDAs. Pension plan investors were significantly less likely to own CDs and MMDAs, while insurance company investors were more likely to own annuities and their primary residence.

Table 2 first presents data on the types of mutual funds owned by purchasers using the various distribution channels. In general, each type or category of fund represents a different combination of possible risk and return. More than 72 percent of respondents own stock mutual funds, nearly 40 percent own money market mutual funds, and about 36 percent own bond funds. Direct, broker, and pension plan purchasers were significantly more likely to own stock funds than were bank and insurance company purchasers. Bank and insurance company customers were significantly more likely to own money market mutual funds than were the customers of other sales channels.[35] Broker, pension plan, direct, and insurance company customers were significantly more likely to own bond funds than are other sales channel customers.

Panel B of table 2 reveals that the median number of funds owned by the respondents is three.[36] Furthermore, 55.7 percent (= 16.1% + 39.6%) of the respondents reported owning three or more mutual funds. More than two-thirds of broker and direct mutual fund purchasers own three or more mutual funds, with more than half of both groups owning four or more mutual funds. The median number of funds owned was significantly greater for broker, direct, and pension plan investors than for investors who did not use brokers, did not purchase directly, and did not purchase through a pension plan, respectively.

Panel C of table 2 presents the type of mutual fund in which the respondents hold their largest investment. The largest fund type may indicate some measure of the risk preferences of investors or, alternatively, the knowledge of investors. More than 63 percent of the respondents reported that their largest investment is in a stock fund. Broker, direct, and pension plan purchasers were significantly more likely to have their largest investment in a stock fund. On the other hand, bank and insurance company purchasers were significantly less likely to have their largest investment in a stock fund. Bank purchasers were the largest investors in money market funds with a percentage (25.3 percent) that is significantly greater than that for investors who did not purchase through a bank..

2. Sources of Information and Knowledge of Mutual Fund Investors

This section examines the sources of information that investors use to learn about mutual fund investments as well as the level of financial literacy displayed by survey respondents. The analysis shows which investors, categorized by distribution channel, are aware of the returns and risks associated with mutual fund purchases, along with the role played by the mutual fund prospectus and other sources of information in their learning about mutual fund investments.

2.1 Sources of Information

Panel A of table 3 indicates that the mutual fund prospectus was the single most widely used source of information, with 57.7 percent of respondents having cited it as a source of information in making their most recent mutual fund purchase.[37] Survey respondents also reported that they relied heavily on financial publications like newspapers and magazines (42.0 percent), employer-provided printed materials (44.5 percent), family or friends (37.6 percent), and meetings or presentations at work (33.5 percent) in choosing their most recent mutual fund investments. Furthermore, about one-third of the survey respondents stated that brokers provided information used in making their most recent mutual fund investment decisions.

The prospectus was used by more than 50 percent of the respondents regardless of the distribution channel used to make the purchase. For those who purchased mutual funds directly from a fund company, the prospectus and financial publications were the most widely cited sources of information. Not surprisingly, broker and bank purchasers were much more likely to cite brokers and bankers, respectively, as sources of information than were purchasers who used other distribution channels, while pension plan purchasers were more likely to cite employer-provided printed materials and meetings or presentations at work.

Panel B of table 3 presents respondents' perceptions of the best source of information for their most recently purchased mutual fund. Generally, shareholders cited the information source most closely associated with the distribution channel used in making the purchase as the most important. For example, a significant percentage of bank purchasers (19.4 percent), broker purchasers (39.0 percent), and pension plan purchasers (39.3 percent) named banker, broker, and employer-provided printed materials, respectively, consistent with earlier observations on the results presented in panel A. Surprisingly, direct plan purchasers cited financial publications (36.7 percent) more often than the prospectus (20.5 percent) as the best source.

Overall, survey respondents most often cited employer-provided printed materials as the best source of information about their most recently acquired mutual funds. This result would seem to be best explained by the large number of respondents who had purchased funds through pension plans. After employer-provided materials (26.7 percent), the sources of information most frequently cited as the best were financial publications (17.1 percent), broker (16.9 percent), family or friends (16.3 percent), and the prospectus (15.2 percent).

