

Assessing the Costs and Benefits of Brokers in the Mutual Fund Industry*

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Abstract

Many investors purchase mutual funds through intermediated channels, engaging and paying brokers or financial advisors for fund selection and advice. This paper attempts to quantify the benefits that investors enjoy in exchange for the higher costs they pay in order to purchase funds through the broker channel. We focus on five measurable potential benefits to consumers of brokered fund distribution: (a) Assistance selecting funds that are harder to find or harder to evaluate; (b) Access to funds with lower costs *excluding* distribution costs; (c) Access to funds with better performance; (d) Superior asset allocation, and (e) Attenuation of behavioral investor biases. Exploring these dimensions, we do not find that brokers deliver substantial tangible benefits. In short, while brokerage customers are directed toward funds that are harder to find and evaluate, brokerage customers pay substantially higher fees and buy funds that have lower risk-adjusted returns than directly-placed funds. Further, brokered funds exhibit no better skill at aggregate-level asset allocation than funds sold through the direct channel. This analysis implies that any benefits that exist must be found along less tangible dimensions.

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1. Introduction

The neoclassical model that is the baseline for financial economics leaves little room for financial institutions (see e.g. Allen (2001)). However, all mutual fund investors hire professional investment managers to select securities. In addition, while some investors buy funds directly, many choose to pay substantial fees to engage the services of distribution professionals such as brokers or advisors, thus adding another link to the intermediation chain. In aggregate, fund distribution is a big business. Using a variety of industry data, we estimate that mutual fund investors may have paid as much as \$3.6 billion in front end loads in 2002, \$2.8 billion in back-end loads and another \$8.8 billion in 12b-1 fees, in addition to the \$23.8 billion paid in 2002 for investment management fees and other operational expenses.¹

The question we pose in this paper is a simple one: What benefits do broker-channel mutual fund consumers enjoy in exchange for these loads and 12b-1 fees? While research has focused on whether mutual fund investors, on net, benefit from professional investment management, there is less work to date analyzing the benefits of professional brokerage services in the mutual fund industry. We focus on five measurable characteristics of the funds purchased through the broker and direct channels:

- (a) Do consumers in the broker channel find funds with *high search or analysis costs*, i.e., those that would be otherwise difficult to find or evaluate;
- (b) Do consumers in the broker channel find funds with *lower non-distribution fees*;
- (c) Do consumers in the broker channel find *better performing* funds;
- (d) Do consumers in the broker channel enjoy superior *asset allocation*;
- (e) Do consumers in the broker channel display fewer *investor 'biases'*.

We find some evidence that brokers focus on smaller, younger funds that are not covered by major fund rating services. These funds are likely to be more difficult for consumers to find on their own.

¹ Reported estimated aggregate front and back loads are based on data from three sources. Aggregate sales and redemptions come from April 2003 Investment Company Institute publication, 'Trends in mutual fund investing'; average maximum front and back loads for individual fund share classes come from the FRC database that is the base of the empirical analysis in this paper; average assessed loads as a share of maximum come from the February 2004 ICI publication "The cost of buying and owning mutual funds."

However, funds sold through the broker channel do not appear to charge lower non-distribution fees; brokers are not directing investors to less expensive funds. Brokered funds do not perform better than direct-channel funds. We find that funds sold through the broker channel have lower raw and risk-adjusted returns than direct-channel funds, even before distribution expenses are deducted. Broker-sold funds reflect different asset allocations that change over time, but when risk-adjusted, these recommendations produce an aggregate Sharpe Ratio similar to that of direct channel funds. Finally, we evaluate of the performance-sensitivity of investors in the two channels. While we don't directly debate the optimality of performance-chasing behavior, we assess the relative performance-sensitivity in the broker and direct channels. Our results are not conclusive, and depend on the particular specification chosen. While linear regressions of inflows on performance suggest higher sensitivity among broker-sold funds, regressions that use percentile ranks rather than the level of performance and inflows suggest, if anything, a slightly higher sensitivity to performance among the direct-channel funds.

This paper establishes, at an aggregate level, that it is unlikely that the benefits of brokers lay in their superior mutual fund choices, asset allocation decisions or superior cost management for the investor. What benefits exist must fall along less tangible dimensions. For example, brokers may help investors save more, better customize their portfolios to risk tolerances, and/or increase overall investor comfort with their investment decisions. We recognize that these less tangible benefits may be real and substantial. Future research, likely using individual account-level data, may have more success identifying the less easily measured benefits of brokers

We believe that the study of fund distribution channels is long overdue.² Fund industry participants, policy-makers, and the academic community can all benefit from an analysis of this aspect of the mutual fund business. From a business perspective, distribution channels consume a substantial portion of fees

² Independent research by Christoffersen, Evans, and Musto (2005) is exploring differences among funds within the broker channel, in particular between funds sold through 'captive' brokers and funds sold through non-captive brokers. Related research by Nanda, Wang, and Zheng (2004) explores the relationship between fund load structures and the sensitivity of inflows to performance. Berger, Cummins, and Weiss (1997) and Kim, Mayers, and Smith (1996) explore the coexistence of multiple distribution channels in insurance markets. Because they compare independent insurance agents to insurance agents that exclusively sell the insurance products of one firm, their work is somewhat closer in spirit to the paper by Christoffersen, Evans, and Musto.

paid by mutual fund consumers. Distribution capacity is the scarce resource in the U.S. fund industry and there is a vigorous debate in the asset management business regarding the value added by the “factory” (investment management) versus the “channel” (distribution or sales channel). In this debate, the importance of the distribution channel is increasingly being acknowledged as critical to success in the asset management industry. Importantly this research endeavors to understand the connections between investors and their ultimate investments. In this vein, the paper complements analyses of advertising in this industry.³ We study the outcomes from distribution effort, which are affected by both direct advertising to consumers (estimated by Reuter and Zitzewitz (2006) to be \$307 million per year during the 1996-2002 period) and the marketing efforts that funds use to encourage brokers to promote their funds to investors.

From an academic perspective, the past 10 years have seen an explosion in research focusing on how behavioral biases affect investment behavior. While biases like overconfidence, mental accounting, and loss aversion characterize individuals, little research has focused on whether distribution professionals attenuate—or magnify—these biases. For example, while investors might have bounded rationality—and be unable to process the mountain of information on the thousands of funds available—paid professional advisors might be able to help them sift through all of this data and make better investment decisions.

Finally, some of the recent scandals in the fund industry have focused on distribution practices alleged to harm consumers. For example, it has been alleged that brokers have subverted their clients’ interests to their own and to the operators of the funds they sell. While expensive marketing and sales efforts promote a large variety of products, important differences separate the responsibilities owed by those who sell financial products from the responsibilities of those who sell other products. Parties who advise clients about investments and sell them financial products may owe their clients certain duties that are higher than “*caveat emptor*.” At a minimum, brokers are subject to NASD rules, which include a requirement that they recommend suitable investments for their clients. Financial advisors, as fiduciaries

³ See Jain and Wu (2000), Cronqvist (2005), Gallaher, Kaniel, and Starks (2004), Mullainathan and Shleifer (2005), and Reuter and Zitzewitz (2006).

of their clients, owe an even higher standard of care, and must put their clients' interest ahead of their own. The extent to which financial advisors can be held to these higher standards is a complex issue in regulation and law, and is currently a topic of substantial debate.⁴ In light of these alleged duties, it seems appropriate to look for evidence that sellers of funds deliver valuable benefits to their customers.

Unfortunately, there are few hard facts in this public debate. Furthermore, the allegations of prosecutors, politicians, and the news media invariably focus on pathologic situations that are likely to capture attention. Given the importance and increasing regulatory attention paid to the mutual fund industry, it is valuable for academic researchers to establish a set of baseline facts about how fund distribution works.

The remainder of the paper is organized as follows. Section 2 is a brief sketch of the means by which mutual funds are distributed in the United States. Section 3 describes our data sources and provides summary statistics. Section 4 looks for evidence that brokers help consumers find funds that would be hard to find or evaluate. Section 5 assesses whether brokers help consumers find funds with lower *non-distribution fees*. Section 6 analyzes the realized returns of funds in brokered and direct channels. Our goal in this section is to see if brokers direct their clients to funds that outperform, or at least perform well enough to make up for the higher costs of distribution. Section 7 provides an analysis of aggregate asset allocation decisions in the broker and direct channels. Section 8 tests whether home bias and return-chasing behavior are more or less pronounced among the customers of brokers than among direct-channel mutual fund customers. Section 9 outlines alternative explanations for some of our results. Section 10 concludes the paper and suggests directions for future research.

2. Distribution Channels in Mutual Funds

This section describes the mutual fund business and mutual fund distribution channels. In addition, we motivate the empirical work by discussing five hypotheses about the potential benefits of brokers for mutual fund investors.

⁴ See K. Pender, "Brokers versus advisors" San Francisco Chronicle, 9/21/ 2004 for a recent layperson's discussion of the evolving issues. <http://sfgate.com/cgi-bin/article.cgi?file=/chronicle/archive/2004/09/21/BUGI18S4DJ1.DTL>

Distribution of Mutual Funds. Marketing analysis starts with a “channel map” which, applied to the mutual fund industry, traces out the various sales channels that bring mutual funds and consumers together. In putting together this description, we draw liberally from our discussions with mutual fund practitioners, as well as from Gremillion (2001), Pozen (2000) and Reid and Rea (2003). We acknowledge that categorizing fund distribution channels is a difficult task given the relatively poor disclosure of distribution activity in this industry.

Each mutual fund is an independent legal entity with a board of directors that has the fiduciary duty to make decisions that benefit the fund shareholders. In principle, each year, a fund’s board selects a set of service providers to serve the fund’s investors; these include the investment manager, the distributor, the fund administrator, fund counsel, fund auditors and others. Funds typically have no employees and function by outsourcing 100% of their activities to the various service providers. A fund’s board is legally free to replace the investment manager or distribution agent, just as it is free to replace a fund’s counsel or auditor. In practice, boards rarely terminate contracts with investment managers. A result (or perhaps cause) of this ‘stickiness’ is that consumers typically identify funds with their sponsors. Sponsors are generally the investment manager for the funds within a particular fund family. Examples of well-known fund sponsors include Fidelity, Franklin-Templeton, Putnam, Vanguard, among many others.

One of a fund’s key business decisions is how it will be distributed or sold to consumers. The fund sponsor has a keen interest in sales and distribution, and more generally in the asset-gathering process. Investment management contracts in the U.S. virtually always pay investment managers a fee that is a mildly downward-sloping function of the amount of assets under management. Asset-gathering strategies that increase investor inflows and retain existing assets produce higher revenues to fund sponsors. Given that many costs of investment management are fixed, this would suggest that sponsors would enjoy increasing profitability as assets grew. Another reason for the interest in distribution is that asset-gathering strategies which provide stable investor bases lead to less frequent transactions and hence lower transaction costs for the portfolio-management side of the business.

A variety of channels link mutual funds and their consumers; the categorization of channels in the fund industry is quite complicated. For example, Figure 1 shows the distribution categories used by three fund industry consultants (Lipper, Financial Research Corporation, Strategic Insight) and the industry trade association, the Investment Company Institute. Each classification scheme defines channels with different labels and different levels of specificity. These taxonomies divide funds along three dimensions: who sells the funds; who buys the funds; and what ancillary services are offered.

Along the first dimension, *Who sells the funds?*, the choices are direct sales from a fund itself or sales through a broker/dealer. These broker/dealers might be freestanding organizations, they may be affiliated with the fund itself under a “captive” arrangement, and they may be part of a bank or an insurance company.

Along the second dimension, *Who buys the funds?*, the fund can either be sold to a single consumer or to a group or organization that acts as the representative for a group of individuals. The latter include 401k plans, pension funds, profit sharing plans and endowments; Lipper separately breaks out bank sales to bank trust departments. Other smaller groupings include affinity funds which are sold to individuals who have a relationship with a member organization or employee funds.

Some taxonomies—like the ICI’s categorization—differentiate channels by the ancillary services they offer, distinguishing between broker/dealers who provide advice (full-service broker) and those who primarily provide execution (so-called supermarkets that vend a variety of funds but provide little personalized advice.) Strategic Insight categorizes this latter channel as part of direct channel.

For this paper, we employ a high-level categorization of distribution methods, based on the FRC and Lipper definitions. In our taxonomy, funds may be *directly distributed* or *broker-distributed*. We combine bank, captive and wholesale channels into a single “broker” channel. We exclude funds sold through the ‘institutional’ channels, sales of which may be driven by a set of dynamics different from the

retail fund market.⁵ We also exclude fund share classes for which the primary distribution channels reported by Lipper and FRC are inconsistent with each other.

The direct channel is comparatively easy to characterize. Direct channel funds have relatively straightforward financial arrangements with mutual fund investors. Investors generally do not pay front-end or back-end loads to purchase mutual funds through the direct channel. However, direct sales funds often levy annual fees for distribution, called “12b-1” fees, named for the section of the Investment Company Act under which they were authorized. Funds with 12b-1 fees under 25 bp may still market themselves as “no-load” funds, leading some funds without 12b-1 fees to market themselves as “*pure* no-loads.”

The academics’ image of the direct channel is perhaps best represented by Vanguard, which obtains new customers through advertising and through word of mouth. However, the direct channel has been evolving into an increasingly complex system. Funds that are “directly” distributed are sometimes used by fee-based financial advisors who assist clients. These funds are also often made available through fund supermarkets like Schwab OneSource, or available for purchase as part of defined contribution retirement plans.⁶ This service is typically paid for with an advisory fee that is outside of the fund expenses or distribution costs. As a practical matter, the “direct” channel may not be as direct as we might imagine, in which case, we might expect to find few if any differences between it and more labor-intensive distribution channels.

The broker channel involves more complex financial arrangements with both the mutual fund investor and the mutual fund’s management company. From an investor’s perspective, the broker provides financial advisory services and can be paid in a number of ways.⁷ Explicit distribution fees

⁵ The institutional channel includes funds that sell to organizations rather than to individuals. These institutions included corporations, endowments, pension plans, and fiduciaries such as bank trusts, legal trustees or accountants who serve as trustees.

⁶ We attempt to exclude funds sold into defined contribution plans by excluding from our study share classes that are identified as being made available to these plans.

⁷ In practice there is not necessarily a one-to-one link between the timing of distribution fees paid by the consumer and those received by the broker. The actual payments made to brokers may be accelerated relative to the payments received by consumers by borrowing against or securitizing future expected distribution fees. Conversely, it is

include front-end loads, back-end loads, and annual 12b-1 fees collected from the investor's mutual fund investments directly. Brokers are also sometimes compensated with indirect distribution fees. For instance, arrangements where management companies pay part of their management fee to brokers in the form of "revenue sharing agreements" have recently received attention in the press.⁸ The result is a complex and often poorly disclosed set of payments and incentives. In this paper, we sometimes construct a measure of "non-distribution expenses" by subtracting from funds' annual expenses their reported 12b-1 distribution charges, which are explicitly identified. Nevertheless, we recognize that there may be distribution fees hidden within in management fees or in returns that we are unable to explicitly measure.

