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Determinants of Mutual Fund Flows

Committee:

_____
Laura Starks, Supervisor

_____
Sheridan Titman

_____
Andres Almazan

_____
Edward Anderson

_____
Jay Hartzell

Determinants of Mutual Fund Flows

By

Steven Timothy Gallaher, B.S., M.B.A.

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For my family.

Determinants of Mutual Fund Flows

Steven Timothy Gallaher, Ph.D.

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Supervisor: Laura Starks

I investigate mutual fund flows at the individual fund and at the fund family level. At the individual, I use SEC filings to decompose fund flows into inflows and outflows. This decomposition of net flows into its component parts provides a way to examine differences in how search costs and investor learning affect investors who are entering a fund (or adding to their investments) versus those investors who are leaving a fund (or decreasing their investments). I then examine the effect of the existence of an advertisement for the fund on these investors. At the mutual fund family level, I examine how the characteristics and performance of mutual fund families affect the flows to the family as a whole. I then examine the effects of advertising expenditures on flows to the fund family.

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Chapter 1. Introduction

Mutual funds have become an increasingly important part of the financial markets in the last few decades, both for the individuals who invest in them and for the corporations in which the mutual funds themselves put their money. Individuals have an increasingly wide array of investment choices in mutual funds. As of year-end, 2008, there existed 9601 mutual funds in the United States with $9.6 trillion dollars in assets under management. Despite this vast array of choices, not enough is understood about how and why certain mutual funds attract assets, that is, what are the determinants of investors' choices.

In analyzing these choices, a distinct advantage of mutual funds is that the shares are sold at the net asset value of the underlying portfolio. Thus, the investment flows into mutual funds provide direct information regarding investors' choices. Early research has established that a fund's past return performance has an important influence on the net flows into the fund (e.g., Ippolito (1992); Gruber (1996); Chevalier and Ellison (1997); Sirri and Tufano (1998); Del Guercio and Tkac (2002)). Further, Ippolito, Chevalier and Ellison and Sirri and Tufano provide evidence that the relation between funds' flows and past performance is nonlinear. For example, Sirri and Tufano find a convexity in which the relation of flows (as a percentage of total net assets) with past performance is concentrated among the highest performing funds. That is, the top performing funds have a significant positive relation between their relative performance and the level of

their net percentage flows while lower performing funds show little or no relation between flows and performance.

The previous research has also found a variety of other fund characteristics to be related to net fund flows besides past performance, but many of these relations are less clear as the sign and significance differ across studies. Further, an important aspect of analyzing mutual fund flows is understanding how investor learning and search costs affect their decisions, but such an understanding has been limited by the availability of data regarding flows into mutual funds. In fact, research into mutual fund flows has been limited in several important ways. First, most previous research has analyzed only individual funds that focus on equities (principally growth stocks). Little research has examined other objective classes, notably bond funds or the mutual fund family as a whole.[1] With few exceptions, previous analysis has employed annual net fund flows, rather than flows on more frequent intervals. A major limitation of previous work (due to the lack of data) is the focus on net fund flows, rather than examining inflows and outflows separately. Yet, the determinants of investors entering (or increasing their investment into) mutual funds may differ greatly from the reasons that investors leave or partially withdraw from funds.

The major contribution of this dissertation is to provide a deeper understanding of investor choices regarding mutual funds. I extend the existing research in four ways. First, I have collected data which allows flows into and out of the mutual fund to be

[1] Nanda, Wand, and Zheng (2004a) examine inter-fund effects within a fund family. They find that the existence of a 'star' fund in the family increases flows to other funds in the family.

examined separately. Second, I have examined the effect of advertising on flows and the flow-performance relation. Third, I have looked at how mutual fund flows behave at the mutual fund family level. Finally, I have looked at the advertising decision at the fund family level.

Thus, this dissertation consists of four interrelated analyses. In the first analysis, I conduct a more thorough analysis of investor demand for mutual funds. I use fund SEC filings (N-SAR filings[2]) to examine fund inflows and outflows separately from the previously examined net fund flows. This decomposition of net flows into its component parts provides a way to examine differences in how search costs and investor learning affect investors who are entering a fund (or adding to their investments) versus those investors who are leaving a fund (or decreasing their investments).

