

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

Daniel Bergstresser

Harvard Business School

John M. R. Chalmers

Lundquist College of Business, University of Oregon

Peter Tufano

Harvard Business School and NBER

Many investors purchase mutual funds through intermediated channels, paying brokers or financial advisors for fund selection and advice. This article attempts to quantify the benefits that investors enjoy in exchange for the costs of these services. We study broker-sold and direct-sold funds from 1996 to 2004, and fail to find that brokers deliver substantial tangible benefits. Relative to direct-sold funds, broker-sold funds deliver lower risk-adjusted returns, even before subtracting distribution costs. These results hold across fund objectives, with the exception of foreign equity funds. Further, broker-sold funds exhibit no more skill at aggregate-level asset allocation than do funds sold through the direct channel. Our results are consistent with two hypotheses: that brokers deliver substantial intangible benefits that we do not observe and that there are material conflicts of interest between brokers and their clients. (*JEL G2, G11, G24*)

1. Introduction

All mutual fund investors hire professional investment managers to select securities. Many of these fund investors also hire brokers or advisors to help them select funds, spending a great deal to compensate these paid distribution channels. For example, in 2002 we estimate that mutual fund investors paid as much as \$15.2 billion in distribution channel fees, \$3.6 billion in front-end loads, \$2.8 billion in back-end loads, and annual distribution fees, referred to as

We have received very valuable guidance and comments from Sean Collins, Henrik Cronqvist, Ro Gutierrez, Charles Hadlock, Sarah Holden, Chris James, Woodrow Johnson, Wayne Mikkelson, Avi Nachmany, Kasturi Rangan, Brian Reid, Jon Reuter, Nancy Rose, seminar participants at the University of Arizona, Arizona State University, UC Berkeley, University of Cologne, Michigan State, Stanford, the University of Oregon/*Journal of Financial Economics* Conference on Delegated Portfolio Management, the ICI Academic/Practitioner Conference, the 2006 American Finance Association Meetings, and from staff members of the Investment Company Institute and National Quality Review, along with representatives of various fund companies. We thank Financial Research Corporation, Morningstar, Strategic Insight, and Ken French for sharing data with us. The comments in this paper do not reflect the views of any of these organizations. We thank the Harvard Business School Division of Research, MIT and the University of Oregon for providing funding for this project.

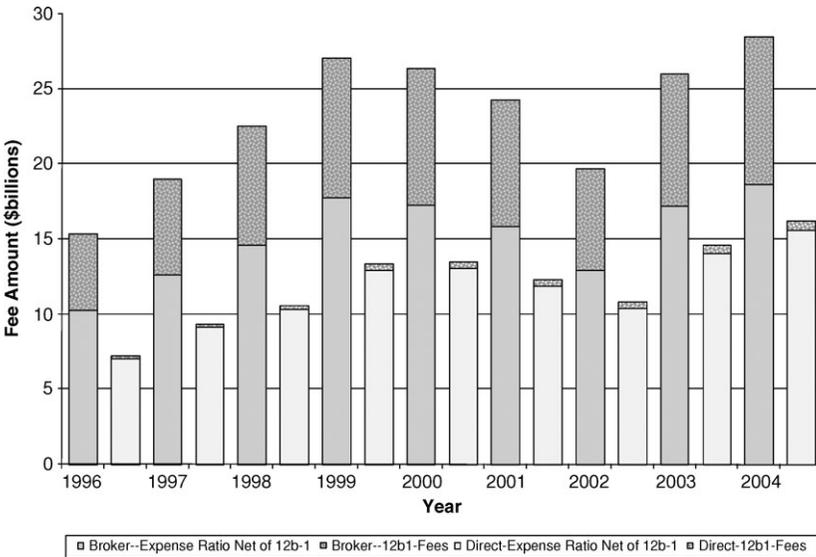


Figure 1
Investor expenditures on mutual fund management and 12b-1 fees, by distribution channel

12b-1 fees, amounting to \$8.8 billion in 2002 (and, as shown in Figure 1, ranging from \$5 billion and \$10 billion annually from 1996 through 2004). Even relative to the \$23.8 billion spent on investment management fees and all other operational expenses, distribution fees are large.¹ We pose a simple question in this article: What benefits do broker-channel mutual fund consumers enjoy in exchange for these substantial distribution channel fees?

While research has sought to measure the net benefits of professional investment management, there is limited evidence on the net benefits of professional brokerage services provided to fund investors. We attempt to identify these benefits but find few measurable advantages. On a risk-adjusted basis, funds sold by brokers underperform funds sold through direct channels—even before subtracting any distribution charges. This result is not driven by the mix of active funds and passive index funds, nor by other standard factors. Furthermore, the aggregate pattern of investment in broker-sold funds does not demonstrate superior market-timing advice by brokers. In addition, fund flows in the broker-sold segment do not show any less return chasing than those in the direct-sold segment. Finally, broker-sold funds do not demonstrate substantially lower nondistribution expenses to offset their higher distribution costs.

¹ The figures we used to estimate aggregate front-end and back-end loads are based on data from three sources. Aggregate 2002 sales and redemptions come from the 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; and average assessed loads as a share of maximum come from the February 2004 ICI publication “The Cost of Buying and Owning Mutual Funds.”

The extra distribution fees and the drag of inferior performance, even prior to imposition of those fees, are clear costs borne by investors in broker-sold funds. Yet many consumers' revealed preference is to use brokers. Why? One possibility is that brokers provide other intangible benefits, which we cannot measure. Brokers may help their clients save more than they would otherwise save, they may help clients more efficiently use their scarce time, they may help customize portfolios to investors' risk tolerances, and they may increase overall investor comfort with their investment decisions. Future research using individual account-level data, field experiments, or intensive survey work may have more success identifying these less easily measured benefits of brokers.

Alternatively, our results may reflect brokers acting out of self-interest, rather than on behalf of their customers. We find that fund flows are positively related to distribution fees, suggesting that sales in the broker sector might reflect broker compensation and incentives. This result could be problematic, in light of the responsibilities that brokers and financial advisors owe to their clients. Brokers are subject to certain rules, including the requirement that they recommend suitable investments for their clients. Financial advisors are fiduciaries, owing clients even higher duties; in theory, they must put their clients' interest ahead of their own. The extent to which investment professionals can be held to strict fiduciary standards presents complex legal issues, and investors may not appreciate distinctions between brokers and advisors.² Nevertheless, if brokers' self-interested actions were to explain our results, it would call into question the nature of the relationships between consumers and those who serve them.

Our article is part of a small literature on the role of distribution channels and marketing in the investment management industry. Christoffersen, Evans, and Musto (2005) explore differences among funds sold by captive and noncaptive brokers. Nanda, Wang, and Zheng (2005) explore the relationship between fund load structures and the performance-inflow relationship.³ Chen, Yao, and Yu (2007) study mutual funds that are offered by insurance companies. Our research also complements recent analyses of the relationship between mutual fund advertising and investor behavior.⁴

The remainder of the article is organized as follows. Section 2 describes fund distribution channels. Section 3 describes our data sources and provides summary statistics. Section 4 analyzes the risk-adjusted pre-distribution-fee returns of broker-sold and direct-sold funds. Section 5 examines aggregate asset

² Registered financial advisors are regulated under the Investment Advisors Act of 1940, and brokers are regulated under the 1934 Exchange Act. See Pender (2004) for a recent layperson's discussion of the evolving issues.

³ 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 that of Christoffersen, Evans, and Musto (2005). O'Neal (1999) discusses the incentives that differing share classes create for brokers.

⁴ See Jain and Wu (2000); Cronqvist (2005); Gallaher, Kaniel, and Starks (2004); Mullainathan and Shleifer (2005); and Reuter and Zitzewitz (2006).

allocation decisions in the broker and direct channels for evidence of market-timing ability. Section 6 provides evidence on other potential tangible benefits of the broker channel. Section 7 concludes the article, explores the alternative hypothesis of brokers' self-interest, and suggests directions for future research.

2. Mutual Fund Distribution Channels

This section describes the mutual fund business and mutual fund distribution channels. Marketing analysis often uses a "channel map" that, applied to the mutual fund industry, traces out the various sales channels that bring mutual funds and consumers together. In our mapping of fund distribution channels, we draw liberally from our discussions with mutual fund practitioners, as well as from Gremillion (2001); Pozen (2000); and Reid and Rea (2003).

A fund's choice of distribution channel is central to its overall business strategy. Distribution strategy directly and indirectly affects the investment manager's revenues, costs, and returns. Because U.S. investment management contracts typically pay managers' fees proportional to assets under management, distribution strategies that increase investor inflows and retain existing assets produce higher revenues for fund sponsors. Because many costs of investment management are virtually fixed, sponsors may enjoy increasing profitability as assets grow. Some distribution fee structures, such as 12b-1 fees,⁵ directly affect reported annual returns, while other fees, such as loads, are not reflected in reported returns. In addition, distribution strategies that provide stable investor bases lead to less frequent investor transactions, leading to lower trading or transfer agency costs, thus boosting returns.