Why should the form and quality of distribution matter? Sales effort consumes resources, and the expenses for fund distribution are material. As we report later in the paper, in 2002 over \$2 trillion is held in the broker channel, and total fees on funds sold through this channel are over twice as large as the fees of funds sold through the direct distribution channel. Revealed preference, combined with the thriving broker-sold channel, suggests that there must be benefits to having a broker assist in fund selection.

There are many potential benefits of brokers that we are currently unable to measure, and which we discuss later in the paper. We focus on a variety of measurable ways in which the performance of broker-channel funds and the behavior of broker-channel investors could differ from the performance and behavior observed in the direct channel. We then assess what these differences reflect about measurable benefits and costs that the labor-intensive and expensive mutual fund brokerage industry may bring to its customers:

1. Reduced search and analysis costs. Finding and selecting a mutual fund from among the thousands of possible choices is a difficult and potentially confusing task. The search and evaluation costs for

possible to pay brokers at a slower rate than the payments received by the consumer. Information on the specific payments made to brokers are typically not disclosed and we do not have access to these data.

⁸ For example, see Johannes, Laura and John Hechinger, "Conflicting Interests, Why a Brokerage Giant Pushes Some Mediocre Mutual Funds," The Wall Street Journal, January 9, 2004, A1.

some types of funds and customers may be greater than for others. “Harder to find funds” may include those that are younger and smaller. Funds not covered by Morningstar, which has evolved into the premier source of consumer mutual fund data, may also be more difficult for unaided investors to find and analyze. In addition, there is some variety among funds in how easily their investment strategies and performance can be interpreted by an unaided individual investor. Money market funds and index funds are likely easier to understand than would be international funds or more specialized funds.⁹ If consumers use brokers to help them find funds for which search and analysis costs are higher, then we should see brokers specializing in these types of funds.¹⁰

2. Reduced non-distribution expenses. There is ample evidence that higher expenses are systematically correlated with lower after-expense performance.¹¹ Inserting a paid broker into the fund selection process seems to potentially increase the total costs borne by the fund consumer. Since they do not make portfolio decisions, brokers cannot change the performance of a fund. They may, however, direct consumers to different types of funds. If brokers help the consumer find funds whose *non-distribution costs*, such as investment management, custody, legal, and audit expenses, etc., are lower, then these lower non-distribution fees may partially or entirely offset the higher costs of distribution for broker-channel funds.

3. Higher risk-adjusted returns. Just as consumers pay investment managers with the hope that they will select *portfolios of securities* that produce positive risk-adjusted returns, perhaps they pay brokers to select *mutual funds* that produce positive risk-adjusted returns. While academic research has failed to find that investment managers can repeatedly outperform risk-adjusted indices, perhaps professional brokers might help their customers find superior performing funds. These funds may not

⁹ An important caveat: flows in and out of broker-channel money market mutual funds may reflect their role as a transaction account, rather than an investment asset.

¹⁰ The importance of search costs has been modeled in papers by Hortacsu and Syverson (2003), Garcia and Vanden (2003). Elton, Gruber and Busse (2004) study investors’ index fund choices, perhaps construed as including search costs.

¹¹ This is a large literature; for example, see Jensen (1968), Elton and Gruber (1996), Malkiel (1995), Elton, Gruber, and Blake (1996), Carhart (1997) to name a few for evidence of the negative impact of expenses on performance.

be “superior” in an absolute sense, with persistent positive alphas, but rather in a relative sense, i.e., relative to the alphas of funds sold through the direct channel.

4. Improved asset allocation. Perhaps a benefit of working with a broker is to deliver timely asset allocation decisions. While we cannot identify whether individual investors’ asset allocation decisions are ideal given their preferences and levels of risk aversion, we can observe differences in channel-wide aggregate asset allocation, as measured by the channel-specific asset weights of the various major investment classes. We can also evaluate the performance of portfolios whose weights correspond to these asset-weighted channel allocations. In evaluating channel-specific asset allocation ability, we separate the potential asset allocation benefit from the fees and security selection ability by applying index returns to the channel asset weights.

5. Attenuation (or accentuation) of investor ‘biases’. Recent academic research has focused on the impact of potential behavioral biases on individual investors’ portfolio decisions.¹² Most of these biases are costly to investors to the extent that they induce decisions that impose additional taxes and transaction costs on investors. These biases may affect behavior in the mutual fund industry in a variety of ways. For instance, there is evidence that investors are subject to substantial home bias: investors appear to over-invest in local assets and under-invest in assets from more distant locations. In addition, Barber, Odean and Zheng (2003) have argued that investors are more sensitive to salient fees like front-end loads than they are to ongoing but less visible mutual fund charges like 12b-1 fees and other expenses, reflecting a bias towards incorporating data that appears more ‘salient’. We focus on assessing the pervasiveness of behavior consistent with these biases among funds sold through the broker and direct channels. On one hand, brokers may play a role in attenuating investors’ biases. On the other, it may be that some of the biases that have been attributed to individual investors, looked at more closely, reflect the advice of brokers. Individuals who go to brokers are sometimes characterized as seeking either “advice” or “validation.” It is reasonable to assume that the decisions of brokerage clients will reflect, in whole or part, the advice or validation they get from their brokers,

¹² For a recent survey of work on behavioral finance, see the review piece by Barberis and Thaler (2003).

and we use this assumption to compare the apparent biases of direct investors versus those advised by brokers.

Caveats and Limitations. At the outset, we acknowledge several limitations of our research design. First, we cannot measure all of the benefits that a broker might deliver to her clients. Without some sort of survey data, we cannot measure the intangible benefits that a broker might deliver to her clients, such as the sense of security that accompanies having a “professional” help with a major decision. Without client level data, we also cannot measure the value of having investments tailored to their individual needs and risk preferences. In addition, without some sort of controlled experiment, we cannot observe what assets brokerage customers would purchase had brokerage advice been unavailable. In the absence of a broker, it is possible that some of the money invested in broker-sold mutual funds would have consumed rather than saved, or been invested in other assets such as in cash or low-yielding bank deposits. While we cannot measure these potential benefits of brokers, we are open to the possibility that these benefits are valuable to consumers and hope to address some of them as part of a longer-term research agenda.

A second but related caveat concerns the interpretation of our results. If we observe differences between the brokered and direct channel, we cannot generally distinguish whether these are caused by the actions of the brokerage channel or the result of the sorting of different investor types to different channels. Industry research suggests that “do-it-yourselfers” populate the direct channel, whereas others, seeking advice and validation, populate the broker channel. These groups may have different fee sensitivity, confidence in their own abilities, risk preferences, etc. Different behavior observed by channel may reflect the sorting of consumers to the channel, rather than any activities of brokers. While this is potentially a concern, we take some comfort from the results of a 2004 Investment Company Institute survey of mutual fund shareholders (ICI 2004). This survey provides evidence on the characteristics of investors that purchase funds through various channels. The results of this survey suggest broad similarities in the demographic characteristics of broker-channel and direct-channel mutual

fund investors.¹³ Broker and Direct channel investors have roughly the same age, and similar household income, family structure, and education. While direct-channel investors have 17-23% greater financial assets and are slightly more educated, the similarities between these investors are more pronounced than are the dissimilarities. Direct and broker-channel fund investors appear to be drawn from populations with similar observable demographic characteristics, and indeed the ICI data reveal that consumers use multiple channels. Many direct customers also use the broker channel and many broker channel customers also use the direct channel although both customer groups use their secondary channel at substantially lower levels than their primary channel.

Finally, we acknowledge that our results might address a less positive story about brokers, serving their own interests and those of the fund companies who pay them, rather than the investors to whom they owe certain duties. We discuss this alternative hypothesis in our concluding remarks.

Our empirical approach in this preliminary study is to first look for evidence of measurable benefits that would offset the costs of using another layer of intermediation in the investing decision. While we recognize the inherent limitations of our empirical design, we feel that providing benchmark facts on performance and behavior in the direct and broker channels is a necessary first step in understanding the impact that distribution channels have on investors and mutual funds.

3. Data and Descriptive Statistics

Our dataset combines information from the Financial Research Corporation (FRC), from the CRSP “survivor-bias-free mutual fund database” and from Morningstar. The Financial Research Corporation performs research on the investment management industry, and focuses in particular on mutual fund distribution.¹⁴ FRC provided industry snapshots from 1998, 2000, and 2002. Each snapshot has some

¹³ For convenience, we refer to these channels using our terminology (broker and direct) rather than ICI’s definitions of a sales force channel, which includes full service brokers, independent financial planners, bank or savings institution representatives, insurance agents and accountants, and the direct market channel which includes fund companies and discount brokers. See ICI (2004), page 11.

¹⁴ For more information, see http://www.frcnet.com/frc_about.asp. As we note in our introduction, the views in this report do not reflect those of FRC, its clients or any of the other commercial parties from which we obtained data or advice.

historical data, and our analysis uses fund-year and fund share class-year observations from 1996 through 2002. The critical piece of data provided by FRC is a distribution code for each fund share class, which characterizes the primary distribution channel for that share class. FRC also reports the distribution code assigned by Lipper, another major fund data provider. For individual fund share classes, these codes rarely change over our sample period.¹⁵

Coding the distribution channel of a fund share class introduces a problem similar to assigning a primary SIC to categorize a firm—while the code may fairly represent the bulk of the firm’s activities, a single code is not perfectly nuanced for a multiproduct firm and must reflect some degree of judgment. We compare the FRC codes to Lipper distribution channel codes, and we exclude from our analysis fund share classes where the two sources differ substantively in the reported distribution channel. This occurs for 5.9% of the fund classes that represent 3.2% of the assets in our sample.¹⁶ We also exclude institutional funds, leaving a sample of fund share classes sold through the direct channel and a sample of fund share classes sold by brokers.

We use the CRSP data to measure monthly mutual fund returns and to corroborate the various fund investment objectives and other descriptive information. In some tests, we use factor loadings from the CRSP database, which require a 3-year fund return history.¹⁷ This may induce some survivorship bias in the sample of funds for which we can observe factor loadings. We also collected additional fund data from Morningstar, including Morningstar ranking and manager tenure.

Table 1 reports the top 25 largest fund share classes for the direct and broker channels. While most mutual fund research focuses primarily on equity funds, money markets funds account for 13 of the top 25 in the brokered channel versus four in the direct channel, while bond funds account for one or two of

¹⁵ These codes are defined by share class, rather than by fund, allowing for a more specific classification of fund classes by distribution type.

¹⁶ We also checked our channel classifications against data for 2002 provided by the ICI. We repeated our analysis on a sample of funds that excludes those for which the ICI channel classification does not match the FRC and Lipper classification. With the exception of the inflow velocity results documented below, the results in this paper are very similar in this more restricted sample.

¹⁷ Factor loadings for newly introduced share classes of funds with existing track records are assumed to match the factor loadings of the older share classes of the same fund,

the top 25 among each channel. Table 2 reports the aggregate size of our sample, as well as the average size of the funds in the sample and the share of funds that are small, which we define as having assets under management of less than \$100 million. In each panel, we report the total in our sample and the division by broker and direct distribution. We report data for 1996, 1998, 2000, and 2002.

In 2002, our sample covers 10,415 share classes in 4,541 funds representing assets of \$3.8 trillion.¹⁸ Brokered distribution is the dominant form of distribution, representing 81% of all share classes, 66% of all funds and 53% of all assets in 2002. Direct distribution accounts for the remainder of the funds in our sample, with institutional funds, exchange-traded funds, and other funds excluded from our sample. Funds sold through the broker channel account for a larger fraction of share classes than funds because brokered funds are more likely to have multiple share classes, differing in the structure of their fees.¹⁹ The brokered channel has been losing share overall to the direct channel in assets, with its assets under management dropping from 59% in 1996, to 53% in 2002.

These aggregate data help frame our analysis of the differences between fund channels. Investors hold trillions of dollars in savings through each of these channels, and differences in investor behavior between the channels are an issue of first-order importance to the economy and to household welfare. While the line between “direct” and “brokered” distribution is not always drawn sharply, and there are funds that are sold both directly and through brokers or other investment advisors, professionals in the fund industry view the two channels as having quite different characteristics. The analyses in the sections that follow assess the dimensions along which differences between these channels exist.

4. Do brokers help their customers find “hard to pick” funds?

Selecting an appropriate mutual fund can consume both time (to collect information about a fund or an expert advisor) and money (to pay for expert advice), both of which constitute search costs. The

¹⁸ These numbers exclude institutional funds and those for which the method of distribution is ambiguous. Including these, there were 15,616 share classes with \$5.8 trillion in assets under management in 2002. Institutional funds account for the majority of the difference between our sample and the overall sample with respect to number of share classes (68%) and assets under management (81%). The data restriction imposed in later tests where we require factor loadings causes us to lose approximately 35% of all funds but only about 13% of all assets.

¹⁹ See Nanda, Wang, and Zheng (2003) for a study of the impact that the explosion of share classes has had on the relation between loads and flows.

average fund-owning household has a handful of funds, which it must select from thousands of choices (in our sample, from over 10,000 different share classes in over 4,500 funds.) In the ICI (2004) survey, 94% of both clients of sales force and direct channels note that “the availability of a range of mutual fund choices” is an “important or very important reason for owning mutual funds.” Yet, 81% of the users of the brokered channel agree with the statement that “I tend to rely on the advice of a professional financial advisor when making mutual fund purchase and sale decisions” vs. 62% of the users of the direct channel.

In light of these differences, we speculate that, left to their own devices, fund investors would be more likely to select funds that are easier to find and analyze, and less likely to select those funds that are harder to find and analyze. One benefit of working with professional brokers is that they might help investors to locate and invest in funds that might otherwise be overlooked. The corollary of this statement is that we might find that brokers specialize in matching investors with hard-to-find funds.

We posit that a fund is easier to find if it has a larger business footprint: It is bigger, it is older, its management team has been in place longer, it is covered by the major fund rating services, it is well covered in the press, or it is the subject of conversations by friends, coworkers or family.²⁰ To assess empirically whether brokers direct investors to funds where search costs are higher, we look several measures of fund visibility. We also distinguish between the funds that are “offered” and the funds that are “sold” by each channel. Our view is that equal-weighted results capture the product set or menu *offered* by a channel,²¹ while asset-weighted figures represent what investors have actually *purchased*, on net, over time. The characteristics we analyze include:

- The average size of funds sold through the direct and broker channels.
- The average age of the funds offered (equal-weighted) and sold (asset-weighted).
- The share of funds offered and sold that are “young” (i.e., under 3 years old).
- The share of funds offered and sold that are “small” (i.e., under \$100 million in assets under management).

²⁰We also acknowledge that performance plays a role in identifying a fund, and discuss this further in Section 6.

²¹ We acknowledge that in some cases, equal-weighting may over-weight infrequently used share classes in these calculations and therefore the value weighted results may more dependably represent the nature of the industry.

Once a consumer has identified a fund, she then has to analyze whether the fund is appropriate.

Brokers can help consumers analyze funds whose performance and strategies would otherwise be hard to understand. To test whether brokers specialize in harder or easier to understand funds, we look at various elements of a fund's portfolio that affect its ease of evaluation:

- We hypothesize that “easier” to evaluate funds include money market funds, index funds, and domestic funds--especially larger cap funds.
- “Harder” to evaluate funds include international funds and smaller cap equity funds. We also hypothesize that the strategies of actively managed funds are harder to evaluate than those of index funds. Finally, funds not covered by Morningstar are harder for individual investors to evaluate without the aid of a broker.