One important, but little examined, factor in reducing search costs and aiding investor learning about funds is fund advertising. Thus, for my second analysis I focus on the effects of advertising on investor flows into individual funds. I use data on the existence and content of specific print advertisements over a fairly large number of publications over a fourteen year period to examine the effects of advertising on individual fund flows.

[2] Form N-SAR is a reporting form that is used for semi-annual and annual reports by all registered investment companies, including open-end mutual funds. A blank form with instructions is available at http://www.sec.gov/about/forms/formn-sar.pdf.

In the third analysis, I examine how the characteristics and performance of mutual fund families affect the flows to the family as a whole. This analysis is the first analysis of the determinants of fund flows on a family level.

In the fourth analysis, I examine the effects of advertising expenditures at the mutual fund family level. Because these expenditures are a decision made on a fund family basis, it makes sense to examine the decisions of the fund family on advertising and how that advertising relates to other fund level characteristics and how they relate to fund flows at the family level. These two analyses on the effects of advertising make contributions to the literature because such effects have not been thoroughly studied. They provide important insight into how advertising affects search costs and investor learning.

Chapter 2. Literature Review

Mutual fund investors face an enormous task in attempting to narrow the available pool of funds to a small enough group to make further research feasible. They need some criteria to make this task possible. Capon, Fitzsimons, and Prince (1996), using a survey of 3,386 mutual fund investors, found that investors could be grouped by the criteria they used. The vast majority focused primarily on past performance and these were further divided into price-sensitive and non-price sensitive groups. A significant minority was focused on the level of service provided by the fund. Capon, et al also looked at what source these groups used to gather information on the funds. The most commonly cited sources of information for this purpose were published performance rankings, advertising, and commission-based financial advisors. In a more limited experimental setting, Wilcox (2003) also found that past returns, particularly long-term returns, was the most highly weighted characteristic in investor decision making.

Interestingly, Capon, et al also found that investors were remarkably uninformed, even about the funds they actually chose. In fact, a large minority of their sample said they did not know whether the mutual funds they owned charged a load and a majority did not even know the funds' investment objectives. Goetzmann and Peles (1997) also found that investors were positively biased in their memory of the past performance of the mutual funds they owned. Clearly, investors rely heavily on their chosen information sources in their investment decisions.

There are several ways in which funds can come to the attention of the investing public. Sirri and Tufano (1998) find that larger funds have larger net fund flows and Del Guercio and Tkac (2007) find that funds with high Morning Star ratings have increased flows. Nanda, Wang and Zheng (2004a) find that fund families with a 'star' fund – one

with returns near the top of its investment category – see higher flows to both the star fund itself and to other funds in the family. Gualtieri and Petrella (2005) and Kaniel, Starks, and Vasudevan (2009) also find that media coverage (news articles) can affect fund flows both higher and lower, depending on whether the coverage is positive or negative.

As previously mentioned, Capon, Fitzsimons, and Prince (1996) found that investors named published performance rankings as a source of information more often than any other choice. Consistent with this, previous research has established that investors tend to reward better performing mutual funds with increased net flows into those funds. Several authors have identified an asymmetric relation between the performance of the mutual fund relative to its competitors and the level of net fund flows the fund received. Sirri and Tufano (1998) (using a piecewise linear specification), Chevalier and Ellison (1997) (using a semi-parametric specification), Ippolito (1992) and Goetzman and Peles (1997) all found that previous winners (funds which did well relative to others) were rewarded by new investment. However, they did not find that past losers were similarly punished with lower net flows.

It should be noted that these results are partially consistent with persistence in mutual fund performance and much research has focused on this possibility. There is some evidence of persistence in relative performance, but it seems to present mainly at short horizons and in low liquidity investments. Gruber (1996) and Zheng (1999) find that funds which receive high fund inflows perform better in the short term than those that have net outflows, suggesting that investors have some forecasting ability in future fund performance. However, Sapp and Tiwari (2004) show evidence that this "smart money effect" found by Gruber and Zheng may be due to momentum trading by mutual

funds. Gruber also finds that short term performance is persistent. Hendricks, Patel and Zeckhauser (1993) find that past losers tend to underperform in the short term. Even in the absence of persistence in performance, Berk and Green (2004) provide a model of declining returns to scale for fund manager performance, which would explain increased flows to high return funds without those funds continuing to outperform their benchmarks.