Figure 2 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. For this article, we employ a high-level categorization of distribution methods, based on the FRC and Lipper definitions. In our taxonomy, retail funds are either *broker-sold* or *direct-sold*. In the simplest form, direct-sold funds are marketed by the fund directly to the consumer, while broker-sold funds are sold by an intermediary. Within this broker channel, a fund may be sold by a bank, by a captive channel (such as a wirehouse or brokerage firm that sells its own funds), or by a noncaptive third-party broker.

Funds sold through the direct channel have relatively straightforward financial arrangements with their investors. Direct-channel investors generally do not pay front-end loads or back-end loads. However, direct-sold funds may levy 12b-1 fees to pay for marketing and distribution; funds with 12b-1 fees under 25 bp may market themselves as "no-load" funds.⁶ Traditionally, Vanguard,

⁵ 12b-1 fees are named for SEC rule 12b-1 of the 1940 Investment Company Act. This rule allows mutual funds to charge annual fees out of assets in order to pay for marketing and distribution expenses.

⁶ This has led some funds without 12b-1 fees to market themselves as "pure" no-load funds.

	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
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 describe our classifications and each subsequent row describes the categories that fit into our classification scheme for each of four mutual fund experts.

which obtains new customers through advertising and word of mouth, was a well-known example of a fund sold through the direct channel. However, the direct channel is 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.⁷ These services are 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 one might imagine. To the extent that we misclassify some brokered funds as “direct,” we will underestimate differences between channels.

The broker channel involves more complex financial arrangements with both the mutual fund investor and the mutual fund’s management company. The broker sells funds—or provides clients with financial advisory services. A brokerage channel can be paid in a number of ways. *Explicit distribution fees* include front-end loads, back-end charges, and annual 12b-1 fees collected directly from the investor’s mutual fund investments. There may also be undisclosed distribution fees in the form of revenue sharing.⁸ In our analysis, we measure *nondistribution expenses* by subtracting reported 12b-1 fees from annual fund expenses; these nondistribution expenses measure the costs of operating the fund (e.g., investment management, transfer agency, audit, etc.), excluding the costs of distributing the fund.

⁷ 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.

⁸ These arrangements, where management companies paid part of their management fees to brokers in the form of revenue sharing agreements, received public attention in 2004. For an example, see Johannes and Hechinger (2004). Since 2004, these revenue sharing arrangements are much more likely to be disclosed. These issues illustrate the complex and sometimes poorly disclosed payments and incentives in mutual fund distribution.

Our unit of observation is the fund class. Funds are often offered in different classes that vary by distribution fee structure. The same fund might be offered to direct investors with a particular distribution fee structure, to brokerage clients with a different distribution fee structure, and to institutional clients with yet another distribution fee structure. We exclude from our analysis funds sold through the institutional channels, sales of which may be driven by a set of dynamics different from the retail fund market. These institutional funds account for about one-third of fund assets. We also exclude closed-end funds and exchange-traded funds.

3. Data Sources and Descriptive Statistics

Our primary distribution channel indicator comes from Financial Research Corporation (FRC), which specializes in providing mutual fund distribution data. FRC provided us with industry snapshots from 1998, 2000, 2002, and 2004.⁹ Each snapshot includes some historical data, so we can analyze data from 1996 through 2004. FRC reports a distribution code for each fund share class, characterizing the primary distribution channel in which the share class is sold. FRC also reports the distribution code assigned by Lipper, another major fund data provider. We compare the FRC codes to Lipper distribution channel codes, and we exclude from our analysis fund share classes where the two sources differ. This occurs for 5.9% of the fund classes representing 3.2% of the assets in our sample. For individual fund share classes, these codes rarely change over our sample period.

Table 1 reports the top twenty-five largest fund share classes for the direct and broker channels at the end of the year in 2004. While most mutual fund research focuses on equity funds, money market funds account for five of the top twenty-five funds in the brokered channel and four in the direct channel, while bond funds account for one of the top twenty-five in each channel.

We use data from CRSP to measure monthly mutual fund returns and to corroborate fund descriptive information from FRC. In some tests, we use factor loadings from the CRSP database, which require a three-year fund return history.¹⁰ This may induce some survivorship biases in our sample. We also collected additional fund data from Morningstar, including Morningstar ratings and manager tenure. Finally, FRC provided return data for money market funds.

Table 2 reports the aggregate size of our sample of direct and broker-sold fund share classes, as well as the average size of the funds in the sample. In each panel, we report the total in our sample, as well as the breakdown between

⁹ Prior versions of this article used data through 2002. As a result, most of the quantitative results in this version have changed. Few of the inferences have changed, however. Because the 2004 data for money market funds appear incomplete relative to the 2002 data release, analysis involving money market funds uses data through 2002.

¹⁰ Factor loadings for newly introduced share classes of funds, in situations where the fund has other share classes with longer track records, are assumed to match the factor loadings of the older share classes of the same fund.

Table 1
Twenty-five largest fund share classes in direct and broker channels at year-end 2004

Rank	Direct channel funds			Broker-channel funds		
	Fund name	Assets (\$ million)	Morningstar category/objective	Fund name	Assets (\$ million)	Morningstar category/objective
1	Vanguard 500 Index	84,167	Large, Blend/G&I	Investment Company of America	64,880	Large, Value/G&I
2	Fidelity Magellan	63,296	Large, Blend/Growth	Washington Mutual Investments	63,080	Large, Value/G&I
3	Fidelity Cash Reserve	55,783	MM: Taxable	Growth Fund of America	60,323	Large, Growth
4	Fidelity Contrafund	44,484	Large, Blend/Growth	Income Fund of America	43,536	Dom Hybrid/Asset All
5	Schwab MM Swp	43,948	MM: Taxable	EuroPacific Growth Fund	36,920	Foreign Stock
6	Vanguard MM Rsv	43,695	MM: Taxable	American Funds New Perspective	33,735	World Stock
7	Dodge & Cox Stock	43,266	Large, Value/G&I	Capital Income Builder	32,505	World, Equity Inc
8	Fidelity Low-Priced Stock	35,976	Small, Blend	American Funds Balanced	29,162	Dom Hybrid, Blend
9	Fidelity Growth & Inc	32,106	Large, Blend/G&I	Capital World Growth&Income	26,906	World Stock
10	Vanguard Total Stock Idx	31,718	Large, Blend/G&I	MS Active Assets Money Trust	21,602	MM: Taxable
11	Vanguard Windsor II	29,016	Large, Value/G&I	American Funds Fundamental Inv	21,543	Large, Value/G&I
12	Vanguard Wellington	28,328	Dom Hybrid/Bal	Centennial MM Trust	20,423	MM: Taxable
13	Fidelity Equity Inc	26,372	Large, Val/Equity Inc	Morgan Stanley Liquid Asset	19,529	MM: Taxable
14	Fidelity Growth Comp	25,180	Large, Growth	Templeton Growth	18,461	World Stock
15	Fidelity Puritan	23,935	Dom Hybrid/Bal	SB Cash	17,448	MM: Taxable
16	Fidelity Blue Chip Growth	23,578	Large, Growth	Franklin Income	17,017	Conservative Allocation, Blend
17	Fidelity Dvsgfd Intl	23,420	Foreign, Large, Growth	Amer Emerging Market Growth	16,080	Diversified Emg Mkts
18	Schwab Value Adv MM	23,317	MM: Taxable	Bond Fund of America	15,822	Interm-Term Bond, Corp:Gnrl
19	Vanguard PRIMECAP	22,998	Large, Blend/Growth	Templeton Foreign	15,182	Foreign, Large
20	Vanguard 500 Index	22,412	Large, Blend/G&I	Davis NY Venture	15,108	Large Blend, Growth
21	American Century Ultra	21,998	Large, Growth	Lord Abbett Affiliated	15,002	Large, Value/G&I
22	Dodge & Cox Balanced	20,741	Dom Hybrid/Bal	State Street Global Prime MM	13,918	MM: Taxable
23	Vanguard Health Care	19,606	Specialty Health	AMCAP	13,319	Large, Growth
24	Vanguard Total Bond Idx	19,479	Interm-Trm Bnd, Corp:Gnrl	American Mutual	12,986	Large, Value/G&I
25	Fidelity Dividend Growth	19,422	Large, Blend/Growth	Putnam Growth & Income	12,740	Large, Value/G&I

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

G&I = growth and income, MM = money market, Bal = balanced.