Tables 2 and 3 report fund characteristics by channel and Table 4 reports the funds' portfolio compositions by channel. Tables 3 and 4 each have a left and a right panel; the left panel presents results that are weighted by assets, while the right panel presents results that are weighted equally by fund share class. The equally-weighted results reflect the menu of products offered to investors, while the asset-weighted results reflect the product actually purchased.

Table 2, panels D and E, shows that brokers offer funds that are considerably smaller than those offered in the direct channel.²² For example, in 2002, funds sold by brokers were 38% smaller than those sold through the direct channel, with an average fund size of \$725 million versus \$1,174 million. This is consistent with the hypothesis that brokers bring smaller funds to the attention of their clients. However, examining this result more closely in Table 2 panel E, we find that if we examine the fraction of funds offered that are “very small,” i.e., with assets of less than \$100 million, the menu proposed by brokers to their customers has fewer small funds. A small number of very large funds drive the larger average size of direct-channel funds; the broker channel, in aggregate, does not seem to direct a larger share of assets to the very small funds.

²² While our unit of analysis is normally a share class, for the analysis in Table 3 we look at the fund as the unit of analysis, as the visibility of a fund is probably more related to its overall size, as opposed to the sizes of its individual share classes.

Table 3 examines the age of funds offered and sold by the different channels. Starting with the average age of funds, brokers *offer* products that are equivalent to the offerings of the direct channel, with an average age of 11.2 versus 11.4 years (in 2002). Looking at the products actually sold, the asset-weighted results confirm this result: there is little difference between the average age of funds sold by the two channels. However, if we focus on the proportion of funds that are young, we see that the funds sold by brokers (asset-weighted) are consistently more likely to be young, where we define young as being less than three years old.

Table 3, panel C, shows funds by channel as a function of manager tenure. In most years, brokers offer funds whose managers have been in place for a shorter period of time, which is consistent with the broker channel selling funds that are more likely to be under three years old. However, the asset weighted results show that what funds get sold is not statistically different for the two channels.

The final panel of Table 3 examines funds as a function of whether the funds are rated by Morningstar. Morningstar does not rate money market funds, so this analysis is conducted among bond and equity funds. We posited that funds without Morningstar ratings might be more difficult for consumers in the direct channel to evaluate, so they would be more likely to be offered and sold in the brokered channel, where a broker can offer her opinion on the fund. Indeed, brokers are more likely to offer unrated funds; throughout the period we analyze they are considerably more likely to sell them and this tendency is stronger in recent years. The asset-weighted results suggest that unrated equity funds are two to three times more prevalent among those equity funds sold by brokers versus those sold directly.

Tables 2 and 3 suggest that funds that go through brokered distribution are on average somewhat smaller²³, younger and are less likely to be rated by Morningstar. This pattern of results is somewhat consistent with our hypothesis that the broker channel helps steer investors toward funds that are more difficult to identify.

Table 4 presents characteristics of the portfolios of funds sold through the direct and brokered channels. We hypothesize that brokers have a comparative expertise in assisting customers pick funds

²³ However, the prevalence of very small funds is the same across the two channels.

that are “hard to analyze.” No simple metric identifies the “degree of difficulty” in assessing a fund, so we report a variety of measures of fund portfolio characteristics. Our priors are that harder to evaluate portfolios include international securities and small cap stocks, as well as actively managed equities. In contrast, brokers might have little comparative advantage over direct channels in selling “easier” products. These products would include money market mutual funds, which have historically maintained stable net asset values; index funds, where differences tended to focus on expenses, rather than skill; and large-cap stocks.

The evidence in Table 4 is mixed. Consistent with the idea that brokers play a role in helping investors assess the performance and strategies of “complicated” funds, Table 4 shows that the brokerage channel offers and sells substantially more foreign funds than does the direct channel, 14.0% versus 10.4% in funds offered and 7.3% versus 5.5% in funds actually sold. The broker channel offers and sells considerably less of the simplest equity products, index funds. In aggregate, less than 2 percent (0.6/37.4 from table 4) of the equity assets in the brokered channel are in index funds, versus 16.5 percent (8/48.5 from table 4) in the direct channel. These results are consistent with the hypothesis that brokers “specialize” in marketing funds that allegedly require greater analysis. Brokers are relatively specialized in international funds, and within the pool of equity funds brokers focus on actively managed funds.

Countering this view, substantially more of the assets held through the broker channel potentially require the least assistance from a broker: money market funds. While brokers offer a smaller number of money market fund share classes, the asset-weighted results tell a different story: 29.9% of all assets in brokered funds are in money market funds versus 22.3% in the direct channel. While there may be benefits of holding money market assets in a brokered distribution channel, it is unlikely that this benefit is the superior advice given by the broker regarding money market fund selection. This finding suggests that the broker channel is not only a means by which investment advice is delivered, but also a means for handling transaction needs of customers. Alternatively, broker-channel money market holdings may represent another type of brokerage firm customer—investors holding individual stocks who use their money market funds as a place to hold cash. However, countering this hypothesis, in the ICI (2004)

survey, virtually identical fractions of the users of the two channels say that their fund investments are “savings for the long term” (96 vs. 95%), and if anything, holders of directly-marketed funds have a higher preference for funds that are used for emergencies (48 vs. 44%) or current income (22 vs. 21%) that might be consistent with greater holdings of money market or bond funds.²⁴

Overall, this first investigation provides some results that are consistent with the notion that brokers tend to specialize in products that are harder for the consumers to find and analyze. The one main exception to this general finding is that the broker channel offers and sells considerably more money market mutual funds. This is probably less due to the role of brokers in giving advice on mutual fund selection than to clients using their brokerage accounts (and money market funds) as pools of liquidity for subsequent investment or transactions.

5. Do brokers help their customers find lower cost funds?

The ICI (2004) data suggests that both types of customers care about fees. When asked whether “levels of fees and expenses” were “very or somewhat important reasons for owning mutual funds,” 95% of the clients of the direct channel responded affirmatively, as did 93% of the clients of the sales force channels. Yet, brokers charge investors for their services, adding to the cost of fund acquisition and ownership. The most consistent pattern of evidence in the academic literature on mutual funds is that expenses are a drag on performance. However, if brokers direct investors toward funds whose non-distribution expenses are lower, then higher distribution charges on funds sold through the broker channel may be partially or fully offset.

We test this hypothesis by measuring the fees that fund investors pay for services other than distribution. We define “non-distribution expenses” as the annual expense ratio net of any 12b-1 fees. Non-distribution expenses thus include management fees, as well as administration, custody, transfer

²⁴ We have also examined the holdings of equity funds by channel. We found that among the broad equity funds, on an asset weighted basis, the broker channel funds are slightly more concentrated in large cap stock holdings, value funds, and greater momentum factor loadings relative to the funds sold through the direct channel. One could characterize each of these dimensions as more readily observable characteristics of funds requiring less sophistication to find and thus inconsistent with the hypothesis that the broker channel helps investors find harder to analyze funds. These results are available from the authors.

agency, audit, legal and board fees. We acknowledge that some distribution charges will be hidden in what we label “non-distribution charges”, in particular when management companies engage in revenue sharing with the brokers who sell their funds. We also report the components of distribution fees, including annual 12b-1 fees, maximum front-end loads, and maximum back-end loads, and construct a measure of the annuitized level of all distribution fees, assuming a five-year investor holding period.²⁵ Table 5 reports the fee components by channel for equity, bond and money market funds, as well as the class of “broad equity” funds, which excludes funds which focus on particular specialty sectors. Table 6 reports a multivariate analysis of non-distribution fees.

Distribution charges. Front-end and back-end loads and 12b-1 fees compensate brokers and support other marketing activities. Table 5 shows the components of these expenses, reported on both equal weighted and asset weighted bases. As expected, 12b-1 fees, maximum front-end loads and back-end loads are all substantially higher for brokered funds than for direct funds. All of these fees are highest for equity funds, smaller for bond funds and smallest for money market funds. Except for money market funds, brokered distribution fee components are substantially larger—by a multiple of five or more—than for direct distribution. The data on front-end loads and back-end loads reflect the maximum loads that the funds can charge. This represents the load that an individual consumer with a small account would pay, however larger investors and those who purchase funds on a load-waived basis pay substantially lower fees.

Non-distribution charges. Not only are distribution charges for brokered funds higher, non-distribution expenses for brokered funds are slightly higher as well. Weighted by assets, non-distribution expenses are 2 basis points, 23 basis points, and 4 basis points higher respectively for equity, bond, and money market funds sold through the broker channel. The first two of these differences are statistically significant, while the third is not. This univariate result, confirmed in a multivariate setting below,

²⁵ We have data on the maximum distribution fees that might be levied. Funds often have break points for distribution fees, whereby larger investments enjoy lower distribution fees. In addition, many retirement accounts are sold on a “load waived” basis. Due to these discounts, actual loads paid are likely to range from 25-50% of the maximum loads we report (See ICI *Fundamentals*, February 2004, p. 19)

suggests that the higher fees paid to brokers are not offset by lower non-distribution charges. Rather, investors in brokered funds tend to pay more for not only distribution, but also other services.

Equal-weighted versus asset-weighted differences. A preference for lower fees or the existence of economies of scale would suggest that asset-weighted expenses should be smaller than equal-weighted expenses. This simple prediction is borne out for *most* of the components of expenses. In both channels, non-distribution charges and 12b-1 fees are lower on an asset-weighted basis than on an equal-weighted basis. For example, non-distribution fees are 10 to 40% smaller on an asset-weighted basis than on an equal-weighted basis.

There is one important exception to this pattern. Focusing on front-end loads, the average load of the funds actually sold (asset weighted) is higher than the equally-weighted front-end load. This result is consistent with customers—or more likely their brokers—having a preference for buying (or selling) funds that generate larger up-front fees to support sales commissions.²⁶ This result helps to explain the fact that annuitized fees in the broker channel are over 100 basis points higher for both equity and bond mutual funds.

Modeling the tradeoff between distribution fees and non-distribution fees. While the univariate results in Table 5 do not suggest that higher distribution fees offset lower non-distribution fees, we know that brokered funds tend to operate in different segments and operate at smaller average sizes. As a result, their costs may vary from those of direct-channel funds for reasons that reflect these different characteristics of the funds. To sharpen our test of the tradeoff between distribution and non-distribution fees, and to test for the presence of channel-specific differences in fees, we turn to multivariate analysis of the fund distribution expenses, non-distribution expenses, characteristics, and channel classification. Table 6 reports the results of this analysis, showing the results of regressions of non-distribution fees on the individual components of distribution fees, as well a dummy variable for whether or not the fund is distributed through the direct channel. Additional controls include complex size, included to capture possible economies of scale; minimum initial investment amounts, to capture lower costs due to larger

²⁶ This result is likely to be sensitive to load breakpoints and load-waived sales of funds as discussed earlier.

account size; investment objectives dummy variables, which reflect differences across sectors in the costs of managing portfolios; and year fixed effects. We show the results for all funds, as well as separate analyses for bond, equity, and money market funds.

The coefficients on the control variables are consistent with expectations. There is some evidence of economies of scale at the fund level, and this evidence is most pronounced among equity funds. We find some evidence of complex-level economies of scale among bond and equity funds. Younger funds (less than five years old) have lower non-distribution fees, perhaps reflecting a conscious strategy of subsidizing distribution effort for newer funds. Finally, we see some evidence of account-level economies of scale, with funds demanding larger initial minimums having lower fees.

If distribution charges and non-distribution charges are substitutes, then the coefficients on 12b-1 fees, front-end loads and back-end loads should be negative. If they are perfect substitutes, the coefficient on 12b-1 fees would be -1.0 and the coefficient on the loads would be inversely related to the expected holding period of investors. However, the coefficient on 12b-1 fees, while negative and statistically significant, is only -0.10 , suggesting that when 12b-1 fees are 100 basis points higher, non-distribution charges are lower by only 10 basis points. This result suggests that reduced non-distribution expenses do not compensate investors for higher 12b-1 fees. Looking across investment sector, the largest trade-off appears to occur in money market funds, where the coefficient estimate is -0.29 . Furthermore, there is no statistically significant relationship between front-end loads and non-distribution expenses, and non-distribution fees are *positively* related to maximum back-end loads. This evidence fails to support the hypothesis that brokers may charge for their services, but their clients enjoy lower fees for non-distribution services in return for paying higher distribution fees. Thus, while clients of both channels profess to be equally fee sensitive, clients of the brokered channel see little fee benefits offsetting the costs they pay for distribution.

6. Do brokers offer and sell higher performing funds?

Academics tend to focus on the performance of funds, but so do clients of both channels, perhaps especially clients of the brokered channel. In the ICI (2004) survey, 88% of them (vs. 82% of the clients of the direct channels) identified “professional money management” as a “very or somewhat important reason for owning mutual funds.” We read this to mean performance matters to both clients, and therefore study whether clients in the brokered channel have access to equal performing or better performing funds.

Our earlier analysis suggests that funds sold by brokers are somewhat different: smaller, younger, and less likely covered by Morningstar. It is also possible that, in addition to directing investors toward parts of the fund universe where search costs are higher, the funds selected brokers have levels of performance that differ from funds sold through the direct channel.

Table 7 presents data on the performance of funds in the three main sectors -- equity, bonds, and money markets by distribution channel. Table 7, Panel A presents asset-weighted results, while Panel B presents equally-weighted results. We report average raw returns, benchmark-adjusted returns, and various measures of risk-adjusted performance. For risk-adjustment we use the standard methodology, calculating returns in a traditional manner (net of all expenses, but before the deduction of front-end or back-end loads). We do, however, focus on *returns net of only non-distribution expenses*, as defined above. Our goal in reporting performance net of non-distribution expenses is to assess whether brokers have access to or sell funds that perform better, before the deduction of their own fees. Because the alpha measures require the CRSP factor loading data, we also recalculate the raw and adjusted returns for the restricted sample. The cross-sectional average return measures are calculated on equal-weighted and value-weighted bases using asset values as of the beginning of the return period.²⁷

The results in Table 7 are remarkably consistent. For bond and equity funds, there is no evidence that funds sold by brokers outperform those sold through the direct channel. Even before deducting any

²⁷ Betas are estimated over years t-3 through t-1, abnormal returns are estimated over year t and asset weights are calculated using asset values at the beginning of time t.

distribution expenses, the funds offered by and sold by brokers earn returns that either equal or underperform direct-sold funds.

For example, consider the asset-weighted annual performance of equity funds. *Before deducting any distribution expenses*, brokered funds underperformed direct funds by 7.5 basis points in absolute terms. They underperformed direct funds by 17.8 basis points on a benchmark-adjusted basis. Using one, three, and four factor risk adjustment, they underperformed by 21.4, 92.6, and 76.7 basis points respectively. The differences in returns based on three and four factor risk-adjustment models are both economically large and statistically significant. In aggregate, brokers' clients purchase equity funds with substantially lower returns than directly-placed funds. For bonds, the differences are approximately of the same order of magnitude, with the brokered funds underperforming by 53-68 basis points on a risk-adjusted basis.²⁸ All of these differences are *prior to deducting any 12b-1 charges, front-end loads, or back-end loads*.