2.2 Knowledge of Risk, Expenses, and Performance

Panel A of table 4 presents data on mutual fund investor awareness of certain investment risks involved with stock, bond, and money market mutual funds. Most mutual fund purchasers know that it is possible to lose money in stock, bond, and money market mutual funds (94.0 percent, 71.8 percent, and 63.9 percent know this, respectively) with little difference across distribution channel. As shown in panel B, the difference in the percentages of investors who believe that stock and bond mutual funds can lose money is a statistically significant 22.2 percent; the difference when bond and money market funds are compared is 7.9 percent, which is smaller but still statistically significant. The differences between the stock and bond fund percentages are similar across all distribution channels. A similar observation can be made when the bond and money market fund percentages are compared, except for the insurance and "other" distribution channels where the differences are small and insignificant.

The respondents' beliefs about being able to lose money in stock, bond, and money market funds were also examined by four demographic pieces of information: age, income, education, and gender.[38] Notable observations are: (1) college graduates are significantly more likely to believe one can lose money in a stock fund; (2) knowledge that bond funds can lose money is related to age (older investors are more likely to know), income (wealthier investors are more likely to know), and gender (males are more likely to know); and (3) respondents younger than 35 are less likely to believe that one can lose money in a money market fund. No other significant differences were observed.

Table 5 reports data on investor familiarity with mutual fund operating expenses. The first two panels present information on the percentage of respondents who could provide some expense estimates for their largest mutual fund. As shown in panel A, the level of expenses did not seem to be an important factor in the purchasing decision of many respondents. Only 18.9

percent of the respondents could give an estimate of expenses for their largest mutual fund, although broker and direct purchasers were significantly more likely to be able to do so. The percentages of respondents who could provide even an approximation of actual expenses were even smaller. Respondents earning less than $75,000 were significantly less likely to provide an expense estimate. Males and college graduates were significantly more likely to provide an expense estimate.

Respondents who could not provide an expense estimate for their largest fund were asked if they knew of their largest fund's expenses at the time of purchase. Panel B of table 5 reports that only 43.0 percent of the respondents claimed to have known any of their largest fund's expenses at the time they first invested in the fund. Broker, direct, and insurance company purchasers were significantly more likely to have claimed to have known the annual expenses of their funds at the time of initial purchase. College graduates and males were significantly more likely to have responded that they knew the fund's expenses.[39]

Pension plan purchasers, in contrast, were significantly less likely to have known their funds' annual expenses. Annual expenses of funds may be of less significance to mutual fund shareholders who purchase their shares through employee pension plans, however, because a participant in a typical defined contribution plan is presented with a choice of different funds with different investment objectives. While the choice of funds is typically designed to allow the employee to allocate assets among broad categories of investments (e.g., stocks, bonds, or money market investments), the employee is usually not presented with a choice of different funds with the same investment objective. As a result, the cost of holding a particular fund (as opposed to whether the fund is consistent with the employee's investment objective) would appear to be of lesser importance to an employee who purchases fund shares through an employee pension plan than to an investor who purchases funds through other distribution channels.

Panel C of table 5 reports investors' beliefs about the relationship between expenses and mutual fund performance. About 20 percent of the survey respondents believed that mutual funds with higher expenses produced better results, while 64.4 percent believed that funds with higher expenses produced average results. Only 15.7 percent of the survey respondents believed that higher expenses led to lower-than-average returns.[40] Bank customers were significantly less likely than nonbank customers to expect an inverse relationship, while direct fund purchasers were significantly more likely to expect an inverse relationship. The relationship between performance and expenses was also examined by the largest fund type. The only statistically significant difference involved respondents who named money market mutual funds as their largest type. These respondents were significantly less likely to believe that higher expenses led to lower than average returns.