Table 2
Number of funds and fund asset value by distribution channel classification, 1996–2004

Year	Including index funds			Excluding index funds		
	Direct (D)	Broker (B)	Test B = D	Direct (D)	Broker (B)	Test B = D
Panel A: Number of funds						
1996	1083	2625		1049	2606	
1998	1277	2966		1227	2933	
2000	1376	3005		1313	2959	
2002	1372	3002		1287	2933	
2004	1541	2712		1455	2647	
Panel B: Number of share classes						
1996	1098	4155		1064	4132	
1998	1324	5358		1269	5316	
2000	1459	6044		1388	5972	
2002	1598	6804		1474	6691	
2004	1924	7273		1796	7145	
Panel C: Assets (\$ millions)						
1996	1,018,827	1,471,508		964,442	1,467,941	
1998	1,611,985	2,177,190		1,463,268	2,165,424	
2000	2,013,753	2,465,407		1,809,731	2,448,221	
2002	1,741,749	1,908,308		1,556,569	1,895,271	
2004	2,507,144	2,567,918		2,175,808	2,550,373	
Panel D: Average assets per fund (at fund-level) (\$ millions)						
1996	954	632	[0.00]	932	634	[0.00]
1998	1288	860	[0.00]	1212	863	[0.00]
2000	1518	962	[0.00]	1412	968	[0.00]
2002	1319	870	[0.00]	1245	883	[0.00]
2004	1683	1105	[0.00]	1534	1120	[0.00]
Panel E: Share of funds with assets less than \$100 million						
1996	0.36	0.38	[0.28]	0.36	0.38	[0.36]
1998	0.35	0.34	[0.37]	0.36	0.34	[0.35]
2000	0.34	0.35	[0.66]	0.35	0.35	[0.88]
2002	0.37	0.35	[0.12]	0.37	0.34	[0.08]
2004	0.30	0.27	[0.05]	0.30	0.27	[0.01]

For the direct and broker channels this table reports 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 (i) institutional funds, and (ii) 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 “Broker-Dealer,” “Captive,” or “Wirehouse.”

broker-channel and direct-channel distribution, both including and excluding index funds. Results are reported for 1996, 1998, 2000, 2002, and 2004.

From Table 2, in 2004 our sample covers 9197 share classes in 4253 funds representing assets of \$5.1 trillion.¹¹ In the time period we study, brokered

¹¹ Our sample of funds from FRC reconciles very closely to the CRSP mutual fund data. For example, our 2004 sample includes 9197 fund share classes, with 1924 distributed through the direct channel and 7273 through brokers. In contrast, the CRSP mutual fund database contains data on almost nineteen thousand fund share classes in 2004, and the FRC data contain 18,876 fund share classes with nonmissing asset values. The difference between our sample and these databases is largely attributable to funds distributed in the institutional channel and secondarily due to data limitations. For example, among the 18,876 fund share classes reported by FRC in 2004, omitting institutional share classes leaves 12,496 share classes that are identified as being distributed through either the broker channel or the direct channel. We are left with 10,220 observations after dropping share classes

distribution is an important form of distribution, representing 79% (7273/9197) of all share classes, 64% (2712/4253) of all funds, and 51% (2.57/5.08) of all assets in 2004. Direct distribution accounts for the remainder of the funds in our sample. Funds sold through the broker channel account for a larger fraction of share classes than direct funds because brokered funds are more likely to have multiple share classes, differing in the structure of their fees.¹² The brokered channel had been losing market share overall to the direct channel in assets, with its assets under management dropping from 59% in 1996 to 51% in 2004. Panel C allows us to compare the total assets with and without index funds. In 2002, index funds account for approximately \$185 B (~10%) of assets in the direct channel and \$13B (<1%) in the broker channel, while in 2004 the corresponding totals are \$331 B (~13%) in the direct channel and \$17 B (<1%) in the broker channel.

4. Do Brokers Offer and Sell Higher Performing Funds?

A 2004 ICI survey of investors found that investors in broker and direct channels both focus on fund performance. In particular, 88% of broker-channel customers and 82% of the direct channel clients identify “professional money management” as a “very or somewhat important reason for owning mutual funds.” We can surmise from this survey evidence that investors in the broker channel are at least as concerned about fund performance as are direct channel investors. In this section, we analyze the performance of broker-sold and direct-sold funds.

Table 3 presents annual fund performance data by distribution channel for equity funds in panel A, foreign equity funds in panel B, bond funds in panel C, and money market funds in panel D. In each panel, asset-weighted and equal-weighted results are presented, with and without index funds included in the sample, using beginning of period values for asset weights. For all panels, the unit of observation is the fund share class.¹³ We measure returns before

with missing returns or net inflows that do not reconcile across databases either because they are abnormally large in one calculation and missing in another, or because they are less than 100%. We are left with 9519 fund share classes after dropping non-institutional fund share classes that report total assets of less than \$1 million in the current or previous period. We are left with 9230 share classes after dropping fund share classes in families that reported less than \$10 million in assets for the entire family in the previous year. Finally, dropping fund share classes for which the asset investment category is not reported leaves 9197 fund share classes. The data restrictions imposed in later tests where we require factor loadings cause us to lose approximately 35% of the remaining funds but only about 13% of assets.

¹² See Nanda, Wang, and Zheng (2005) for a study of the impact that the explosion of share classes has had on the relationship between loads and flows.

¹³ Given that multiple share classes are more prevalent in the broker channel, they may have a disproportionate impact on our equally weighted return results. To address this, we reestimate the equal-weighted results with only the first share class for each fund. We find that this change leads to marginal changes in estimates and the same inferences in all cases except for two: among foreign equity funds, the difference in performance between direct-channel and broker-channel funds, using one-factor alpha measure of returns, goes from being significant at the 10% level to being significant at the 5% level; and among bond funds, the difference in performance using the alpha-h measure is no longer statistically significant.

Table 3
Average annual fund performance by distribution channel

	All sample funds				Excluding index funds				
	Direct (D)	Broker (B)	Diff (D – B)	Test B = D	Direct (D)	Broker (B)	Diff (D – B)	Test B = D	
Panel A: Broad equity funds annual returns, asset-weighted and equal-weighted by share class, 1996–2004									
Asset-weighted									
Net Returns + 12b-1 Fees	6.542	6.116	0.426	[0.16]	6.805	6.147	0.658	[0.03]	
Benchmark-Adj. + 12b-1	0.479	0.210	0.269	[0.02]	0.442	0.212	0.230	[0.06]	
1-Factor Alpha +12b-1	–0.241	–0.570	0.329	[0.06]	–0.213	–0.575	0.362	[0.05]	
3-Factor Alpha +12b-1	–0.013	–0.893	0.880	[0.00]	–0.040	–0.905	0.865	[0.00]	
4-Factor Alpha +12b-1	–0.997	–1.764	0.767	[0.00]	–1.253	–1.787	0.534	[0.00]	
Equal-weighted									
Net Returns + 12b-1 Fees	10.541	8.042	2.499	[0.00]	10.633	8.081	2.552	[0.00]	
Benchmark-Adj. + 12b-1	0.908	–0.031	0.939	[0.00]	0.831	–0.056	0.887	[0.00]	
1-Factor Alpha +12b-1	1.073	–0.200	1.273	[0.00]	1.170	–0.209	1.379	[0.00]	
3-Factor Alpha +12b-1	–0.388	–1.402	1.014	[0.00]	–0.339	–1.443	1.104	[0.00]	
4-Factor Alpha +12b-1	–1.656	–2.588	0.932	[0.00]	–1.693	–2.649	0.956	[0.00]	
Panel B: Foreign equity funds annual returns, asset-weighted and equal-weighted by share class, 1996–2004									
Asset-weighted									
Net Returns + 12b-1 Fees	5.394	8.658	–3.264	[0.00]	5.252	8.661	–3.409	[0.00]	
Benchmark-Adj. + 12b-1	0.514	1.962	–1.448	[0.00]	0.612	1.963	–1.351	[0.00]	
1-Factor Alpha +12b-1	–0.190	1.862	–2.052	[0.00]	–0.354	1.863	–2.217	[0.00]	
3-Factor Alpha +12b-1	–0.505	1.028	–1.533	[0.00]	–0.704	1.028	–1.732	[0.00]	
4-Factor Alpha +12b-1	–1.483	0.346	–1.829	[0.00]	–1.787	0.346	–2.133	[0.00]	
Equal-weighted									
Net Returns + 12b-1 Fees	9.207	7.743	1.464	[0.10]	9.418	7.791	1.627	[0.09]	
Benchmark-Adj. + 12b-1	1.170	0.036	1.134	[0.00]	1.486	0.045	1.441	[0.00]	
1-Factor Alpha +12b-1	2.589	1.332	1.257	[0.08]	2.562	1.362	1.200	[0.11]	
3-Factor Alpha +12b-1	1.319	–0.359	1.678	[0.02]	1.174	–0.348	1.522	[0.04]	
4-Factor Alpha +12b-1	1.618	–0.458	2.076	[0.01]	1.391	–0.453	1.844	[0.02]	

Panel C: Bond funds annual returns, asset-weighted and equal-weighted by share class, 1996–2004