Money market funds are the only exception to this pattern; in some specifications, money market funds offered by brokers outperform those offered by the direct channel. It is consistent with the larger trade-off coefficient estimate between non-distribution charges and 12b-1 fees seen in Table 6 for money market funds.

Taken as a whole, however, the evidence described in this section suggests that brokers channel investors toward equity and bond funds that deliver performance that is substantially inferior to the performance of funds sold through the direct channel, despite the fact that clients of the brokered channel seem perhaps more concerned with performance (or narrowly professional money management skills.) The underperformance of the funds sold through the broker channel is a substantial cost, in addition to the direct marketing expenses, imposed on the broker-channel investors. Using the estimates from the most complete factor pricing models, the performance of the broker-channel funds lags that of the direct channel funds by 77 basis points per year among domestic equity funds, 138 basis points among bond funds, and 21 basis points among money market funds. Applying these numbers to assets under

²⁸ One natural concern with these results is that perhaps these merely reflect differences between actively managed and passively managed funds and are not necessarily related to the distinction between distribution channels. We have rerun Table 7 excluding all index funds from the equity funds and find our results qualitatively unchanged.

management in broker channel funds implies a cost to broker-channel investors of \$5.5 billion per year among domestic equity funds and \$3.3 billion in bond funds, and \$120 million in money market funds. This underperformance comes on top of the higher distribution expenses that investors pay to purchase the funds sold through the broker channel.

7. Do brokers exhibit better asset allocation and timing abilities?

The ICI survey makes clear that clients of brokers are more likely to “rely on the advice of a professional financial advisor when making mutual fund purchase and sales decisions” than are clients in the direct channel. These financial advisors might be contributing value by helping the client to make superior asset allocation decisions. This section provides some evidence on this point. In order to abstract from fund picking expertise of brokers, we take the broker channel aggregate asset allocation weights and apply those weights to asset return indexes. We compare the cumulative value of \$1 invested December 31, 1980 using annually rebalanced asset allocations prevailing in the broker and direct channels at the beginning of each year.

While we can show the differences in asset allocations across eight asset classes (Domestic Equity, Specialty Equity, Foreign Equity, Domestic Bond, Foreign bond, Muni Bond, Money Market, and Muni Money Market) we calculate returns based upon only four of these classes (Domestic Equity, Domestic Bond, Municipal Bond and Money Market). This is partly due to the difficulty of choosing the relevant index returns for the other four asset classes and partly due to the fact these four asset classes account for the bulk of the assets in these channels. Because of the focus on these four asset classes, we rescale the weights under the assumption that these four asset classes represent the entire investment universe for these funds.

Figure 2 provides graphs of the differences between the Broker weights and the Direct Channel weights invested in each of the eight asset classes. Bond and money market funds consistently make up a higher share of assets in broker-sold funds than in funds sold through the direct channel. In Figure 3 we provide the cumulative value of \$1 invested using broker weights and direct channel asset allocation

weights. The indexes used for the asset returns are the Value weighted CRSP index returns for the NYSE, ASE and NASDAQ stocks, the Lehman Aggregate Domestic Bond index, the Lehman Aggregate Municipal Bond index, and the returns to the 30-day treasury bill. The results imply that direct channel asset allocations led to more cumulative wealth over this 22 year period of time. However, it is important to risk-adjust these returns. The broker channel underperformed, in part, because investors chose a blend of lower risk and lower return securities. This is consistent with the ICI (2004) survey results, where clients of the direct channel seem to be slightly more risk tolerant. When asked what level of risk they were willing take on with their mutual fund investments, 39% of direct channel customers (vs. 34% of brokered channels) were willing to take on “substantial” or “above average” risk for commensurate returns.

We therefore calculate the Sharpe Ratio of the two portfolios, as reported in the panel below.

Including Money Market Assets	Broker Channel	Direct Channel
Mean Excess Return (beyond T-bill) per Month	0.19%	0.25%
Standard Deviation of Monthly Excess Returns	1.84%	2.46%
Sharpe Ratio	0.1020	0.1021

While the direct channel had higher mean excess returns (relative to the risk free return on Treasury bills), it had substantially higher standard deviations of returns. The two channels produce virtually identical Sharpe Ratios, with the direct channel yielding a slightly higher level. Recall that this analysis is applied to portfolio weights from the different channels, but to index returns. When applied to actual channel returns, the brokered channel would show a distinct disadvantage, as we have already shown that broker channel funds underperform direct channel funds.

It is possible that large cash balances held in broker-channel funds may more precisely reflect transactions purposes than active long-term portfolio choice decisions. (A literal interpretation of this argument would suggest that clients of brokers are underinvested in long term investments, relative to

direct-sale investors.²⁹⁾ If so, it may be useful to evaluate the two model investment portfolios excluding the cash component. Weighting the two portfolios excluding money market assets, we find that the Sharpe ratio for the direct channel is .1120 versus .1106 for the broker channel.

Excluding Money Market Assets	Broker Channel	Direct Channel
Mean Excess Return (beyond T-bill) per Month	0.32%	0.39%
Standard Deviation of Monthly Excess Returns	2.91%	3.47%
Sharpe Ratio	0.1106	0.1120

These analyses of Sharpe ratios provide no evidence that brokers, in aggregate, display superior asset allocation. We conduct a more formal test using Merton and Hendriksson's (1981) non-parametric test of market timing ability. Using the Merton-Hendriksson approach, and examining direct channel and broker channel changes to bond and equity allocations, we cannot reject the hypothesis that brokers have no forecasting power, either absolutely or relative to the direct channel. For example, over the period from 1981 to 2002, there are six years in which the broker channel, in aggregate, increased its asset allocation to bonds (relative to equities). In two of the years, subsequent to the asset allocation change, bonds outperformed equities. Not surprisingly, the Merton-Hendriksson non-parametric statistic cannot reject the null that these two correct asset allocation moves happened by chance. Analyzing the broker channel asset allocation changes relative to direct channel asset allocation changes leads to the same conclusion.

Our examination of asset allocations in the broker and direct channels leads us to conclude that there is no evidence to support the hypothesis that, in aggregate, brokers provide asset allocation advice that helps their investors time the market. While these tests do not test the asset allocation skills of individual brokers nor the degree to which brokers fashion customized portfolios for their clients, the aggregate asset allocations observed by brokers do not outperform the aggregate asset allocations in the direct channel. Furthermore, the aggregate broker channel does not exhibit market timing skill when measured on its own relative to the market.

²⁹ The ICI (2004) reports that users of directly-placed and brokered funds are equally likely to have assets invested in bank or thrift deposits, although the study does not report the level of transaction deposits held in these accounts. However, customers of brokers have only 50% of their household financial assets with funds (vs. 55% for clients of direct-sold funds), which suggest that their non-fund transaction accounts may be even higher than for customers of direct-sold funds.

8. Do different channels exhibit different behavioral biases?

There is a large and growing literature exploring the impact of behavioral biases on investors' portfolio behavior.³⁰ In most cases, these behavioral biases are thought to impose additional costs on investors. A broker able to attenuate these biases would provide a valuable service to individual investors. The empirical tests in this section explore whether portfolio patterns that have been associated with behavioral biases are more or less predominant in the direct channel versus the broker-intermediated channel.

Undersaving. Recent empirical work (Venti and Wise, 2004) using longitudinal panel data has suggested that the level of saving, rather than portfolio choices and returns, is the major factor driving differences in asset sufficiency for households in retirement. Given our research design, however, the role that brokers play in encouraging households to save is outside of our analysis. While this study represents a first step, comparing products offered directly to products sold through brokers, it remains for future work to compare the assets chosen by households investing through brokers to consumption and savings decisions that would have been made in their absence.

While we have no direct data to report on this topic, the ICI (2004) survey provides some evidence that both groups are similarly sanguine about their level of savings. Eighty-five percent of both groups report that "I am confident that I will have enough money in retirement on which to live comfortably." Apparently neither group feels they are undersaving, although the relevant fact would be whether the advice of a broker tends to lead to greater savings among clients who select this channel.

Home bias. An extensive literature documents investors' home bias, i.e., the tendency to invest disproportionately in assets that are nearby, underweighting foreign and distant domestic assets. We see home bias in our results in Table 4, where the percentage of foreign funds offered is larger than the percentage of assets captured by those funds, in all channels. There is also evidence that brokers partially counteract home bias, encouraging their investors to invest a larger share of assets outside the U.S. Of all

³⁰ See Barberis and Thaler (2003) for a recent summary of this literature.

brokered assets, 7.3% are in held in international products, versus only 5.5% of all directly-placed funds. While investors in direct channel funds may hold their international investments elsewhere, this evidence suggests that brokers play some role in countering home bias.

Performance sensitivity. The ICI (2004) data asks a number of questions that speak to whether investors are long-term or short-term oriented, or whether they feel they respond more strongly to recent performance. Clients of both channels seem similar in their attitudes toward short-term performance.

- “I am not concerned about short-term fluctuations in my mutual fund investments” (82% Broker vs. 83% Direct)
- Fraction which report that they consider a time frame of less than one year in considering the investment risks of equity or bond funds (4% Broker vs. 5% Direct)

This similarity in self-perception suggests that differences in response to performance are not apparently the result of self-conscious differences due to the attitudes of the investors. Below, we analyze the realized performance sensitivity of investors in the two channels. In brief, we find that there are no robust differences between the two channels with regard to performance sensitivity. If anything, perhaps the brokered channel is slightly less performance sensitive than the direct channel. However, measurement of performance sensitivity is itself sensitive to the metric chosen, so that we are cannot unambiguously find differences in performance sensitivity. This is not to say that neither group is performance sensitive; rather, consistent with extant evidence, we find that both groups of investors are performance-sensitive.³¹ Furthermore, consistent with prior research, we find that investors respond asymmetrically to performance data, and are more sensitive to high performance rather than low performance. Table 8 reports the results of a multivariate analysis of the performance flow relationship by channel. Appendix A summarizes the methodology we used for our calculations of net flow.

The large number of alternative specifications in Table 8 are intended to give the reader some understanding of the nuanced performance-flow relationship between the broker and direct channels. The

³¹ See Sirri and Tufano (1998), Brown Harlow and Starks (1996) or Chevalier and Ellison (1997) for earlier studies of this phenomenon.

specifications differ in the form in which performance is specified. In some specifications, it appears that there is more performance sensitivity in the direct channel, in others more in the brokered channel. In the interest of full disclosure, we present a variety of alternatives, although for reasons we describe below, we conclude that the brokered channel exhibits the same or less performance sensitivity than the direct channel. All specifications study equity funds only and include a number of control variables, including interaction terms that capture differentials between the direct and broker channels.

Table 8B reports measures of the performance-flow relationship using linear specifications between fund performance and net flows. The three specifications look at different measures of flow and performance (ranked within channel, ranked across channels, and unranked levels) and include a number of control variables. The column Δ Broker represents the interaction terms that capture the differential impact of the broker channel for many of the variables; the first set of these represents the differential performance-flow relationship.

When we measure the differential impact using absolute flows and adjusted (unranked) returns, as in the final column of Table 8C, it appears that the broker channel is 1.5 times as sensitive as the direct channel and this difference is statistically significant. Yet if we use ranked measures this differential either disappears or reverses (depending on whether the ranking is done within or across channel.) These differing results are driven, in part, by the fact that extreme performance is concentrated among funds sold through the direct channel. The sample of funds whose performance exceeds benchmarks by 50 percent is dominated by direct-channel funds. Yet these funds do not tend to see higher inflows higher do funds with somewhat more modest performance levels. As a result, including them in the analysis pulls downward the measured relationship between performance and inflow among the direct-sold funds, explaining the apparent higher performance sensitivity of broker-sold funds in the final column of Table 8B. When one uses ranks, which have the impact of truncating the range of outcomes, the differentials disappear or reverse.

Table 8A reports a multivariate analysis of the relationship between flows and performance where performance is measured by the return decile for each fund share class each year. These return deciles are

constructed by ranking returns relative to all similar funds in both channels, and take on a value of 0 or 1 in each year.³² As in Table 8B, the three sets of results are distinguished by the form of the dependent variable, which is measured as a percentile ranked flow within the channel, a percentile flow ranked across channels, and an unranked percentage flow. The performance variables are expressed as return deciles, and thus each coefficient represents the marginal flow (or flow percentile) associated with a certain rank. One cannot directly read the Δ Broker coefficients to represent different performance-flow sensitivities *per se*, as each essentially represents a certain level of flow, not a change in flow.

Figure 4 plots the coefficients on performance for two channels for each of the three specifications. The performance-flow relationship emerges from an analysis of the cross-sectional analysis of these ten deciles. The charts show the relationship between performance and inflows, evaluated at the mean values of the additional control variables (calculated separately within broker and direct channels). As with Table 8B, the measured performance flow relationship varies with the method chosen. With the ranked methods, the brokered channel has performance sensitivity which is the same as or slightly lower than the direct channel. However, when using the absolute flow, the direct channel shows greater performance sensitivity as well as greater non-linearity of this relationship. For example, in moving from the 9th to 10th return deciles, the marginal performance-related flows in the direct channel increase from 65.5% to 93.9%, an increase of 28.4 percentage points. However, for the brokered channel, the corresponding figures would be 56.6%, 79.2% and an increase of 22.6 percentage points.

We cannot conclude that the performance sensitivity between the two channels is unambiguously different, although we can marshal evidence that both channels display return chasing behaviors. These results are interesting to compare with O'Neal (2004), who finds that funds that charge loads have

³² We have also ranked returns within their own channels. This does not change the inferences we draw.

³⁴ In prior versions of this paper we studied the reaction speed of fund flows to changes in performance, a measure that we referred to as 'fund flow velocity'. In an earlier draft of this paper we reported that broker-channel funds have much higher 'velocity' of inflows following periods of high performance. Subsequent analysis suggests that results were driven by two direct channel fund families that are marketed to rapid traders. Funds sold through these two families have a very large and negative relationship between short-term performance and inflows. Excluding these two fund families the difference between broker and direct channel funds in the 'reaction time' of inflows to performance is economically insignificant. This analysis has been dropped from the paper.

incrementally steeper slopes between performance and flows. O’Neal differentiates between purchases and redemptions, and finds that load fund investors (which roughly correspond to our brokered channel) are more performance-sensitive in redeeming poorly performing funds. Though we only observe net flows, Tables 8A and 8B imply that funds with performance in the bottom decile generate significantly lower flow rankings and lower percentage flows in the broker channel than in the direct channel which is consistent with, though not identical to O’Neals’ result.³⁴

9. Do Brokers Merely Sell what they are Paid to Sell?

We have shown that, relative to the direct channel, the broker chooses asset allocations that perform no better, and invests in funds that indeed perform worse. We have framed our tests around the positive hypotheses that brokers indeed deliver benefits to their customers that offset the costs of their services. However, this evidence could be consistent with the hypothesis that brokers may give priority to their self-interest or to the interests of the management companies whose funds they sell.