Several authors have hypothesized that advertising can lower the mutual fund investors' search or participation costs (e.g., Sirri and Tufano (1998); Huang, Wei, and Yan (2007)); can attract investors' attention to certain funds (e.g., Barber, Odean, and Zheng (2005)) or can persuade investors to purchase funds (Mullainathan, Schwartzstein, and Shleifer (2008)). However, little research has been done into how advertising might affect these flows or how it might interact with other factors that have been found to influence flows.

Jain and Wu (2000) examine advertisements in two business periodicals over a two-year period. They find that the existence of an advertisement in one of these periodicals is associated with higher net flows to the individual funds advertised than to a matched sample of funds.[3] While the current study is consistent with their seminal study, the central questions I address are not addressed in their paper. They examine net flows to an individual fund related to the existence of an advertisement. With a longer and more comprehensive sample, I examine how flows to individual funds are affected by a large set of advertisements on those funds in a number of outlets. My analysis goes further by examining whether the ads affect inflows or outflows and, more importantly, whether the

[3] Their sample consists of 294 equity funds advertised in Barron's or Money magazines between July 1994 and June 1996.

ads affect the flow-performance sensitivity of the funds. Moreover, I also employ an additional data set that allows me to examine the relation of family advertising expenditures to flows to the entire fund family.

A second paper that examines the relation between advertising and pooled investment funds is by Cronqvist (2006). He examines advertising in Sweden by the managers of tax-deferred retirement funds around the time Sweden launched a partial privatization of their social security system. He finds that only a small proportion of this advertising had information content directly relevant to investors' choices, but that there still exists a relation between the funds that advertised and the investors' subsequent allocation choices. Specifically he finds that investors' dollar allocations are related to the advertising by funds.

Reuter and Zitzewitz (2006) also examine the advertising expenditures of fund families using one of the two advertising expenditure data sets that I employ. However, their motivation is very different from mine. They focus on the question of whether fund family advertising expenditures influence journalistic content and conclude that, while these expenditures do not appear to influence all periodicals, a significant relation exists between the mutual fund recommendations of personal finance magazines and the advertising dollars spent by fund families at those magazines.

A few studies have examined, at the individual fund level, marketing costs through 12b-1 fees (e.g., Khorana and Servaes (2003); Barber, Odean and Zheng (2005)) or total fees (e.g., Sirri and Tufano (1998)). Such fees, however, do not reflect the differences in advertising expenditures across mutual funds or mutual fund families. For example, many mutual funds do not charge 12b-1 fees, yet they advertise. Further, Reid

and Rea (2003) cite an Investment Company Institute survey finding that less than five percent of 12b-1 fees were used for advertising and other sales-promotion activities (the remainder was used for distribution charges)[4]. Much of the fund families' advertising expenditures are paid by the management companies, rather than being a direct expense to fund shareholders through 12b-1 fees. Consequently the full extent of advertising expenditures is not observable through regulatory filings or other common mutual fund databases. [5]

[4] These results are confirmed in the SEC filings used in my research.

[5] There has been a surge of recent interest in the relation between operating companies' advertising and their market value or investor interest. See, for example, Frieder and Subrahmanyam (2005), Grullon, Kanatas and Weston (2004), Fehle, Tsyplakov, and Zdorovtsov (2004), Joshi and Hanssens (2004), and McAlister, Srinivasan, Kim (2007). Earlier studies in this area include Chauvin and Hirschey (1993).

Chapter 3. Net Fund Flows and Inflow/Outflow Decomposition

The enormous number of mutual funds available creates an enormous search problem for investors and mutual fund companies alike. Investors use different criteria in making this decision. While a majority consider past performance, others have named manager reputation and service-based fund attributes, such as responsiveness and scope (enabling easy switching between funds), as important considerations. Many investors are also price-sensitive, looking for low management fees and/or no-load funds. Investors also gather the information they need from a variety of sources. Most popular among these are published performance rankings, commission-based sales activity, and advertising.[6]

These survey results are confirmed by the research into fund flows which find a strong relation between past performance and fund flows (particularly among those funds which are at the top of their investment objectives), and a negative relation between flows and increased fees. However, little research has been done into how these selection criteria and information sources differ in their effect on new fund investment versus the redemption decision.