Asset-weighted									
Net Returns + 12b-1 Fees	6.008	5.869	0.139	[0.30]	6.005	5.869	0.136	[0.33]	
Benchmark-Adj. + 12b-1	0.672	0.332	0.340	[0.00]	0.689	0.331	0.358	[0.00]	
Alpha2 +12b-1	1.128	0.569	0.559	[0.00]	1.120	0.568	0.552	[0.00]	
Alpha h: +12b-1	0.693	-0.202	0.895	[0.00]	0.662	-0.203	0.865	[0.00]	
Equal-weighted									
Net Returns + 12b-1 Fees	6.150	6.248	-0.098	[0.60]	6.145	6.248	-0.103	[0.59]	
Benchmark-Adj. + 12b-1	0.372	0.288	0.084	[0.37]	0.359	0.287	0.072	[0.45]	
Alpha2 +12b-1	0.944	0.896	0.048	[0.79]	0.930	0.895	0.035	[0.85]	
Alpha h: +12b-1	0.719	0.274	0.445	[0.01]	0.683	0.271	0.412	[0.02]	
Panel D: Money market funds annual returns, asset-weighted and equal-weighted by share class, 1996–2004									
Asset-weighted									
Net Returns + 12b-1 Fees	3.567	3.888	-0.321	[0.00]					
Benchmark-Adj. + 12b-1	0.268	0.188	0.080	[0.00]					
Alpha2 +12b-1	0.126	0.083	0.043	[0.00]					
Alpha h: +12b-1	0.146	0.106	0.040	[0.01]					
Equal-weighted									
Net Returns + 12b-1 Fees	3.578	3.922	-0.344	[0.00]					
Benchmark-Adj. + 12b-1	0.061	0.071	-0.010	[0.46]					
Alpha2 +12b-1	-0.095	-0.019	-0.076	[0.00]					
Alpha h: +12b-1	-0.078	0.002	-0.080	[0.00]					

We report asset-weighted and equal-weighted average annual returns for the sample of broad equity (panel A), foreign equity (panel B), bond (panel C), and money market funds (panel D) share classes. Data based on 1996–2004 for equity and bond funds and 1996–2002 for money market funds. Performance is reported net of nondistribution annual expenses. 12b-1 fees are added back into returns, making the return measure a “pre-distribution-expense” measure. Based on this return measure, we report unadjusted returns, benchmark-adjusted returns, and alphas based on several factor models. Benchmark-adjusted returns are 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. To calculate alphas we require thirty-six months of CRSP return data prior to the current year to estimate the factor loadings. For equity funds, one-factor alphas are computed with the value-weighted equity market as the factor; three-factor alphas add a value/growth and small firm/large firm factor; four-factor alphas add a momentum factor as in Carhart (1997). 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 ten-year government bond return factor, and ten-year Moody’s Aaa corporate bond portfolio return factor. The “alpha h” market-adjusted return adds to the alpha2 model the monthly return to the Moody’s ten-year Baa corporate bond portfolio. The p -value reported results from a test of the hypothesis that the means of the return measures are the same in the broker and direct channels.

the deduction of any explicit distribution charges by adding back 12b-1 fees to the net return measures. We refer to the sum of reported returns plus 12b-1 fees as “pre-distribution-fee” returns. We report pre-distribution-fee returns by channel, on an unadjusted basis, on a benchmark-adjusted basis, and also using several standard risk-adjusted alpha measures. When estimating fund alphas, we require that CRSP factor loading data be available in order to estimate fund betas over the prior three years. This imposes a survival requirement on the data used in the fund alpha analysis. For this reason, we report raw returns and benchmark-adjusted returns in addition to alphas. For each return measure, we use all funds with available return data for that measure. As a result, our alpha measures cover a slightly different sample of funds than the non-alpha return measures.¹⁴

For the broad sample of domestic equity funds in Table 3, panel A, the performance results are quite striking. Funds sold by brokers underperform those sold through the direct channel, even when returns are calculated on a pre-distribution-fee basis. This is true for all equal-weighted portfolios, regardless of whether we look at raw returns, benchmark-adjusted returns, or any of the various measures of risk-adjusted returns. Turning to asset-weighted returns, the same result holds in all specifications except for raw returns.¹⁵ The result is not due to the inclusion of index funds; the brokered channel continues to display inferior pre-distribution-fee performance compared with the direct channel in all specifications, even when all index funds are removed from the analysis.

The magnitude of this underperformance varies depending on the method used to risk-adjust the returns and depending on whether returns are calculated on an equal or asset-weighted basis. Across these different specifications, annual underperformance varies from 23 bp to 255 bp. The higher performance of the direct-sold funds, relative to the broker-sold funds, is generally more pronounced when analyzing equal-weighted returns than when analyzing asset-weighted returns, a result that we discuss in more detail below.

Panel B reports the results for foreign equity funds. As in the equity results above, in equal-weighted specifications the direct-sold funds outperform the broker-sold funds. However, on a pre-distribution-fee, *asset-weighted basis*, funds sold through the broker channel outperform those in the direct channel by between 135 and 341 basis points. The latter outperformance is attributable

¹⁴ Results, available upon request, show that if we restrict our sample to include only the unadjusted fund returns and benchmark-adjusted returns for those funds for which alpha measures are available, our inferences are largely unaffected. An exception is that among broad equity funds, with asset-weighted analysis, the hypothesis that broker and direct channel performance are equal is no longer rejected at conventional significance levels.

¹⁵ Raw returns, when averaged over the entire sample period, are influenced by covariation between year-to-year changes in the number of funds and year-to-year changes in average returns. Benchmark-adjusted and risk-adjusted returns, which subtract out year-to-year variation in average returns, are less sensitive to the influence of the changing number of funds over time.

to a small number of very large international funds sold through one specific broker-channel fund family.¹⁶

Panel C presents performance results for bond fund share classes. There is no evidence to suggest that broker-sold funds outperform direct-sold funds in this asset class. In equal-weighted data, either the pre-distribution-fee results are indistinguishable between the two sectors or in some specifications the direct channel delivers higher returns. In asset-weighted specifications, directly placed funds consistently deliver substantially higher benchmark- or risk-adjusted returns, higher by 34–90 basis points. As with the equity funds, the exclusion of index funds from the sample of bond funds does not change the asset-weighted results.

Panel D of Table 3 presents the performance of money market funds. Money market funds do not demonstrate a consistent pattern of broker-channel underperformance. On a raw return basis, broker-sold funds tend to outperform directly distributed money market funds by 32–34 basis points. Once one does any benchmark adjustment, these results either become statistically insignificant or change sign and become significant, with direct-sold funds providing higher performance.

Collectively, the results in Table 3 suggest that domestic equity and bond funds sold by brokers have delivered inferior performance compared with funds sold in the direct channel. The contrary results in the foreign equity funds are attributable to a single fund complex. Using the estimates from the most complete factor pricing models and summing up across broad equity, bond, and foreign equity investment categories leads us to estimate the annual underperformance of the broker-sold funds at \$4.6 billion in 2004.¹⁷ This underperformance is before the payment of \$9.8 billion in 12b-1 fees¹⁸ and the payment of other distribution fees such as loads.

We investigated whether fund characteristics, other than distribution channel, can explain the apparent underperformance of broker-sold domestic equity mutual funds. However, the underperformance of brokered funds is a robust finding. In unreported multivariate tests, we control for the size of the fund, the size of the complex, fund manager tenure, front loads, expense ratios, 12b-1 fees, fund portfolio turnover, and the inclusion of an indicator variable for index funds. In models that include these controls, broker-sold funds continue to show underperformance.

¹⁶ We also experimented with a multivariate specification that included additional explanatory variables for performance, such as fund and complex size. Among the foreign equity funds, adding these controls changes the marginal coefficient on the direct channel dummy from negative and statistically significant to positive and statistically significant. This is consistent with our earlier observation that this result is driven by a very small number of very large broker-sold foreign equity funds. These results are available from the authors upon request.

¹⁷ Calculated using assets in 2004 as follows: \$2.6 trillion in broker-sold mutual fund assets, with 77 basis point underperformance in domestic equity funds (42.6% of broker-sold assets), 90 basis point underperformance in bond funds (12% of broker-sold assets), 183 basis point outperformance in foreign equity funds (14% of broker-sold assets).

¹⁸ The 12b-1 fee estimate is described in Figure 1.

One interpretation of the “value added” by brokers may be gleaned from a comparison of the differences between equal-weighted and value-weighted results in the channels. Equal-weighted results reflect the menu of alternatives, while asset-weighted returns reflect the cumulative impact of investor decision making, advice, and fund performance. The difference between the asset-weighted and the equal-weighted results by channel is a crude measure of the “value added” of decision making. Broker-sold domestic equity funds underperform directly sold funds on both an equal-weighted and a value-weighted basis, but less so for the latter. Nonetheless, the brokers’ help in selecting better funds among the choices available in the broker channel is insufficient to produce performance equal to the direct channel, even before deducting distribution fees.