Panel D of table 5 reports investor perceptions about the year-to-year performance of mutual funds. Mutual fund prospectuses must present historical fund returns over the past 10 years, and investors must receive the prospectus before they make their purchase decision. While many investors tend to choose mutual funds largely on the basis of past performance, empirical evidence on the historical relationship between returns in successive years is mixed.[41] Approximately 24 percent of the respondents believe that a fund that has performed well last year will have an above average return this year; 70.6 percent believe the fund will have an average return; and 5.3 percent believe the fund will have a below average return. Direct purchasers are significantly more likely than indirect purchasers to believe that returns in successive years are positively related. (It should also be noted that, as reported in panel B of table 3, 36.7 percent of direct purchasers named financial publications as the best source of information, and financial publications are the most likely places for performance advertisements to appear, thereby implying--but not stating--that there is a direct relationship between past and future performance.)

Panel A of table 6 presents results on whether an investor's knowledge of the rate of return differential between stocks and U.S. Treasury bills was related to the type of mutual fund held by the investor. As shown in the table, mutual fund investors who owned stock and bond funds were significantly more likely to know that stock market returns tend to surpass the return on U.S. Treasury bills. College graduates, males, and respondents earning more than $75,000 annually were significantly more likely to believe that the rate of return on stocks is greater than that on Treasury bills.

Panel B of table 6 presents results on whether an investor's knowledge of the rate of return differential between stocks and U.S. Treasury bills is related to the largest type of fund held by the investor. Mutual fund investors whose largest fund was a stock fund were significantly more likely to know that stock market returns on average exceed the return on Treasury bills. Investors whose largest fund type was either a bond or a money fund, however, were significantly less likely to know that the average rate of return in the stock market is greater.

3. Financial Literacy of Mutual Fund Investors

In this section, the level of financial literacy of the mutual fund survey respondents is examined. The analysis is conducted in several steps. First, an aggregate measure of overall investing and mutual fund knowledge is constructed for each respondent. This measure is called the respondent's "quiz score." Second, statistical tests are conducted to test for significant differences between high and low quiz score groups by demographic and financial characteristics and by sources of information. Finally, a multivariate analysis is conducted using a logit model to assess the factors that are most important in explaining differences in overall investor literacy as measured by the quiz score.

The quiz score should not necessarily be interpreted as indicating whether any particular financial intermediary has been more or less successful in educating investors. Quiz scores may show that in general more knowledgeable investors choose to purchase funds through particular channels. For example, more financially literate investors may be more comfortable with the idea of purchasing directly from a fund company and may be more likely to maintain an account with a stockbroker. As a result, it can not be inferred that salespeople in these distribution channels necessarily do a better job of disclosing risks and costs.

3.1 Quiz Score Measure of Financial Literacy

The measure of overall investor knowledge is based on the responses to a subset of questions in the mutual fund survey. The quiz consists of nine questions and the number of correct responses is called the quiz score. The quiz score measures investing knowledge in general and mutual fund investment knowledge in particular on the part of mutual fund shareholders. The questions involve the respondents reporting whether or not they know:

(1) that it is possible to lose money in a stock mutual fund;

(2) that it is possible to lose money in a bond mutual fund;

(3) that money market mutual funds are not insured;

(4) that there are thousands of mutual funds to choose from in making an investment decision;

(5) that stock market returns are, on the average, greater than the return on U. S. Treasury bills;

(6) what the term net asset value (NAV) means;

(7) what redemption means;

(8) what derivatives are; and

(9) what present value means.

Quiz questions six through nine are relatively weak measures of investor knowledge, as respondents were given credit for those questions if they claimed to know what these various terms mean, even though no attempt was made to verify the accuracy of their responses. The results reported here, however, are essentially unchanged when quiz scores are based solely on the responses to the first five questions. Table 7 gives descriptive statistics on knowledge of these terms by distribution channel

3.2 Quiz Score Analysis

Panel A of table 7 presents the mean and standard deviation of the quiz score. The results are reported for the total number of survey respondents, as well as by distribution channel. Also reported are the results of conventional t-tests of the equality of mean quiz scores for each type of distribution channel.

The typical mutual fund shareholder had a quiz score of five out of a possible nine.[42] Investors purchasing directly from fund companies scored much higher than any other fund group. Broker and pension plan purchasers also scored significantly higher than those buying mutual fund shares through other distribution channels. However, bank and insurance company purchasers received significantly lower mean quiz scores than other survey respondents.