This alternative view predicts that brokers’ advice would maximize the value of present and future fees and other benefits *to the brokers*. While we do not have data on broker-level sales incentives, we can provide some evidence on the question by studying the relation between fund sales and the level of distribution fees. Specifically, we assess whether fund flows are higher when the level of sales incentives are greater, holding other fund characteristics equal. Because there is no reason to believe that funds which pay the highest sales commissions are those that are either the most suitable for investors nor in the clients’ best interest, positive evidence in this test suggests that this alternative view may have some power for describing brokers’ actions.

We find among our control variables in tables 8A and 8B some suggestive results on the relationship between the intensity of selling effort and inflows to individual mutual funds. In both panels of Table 8 the coefficients on both 12b-1 fees and front-end loads are positively and significantly related to flows in most specifications. In panel A, the coefficient of 35.8% (24.3+11.5) on the 12b-1 fee variable suggests

that, controlling for other fund characteristics, an increase of 25 basis points in a fund's reported 12b-1 fee is associated with an 9 percent increase in the expected net inflows to that broker sold fund. The coefficient on front loads of 1.4 (-.8 + 2.2) suggests that, controlling for the other fund characteristics, an increase of 100 basis points in the reported maximum sales charge for a fund share class is associated with 1.4 percent higher net inflows. These results suggest that sales effort, measured by compensation to brokers through front loads and 12b-1 fees, is positively associated with reported net inflows at the fund share-class level.³⁵ However, in this multivariate setting, while higher sales charges are positively associated with net inflows, back loads, appear to have a negative influence on flows in direct funds and something close to no influence on flows within the broker channel. Another interesting result is the influence of expense ratios which in panel A, have a negative influence on flows in the direct channel but that influence is attenuated in the broker channel. These results suggest that sales incentives are more effective in the broker channel, consistent with the old saw that funds are sold, not bought—and that paying a salesforce on a higher piece-rate scale may induce additional sales.

In addition, there is other evidence that selling effort and sales fees are related. Using data from Table 5 we tabulated the ratios of equally weighted to asset weighted expenses and loads. When the ratio of asset weighted to equally weighted fees is less than 1, it is likely to be a reflection of economies of scale and the preference of lower cost funds. However in these ratios we find a dramatic exception in front-end loads where the ratio of asset weighted to equally weighted front-end loads is 1.76 for equities and 1.47 for bond funds.³⁶ This suggests that broker clients buy funds with higher loads, or alternatively, brokers sell clients those products with higher loads than the average brokered fund.

³⁵ These results are generally consistent with the results in Barber, Odean and Zheng (2003) (BOZ) and Zhao (2003). BOZ find that investors are more sensitive to loads than to annual fees and that 12b-1 fees increase flows. However, BOZ find that flows are reduced by higher load fees in their sample. Zhao finds that higher loads and 12b-1 fees both are associated with higher flows.

³⁶ Nanda, Wang and Zheng's results suggest that within the broker channel lower cost classes have more volatile flow.

	Equities		Bonds	
Nondistribution fees	Direct	Broker	Direct	Broker
Equally Weighted	1.17	1.11	0.74	0.83
Asset Weighted	0.73	0.75	0.51	0.74
Asset / Equal Weighted	0.62	0.67	0.69	0.89
12b-1 fees	Direct	Broker	Direct	Broker
Equally Weighted	0.10	0.63	0.07	0.57
Asset Weighted	0.02	0.48	0.01	0.44
Asset / Equal Weighted	0.16	0.77	0.12	0.78
Front-end loads	Direct	Broker	Direct	Broker
Equally Weighted	0.25	1.99	0.06	1.66
Asset Weighted	0.02	3.49	0.02	2.44
Asset / Equal Weighted	0.07	1.76	0.42	1.47

This less complimentary view of brokers might interpret the preference of the broker channel to sell young, small funds, not covered by Morningstar as an attempt to make it more difficult for consumers to compare these funds to other alternatives.

10. Conclusions and Future Work

Our study of mutual fund distribution channels and the customers who use them attempts to understand how the various channels differ and the nature of the relation between channel and consumer behavior. We begin with a positive hypothesis: the prominence of funds sold through brokers implies that brokers provide consumers with valued services.

Our study has identified few, if any, of these benefits. Some evidence suggests that the broker channel sells funds that broadly could be characterized as harder to find and analyze. A potentially important exception to this pattern is the disproportionate sale of money market funds through the broker channel. There is also some evidence that home bias is less pronounced in funds sold in the brokered channel.

The bulk of our evidence fails to identify tangible advantages of the broker channel. In the broker channel, consumers pay extra distribution fees to buy funds with higher non-distribution fees expenses. The funds they buy underperform those in the direct channel even before deductions of any distribution related expenses. Even before accounting for distribution expenses, the underperformance of broker channel funds (relative to funds sold through the direct channel) costs investors approximately \$9 billion per year.

As a whole, the broker-channel funds exhibit no superior asset allocation. With respect to behavioral biases, the pattern of evidence depends on the specification chosen. There is no consistent evidence that funds sold through the broker channel exhibit substantially greater or less trend-chasing behavior. Finally, realized flows of money into individual funds appear to flow into brokered funds with larger front end loads and 12b-1 fees, consistent with the notion that paying more to the sales force may influence consumer buying behavior.

At this point, we are cautious about making assertions about the welfare consequence of the broker channel to investors. While we can't seem to locate tangible benefits delivered by brokers, we remain open to the possibility that substantial intangible benefits exist. In the end, the costs and benefits of using the brokered channel can only be judged by the consumers that make these decisions. Throughout this paper, we have cited the Investment Company Institute (2004) study to get some sense of differences that are not apparent from the aggregate data we measure. As we have reported, customers who purchase funds through the sales force channel are less wealthy (with a median income of \$93,800 vs. \$101,300), have lower median financial assets (\$363,700 vs. \$447,900), and are slightly less well-educated (57% vs. 65% have a four year college degree or more). They are a bit more risk averse, with only 34% (vs. 39%) reporting that they are willing to take on substantial or above average risk for commensurate gain. These characteristics may explain some of the differences we observe in this paper, such as the higher holdings of bonds or cash in the brokered sector.

Yet the investing goals and aspirations of the two groups seem quite similar, when measured by most attitudinal questions in the survey. These similarities make some of our findings a bit harder to explain.

As we previously reported, roughly equal fractions of customers of brokered (93%) and direct sold fund funds (95%) say that the levels of fees and expenses are very or somewhat important reasons for owning mutual funds, but the clients of brokered funds choose to pay considerably more. Customers of brokered funds are more likely (88% vs. 82%) to say that “professional money management” is a very important or important reason why they own funds, yet the funds they purchase earn lower pre-distribution fee returns.

Where these investors differ most markedly is the answer to one question: “I tend to rely on the advice of a professional financial advisor when making mutual fund purchase and sales decisions,” with 81% of clients of sales-force sold funds agreeing strongly or somewhat, versus 62% for purchasers of directly marketed funds. One challenge for a broader research agenda is to identify the intangible benefits that drive this difference in behavior and perceptions, and to measure if the distribution channels indeed deliver these benefits. An even broader policy and business question is whether distribution channels—which have experienced less academic scrutiny—are agents that improve the welfare of the households who trust them.

Appendix A: Calculation of Flows

We use the standard definition of percentage flow for our funds given by equation,

$$\%Flow_{i,t} = \frac{Assets_{i,t} - Assets_{i,t-1}(1 + r_{i,t})}{Assets_{i,t-1}} \forall \text{ months } t, \text{ funds } i. \quad (1)$$

Using dummy variables for each year we estimate equation,

$$\%Flow_{i,t} = \{\alpha_{YearDum}\} + \beta_1 I(r_{i,t-1} < 0) r_{i,t-1} + \beta_2 I(r_{i,t-1} \geq 0) r_{i,t-1} + X_{it} \Gamma + \varepsilon_i. \quad (2)$$

The slope of the flow / performance relation above and below zero is captured by β_1 and β_2 and we include a number of control variables X_{it} . The X_{it} are expense ratios, turnover, complex size categorical variables, Morningstar Ratings, age categorical variables, manager tenure categorical variables, and dummy variables capturing whether or not the fund has back load or a sales charge. **Table 8** presents the equally weighted cross-sectional average of the estimated β_1 and β_2 from using equation,

$$FlowPerf_{ew} = \frac{1}{N} \sum_{i=1}^N \beta_{1,i} \quad \text{or} \quad FlowPerf_{vw} = \sum_{i=1}^N \frac{Assets_{i,year-1} \beta_{1,i}}{\left(\sum_{i=1}^N Asset_{i,year-1} \right)}. \quad (3)$$

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Table 1: Twenty-Five Largest Fund Share Classes in Direct and Broker Channels at Year-end 2002

This table presents the 25 largest fund share classes within the Direct and Broker channels. The channel categorization is based on classifications by Financial Research Corporation and Lipper classifications. The assets shown are for a particular share class, and may not include total assets for all classes.

Rank	Direct Channel Funds			Broker Channel Funds		
	Fund Name	Assets (\$ Million)	Morningstar Category/ Objective	Fund Name	Assets (\$Million)	Morningstar Category Objective
1	Fidelity Magellan	60,873	Large, Blend/ Growth	Investment Company of America	48,006	Large, Value/ G&I
2	Vanguard 500 Index	59,672	Large, Blend/ G&I	Washington Mutual Investments	44,159	Large, Value/ G&I
3	Fidelity Cash Rsv	57,096	MM: Taxable	OneGroup Inst Prm MM	31,248	MM: Taxable
4	Schwab MM Swp	50,790	MM: Taxable	CMA MM	25,031	MM: Taxable
5	Vanguard MM Rsv	50,272	MM: Taxable	ActveAst MnyYt	24,576	MM: Taxable
6	Schwab Value Adv MM	39,752	MM: Taxable	MS Liq Ast	23,978	MM: Taxable
7	Fidelity Contrafund	27,963	Large, Blend/ Growth	SB Cash	23,508	MM: Taxable
8	Fidelity Growth & Inc	27,196	Large, Blend/ G&I	EuroPac Growth	23,439	Foreign Stock
9	Vanguard GNMA	21,387	Int, Govt,/ Mort	UBS Paine-Webber RMA MM	22,504	MM: Taxable
10	Vanguard Wellington	20,007	Dom Hybrid/ Bal	Centennial MM Trst	22,359	MM: Taxable
11	AmCnt Ultra	19,210	Lrg, Grth,/ Agg	Income Fund America	20,836	Dom Hybrid/ Asset All
12	Fidelity Equity Inc	18,495	Large, Val/ Equity Inc	Fundamental Inv	15,961	Large, Value/ G&I
13	Vanguard Windsor II	18,494	Large, Value/ G&I	Putnam Growth & Inc	14,937	Large, Value/ G&I
14	Fidelity Puritan	18,468	Dom Hybrid/ Bal	Command MM	14,534	MM: Taxable
15	Fidelity Blue Chip Growth	17,730	Large, Growth	Franklin CA TF Inc	13,330	Muni, CA
16	Janus Fund	17,001	Large, Growth	SSgA MM	12,801	MM: Taxable
17	Fidelity Growth Comp	16,411	Large, Growth	Alliance Capital Rsv	12,165	MM: Taxable
18	Vanguard Tot Bond Idx	16,201	Int, Corp/ Gen	Putnam Voyager	11,877	Large, Growth/ Agg
19	Fidelity Low-Priced Stock	15,540	Small, Blend	Templeton Growth	11,584	World Stock
20	Vanguard Total Stock Idx	14,917	Large, Blend/ G&I	Wells Fargo Sch Inv MM	10,948	MM: Taxable
21	Fidelity Dividend Growth	14,176	Large, Blend/ Growth	Cma TE	10,342	MM: Fed TF
22	Vanguard Health Care	14,115	Specialty Health	SsgA Prime MM	10,175	MM: Taxable
23	Vanguard PRIMECAP	14,054	Large, Blend/ Growth	Cap World G&I	10,016	World Stock
24	Dodge & Cox Stock	13,859	Large, Value/ G&I	AXP New Dmnsn	9,597	Large, Blend/ Growth
25	Janus Worldwide	13,793	World Stock	Lord Abbott Affiliated	9,463	Large, Value/ G&I

Table 2: Number of Funds and Fund Asset Value by Distribution Channel Classification, 1996-2002

For the Direct and Broker channel we report below the number of funds, the number of share classes, assets under management, average fund size, and the proportion of funds with assets under management less than \$100 million. We report these data at two-year intervals. Our sample does not include (a) institutional funds, and (b) funds in which the FRC and Lipper channel classifications disagree or are both missing. As more fully described in figure 1, we classify a fund share class as “Direct” if both Lipper and FRC classify that fund as being sold primarily through the Direct channel. We classify a fund share class as belonging to the “Broker” channel if the FRC classification of the share class is “Captive Broker” and the Lipper classification is one of “Broker-Dealer”, “Captive”, or “Wirehouse”.

Year	Direct and Broker Funds	Direct (D)	Broker (B)	Hypothesis Test B=D
Panel A: Number of Funds				
1996	4,411	1,364	3,047	
1998	4,956	1,609	3,347	
2000	5,038	1,675	3,363	
2002	4,541	1,524	3,017	
Panel B: Number of Share Classes				
1996	7,471	1,455	6,016	
1998	9,295	1,795	7,500	
2000	10,569	1,961	8,608	
2002	10,415	1,952	8,463	
Panel C: Assets (\$ Millions)				
1996	2,551,093	1,030,399	1,520,694	
1998	3,862,491	1,625,079	2,237,413	
2000	4,899,340	2,184,198	2,715,143	
2002	3,844,645	1,795,019	2,049,625	
Panel D: Average Size of Funds (\$ Million)				
1996	583.8	747.0	510.8	[0.00]
1998	793.8	999.6	694.9	[0.00]
2000	988.5	1,298.2	834.3	[0.00]
2002	876.1	1,174.4	725.4	[0.00]
Panel E: Proportion of Funds with Assets Under Management of < \$100 Million				
1996	48.6%	49.4%	48.2%	[0.47]
1998	46.7%	49.0%	45.6%	[0.03]
2000	45.4%	45.9%	45.2%	[0.66]
2002	42.3%	43.8%	41.5%	[0.13]

Table 3: Characteristics of Funds by Distribution Channel, 1996-2002

We characterize our sample funds along five dimensions, average age in years, the proportion of funds that are less than three-years old, manager tenure in years, whether the fund is covered by Morningstar, and the percentage of equity funds classified as index funds. We interpret the asset weighted results as a reflection of investors' aggregate cumulative sales and purchase decisions, while the equally weighted averages represent the product set offered by the channel. The hypothesis test columns show the p-value from a test that the means of the variable in a given row, and given weighting method, are the same in the Broker channel and the Direct channel.