5. Do Brokers Provide Better Asset Allocation and Timing Abilities?

The previous section provided an analysis of the investment returns within asset classes for broker-sold versus direct-sold mutual funds. This section turns to an asset allocation analysis, assessing whether brokers, in aggregate, channel money toward asset classes in a way that reflects an ability to time movements in broad market performance. While intermediated channels might offer lower performing funds, they might offset this drag by superior market-timing recommendations, shifting between stocks, bonds, and cash in advance of market moves. In order to abstract away from fund picking expertise of brokers, which is contained in the alpha results above, we take the broker-channel aggregate asset allocation weights and apply those weights to index returns. We compare the cumulative value of \$1 invested on 31 December 1980 using annually rebalanced asset allocations in the broker and direct channels at the beginning of each year.¹⁹

We calculate returns based upon four main asset classes (Domestic Equity, Domestic Bond, Municipal Bond, and Money Market), which account for the bulk of assets in both channels. We rescale the aggregate portfolio weights under the assumption that these four asset classes represent the entire investment

¹⁹ Our performance and flow tests require fund and share class data, which we only have from 1996 through 2004. However, asset allocation tests require a longer time horizon. Our asset allocation test makes two simplifying assumptions that we are not comfortable using in our other tests. First, the asset allocation tests do not require fund or class level performance information. Instead, we use market index returns to abstract from stock-picking ability. Second, the asset allocation tests require portfolio weights at the *aggregate* level—i.e., the blend of assets by channel. To calculate these weights we have classified funds by channel using the following algorithm. First, for funds existing in 1996, we apply the reported distribution classification to the predecessor funds as matched in the CRSP database. Second, if funds did not survive through 1996 we follow these two rules: (i) Fund share classes with some variation of the term “Institutional” in their reported name are assumed to be institutional fund share classes and are dropped from the portfolio weights, (ii) for other funds that did not exist in 1996, we make a distribution channel classification based on the reported load structure of the fund. Funds not linked to the FRC data with loads exceeding 1.5% are categorized as broker-channel funds. The remaining fund share classes are categorized as direct channel funds. While this approach induces some measurement error, it allows us to make reasonable estimates of asset allocations to equity, bonds, and money markets in the data back to 1980. This allows us to look at twenty-two annual observations on market-timing ability that are reported in the text.

universe for these funds. We calculate these results using data through 2002 because we are concerned that later periods have less-reliable data on money market funds.

Figure 3 provides graphs of the asset allocations in the two sectors. Bond and money market funds consistently make up a higher share of assets in broker-sold funds than in direct-sold funds. While some have suggested that the brokers encourage investors to take more risks than they might otherwise on their own, this evidence suggests that the broker-channel asset allocations tend to be weighted toward lower-risk sectors than the direct channel asset allocations.²⁰

In Figure 4, we show the cumulative value of \$1 invested using annually rebalanced asset allocation weights taken from the aggregate mix in both channels. The indexes for the equity, bond, muni bond, and money market returns are respectively 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 thirty-day Treasury bill.

Figure 4 suggests that direct channel asset allocations produced more cumulative wealth over this twenty-two-year period of time, but it is important to adjust these figures for risk. The broker channel delivered lower returns because these investors held lower risk and lower return securities. This is consistent with the Investment Company Institute (2004b, figure 9; hereafter ICI) survey results, which found that clients of the broker channel are slightly more risk averse. When asked what level of risk they were willing to take on with their mutual fund investments, 39% of direct-channel customers (versus 34% of brokered channels) were willing to take on “substantial” or “above average” risk for commensurate returns.

To calculate risk-adjusted portfolio returns, we calculate the Sharpe ratio of the two portfolios, as reported immediately below:

Including money market assets	Broker channel	Direct channel
Mean excess return (beyond Treasury 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, but it

²⁰ 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 (versus 55% for clients of direct-sold funds), which suggests that their nonfund transaction accounts may be even higher than for customers of direct-sold funds.

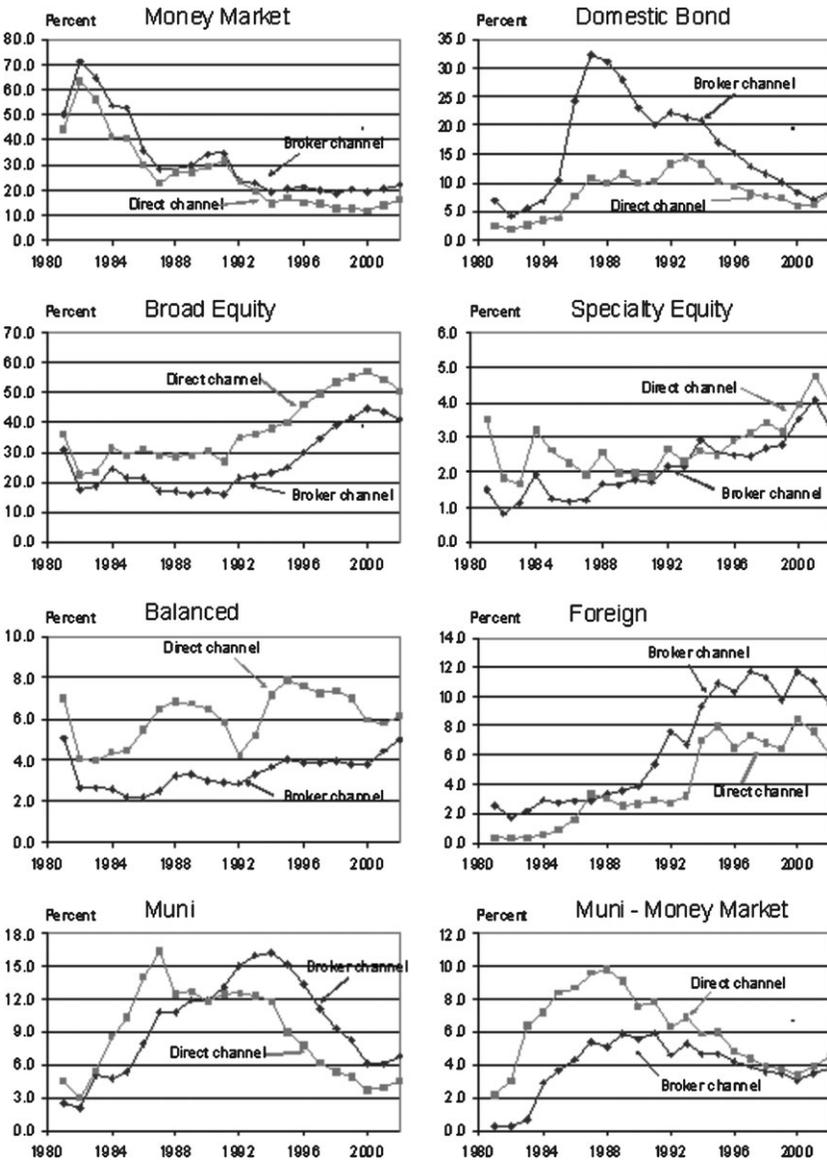


Figure 3
Broker and direct asset allocation weights, 1980–2002

The table 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.

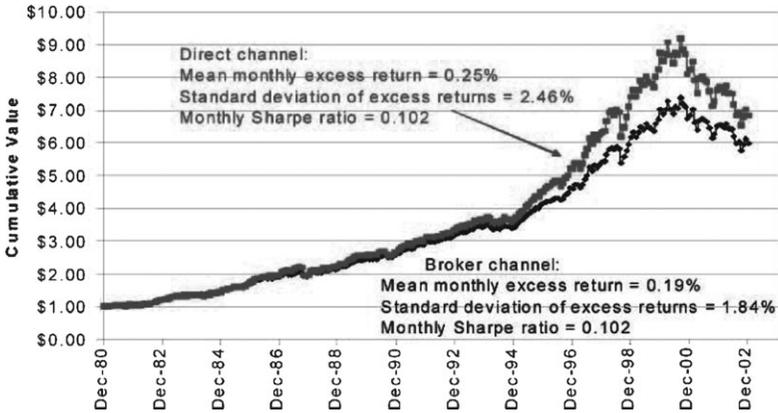


Figure 4
Value of a dollar invested in a model portfolio composed of market indices weighted by the asset weights of the two channels, 1980–2002

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 thirty-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.

is important to remember that this analysis abstracts from fund picking ability by using identical index returns for each asset class to calculate the return. When applied to actual channel returns, the brokered channel would show a distinct disadvantage, since brokered funds underperform direct-sold funds on a pre-distribution-fee basis (and even more so once distribution fees have been subtracted).