Past research has focused on net fund flows, with new purchases and fund redemptions being lumped together into a single net number. Different investors use different criteria for their initial investment decision and may make their redemption

[6] See Capon, Fitzsimons, and Prince, 1996 survey results.

decision differently as well. The tools which mutual funds use to influence that investment decision may also be affecting redemptions. By decomposing net fund flows into purchases and redemptions, I am able to shed light on these effects.

There are two main types of mutual fund fees which support commission-based sales activity – 12b-1 fees[7] and loads. While both may be effective at generating new investment in the fund, they may have opposite effects on investor retention. Capon, Fitzsimons and Prince (1996) found that investors which relied on this distribution channel were largely price-insensitive. However, 12b-1 fees are an on-going expense and even relatively price-insensitive investors may be induced to sell earlier because of it. Loads, however, are a one-time expenditure and, having made it, investors may be motivated to avoid redeeming their shares (and incurring another load charge if they buy another load fund).

The most commonly cited means of finding possible investments, both in survey data and in empirical research, is past-performance (and reported performance rankings). Past research has found a strong relation between relative performance and net fund flows among top performers and a weak or non-existent relation for non-top performance. Capon, Fitzsimons, and Prince (1996) report that this focus on performance is present for both price sensitive and non-price sensitive investors. These results predict new investment will be driven primarily by relative performance, especially for top performing funds.

[7] 12b-1 fees are frequently used as a proxy for advertising expenditures, but only about 5% of these fees are used for this purpose. About 80% of 12b-1 fees go to payments to brokers and dealers and to underwriters. Most of the remainder is spent on printing and mailing of prospectuses and other direct sales activity.

Unclear from either these survey results or from past empirical results is how investors respond to performance in their redemption decisions. The problem faced by existing investors in a fund is not one of search – of discovering and learning about the fund. Investors may be selling funds for current consumption or merely to change their investment portfolio. Either way, they must decide which funds to sell. Two factors are potentially at work. First, investors in top performing funds may engage in rebalancing activity – selling the top performing fund in order to reduce its newly high weight in their overall portfolio. The reverse may, of course, also be true and investors may buy underperforming funds to restore their target weights. However, this seems less likely as investors may choose different funds in the same category for this purpose. Alternately, investors may punish poor performance with increased outflows, choosing to search out new and (hopefully) better funds in which to invest. (This punishment may or may not accelerate among the worst performing funds which distinguish themselves in the mind of the investors.)

In this chapter, I investigate these possibilities. The other primary source of investment information, advertising, will be considered separately in Chapter 4.

Section 3.1 - Data

The data for this analysis come from two sources. The Center for Research in Securities Prices Survivorship-Bias Free Mutual Fund Database (CRSP) provides fund characteristic and return data on a monthly basis for US-based mutual funds. Many funds

are offered in multiple share classes which differ primarily in their fee structure. That is, they charge different levels of loads, management fees and 12b-1 fees to appeal to different types of investors. All of the share classes are invested in the same underlying portfolio. As the other data sources do not have share class by share class data, I aggregate a given fund's share classes into a single unit, taking the weighted average of the underlying variables weighted by the total net assets of the various share classes[8].

The SEC requires investment companies, including mutual funds, to file semi-annual reports. These filings, called N-SAR filings, contain administrative and financial data for each mutual fund, including total monthly dollar inflows and outflows. This data was merged with the CRSP database by hand according to company and fund name. I then verified the merger by comparing the total net assets reported by the two sources. This merger provides matches for 68.4% of the CRSP universe by fund and 77.5% by total net assets for the period 1996 – June, 2002. It also provides matches for 57.7% of the CRSP universe by fund (and 64.9% by total net asset) coverage for the period 1994-1995, during which time electronic filing was not required by the SEC but was widely used. These results are detailed in Table 3-1.