	Asset Weighted				Equally Weighted			
	ALL Channels	Direct (D)	Broker (B)	Hypothesis Test B=D	ALL Channels	Direct (D)	Broker (B)	Hypothesis Test B=D
Panel A: Average Age of Funds (years)								
1996	18.0	18.0	18.0	[0.95]	8.1	8.3	8.0	[0.26]
1998	19.6	19.0	19.5	[0.64]	8.4	8.4	8.4	[0.95]
2000	20.4	19.1	21.3	[0.25]	9.4	9.5	9.4	[0.76]
2002	21.1	20.3	21.8	[0.44]	11.2	11.4	11.2	[0.43]
Panel B: Proportion of Funds that are Young (<=3 Years Old)								
1996	6.9%	5.8%	7.7%	[0.09]	37.6%	38.2%	37.3%	[0.56]
1998	4.5%	3.5%	5.1%	[0.04]	32.2%	35.4%	30.6%	[0.00]
2000	4.5%	3.5%	5.1%	[0.07]	28.1%	28.4%	28.0%	[0.81]
2002	3.3%	1.8%	4.3%	[0.11]	16.5%	14.8%	17.3%	[0.03]
Panel C: Manager Tenure (years)								
1996	7.525	6.150	8.606	[0.04]	4.321	4.612	4.185	[0.02]
1998	5.613	5.774	5.493	[0.66]	3.961	4.147	3.871	[0.03]
2000	5.684	5.868	5.536	[0.64]	4.141	4.261	4.080	[0.17]
2002	7.330	7.272	7.382	[0.93]	4.865	5.268	4.659	[0.00]
Panel D: Percentage of Equity Funds without Morningstar Ratings								
1996	7.5%	3.2%	11.5%	[0.00]	38.6%	38.5%	38.6%	[0.98]
1998	5.9%	2.9%	8.6%	[0.00]	40.9%	39.7%	41.6%	[0.43]
2000	3.8%	1.9%	5.7%	[0.12]	32.7%	28.0%	35.5%	[0.00]
2002	4.5%	1.8%	7.2%	[0.00]	29.0%	21.5%	33.3%	[0.00]

Table 4: Portfolio Investment Categories by Distribution Channel in 2002

Investment categories, both asset weighted and equally weighted are based on the definitions reported in the Morningstar database. The hypothesis test columns show the p-value from the test of the hypothesis that the means of the variable in a given row, and given weighting method, are the same in the Broker channel as in the Direct channel.

	Asset Weighted				Equally Weighted			
	ALL Channels	Direct (D)	Broker (B)	Hypothesis Test B=D	ALL Channels	Direct (D)	Broker (B)	Hypothesis Test B=D
Investment Categories – by share class								
Money market (all)	26.3%	22.3%	29.9%	[0.00]	7.3%	10.3%	6.6%	[0.00]
Muni money market	4.5%	4.9%	4.2%	[0.08]	2.3%	4.1%	1.9%	[0.00]
Muni (all)	11.4%	10.0%	12.7%	[0.00]	16.0%	12.1%	16.9%	[0.00]
Domestic bond	11.2%	10.7%	11.7%	[0.10]	14.3%	12.1%	14.8%	[0.00]
Domestic hybrid	6.4%	7.8%	5.1%	[0.00]	6.2%	5.9%	6.2%	[0.67]
Foreign	6.5%	5.5%	7.3%	[0.00]	13.3%	10.4%	14.0%	[0.00]
All domestic equity	42.6%	48.5%	37.4%	[0.00]	45.2%	53.3%	43.3%	[0.00]
Specialty equity	2.9%	3.3%	2.6%	[0.04]	7.7%	11.2%	6.9%	[0.00]
Broad equity	39.7%	45.3%	34.9%	[0.00]	37.5%	42.1%	36.5%	[0.00]
Index funds								
All Categories	5.3%	10.6%	0.7%	[0.00]	3.2%	9.0%	1.9%	[0.00]
All domestic equity	4.1%	8.0%	0.6%	[0.00]	2.6%	6.5%	1.7%	[0.00]
Specialty equity	0.1%	0.1%	0.0%	[0.24]	0.4%	1.5%	0.1%	[0.00]
Broad equity	4.0%	7.9%	0.6%	[0.00]	2.2%	5.0%	1.6%	[0.00]

Table 5: Average Fund Expense Ratios, Sales Charges and Back-end Loads

We report fund fees and loads in various manners for fund share classes from 1996 to 2002, by distribution channel and by broad fund objective. We report these results for all equities, the subclass of “broad equity” (which excludes specialty funds), money market funds and bond funds. The cells represent charges in percent. Non-distribution fees, calculated as the expense ratio less reported 12b-1 fees include the management fee, administration expenses, transfer agency expenses, custodial expenses, legal and audit expenses, board fees, etc. Total annual expenses are the total expense ratio. We report maximum loads (front and back end) as well as an estimate of the annualized level of all distribution fees and operating expenses over an *ad hoc* five year holding period.

Asset Weighted					Equally Weighted			
	ALL Channels	Direct (D)	Broker (B)	Hypothesis Test B=D	ALL Channels	Direct (D)	Broker (B)	Hypothesis Test B=D
Annual Non Distribution Expenses (Expense Ratio less 12b-1 Fees)								
Equity	0.735	0.726	0.745	[0.00]	1.127	1.172	1.112	[0.00]
Broad Equity	0.715	0.709	0.720	[0.02]	1.100	1.133	1.089	[0.00]
Money Market	0.427	0.386	0.428	[0.71]	0.529	0.575	0.526	[0.55]
Bonds	0.658	0.510	0.739	[0.00]	0.816	0.743	0.830	[0.00]
Annual Distribution Expenses (12b-1 Fees)								
Equity	0.247	0.017	0.482	[0.00]	0.508	0.104	0.626	[0.00]
Broad Equity	0.240	0.017	0.472	[0.00]	0.503	0.096	0.618	[0.00]
Money Market	0.135	0.091	0.150	[0.00]	0.240	0.125	0.267	[0.00]
Bonds	0.288	0.009	0.442	[0.00]	0.486	0.073	0.565	[0.00]
Total Annual Expenses								
Equity	0.980	0.744	1.224	[0.00]	1.606	1.252	1.722	[0.00]
Broad Equity	0.953	0.726	1.190	[0.00]	1.575	1.215	1.692	[0.00]
Money Market	0.669	0.533	0.673	[0.30]	0.935	0.792	0.952	[0.14]
Bonds	0.952	0.518	1.187	[0.00]	1.291	0.805	1.387	[0.00]
Maximum Front End Load								
Equity	2.019	0.583	3.493	[0.00]	1.586	0.254	1.989	[0.00]
Broad Equity	2.040	0.559	3.578	[0.00]	1.583	0.172	1.995	[0.00]
Money Market	0.011	0.009	0.011	[0.62]	0.076	0.015	0.097	[0.00]
Bonds	1.588	0.023	2.435	[0.00]	1.398	0.055	1.659	[0.00]

Table 5 Continued on next page

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Asset Weighted					Equally Weighted				
ALL Channels	Direct (D)	Broker (B)	Hypothesis Test B=D		ALL Channels	Direct (D)	Broker (B)	Hypothesis Test B=D	
Maximum Back End Load									
Equity	0.630	0.001	1.275	[0.00]	1.201	0.022	1.557	[0.00]	
Broad Equity	0.596	0.001	1.215	[0.00]	1.199	0.020	1.544	[0.00]	
Money Market	0.012	0.008	0.014	[0.30]	0.226	0.013	0.296	[0.00]	
Bonds	0.876	0.000	1.350	[0.00]	1.175	0.019	1.399	[0.00]	
Total Sales Charge Annuitized over Five Year Holding Period									
Equity	0.777	0.134	1.438	[0.00]	1.070	0.161	1.337	[0.00]	
Broad Equity	0.768	0.129	1.432	[0.00]	1.065	0.136	1.328	[0.00]	
Money Market	0.141	0.095	0.156	[0.00]	0.314	0.131	0.358	[0.00]	
Bonds	0.789	0.013	1.215	[0.00]	1.004	0.088	1.178	[0.00]	
Total Annuitized Fees over Five Year Holding Period									
Equity	1.511	0.861	2.184	[0.00]	2.168	1.312	2.450	[0.00]	
Broad Equity	1.482	0.839	2.154	[0.00]	2.133	1.255	2.417	[0.00]	
Money Market	0.684	0.533	0.688	[0.34]	1.176	0.792	1.221	[0.02]	
Bonds	1.464	0.523	1.973	[0.00]	1.819	0.817	2.016	[0.00]	

Table 6: Analysis of Non-Distribution fees as a function of fund and distribution characteristics

This table reports the analysis of the determinants of the non-distribution fees charged by fund share classes. Non-distribution fees, calculated as the expense ratio less reported 12b-1 fees would include the management fee, administration expenses, transfer agency expenses, custodial expenses, legal and audit expenses, board fees, etc. We estimate a panel regression from 1996 through 2002 to explain the levels of non-distribution fees. We use fund sponsor and channel characteristics as explanatory variables including fund size, complex size, fund age, category of the fund (not reported) and year dummies (not reported.) In addition, we include variables that indicate the size of the 12b-1 fee, the size of the maximum front-end and back end loads, and a dummy for the direct channel. We report standard errors below each parameter estimate and indicate levels of significance by (* is 5%) and (** is 1%) level. The unit of observation is the fund share class-year; to account for non-independence across year observations for a given fund share class, we correct the reported standard errors for share-class level 'clustering' using the Moulton (1990) correction. Reported standard errors, while sensitive to this clustering assumption, are not sensitive to the choice of whether to cluster at the level of the share class or at the level of the fund; results based on the fund-level clustering assumption are very similar to those below and are available from the authors upon request.

Variables	Domestic Bond, Broad Equity, and Money Market Funds	Domestic Bond Funds	Broad Equity Funds	Money Market Funds
Fund Size 50-200m	-0.190 (0.034)**	-0.037 (0.017)*	-0.293 (0.058)**	-0.067 (0.029)*
Fund Size 200-1000m	-0.272 (0.038)**	-0.080 (0.019)**	-0.406 (0.065)**	-0.096 (0.030)**
Fund Size > 1000m	-0.361 (0.043)**	-0.118 (0.022)**	-0.501 (0.073)**	-0.179 (0.033)**
Complex Size 10B – 50B	-0.048 (0.012)**	-0.012 (0.014)	-0.094 (0.020)**	0.032 (0.014)*
Complex Size 50B-100B	-0.064 (0.011)**	-0.046 (0.016)**	-0.126 (0.017)**	0.059 (0.018)**
Complex Size > 100B	-0.096 (0.012)**	-0.122 (0.019)**	-0.125 (0.019)**	0.016 (0.020)
Age > 5 <= 20	0.062 (0.018)**	0.098 (0.012)**	0.061 (0.030)	0.097 (0.017)**
Age > 20	0.069 (0.051)	0.100 (0.019)**	0.051 (0.075)	0.214 (0.028)**
12b-1 fees	-0.102 (0.031)**	-0.100 (0.030)**	-0.105 (0.061)*	-0.294 (0.053)**
Front load	-0.006 (0.008)	-0.006 (0.004)	-0.009 (0.013)	0.016 (0.022)
Back load	0.018 (0.005)**	0.021 (0.005)**	0.012 (0.008)	0.072 (0.011)**
Minimum initial purchase < 25K	0.095 (0.029)**	0.054 (0.034)	0.113 (0.043)**	- -
Dummy =1 for direct channel funds	-0.051 (0.036)	-0.079 (0.030)*	-0.090 (0.076)	-0.010 (0.018)
Number of Observations	31,595	9,606	17,430	4,559
R-Squared	0.1736	0.2302	0.0949	0.1866

Table 7: Average fund returns, 1996-2002**Panel A: Asset Weighted**

We report asset weighted average returns for sample equity, bond, and money market funds using data from 1996-2002. We report returns net of all annual expenses (gross returns less the reported expense ratio) and net of non-distribution expenses (i.e., net returns plus the 12b1 portion of the expense ratio.) Returns do not take into account front-end or back-end loads. We report average raw returns, benchmark-adjusted returns and alphas using various factor models of returns. Benchmark returns are raw fund returns minus the average return in that year of the mutual funds in our sample classified by Morningstar as belonging to the same investment category. Alphas are calculated for a smaller sample of funds because we require CRSP return data to estimate the factor-adjustment model. Factor loadings are computed using the 36 months of data prior to the current year. For equity funds, one-factor alphas are computed with the value-weighted equity market as the lone factor; three-factor alphas add a value/growth and small firm/large firm factor; four-factor alphas adds a 'momentum' factor. Alphas are estimated by subtracting from the fund's return the factor loading estimates product with the contemporaneous return to the factors. For the fixed-income funds, the two-factor model is based on a 10-year government bond return factor, and 10-year Moody's Aaa corporate bond portfolio return factor, using data from the Federal Reserve's interest rate library. The 'alpha h' market-adjusted return adds to the alpha2 model the monthly return to the Moody's 10-year Baa corporate bond portfolio. The final column shows the p-value from the test of the hypothesis that the means of the variable of interest are the same in the Broker and Direct channels.

	All	Direct (D)	Broker (B)	Hypothesis Test B=D
Equity Funds				
Raw returns: net of non-dist expenses	1.631	1.668	1.593	[0.83]
Raw returns: net of all expenses	1.394	1.651	1.125	[0.13]
Benchmark-adj: net of non-dist expenses	0.223	0.310	0.132	[0.22]
Benchmark-adj: net of all expenses	-0.014	0.294	-0.336	[0.00]
Alpha 1: net of non-dist expenses	-0.877	-0.773	-0.987	[0.33]
Alpha 1: net of all expense	-1.108	-0.789	-1.449	[0.00]
Alpha 3: net of non-dist expenses	-0.668	-0.221	-1.147	[0.00]
Alpha 3: net of all expenses	-0.090	-0.237	-1.609	[0.00]
Alpha 4: net of non-dist expenses	-1.424	-1.054	-1.821	[0.00]
Alpha 4: net of all expenses	-1.656	-1.070	-2.282	[0.00]
Bond Funds				
Raw returns: net of non-dist expenses	5.261	6.285	4.743	[0.00]
Raw returns: net of all expenses	4.966	6.277	4.302	[0.00]
Benchmark-adj: net of non-dist expenses	0.338	0.823	0.092	[0.00]
Benchmark-adj: net of all expenses	0.042	0.815	-0.349	[0.00]
Alpha 2: net of non-dist expenses	-0.575	0.467	-1.131	[0.00]
Alpha 2: net of all expenses	-0.869	0.459	-1.577	[0.00]
Alpha h: net of non-dist expenses	0.085	0.986	-0.396	[0.00]
Alpha h: net of all expenses	-0.209	0.978	-0.842	[0.00]
Money Market Funds				
Raw returns: net of non-dist expenses	4.043	3.940	4.102	[0.00]
Raw returns: net of all expenses	3.949	3.895	3.980	[0.07]
Benchmark-adj: net of non-dist expenses	0.202	0.253	0.174	[0.00]
Benchmark-adj: net of all expenses	0.108	0.208	0.051	[0.00]
Alpha 2: net of non-dist expenses	-0.082	-0.075	-0.085	[0.73]
Alpha 2: net of all expenses	-0.188	-0.132	-0.222	[0.00]
Alpha h: net of non-dist expenses	-0.049	-0.036	-0.057	[0.48]
Alpha h: net of all expenses	-0.156	-0.093	-0.193	[0.00]

Table 7: Average fund returns, 1996-2002**Panel B: Equally Weighted**

We report equally weighted average returns for sample equity, bond, and money market funds using data from 1996-2002. We report returns net of all annual expenses (gross returns less the reported expense ratio) and net of non-distribution expenses (i.e., net returns plus the 12b1 portion of the expense ratio.) Returns do not take into account front-end or back-end loads. We report average raw returns, benchmark-adjusted returns and alphas using various factor models of returns. Benchmark returns are raw fund returns minus the average return in that year of the mutual funds in our sample classified by Morningstar as belonging to the same investment category. Alphas are calculated for a smaller sample of funds because we require CRSP return data to estimate the factor-adjustment model. Factor loadings are computed using the 36 months of data prior to the current year. For equity funds, one-factor alphas are computed with the value-weighted equity market as the lone factor; three-factor alphas add a value/growth and small firm/large firm factor; four-factor alphas adds a 'momentum' factor. Alphas are estimated by subtracting from the fund's return the factor loading estimates product with the contemporaneous return to the factors. For the fixed-income funds, the two-factor model is based on a 10-year government bond return factor, and 10-year Moody's Aaa corporate bond portfolio return factor, using data from the Federal Reserve's interest rate library. The 'alpha h' market-adjusted return adds to the alpha2 model the monthly return to the Moody's 10-year Baa corporate bond portfolio. The final column shows the p-value from the test of the hypothesis that the means of the variable of interest are the same in the Broker and Direct channels.