Large cash balances held in broker-channel funds may reflect transaction motives rather than active long-term portfolio choice decisions. If so, it may be useful to evaluate the two investment portfolios excluding the cash component. Reweighting the two portfolios excluding money market assets (but still applying weights to identical index returns), we find that the Sharpe ratios for the two channels are still nearly identical, as shown here:

Excluding money market assets	Broker channel	Direct channel
Mean excess return (beyond Treasury 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 Henriksson’s (1981) nonparametric test of market-timing ability. Using the Merton-Henriksson 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-Henriksson nonparametric 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.

We find no evidence that, in aggregate, brokers provide superior asset allocation advice that helps their investors time the market. While we cannot observe the asset allocation skills of individual brokers nor the degree to which brokers fashion customized portfolios for their clients, the aggregate asset allocations show no advantages among the broker-sold funds.

6. What Else Could It Be?

Clients of brokers, on average, purchase worse performing funds (on a pre-distribution-fee basis) and pay substantial distribution charges, and the broker channel seems to enjoy no obvious market-timing ability. Yet the broker sector is large and vibrant. What other benefits might brokered clients receive? This section discusses other possible benefits, before discussing an alternative interpretation.

6.1 Unique products?

Our benchmark- and risk-adjusted returns compare funds with comparable characteristics from the perspective of standard financial economics—for example, risk exposures and factor loadings. However, perhaps brokers specialize in unique products, especially ones that individual investors would have difficulty in evaluating on their own. In Table 4, we report on the characteristics of equity products sold by the two channels. In brief, we do find some evidence that broker-sold funds may be harder to find or to analyze by investors, in that broker-sold funds are

- Smaller (Table 2, panel D)
- Actively managed (Table 2, panel C)
- More likely to be younger than three years old (Table 4, panel B)
- Managed by managers with shorter tenures (Table 4, panel C)
- Not covered by Morningstar (Table 4, panel D)

Some of these characterizations are not robust to asset- versus equal-weighted results. However, they are broadly consistent with two interpretations. Put in the most positive terms, brokers help investors buy products that would be hard for the investor to find or evaluate without the broker's help. Put in less

Table 4
Characteristics of funds by distribution channel, 1996–2004

	Asset-weighted			Equal-weighted		
	Direct (D)	Broker (B)	Test (B = D)	Direct (D)	Broker (B)	Test (B = D)
Panel A: Average age of funds (years)						
1996	17.82	17.84	[0.97]	9.88	9.22	[0.07]
1998	18.85	19.59	[0.12]	10.14	9.63	[0.13]
2000	19.00	21.16	[0.00]	10.86	10.79	[0.84]
2002	19.94	21.76	[0.00]	12.11	11.81	[0.38]
2004	21.09	25.06	[0.00]	12.47	12.76	[0.40]
Panel B: Proportion of funds that are young (≤ 3 years)						
1996	5.10%	6.00%	[0.27]	26.50%	26.20%	[0.84]
1998	3.60%	4.10%	[0.38]	22.40%	18.40%	[0.00]
2000	2.50%	4.00%	[0.01]	17.40%	16.30%	[0.34]
2002	1.60%	3.40%	[0.00]	10.60%	12.30%	[0.12]
2004	1.60%	3.50%	[0.00]	11.00%	14.00%	[0.01]
Panel C: Manager tenure (years)						
1996	6.24	8.39	[0.00]	4.93	4.46	[0.01]
1998	5.79	5.39	[0.02]	4.66	4.16	[0.00]
2000	5.83	5.62	[0.20]	4.53	4.31	[0.11]
2002	7.31	7.70	[0.15]	5.72	4.97	[0.00]
2004	9.31	8.39	[0.00]	6.26	5.64	[0.00]
Panel D: Percentage of equity funds without Morningstar ratings						
1996	2.7%	6.3%	[0.01]	21.7%	19.8%	[0.48]
1998	2.2%	6.7%	[0.00]	21.0%	24.1%	[0.21]
2000	1.2%	3.3%	[0.01]	15.3%	16.5%	[0.56]
2002	0.9%	2.3%	[0.03]	8.6%	13.7%	[0.00]
2004	0.4%	1.1%	[0.11]	4.0%	6.2%	[0.05]

We characterize our sample funds along four dimensions: average age in years, the proportion of funds that are less than three years old, manager tenure in years, and whether the fund is covered by Morningstar.

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 as in the direct channel. Equal-weighted results use mutual fund, rather than fund share class, as the unit of observation. This table includes index funds, though broad pattern of results is robust to their exclusion.

positive terms, brokers recommend products for which a client can less easily compare performance and evaluate broker quality. Recent theoretical papers by Gabaix and Laibson (2006) and Carlin (2006) show that confused clients may be profitable ones from the perspective of financial service providers.

6.2 Better deals?

While distribution fees for brokers are considerably higher than for funds sold in the direct channel, in theory lower *nondistribution* charges in the brokered channel could offset the higher distribution charges. However, nondistribution fees are not generally lower for broker-sold funds. We have already reported that the returns after nondistribution charges (our “pre-distribution-fee returns”) are lower in the brokered channel. In Table 5, we more narrowly analyze the level of nondistribution charges and annual expenses. Annual nondistribution expenses for broker-sold exceed those of direct-sold funds in all categories

Table 5
Average fund expense ratios, sales charges and back-end loads

	Asset-weighted				Equal-weighted by fund share class			
	Direct (D)	Broker (B)	Diff (D - B)	Test (B = D)	Direct (D)	Broker (B)	Diff (D - B)	Test (B = D)
Annual distribution expenses (12b-1 fees)								
Broad equity	0.018	0.461	-0.443	[0.00]	0.088	0.610	-0.522	[0.00]
Bonds	0.008	0.443	-0.435	[0.00]	0.055	0.560	-0.505	[0.00]
Foreign equity	0.007	0.389	-0.382	[0.00]	0.064	0.629	-0.565	[0.00]
Money market	0.053	0.125	-0.072	[0.00]	0.088	0.235	-0.147	[0.00]
Annual nondistribution expenses (Expense ratio 12b-1)								
Broad equity	0.712	0.737	-0.024	[0.00]	1.085	1.062	0.023	[0.00]
Bonds	0.486	0.746	-0.260	[0.00]	0.706	0.834	-0.128	[0.00]
Foreign equity	1.023	0.921	0.102	[0.00]	1.354	1.470	-0.116	[0.00]
Money market	0.479	0.531	-0.052	[0.00]	0.607	0.603	0.004	[0.00]
Front end loads								
Broad equity	0.436	3.627	-3.191	[0.00]	0.220	2.016	-1.796	[0.00]
Bonds	0.021	2.521	-2.501	[0.00]	0.056	1.691	-1.635	[0.00]
Foreign equity	0.087	4.258	-4.170	[0.00]	0.319	2.022	-1.704	[0.00]
Money market	0.008	0.020	-0.011	[0.00]	0.021	0.050	-0.029	[0.00]
Back end loads								
Broad equity	0.003	1.117	-1.114	[0.00]	0.037	1.595	-1.558	[0.00]
Bonds	0.000	1.287	-1.286	[0.00]	0.024	1.450	-1.426	[0.00]
Foreign equity	0.004	0.703	-0.699	[0.00]	0.018	1.591	-1.573	[0.00]
Money market	0.009	0.024	-0.015	[0.00]	0.050	0.376	-0.326	[0.00]

We report fund fees and loads for fund share classes from 1996 to 2004, by distribution channel. 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. Nondistribution 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). Equal-weighted results use fund share class as unit of observation. These results include index funds.

except foreign equity funds, suggesting that customers of brokers do not enjoy significantly lower nondistribution fees.²¹

6.3 Different customers?

Perhaps customers of brokers are different and have different needs than do customers of directly sold mutual funds. To explore this hypothesis, we turn to the ICI survey of mutual fund investors. The ICI survey results provide the demographic characteristics of broker-channel and direct-channel mutual fund investors.²² The customers who purchase broker-sold funds are slightly less wealthy (with a median income of \$93,800 versus \$101,300), have lower median financial assets (\$363,700 versus \$447,900), and are slightly less well-educated (57% versus 65% have a four-year college degree or more). Campbell (2006) and others find that people with lower education and lower income are

²¹ This conclusion holds after controlling for a host of variables in a multivariate setting too.

²² 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), p. 11.

more likely to make apparently suboptimal financial decisions. While this may play some role in explaining our results, by any standard, mutual fund investors in both channels are disproportionately drawn from upper ranks of national wealth, income, and educational attainment.

With respect to attitudes, investors who purchase funds through brokers appear to be a bit more risk averse, with only 34% (versus 39%) reporting that they are willing to take on substantial or above average risk for commensurate gain. This characteristic may explain some of the differences we observe, such as the higher holdings of bonds or cash in the brokered sector.

The investing goals and aspirations of the two groups seem quite similar. Roughly equal fractions of customers of broker-sold (93%) and direct-sold funds (95%) say that the levels of fees and expenses are very or somewhat important reasons for owning mutual funds. In spite of this, the clients of broker-sold funds choose to pay considerably more.