Panel B of table 7 presents the mean and standard deviation of the quiz scores for each distribution channel when the respondents who reported using a given channel were broken down into two groups. The first group indicated the given channel was the only distribution channel that they used to purchase mutual funds; the second group purchased funds more than one distribution channel. Overall, the results reveal a significant difference in the quiz scores between the two groups. Investors who have purchased mutual funds through multiple channels have notably higher scores (5.70) than those who used only a single channel (4.44). Furthermore, the differences are significant for each channel, with the largest difference being in the pension channel (1.57).[43] This is of particular interest, given the recent rapid growth in 401(k) plans.[44]

Table 8 presents quiz scores by some demographic and financial characteristics. Males scored significantly higher on average than females, and purchasers of mutual funds who work in the financial services industry scored significantly higher than those who do not. In addition, those who own stocks and real estate scored significantly higher than those who do not. Although not presented, average quiz scores increased with age, education, and income.

Table 9 presents quiz scores by the best source of information. Respondents who reported that financial publications and the prospectus were the best sources of information scored significantly higher on the quiz. In contrast, respondents who relied on family or friends, bank representatives, employer-provided printed materials, and insurance company representatives scored significantly lower on the quiz.

3.3 Quiz Score Multivariate Analysis

In the previous section, quiz scores were examined by each one of the individual factors. In comparison, multivariate analysis can assess how the quiz score varies by particular factors, holding constant the effects of a wide set of other factors. The multivariate analysis used here is based on a logit estimation. This analysis makes it possible to assess whether and how the quiz score is linked to demographic and financial characteristics, and to other factors such as sources of information and distribution channel used.[45]

Table 10 reports results for this multivariate estimation by displaying maximum-likelihood coefficient estimates and their asymptotic t-statistics for the logit model, along with a chi-squared measure of overall goodness of fit and its p-value, the proportion of correctly predicted quiz scores, and the total number of observations. Overall, the multivariate estimation can be viewed as an effort to use various items of information provided by respondents to predict whether respondents are above or below average in their financial literacy. Thus, the dependent variable in the multivariate model is a discrete random variable that takes on a value of either one or zero for each respondent, depending on whether the respondent's quiz score placed him or her in the top or bottom half of the quiz score distribution. While dividing the sample into halves is arbitrary, the results do not differ when the sample is divided into tertiles, quartiles, and quintiles. Similarly, the results were also insensitive to different indices of knowledge measured by several alternative subsets of the quiz questions.

The estimation uses a number of explanatory variables, including several dummy (or indicator) variables. The demographic dummy variables MALE, COLLEGE_GRAD, WORK_FIN_INST, AGE, NUM_FUNDS, INCOME, and SEASONED take on a value of 1 (0 otherwise) if the respondent is a male, is a college graduate, works at a financial institution, is older than 43 years of age, owns three or more funds, has household income greater than $75,000, and purchased a mutual fund before 1993, respectively. Also included are dummy variables for the best source of information used in purchasing the most recent mutual fund. To avoid collinearity problems, a separate dummy variable was not included for respondents naming "other" as the best source of information. The dummy variables PUBLICATIONS, PROSPECTUS, BROKER, BANKER, EMPLOYER, and FAMILY take on a value of 1 (0 otherwise) if the best source of information is financial publications, the mutual fund prospectus, broker, banker, employer-provided printed materials and family or friends.[46]

The results of this exercise indicate that there is a significant positive relationship between the quiz score and five demographic explanatory variables -- being a male, a college graduate, working at a financial institution, owning three or more funds, and earning income greater than $75,000.[47] Furthermore, respondents who indicated that either financial publications or mutual fund prospectuses were their best source of information earned significantly higher quiz scores. The overall fit of the multivariate model is good, as indicated by the significantly low p-value associated with the chi-squared statistic. In addition, the model was able to correctly identify high and low quiz score respondents for slightly more than 70 percent of the respondents based on their demographics and best source of information, providing additional evidence that the model has a good fit.[48]