	All	Direct (D)	Broker (B)	Hypothesis Test B=D
Equity Funds				
Raw returns: net of non-dist expenses	4.286	6.706	3.531	[0.00]
Raw returns: net of all expenses	3.804	6.626	2.924	[0.00]
Benchmark-adj: net of non-dist expenses	0.309	1.350	-0.016	[0.00]
Benchmark-adj: net of all expenses	-0.173	1.270	-0.623	[0.00]
Alpha 1: net of non-dist expenses	-0.313	0.817	-0.663	[0.00]
Alpha 1: net of all expense	-0.790	0.740	-1.264	[0.00]
Alpha 3: net of non-dist expenses	-1.557	-0.461	-1.896	[0.00]
Alpha 3: net of all expenses	-2.034	-0.537	-2.498	[0.00]
Alpha 4: net of non-dist expenses	-2.366	-1.233	-2.717	[0.00]
Alpha 4: net of all expenses	-2.844	-1.310	-3.319	[0.00]
Bond Funds				
Raw returns: net of non-dist expenses	5.550	6.135	5.433	[0.00]
Raw returns: net of all expenses	5.077	6.075	4.876	[0.00]
Benchmark-adj: net of non-dist expenses	0.266	0.471	0.225	[0.02]
Benchmark-adj: net of all expenses	-0.208	0.411	-0.332	[0.00]
Alpha 2: net of non-dist expenses	-0.312	0.252	-0.425	[0.00]
Alpha 2: net of all expenses	-0.793	0.198	-0.992	[0.00]
Alpha h: net of non-dist expenses	0.421	0.836	0.338	[0.09]
Alpha h: net of all expenses	-0.60	0.782	-0.228	[0.00]
Money Market Funds				
Raw returns: net of non-dist expenses	3.809	3.570	3.895	[0.00]
Raw returns: net of all expenses	3.638	3.504	3.687	[0.00]
Benchmark-adj: net of non-dist expenses	0.035	0.020	0.041	[0.07]
Benchmark-adj: net of all expenses	-0.136	-0.047	-0.168	[0.00]
Alpha 2: net of non-dist expenses	-0.495	-0.713	-0.411	[0.00]
Alpha 2: net of all expenses	-0.707	-0.793	-0.674	[0.00]
Alpha h: net of non-dist expenses	-0.466	-0.683	-0.383	[0.00]
Alpha h: net of all expenses	-0.678	-0.762	-0.646	[0.00]

Table 8A. Predicting net inflows with fund share class returns and characteristics 1996-2002.**RETURN DECILES CONSTRUCTED GLOBALLY (ACROSS CHANNELS)**

This table estimates the relation between net inflows and returns. Flow is measured two ways. Percentile Flows are the percentile ranks of flows, measured relative to all other funds within the same channel. Coefficient estimates for this specification are multiplied by 100. Percentage Flows are net flows divided by last years' assets. Returns are specified with, within channel, decile ranks determined by the adjusted fund return in the prior year. Each fund share class takes a value of 1 in the decile to which it is a member in that year and zero otherwise. The column labeled direct represents the coefficient estimate for direct sold funds. The column labeled Δ broker presents the coefficient on the interactive dummy variable formed by multiplying the variable by a dummy variable equal to 1 if the fund is broker sold. Additional controls include expense ratios, 12b-1 fees, sales charges, back loads, year dummies, fund size, complex size, fund age, and manager tenure. The unit of observation is the fund share class-year; to account for non-independence across year observations for a given fund share class, we correct the reported standard errors for share-class level 'clustering' using the Moulton (1990) correction. ***, **, * represent significance at the 1, 5 and 10% levels respectively.

Explanatory Variable	Percentile Flow Ranked w/in Channel		Percentile Flow Ranked across Channel		Percentage Flows (Net Flow _t /Assets _{t-1})	
	Direct	Δ Broker	Direct	Δ Broker	Direct	Δ Broker
Return Decile 1 (Lowest)	43.3***	-12.5***	37.2***	-4.4*	26.4***	-10.6*
Return Decile 2	47.1***	-11.7***	40.7***	-3.2	31.6***	-8.0
Return Decile 3	47.8***	-13.9***	41.4***	-5.3**	34.2***	-13.9***
Return Decile 4	53.8***	-15.4***	46.8***	-6.3**	39.8***	-13.4**
Return Decile 5	54.9***	-14.3***	47.9***	-5.2**	41.5***	-10.3**
Return Decile 6	56.9***	-12.9***	49.5***	-3.7	42.3***	-6.4
Return Decile 7	60.8***	-13.3***	53.5***	-3.9	50.1***	-6.5
Return Decile 8	62.7***	-12.8***	55.5***	-3.4	54.7***	-6.8
Return Decile 9	68.1***	-13.8***	60.7***	-4.2*	65.5***	-8.9
Return Decile 10 (Highest)	77.1***	-16.0***	69.9***	-6.7***	93.9***	-14.7**
Expense Ratio	-4.3***	3.7***	-4.1***	3.4***	-4.4**	2.8
12b1 Fee	7.1**	7.1**	7.3**	6.8*	24.3***	11.5
Sales Charge	-0.3	1.0**	-0.3	1.0**	-0.8	2.2**
Back Load	-3.9	3.5	-4.4	3.9	-11.6***	10.2***
Expense Ratio (=1 if Missing)	-4.6	1.7	-4.1	1.3	-17.2**	5.5
12b1 Fee (=1 if Missing)	1.7	11.6*	1.1	12.3*	6.7	21.2
Year Dummies						
1997	-2.5*	1.8	-1.3	0.1	-1.7	-0.6
1998	-2.6*	1.8	-2.1	0.9	-14.8***	0.7
1999	-1.8	1.8	-0.2	-0.4	-16.9***	0.7
2000	-1.0	1.4	2.3	-3.0*	-11.9***	-3.8
2001	1.1	-2.9	5.4***	-9.1***	-9.7***	-18.3***
2002	-0.5	0.5	8.3***	-11.3***	-17.6***	-17.6***

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Fund Size	50-200m	-4.0***	-3.9***	-10.1***		
	200-1,000m	-5.0***	-4.9***	-12.4***		
	> 1,000m	-6.2***	-6.1***	-20.1***		
Complex Size	10B – 50B	3.3***	3.2***	9.2***		
	50B-100B	4.5***	4.5***	12.2***		
	> 100B	3.1***	3.0***	8.7***		
Fund Age	5 – 20 years	-7.6***	-7.5***	-14.7***		
	> 20	-8.0***	-7.9***	-14.4***		
Manager Tenure	1 Year	-3.7***	-3.6***	-5.2***		
	2-5 Years	0.7	0.8	0.8		
	> 6 Years	1.2	1.3	0.4		
	Missing	-8.4***	-8.8***	-28.9***		
Note. Baseline at means of independent variables other than year and return dummies	-10.6	1.9	-10.2	2.1	-18.6	5.1
R-Squared	.7885		.7892		.2891	
Number of Observations	15,188		15,188		15188	

Table 8B. Predicting net inflows with fund share class returns and characteristics 1996-2002.**RETURN DECILES CONSTRUCTED LOCALLY**

This table estimates the relation between net inflows and returns. Flow is measured two ways. Percentile Flows are the percentile ranks of flows, measured relative to all other funds within the same channel. Coefficient estimates for this specification are multiplied by 100. Percentage Flows are net flows divided by last years' assets. Returns are specified with, within channel, decile ranks determined by the adjusted fund return in the prior year. Each fund share class takes a value of 1 in the decile to which it is a member in that year and zero otherwise. The column labeled direct represents the coefficient estimate for direct sold funds. The column labeled Δ Broker presents the coefficient on the interactive dummy variable formed by multiplying the variable by a dummy variable equal to 1 if the fund is broker sold. Additional controls include expense ratios, 12b-1 fees, sales charges, back loads, year dummies, fund size, complex size, fund age, and manager tenure. The unit of observation is the fund share class-year; to account for non-independence across year observations for a given fund share class, we correct the reported standard errors for share-class level 'clustering' using the Moulton (1990) correction. ***, **, * represent significance at the 1, 5 and 10% levels respectively.

Explanatory Variable	Percentile Flow Ranked w/in Channel		Percentile Flow Ranked across Channel		Percentage Flows (Net Flow _t /Assets _{t-1})	
	Direct	Δ Broker	Direct	Δ Broker	Direct	Δ Broker
Return Decile 1 (Lowest)	41.6***	-10.4***	35.6***	-2.4	22.9***	-5.5
Return Decile 2	45.7***	-10.3***	39.3***	-1.8	29.2***	-5.8
Return Decile 3	48.7***	-14.9***	42.1***	-6.2***	34.7***	-14.1***
Return Decile 4	52.9***	-14.4***	45.9***	-5.3**	37.9***	-10.8**
Return Decile 5	54.1***	-13.7***	47.2***	-4.8*	39.8***	-8.3
Return Decile 6	58.7***	-15.5***	51.5***	-6.1***	45.2***	-10.4**
Return Decile 7	61.4***	-13.7***	54.1***	-4.3*	51.4***	-6.9
Return Decile 8	64.9***	-15.4***	57.6***	-5.9**	58.1***	-11.2**
Return Decile 9	71.1***	-18.0***	63.8***	-8.5***	75.5***	-20.7**
Return Decile 10 (Highest)	77.8***	-17.5***	70.6***	-8.2***	95.6***	-18.9***
Expense Ratio	-4.3***	3.6***	-4.0***	3.3***	-4.2**	2.6
12b1 Fee	7.4**	6.7*	7.5**	6.5*	24.6***	11.5
Sales Charge	-0.3	0.9**	-0.3	1.0**	-0.7	2.1**
Back Load	-4.2	3.8	-4.6	4.2	-11.8***	10.4***
Expense Ratio (=1 if Missing)	-4.4	1.56	-3.9	1.1	-16.7**	4.9
12b1 Fee (=1 if Missing)	1.4	1.22*	0.8	13.0*	6.0	22.6
Year Dummies						
1997	-1.8	0.9	-0.5	-0.8	0.1	-2.9
1998	-2.5*	1.6	-1.9	0.7	-14.1***	-0.2
1999	-1.3	1.2	0.3	-1.1	-15.5***	-1.1
2000	-0.2	0.5	3.0	-4.0**	-9.9***	-6.2
2001	0.8	-2.4	5.1	-8.6***	-10.0***	-17.8***
2002	0.7	-0.9	9.5	-12.8***	-14.5***	-21.3***

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Fund Size	50-200m	-4.0***		-4.0***		-10.2***	
	200-1,000m	-5.0***		-4.9***		-12.6***	
	> 1,000m	-6.2***		-6.1***		-21.2***	
Complex Size	10B – 50B	3.4***		3.2***		9.3***	
	50B-100B	4.5***		4.5***		12.3***	
	> 100B	3.2***		3.1***		8.8***	
Fund Age	5 – 20 years	-7.5***		-7.5***		-14.7***	
	> 20	-7.9***		-7.9***		-14.2***	
Manager Tenure	1 Year	-3.6***		-3.5***		-5.1***	
	2-5 Years	0.7		0.9		0.8	
	> 6 Years	1.3		1.4		0.5	
	Missing	-8.1***		-8.6***		-28.4***	
Note. Baseline at means of independent variables other than year and return dummies		-10.5	1.9	-10.0	2.1	-18.4	4.9
R-Squared		.7883		.7890		.2878	
Number of Observations		15,188		15,188		15188	

Table 8C. Predicting net inflows with fund share class returns and characteristics 1996-2002.

This table estimates the relation between net inflows and returns. Flow is measured two ways. Percentile Flows are the percentile ranks of flows, measured relative to all other funds within the same channel. Coefficient estimates for this specification are multiplied by 100. Percentage Flows are net flows divided by last years' assets. Returns are specified with, within channel, decile ranks determined by the adjusted fund return in the prior year. Each fund share class takes a value of 1 in the decile to which it is a member in that year and zero otherwise. The column labeled direct represents the coefficient estimate for direct sold funds. The column labeled Δ broker presents the coefficient on the interactive dummy variable formed by multiplying the variable by a dummy variable equal to 1 if the fund is broker sold. Additional controls include expense ratios, 12b-1 fees, sales charges, back loads, year dummies, fund size, complex size, fund age, and manager tenure. The unit of observation is the fund share class-year; to account for non-independence across year observations for a given fund share class, we correct the reported standard errors for share-class level 'clustering' using the Moulton (1990) correction. ***, **, * represent significance at the 1, 5 and 10% levels respectively.