The customers of the two channels may be more dissimilar along important other dimensions, such as their prior experience or confidence in making investment decisions, or the amount of time they are able or willing to devote to investment decision making. While these differences in the predisposition to seek help might justify why some investors willingly pay distribution fees for services, it is more problematic to explain how these traits lead investors to continue to accept poorer *pre-distribution-fee* investment performance. Furthermore, the ICI data reveal that consumers often use multiple distribution channels; it would be interesting to know if clients using both channels acted differently than clients of one or the other channel.

6.4 Putting a brake on behavioral biases?

There is a large and growing literature exploring the impact of behavioral biases on investors' portfolio behavior.²³ In many cases, these behavioral biases are thought to lead to suboptimal behavior. Accordingly, a broker who is able to attenuate these biases would provide a valuable service to individual investors. We have already reported that broker-sold funds are more likely to invest in foreign funds, suggesting that the broker channel may somehow combat the home-bias effect, where investors appear to overinvest in local securities.

Another behavioral bias is the tendency to chase past returns, measured by the flows into and out of mutual funds as a function of prior fund performance. Differences in performance-flow sensitivity, if any, cannot easily be attributable to differences in the attitudes of customers of the two channels. The ICE (2004) survey shows that clients of both channels say they ignore short-run returns: 82% of broker channel versus 83% of direct channel customers agreed with the statement: "I am not concerned about short-term fluctuations in my mutual fund investments." Only 4% of broker customers and 5% of direct customers report that they consider a time frame of less than one year in considering

²³ See Barberis and Thaler (2003) for a recent summary of this literature.

the investment risks of equity or bond funds. This similarity in self-perception implies that any differences in sensitivity to performance are not the result of self-conscious differences in client attitudes but may reflect advice they receive.

We calculate the performance sensitivity of investment flows in each channel. In sum, our investigation reveals modest differences between the two channels in performance sensitivity. Consistent with earlier research that looked at samples that aggregated direct-sold and broker-sold mutual funds, we find that in each channel, inflows appear strongly correlated with lagged performance.²⁴ Table 6 details the results of this multivariate analysis of the performance-flow relationship by channel. Columns (1) and (2) present the baseline specification (estimated separately for broker-sold and direct-sold funds), with fund share-class-level inflows regressed on raw performance and other fund characteristics. Columns (3) and (4) use a measure of returns net of the average returns of funds in the same investment category, with investment categories calculated very broadly (i.e., domestic equity, foreign equity, and so on). Columns (5) and (6) use more narrow specifications of investment categories to calculate the category-average returns.

Each specification includes the return measure and also includes an interaction term between the return and a dummy equal to one when the return measure exceeds zero. Thus, the linear relationship between performance and inflows below this kink-point is just the coefficient on returns, while the relationship between performance and inflows above the kink is the sum of the two coefficients. The specification includes both contemporaneous returns and returns lagged one period. A general description of the performance-inflow sensitivities is that flows in both channels are sensitive to past performance, and if anything broker funds are more likely to be sensitive to superior past performance.

The baseline specification with raw returns suggests that a 10-percentage-point increase in performance among direct-channel funds is associated with a 8.53% (9.63% above the kink-point) increase in inflows in the current year, and a 6.43% (7.96% above the kink-point) increase in inflows in the next year. The results in this specification for the broker sample suggest a slightly higher sensitivity of inflows to performance: 9.42% (10.66% above the kink) in the current year, and 9.07% (16.22% above the kink) in the next year. This apparent extra sensitivity of inflows to performance in the broker sample, however, is itself highly sensitive to the treatment of outlier observations of fund performance.

Both channels display return chasing behaviors. While in theory brokers could reduce the behavioral bias to chase returns, we find no consistent evidence in practice that return chasing is substantially weaker among broker-sold funds. Rather, our results are consistent with those of O'Neal (2004), who finds that funds that charge loads have incrementally steeper slopes between performance

²⁴ See Sirri and Tufano (1998); Brown, Harlow, and Starks (1996); or Chevalier and Ellison (1997).

Table 6
Predicting net inflows with fund share class returns and characteristics, 1996–2004

Sample (direct or broker)	(1) D	(2) B	(3) D	(4) B	(5) D	(6) B
Inflow measure	Net flow divided by prior assets					
Explanatory variable						
Fund return	0.85**	0.94**				
Fund return (if > 0)	0.11	0.12				
Lagged fund return	0.64**	0.91**				
Lagged fund return (if > 0)	0.15	0.72**				
Market-adjusted return—Broad category			0.62**	0.65**		
Market-adjusted return—Broad category (if > 0)			0.45	0.57*		
Lagged market-adjusted return—Broad category			0.93**	1.20**		
Lagged market-adjusted return—Broad category (if > 0)			−0.23	0.39		
Market adjusted return—Narrow category					0.89**	0.80**
Market adjusted return—Narrow category (if > 0)					0.38	0.87*
Lagged market adjusted return—Narrow category					0.87**	0.58**
Lagged market adjusted return—Narrow category (if > 0)					−0.07	1.89**
Log fund managers tenure	2.60*	3.42**	2.35	3.10**	2.66*	2.69*
Log of fund age	−16.53**	−26.31**	−16.34**	−24.98**	−16.43**	−23.97**
Lagged log of complex size	1.99**	1.53*	2.13**	1.59*	2.07**	1.76**
Lagged log of fund's size	−4.54**	−1.84*	−4.80**	−2.12*	−4.65**	−2.06*

(continued overleaf)

Table 6
(Continued)

Sample (direct or broker)	(1) D	(2) B	(3) D	(4) B	(5) D	(6) B
Inflow measure	Net flow divided by prior assets					
12b-1 fees	23.98*	9.78**	23.25*	10.66**	24.33*	10.54**
Expense ratio net of 12b-1 fee	-6.71	-14.94**	-7.14	-17.23**	-4.41	-14.27**
Front load	1.77	0.84*	1.6	0.98**	1.22	0.85*
Back load	-9.38**	-2.16**	-10.48**	-1.97**	-10.52**	-1.94**
Index fund = 1	1.52	-5.5	1.4	-5.27	3.25	-2.53
year_r = 1997	4.5	15.72**	-0.94	1.45	-0.9	1.58
year_r = 1998	-6.06	3.83	-18.32**	-14.32**	-18.60**	-13.14**
year_r = 1999	-16.98**	1.062	-25.18**	-21.86**	-25.66**	-20.37**
year_r = 2000	7.73	14.12**	-15.32*	-18.79**	-15.42*	-23.37**
year_r = 2001	40.40**	57.62**	-12.77*	-24.76**	-12.24*	-28.00**
year_r = 2002	47.43**	68.86**	-22.84**	-33.69**	-22.08**	-35.32**
year_r = 2003	8.66	33.86**	-18.97**	-22.99**	-18.04**	-23.29**
year_r = 2004	-15.83**	-23.22**	-21.65**	-30.38**	-21.50**	-31.28**
Constant	33.27**	20.09*	77.62**	88.97**	74.09**	79.43**
Observations	4476	14,085	4391	13,773	4428	13,841
R-squared	0.18	0.24	0.18	0.24	0.16	0.21

Robust *t*-statistics in parentheses; *significant at 5% level; **significant at 1% level.

This table estimates the relationship between fund returns and net inflows among funds classified as broad equity funds. We use several measures of returns and estimate the coefficients on a version of each of the return measures for one-year lags and for return measures that are greater than zero. For example, the variable Fund Return (if > 0) is equal to the fund return if the fund return is greater than zero and zero otherwise. The broad category return adjustments are roughly speaking at the asset-class level, while the narrow adjustments match funds based on narrow Morningstar style and objective classifications.

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, inducing a higher sensitivity of net inflows to performance.²⁵

Return chasing may not necessarily be suboptimal, either in the large or in the small. Berk and Green (2004) point out that return chasing may be a driver of equilibrium in a rational fund marketplace. More narrowly, we have looked at the relationship between fund inflows, measured as the percentile rank of inflows for that fund share class, and future performance for domestic equity funds. We find some evidence of a *negative* relationship between lagged fund inflows and subsequent performance; however, there is little evidence that this pattern is more pronounced among funds sold through the broker channel.

7. An Alternative Hypothesis: Do Brokers Merely Sell What They Are Paid to Sell?

Compared with the direct channel fund consumers, brokers' clients select asset allocations that perform no better, and invest in funds that perform worse, even before any distribution fees are considered. For these nonbenefits, they pay front-end loads that are as much as 417 basis points higher and annual distribution charges that are up to 40 basis points larger.²⁶ While they pay more, and get lower returns, according to the ICI surveys, clients of brokers and direct purchasers are similar both in demographics and in attitudes. How can these facts be reconciled?