4. Conclusion

The survey shows that the typical mutual fund investor surveyed is older, wealthier, and better educated than the average American. The results of the survey suggest, however, that investor knowledge of the expenses and risks associated with mutual funds can be improved. Although the average fund shareholder has invested in funds for several years, most fund shareholders do not appear to appreciate the relationship between fund expenses and performance. In addition, a substantial number of fund investors still believe they cannot lose money in a bond fund. The survey results also suggest that more can be done to make mutual fund prospectuses more useful to investors. This suggests that the SEC's recent initiatives in this area are appropriate and timely, especially since more than 40 percent of those surveyed stated that they never used the prospectus. Moreover, the survey respondents considered the prospectus only the fifth best source of information about the funds they purchased.

Although broker and direct fund company purchasers are relatively more knowledgeable about the costs and risks of mutual fund investments than fund company purchasers who did not use brokers and did not purchase directly, it is likely that investors self-select into the various distribution channels. For example, more knowledgeable investors may be more comfortable with the idea of purchasing from a fund company or a broker. As a result, salespeople at banks may face greater challenges in educating their typical mutual fund buyers. The survey should not be read as indicating that salespeople in broker and direct distribution channels necessarily do a better job of disclosing risks and costs than their counterparts in other distribution channels.

The ongoing challenge of raising the level of investor comprehension of the costs and risks associated with mutual fund investments extends well beyond simply designing regulatory requirements. Ultimately, the goal of improving how investors are educated can be achieved only by a concerted joint effort of such parties as plan sponsors, brokers, fund companies, and governmental regulatory agencies.

Notes

1. See Investment Company Institute (December 1996) and Reid (1997).

2. The survey was conducted between June 28 and August 4, 1995. To qualify for inclusion, respondents needed to be (1) the principal financial decision-makers, (2) 18 years or older, and (3) a member of a household owning mutual funds. A total of 32,075 telephone calls resulted in 2,019 completed interviews, of which 19 were not included in the analysis because respondents provided inaccurate information on the types of mutual funds purchased. The sample of mutual fund shareholders was drawn from a nationally representative sample of telephone numbers. All telephone numbers in the nation, whether listed or not, had an equal probability of being selected. For more on how the survey was administered, see Market Facts, Inc. (September 1995).

3. A recent study argues that a substantial number of bank mutual fund purchasers believe their mutual fund investments are insured by the federal government. See American Association for Retired Persons, Consumer Federation of America, and the North American Securities Administrator Association, Inc. (January 1994), p. 1.

4. Testimony on the study's results was given by Barry Barbash, SEC director of the Division of Investment Management, and Eugene Ludwig, Comptroller of the Currency, on June 26, 1996 before the Subcommittee on Capital Markets, Securities, and Government Sponsored Enterprises of the House Committee on Banking and Financial Services. For examples of press coverage of the study's results; see Gasparino (June 25, 1996), Hensley (June 25, 1996), and Singletary (June 25, 1996). For more on the recent SEC rule proposal, see Taylor (1997) and the Office of the Federal Register (1997), particularly pp. 10898-10899.

5. See Investment Company Institute (1996), pp. 119-120, and Office of the Federal Register (March 10, 1997), p. 10898.

6. In a defined contribution plan, an employee's retirement income is linked to the size and timing of the employee's contribution and to the performance of the portfolio (or portfolios) chosen by the employee.

7. Department of Labor (1995), p. 11.

8. There are three major categories of commercial banks, differentiated by their respective powers and by the agencies that charter and regulate them. National banks are chartered and regulated by the OCC. State member banks are chartered and regulated by state authorities, and because they are members of the Federal Reserve System, they are also regulated by the Federal Reserve Board (FRB). State nonmember banks are chartered and regulated by state authorities and by the Federal Deposit Insurance Corporation (FDIC) at the federal level. Bank holding companies are companies that own banks and are regulated by the FRB. Savings and loans are regulated by the Office of Thrift Supervision (OTS). The SEC has certain jurisdiction over both bank holding companies and thrifts. The term "banks" will be used hereinafter to refer to both commercial

banks and savings and loans, since the survey questionnaire referred to them jointly.