Explanatory Variable	Percentile Flow Ranked w/in Channel		Percentile Flow Ranked across channels		Percentage Flows (Net Flow _t /Assets _{t-1})	
	Direct	Δ Broker	Direct	Δ Broker	Direct	Δ Broker
Adjusted return rank (ranked within channel)	37.1***	-6.9***				
Adjusted return rank (ranked across channels)			32.9***	-1.6		
Adjusted Return					87.8***	46.6***
Expense Ratio	-3.7***	3.2***	-3.0***	2.5***	-3.7*	2.8
12b1 Fee	7.6**	6.7*	7.7**	6.5*	22.4***	12.8
Sales Charge	-0.3	1.0**	-0.3	1.0**	-0.3	1.8
Back Load	-4.5	4.0	-4.9	4.5	-12.7***	11.2***
Expense Ratio (=1 if Missing)	-3.3	0.7	-2.3	-0.3	-13.7*	3.8
12b1 Fee (=1 if Missing)	0.6	12.7*	-0.2	13.8**	2.4	23.9*
Year Dummies						
1996	38.6***	-10.6***	32.8***	-3.0	48.9***	-11.3**
1997	36.8***	-9.7***	31.7***	-3.1	48.4***	-13.2***
1998	36.2***	-9.0***	31.0***	-2.4	34.9***	-11.2***
1999	37.4***	-9.4***	33.0***	-3.9*	31.8***	-10.9***
2000	38.5***	-10.1***	35.3***	-6.3***	35.0***	-12.1***
2001	39.4***	-13.0***	38.5***	-12.4***	38.4***	-29.0***
2002	39.3***	-11.6***	41.5***	-14.8***	32.8***	-31.0***
Fund Size						
50-200m	-4.0***		-3.9***		-10.0***	
200-1,000m	-5.0***		-4.9***		-12.7***	
> 1,000m	-6.3***		-6.2***		-21.1***	
Complex Size						
10B – 50B	3.2***		3.1***		9.3***	
50B-100B	4.4***		4.3***		12.3***	
> 100B	3.1***		2.9***		8.2***	
Fund Age						
5 – 20 years	-7.5***		-7.6***		-14.6***	
> 20	-8.1***		-8.1***		-14.5***	
Manager Tenure						
1 Year	-3.5***		-3.4***		-5.2*	
2-5 Years	0.6		0.7		0.7	
> 6 Years	1.2		1.3		0.7	
Missing	-8.0***		-8.5***		-29.1***	
Note. Baseline at means of independent variables other than year and return dummies	-10.0	2.0	-9.1	2.2	-18.1	5.3
R-Squared	0.7877		0.7883		.2658	
Number of Observations	15,188		15188		15188	

Figure 1: Mapping of fund distribution channel classifications by various experts

This figure describes how our direct, broker and institutional channel classifications map into the channel classifications used by mutual fund experts. The headings describes our classifications and each subsequent row describes the categories that fit into our classification scheme for each of four mutual fund experts.

	Direct Channel	Broker Channel	Institutional Channel
Financial Research Corporation	Direct	Wholesale (non-proprietary) Wholesale (proprietary) Bank	Institutional
Investment Company Institute	Direct Supermarket	Advice	Institutional Retirement Plan
Strategic Insight	Direct to Do-it-yourself individual investors Through No-load Supermarkets	Through Registered Investment Advisor Broker-Dealer Distributed Mutual Fund Wrap Bank	Institutional Defined Contribution Plans Variable Annuities
Lipper	Direct Marketer	Dealer Regional Broker Dealer Wirehouse (NYSE Member w/funds) Captive Bank Retail	Institutional Insurance Affinity Funds Employee funds Bank-related fiduciary & Institutionally focused

Figure 2

Broker and Direct Asset Allocation Weights from 1980 – 2002

The figures below shows the aggregate percentage allocations to different sectors for the funds sold through the broker-distributed channel and for the funds sold through the direct channel. Each graph presents a separate asset class.

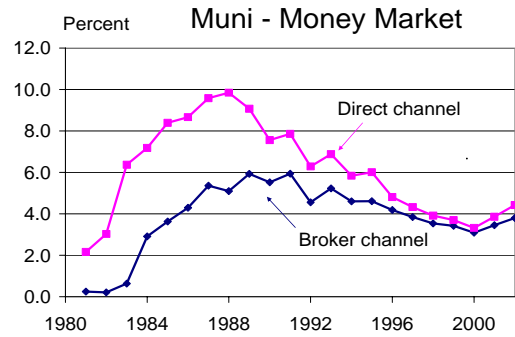
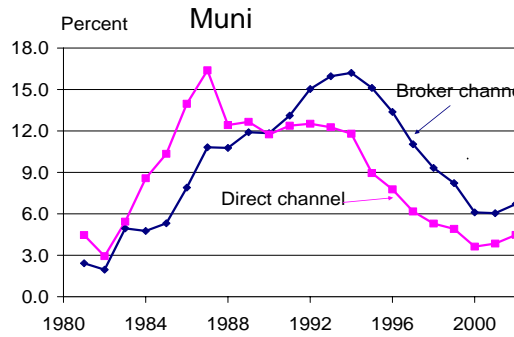
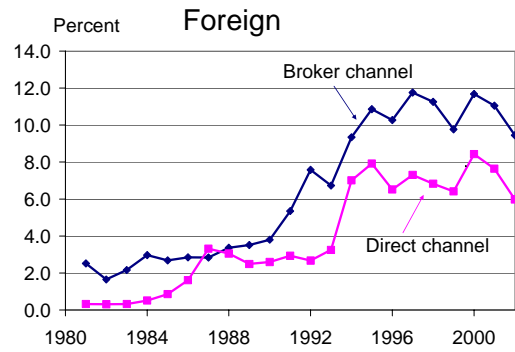
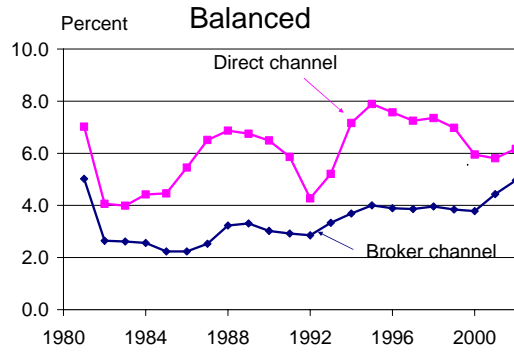
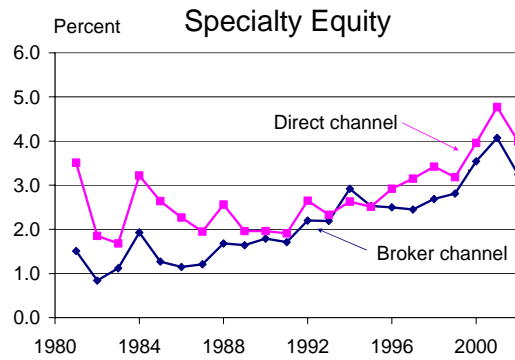
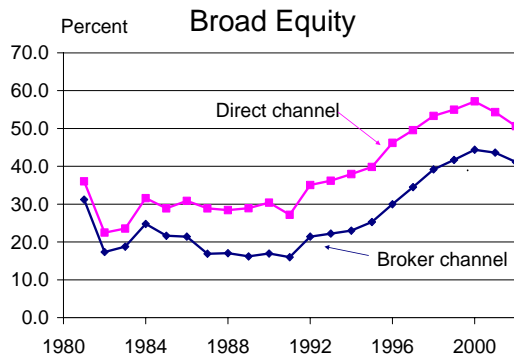
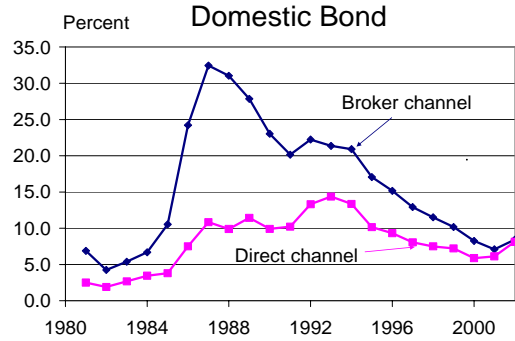
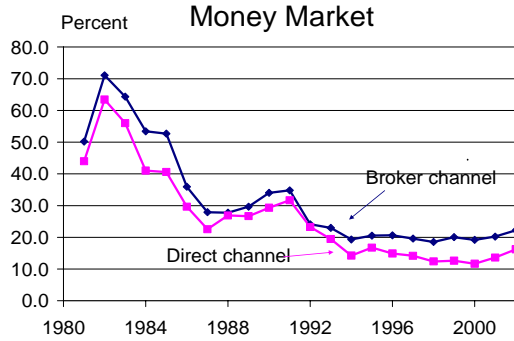


Figure 3

Value of a dollar invested in a model portfolio composed of market indices weighted by the asset weights of the two channels, 1980-2002

The figure below shows the value of a dollar invested in 1980 when invested in model portfolios holding four classes of assets: cash, stocks, bonds and municipal bonds. The indexes used for the asset returns are the Value weighted CRSP index returns for the NYSE, ASE and NASDAQ stocks, the Lehman Aggregate Domestic Bond index, the Lehman Aggregate Municipal Bond index, and the returns to the 30 day treasury bill. We calculate returns based upon only four of the asset classes available: Domestic Equity, Domestic Bond, Municipal Bond and Money Market, and rescale the weights under the assumption that these four asset classes represent the entire investment universe for these funds

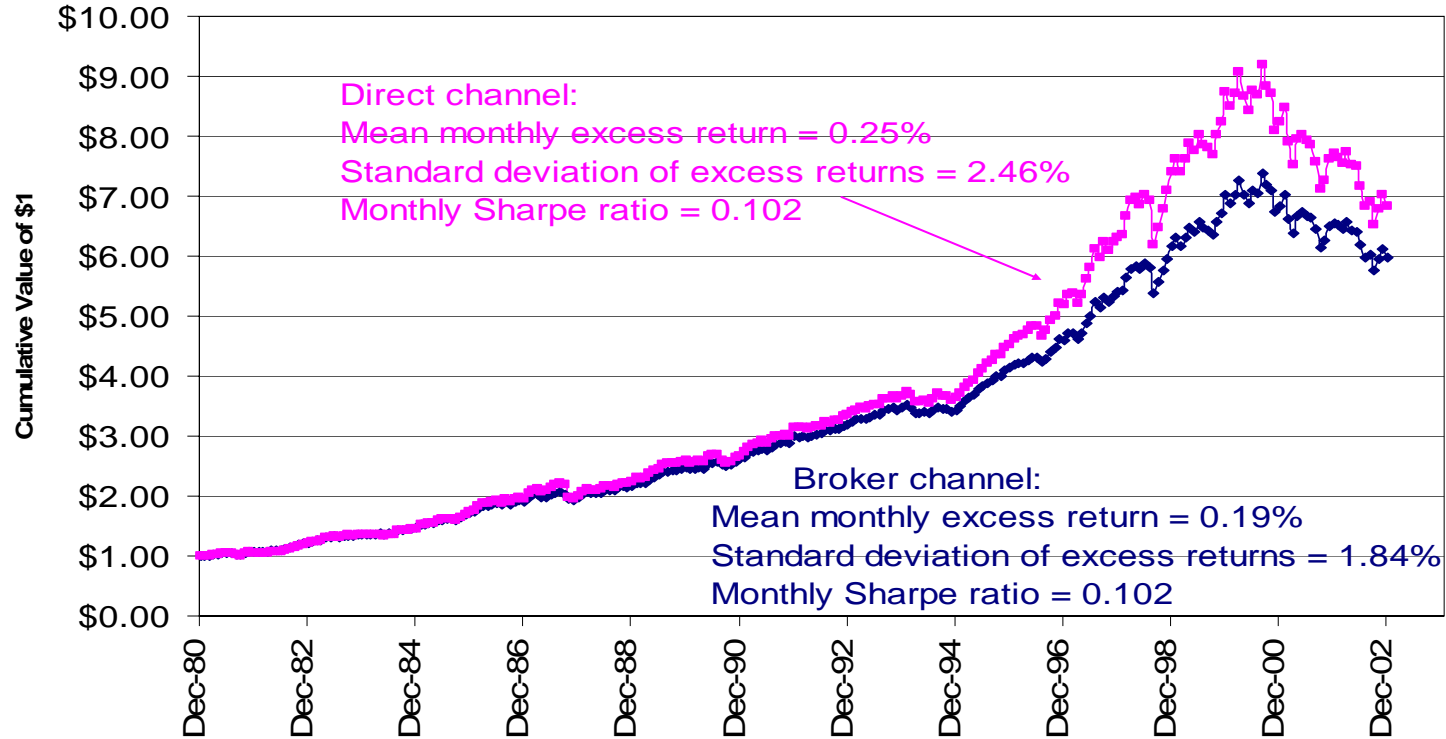
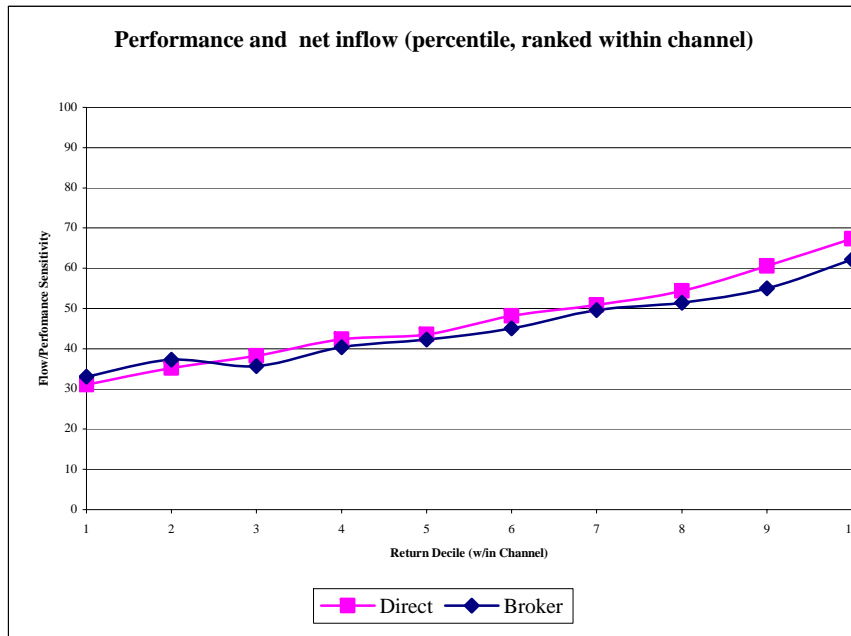


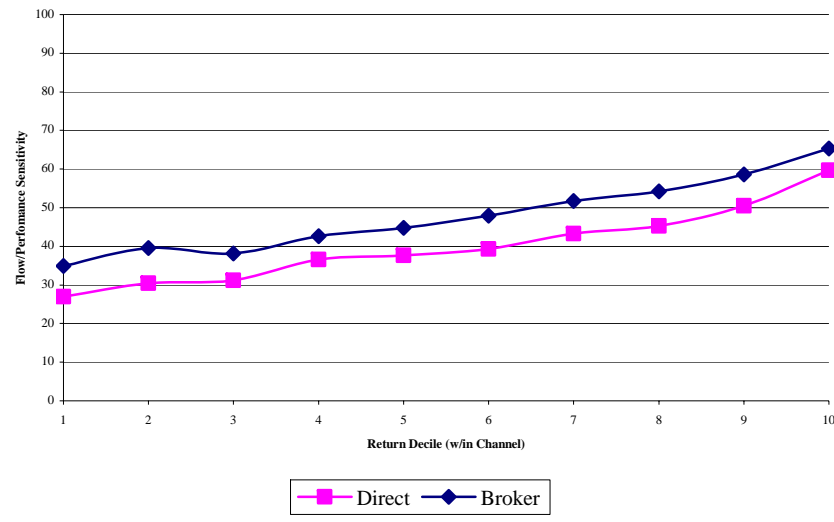
Figure 4

Estimates of the performance-flow relationship of equity mutual funds, by channel

The coefficient estimates on the return variables from table 8 are plotted in this figure. These estimates are described in the header to table 8 and are conditional on the control variables in those regressions. Estimates are based on mean values of the control variables (calculated separately for the broker and direct channel funds), and based on the estimates without year dummies (thus corresponding to 1996).



Performance and net inflow (percentile, ranked across channels)



Flow as a Percentage of Assets and Performance