An optimistic interpretation would be that brokers are indeed acting in their clients' interests, but, as researchers, we have simply not been able to measure the many substantial tangible and intangible benefits that brokered clients receive. With appropriate data, this hypothesis is testable. In particular, psychological studies of different types of clients may be able to determine their demands for various intangible services, such as financial advice. Conjoint analyses may determine how investors make tradeoffs between returns, time spent on investment decision making, and enhanced confidence in decision making. Finally, with account level data, one could look for superior tax planning benefits offered by the brokerage channel.²⁷

²⁵ In prior versions of this article, 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 article, 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 article.

²⁶ Forty-four basis points larger among domestic equity funds, 44 basis points larger among bond funds, 38 basis points larger among foreign equity funds, and 7 basis points larger among money market funds.

²⁷ Starks, Yong, and Zheng (2006) find that broker-affiliated closed-end funds have greater tax-loss selling.

A less charitable interpretation of our results is that financial intermediaries may not always act in their clients' interest but rather put clients' interests behind their own interests and those of the fund companies that pay them. Consumers may fail to react, consistent with the evidence that consumers sometimes make suboptimal decisions, especially about complex financial matters—e.g., see Campbell (2006). The notion that brokers may not be acting in their clients' interests, but that clients may fail to react, is also potentially testable with the right data. Clinical work could analyze changes in clients' portfolios around exogenous shocks to broker incentives.

We can learn about this latter interpretation by studying the coefficients on the control variables in Table 6. Across all specifications, the coefficients on both 12b-1 fees and front-end loads are positively related to subsequent inflows in the broker channel. The more money there is to pay for sales efforts (except deferred loads), the greater the flows to these funds. 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.²⁸ In contrast, the nondistribution portion of the annual expense ratios is negatively associated with inflows in both channels, although the results are not statistically significant among the direct-sold funds. Furthermore, expense ratios have less of a negative effect on flows for broker-sold funds than direct-sold funds. These results are consistent with the old notion that funds are sold, not bought—and compensating a sales force with a higher piece-rate scale may induce additional sales.

Other evidence supports a link between selling effort and distribution fees. Using data from Table 5, we tabulated the ratios of equal-weighted to asset-weighted expenses and loads. This ratio represents the relationship between the funds that are *offered* to those that are actually *held* by consumers. A finding that the ratio of asset-weighted to equal-weighted fees is less than 1 could reflect economies of scale or consumer preferences for lower cost funds. In general, these ratios are consistently below 1. However, we find a dramatic exception for front-end loads, where the ratio of asset-weighted to equal-weighted front-end loads is 1.76 for equities and 1.47 for bond funds.²⁹ This suggests that brokerage clients buy (or hold) funds with higher loads, or alternatively, brokers sell clients those products with higher loads than the average brokered fund.

In summary, we find a reasonably clear pattern of results. The brokered channel sells funds with inferior pre-distribution-fee returns. The channel does not show any evidence of superior aggregate market-timing ability, and shows the same return-chasing behavior as observed among direct-channel funds.

²⁸ These results are generally consistent with the results in Barber, Odean, and Zheng (2003, hereafter BOZ; Zhao 2003). The BOZ paper finds that investors are more sensitive to loads than to annual fees and that 12b-1 fees increase flows. However, the BOZ paper also finds 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.

²⁹ Nanda, Wang, and Zheng's (2005) results suggest that within the broker channel, lower cost classes have more volatile flow.

Finally, more sales are directed to funds whose distribution fees are richer. This work leaves us with the puzzle of why investors continue to purchase funds that appear to be no better at substantially higher costs. The answer could be that we, as researchers, failed to measure important intangible benefits of the brokerage relationship, or that consumers of brokers fail to fully consider the costs and benefits of this relationship.

References

- Barber, B. M., T. Odean, and L. Zheng. 2003. Out of Sight, Out of Mind: The Effects of Expenses on Mutual Fund Flows. Working Paper, UC Davis.
- Barberis, N., and R. Thaler. 2003. A Survey of Behavioral Finance. In G. Constantinides, M. Harris, and R. Stulz (eds.), *Handbook of Economics of Finance*, pp. 1052–121. Amsterdam: Elsevier Science.
- Berger, A. N., J. D. Cummins, and M. A. Weiss. 1997. The Coexistence of Multiple Distribution Systems for Financial Services: The Case of Property-Liability Insurance. *Journal of Business* 70:515–46.
- Berk, J., and R. Green. 2004. Mutual Fund Flows and Performance in Rational Markets. *Journal of Political Economy* 112:1269–95.
- Brown, K. C., W. V. Harlow, and L. T. Starks. 1996. Of Tournaments and Temptations: An Analysis of Managerial Incentives in the Mutual Fund Industry. *Journal of Finance* 51:85–110.
- Campbell, J. 2006. Household Finance. *Journal of Finance* 61:1553–604.
- Carhart, M. 1997. On Persistence in Mutual Fund Performance. *Journal of Finance* 52:57–82.
- Carlin, B. 2006. Strategic Price Complexity in Retail Financial Markets. Working Paper, Duke University.
- Chen, X., T. Yao, and T. Yu. 2007. Prudent Man or Agency Problem? On the Performance of Insurance Mutual Funds. *Journal of Financial Intermediation* 16:175–203.
- Chevalier, J., and G. Ellison. 1997. Risk Taking by Mutual Funds as a Response to Incentives. *Journal of Political Economy* 105:1167–200.
- Christoffersen, S., R. Evans, and D. Musto. 2005. The Economics of Mutual-Fund Brokerage: Evidence from the Cross Section of Investment Channels. Working Paper - McGill University.
- Cronqvist, H. 2005. Advertising and Portfolio Choice. Working Paper, Ohio State University.
- French, K. Historical Stock Benchmark Portfolio Performance Data. Accessed at http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.
- Gabaix, X., and D. Laibson. 2006. Shrouded Attributes, Consumer Myopia, and Information Suppression in Competitive Markets. *Quarterly Journal of Economics* 121:505–40.
- Gallaher, S., R. Kaniel, and L. Starks. 2004. Madison Avenue Meets Wall Street: Mutual Fund Families, Competition, and Advertising. Working Paper, University of Texas.
- Gremillion, L. 2001. *A Purely American Invention: The U.S. Open-End Mutual Fund Industry*. Boston: The National Investment Company Service Association.
- Investment Company Institute. 2004a. The Cost of Buying and Owning Mutual Funds. Investment Company Institute Research Series, February 2004.
- Investment Company Institute. 2004b. Profile of Mutual Fund Shareholders. Investment Company Institute Research Series, October 2004.
- Jain, P., and J. S. Wu. 2000. Truth in Mutual Fund Advertising: Evidence on Future Performance and Fund Flows. *Journal of Finance* 55:937–58.

- Johannes, L., and J. Hechinger. 2004. Conflicting Interests: Why a Brokerage Giant Pushes Some Mediocre Mutual Funds. *Wall Street Journal*, 9 January.
- Kim, W. J., D. Mayers, and C. W. Jr., Smith. 1996. On the Choice of Insurance Distribution Systems. *Journal of Risk and Insurance* 63:207–27.
- Merton, R. C., and R. D. Henriksson. 1981. On Market Timing and Investment Performance: Part II. Statistical Procedures for Evaluating Forecasting Skills. *Journal of Business* 54:513–33.
- Mullainathan, S., and A. Shleifer. 2005. Persuasion in Finance. Working Paper, Harvard University.
- Nanda, V., Z. J. Wang, and L. Zheng. 2005. The ABCs of Mutual Funds: A Natural Experiment on Fund Flows and Performance. Working Paper, University of Michigan.
- O’Neal, E. S. 1999. Mutual Fund Share Classes and Broker Incentives. *Financial Analysts Journal*, September–October, 1999.
- O’Neal, E. 2004. Purchase and Redemption Patterns of US Equity Mutual Funds. *Financial Management* 63–90.
- Pender, K. 2004. Brokers versus Advisors. *San Francisco Chronicle*, 21 September. Available at <http://sfgate.com/cgi-bin/article.cgi?file=/chronicle/archive/2004/09/21/BUGI18S4DJ1.DTL>.
- Pozen, R. C. 2000. *The Mutual Fund Business*. Cambridge, MA: MIT Press.
- Reid, B. K., and J. D. Rea. 2003. Mutual Fund Distribution Channels and Distribution Costs. *Investment Company Institute Perspective* 9(3):1–19.
- Reuter, J., and E. Zitzewitz. 2006. Do Ads Influence Editors? Advertising and Bias in the Financial Media. *Quarterly Journal of Economics* 121:197–227.
- Sirri, E., and P. Tufano. 1998. Costly Search and Mutual Fund Flows. *Journal of Finance* 53:1589–622.
- Starks, L. T., L. Yong, and L. Zheng. 2006. Tax-Loss Selling and the January Effect: Evidence from Municipal Bond Closed-End Funds. *Journal of Finance* 61:3049–67.
- Zhao, X. 2003. The Role of Brokers and Financial Advisors Behind Investments into Load Funds. Working Paper, College of William and Mary.