9. Most sales of mutual funds at banks appear to be conducted through third-party providers. A 1995 General Accounting Office (GAO) study found that of the 2,400 banks providing retail securities brokerage services, 88 percent offered funds through registered brokerage subsidiaries or through arrangements with unaffiliated registered securities broker-dealers. See GAO (September 1995).

10. In 1972, the FRB authorized bank holding companies to act as mutual fund advisers, transfer agents, and custodians. In 1987, the OCC authorized national banks to provide investment guidance to their customers regarding mutual funds that are advised by bank-affiliated investment advisers. In 1992, the FRB allowed bank holding companies or their subsidiaries to provide investment advice and other brokerage services to customers in any bank-advised mutual fund. In 1994, the OCC approved the acquisition of The Dreyfus Corporation, a large manager of mutual funds, by Mellon Bank, N.A. The approval subjected Mellon Bank and its operating subsidiaries to a number of conditions. See Office of the Comptroller of the Currency (September 1994), p. 27. Also in 1994, the FRB, the FDIC, the OCC, and the OTS issued a joint statement providing uniform guidelines to depository institutions on the sale of mutual funds to retail customers. The guidelines permit mutual fund sales to occur only after required disclosures are made to bank customers, including a statement that mutual funds are uninsured investment products; see Office of the Comptroller of the Currency (February 1994).

11. Until recently, bank mutual fund data were limited to surveys and third-party data collectors such as Lipper Analytical Services, Inc. and the Investment Company Institute. In the first quarter of 1994, the banking regulatory agencies began collecting data on bank mutual fund sales and fee income.

12. The SEC has required, and will continue to require, that mutual funds disclose their fees and expenses in a consolidated table near the front of their prospectuses. This table must include all fees and expenses paid directly or indirectly by shareholders and show the cumulative amount paid on a $10,000 (previously $1,000) investment at the end of 1-, 3-, 5-, and 10-year periods, assuming a 5 percent return. See Office of the Federal Register (March 10, 1997), pp. 10927-10929.

13. Some commentators have raised a related issue of whether fund fees are too high. These commentators have asserted that efficiencies resulting from economies of scale associated with the growth in the fund industry have not been passed on to investors. One study found that U.S. diversified stock funds have on average increased their fees nearly 35 percent over the past 16 years, and that individual investors pay twice as much as institutional investors for money management. See Simon (February 1995), p.131. In part, the increase in fees is attributable to the creation of many new funds and the increased popularity of funds that invest internationally. New funds tend to be smaller and have higher expense ratios than older funds, and international funds have relatively higher expenses than domestic funds.

14. These types of fees are often called "12b-1 fees" because they are paid in accordance with the terms and conditions of Rule 12b-1 that was adopted by the SEC under the Investment Company Act of 1940, the principal federal stature governing the conduct of mutual funds.

15. In a typical multiple class arrangement, a prospective investor is presented with the option of purchasing shares subject to a sales charge at the time of purchase or at the time of redemption. Recently, funds have been offering classes of shares with an ever-increasing number of different attributes.

16. See American Association of Retired Persons, Consumer Federation of America, and North American Securities Administrators Association, Inc. (January 1994), p. 1.

17. See Crenshaw (May 19, 1996), p. H1.

18. See Kimmelman (June 9, 1995), p. 10.

19. See Plasencia and Cope (January 19, 1996), p. 1.

20. See Consumer Bankers Association (November 1994).

21. See Market Trends, Inc. (May 5, 1996).

22. See Schultz (December 22, 1995).

22. Because distribution channels are not mutually exclusive, a chi-squared statistic is used to test for significant differences between bank and nonbank purchasers, broker and non-broker purchasers, pension and non-pension plan purchasers, and so on. Except where otherwise indicated, statements about statistical significance are based on a chi-squared statistic.

23. It should be noted that because not all respondents provided answers to all questions, the number of responses can and do vary by question.

24. See U.S. Bureau of the Census (1996), p. 286. According to Investment Company Institute (May 1996), p.53, males make up 57 percent of all mutual fund shareholders.

25. See U.S. Bureau of the Census (1996), p. 286. According to the Investment Company Institute (May 1996), p. 53, the median age of mutual fund shareholders is 44 years.

26. Mutual funds held an estimated $255 billion of the 401(k) market as of year-end 1995, up from $161 billion as of year-end 1994, according to the Investment Company Institute (1996), p. 87.

28. See Investment Company Institute (May 1996), p. 53.

29. See U.S. Bureau of the Census (1996), p. 469.

30. See U. S. Bureau of the Census (1996), p. 286. According to the Investment Company Institute (May 1996), p. 53, 58 percent of mutual fund shareholders completed college or postgraduate training.

31.When conducting research on mutual funds, the Investment Company Institute (May 1996, p. 15) “routinely defines shareholders who purchased their first fund in the two years preceding the survey as ‘new’ shareholders.” Since the current survey was taken in 1995, the use of 1993 as a cutoff date for defining “seasoned” shareholder is thus consistent with this definition.

32. MMDAs are insured bank accounts offering a rate of return that is tied to the rate of return on short-term debt instruments.

33. See U.S. Bureau of the Census (1996), p. 720.

34. Brokers, especially full-service ones, are known for giving investment advice on individual stocks and bonds. As noted, the survey does not distinguish between full-service and discount brokers.

35. This information on bank purchasers is consistent with bank call report data that indicate over 90 percent of mutual fund sales activity by banks is in money market mutual funds. See Federal Deposit Insurance Corporation (June 1995).

36. A median of three funds owned is also reported in the Investment Company Institute, (May 1996), p. 54.

37. According to the Investment Company Institute (May 1996), p. 23, 50 percent of mutual fund shareholders said they consulted the prospectus before purchasing their latest fund.

38. This analysis does not include respondents who did not know or refused to answer the question.

39. Of those survey respondents who cited financial publications and the prospectus as the best sources of information, 66.5 percent and 58.3 percent of them were knowledgeable about their fund’s expenses, respectively. The percentages of those having knowledge of expenses were lower for the other best sources of information cited by respondents.

40. In general, there is an inverse relationship between fund performance and expenses for bond and money market funds, but the relationship is ambiguous for stock funds.

41. See Ippolito (1992) and Sirri and Tufano (1993) for more on the direct relationship between performance and the flow of funds into mutual funds. For recent mixed evidence on the persistence of portfolio performance, see Blake, Elton, and Gruber (1993), Bogle (1992, 1994), Brown and Goetzmann (1995), Brown, Goetzmann, Ibbotson, and Ross (1992), Carhart (1997), Elton, Gruber, and Blake (1996), Goetzmann and Ibbotson (1994), Grinblatt and Titman (1992), Hendricks, Patel, and Zeckhauser (1993), Kahn and Rudd (1995), and Malkiel (1995).

42. Recently, *Money* magazine and the Vanguard Funds Group conducted a 20-question survey of 1,467 mutual fund investors, and arrived at results similar to those reported here; see Updegrave (February 1996). Similar results are also reported from a recent survey by Investor Protection Trust; see Crenshaw (May 19, 1996), pp. H1, H4.

43. Technically, the largest difference is in the "other" channel. However, since this involves a variety of alternative distribution systems, it is ignored here.

44. Recently Crenshaw (June 12, 1997) reported that the number of 401(k) participants in 1995 was approximately 22 million, compared with approximately 10 million in 1985.

45. Of the 2,000 survey responses, 1,554 were used in this analysis because 446 did not provide answers to the nine questions comprising the quiz or other respondent specific information such as age or income.

46. Since only a handful of the 1,554 repondents named meetings or presentations at work as a best source, they were put in the EMPLOYER group. Furthermore, none of the 1554 respondents named insurance company as the best source, causing this information source to be omitted as an independent variable in the logit model.

47. Omitting respondents who work for a financial institution produced almost identical results.

48. As a test of statistical validity, the multivariate analysis was also done with a holdout sample, with no significant differences being observed. In the case at hand, a holdout sample is a sample of respondents who were not used to initially estimate the logit model's parameters. After the model was estimated, its accuracy was checked by seeing how often it correctly predicted the quiz scores for the respondents in the holdout sample.

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