Table 3-2, Panel A reports the means across funds of the average and standard deviation of monthly returns, net flows, inflows and outflows for each of the investment objectives. Aggressive growth equity funds show the highest levels of flow and flow volatility, both for net flows and for inflows and outflows separately. Average inflows

[8] I would like to thank Jon Reuter for providing a share class to fund mapping.

are between 2.5 times net flows (for growth and income funds) and 2.9 times net flows (for aggressive growth funds). Average outflows range from 1.5 to 1.9 times net flows.

The objective categories vary in their other characteristics. Table 3-2, Panel B reports average expenses, 12b-1 fees, and sales loads for each category. It also reports 'total costs' which is the sum of the recurring costs (expenses and 12b-1 fees) plus a pro-rated (over seven years) portion of the sales load. Growth and income funds' average size is larger than either aggressive growth or long-term growth funds', and growth and income funds have lower expenses, total costs, and turnover. Aggressive growth and long-term growth funds are similar in total costs, but these costs for aggressive growth funds are weighted toward annual expenses and away from loads. This is consistent with a shorter average holding period for investors in funds in this objective class. Shorter holding periods increase the relative importance of one-time expenses (loads) compared to periodic expenses (expenses and 12b-1 fees). This is supported by the higher level of both inflows and outflows for funds in this objective class compared to long-term growth funds or growth and income reported in Panel A.

Section 3.2 - Net Fund Flows, Inflows and Outflows

Net fund flows have been found by numerous previous studies to be related to past performance in a non-linear way.[9] Given this non-linear relation, I employ the Sirri and Tufano (1998) piece-wise linear specification for past performance. First, within

[9] e.g., Ippolito, 1992; Gruber, 1996; Chevalier and Ellison, 1997; Goetzmann and Peles, 1997; Sirri and Tufano, 1998; and Lynch and Musto, 2003

each month the performance of each fund is ranked within its objective class. These rankings are then normalized to range from zero to one. Finally, this relative performance variable is broken into sub-variables. The low and high performance groups range from 0-.20, while the middle group ranges from 0-0.6. The sum of the sub-variables is equal to the original variable. That is, sensitivity to past performance is allowed to be a continuous, piece-wise linear relation. Cross-sectional regressions are run on a monthly basis, and these monthly cross-sectional regressions are then aggregated across the sample period using the Fama-MacBeth (1973) technique.[10]

In addition to past performance, the dependent variables are lag of fund flow, log of fund total net assets, expense ratio, turnover, load, 12b-1 fee, dummy variables for existence of a load and existence of 12b-1 fees, and a dummy variable indicating that the fund was a 'star' (meaning it was in the top 5% of funds in its objective class in the previous year).[11] The fund performance and characteristics are calculated as the weighted-average of the values for the fund's share classes where the weights are based on total net assets in the share classes. The dummy variables indicating loads or 12b-1 fees indicate that at least one share class in the fund charges such fees. Regressions are run for net fund flows, for fund inflows, and for fund outflows. The results of these regressions are presented in Table 3-3.

[10] All of the Fama-MacBeth t-statistics are based on the Newey-West (1987) heteroskedasticity and autocorrelation consistent standard errors.

[11] This is a slightly different definition from that of Nanda, Wang and Zheng (2004a) who define star fund as a fund in the top 100 performers of a category. However, they state that the star funds constitute about 5% of their sample. Such funds should also be related to funds with top Morningstar rankings as Morningstar ratings are heavily dependent on returns (Blume, 1998; Sharpe, 1998; Del Guercio and Tkac, 2002).

Hypothesis 3-1: Better relative performance causes higher net fund flows (in all performance groups).

Model 1 presents the results for net fund flows. In all performance groups, I find support for the hypothesis. The relation between relative performance and net fund flows is positive and statistically significant. This relation is particularly pronounced (in magnitude) for the top performance group. An increase from the 20th percentile to the 15th percentile resulted in an increase in net fund flows of over half of a percent of total net assets. (An increase from the 50th percentile to the 45th resulted in an average increase in net fund flows of about 1/10 of a percent of net assets.) If the fund is among the top 5% of performers in its category (being designated a 'star' performer), net flows are higher still, both statistically and economically. The relation I find at the upper end of the return distribution is consistent with previous results for individual funds (e.g., Sirri and Tufano (1998); Chevalier and Ellison (1997)). The relation at the middle and lower end of the return distribution is consistent with the earlier Chevalier and Ellison results, but not with the earlier Sirri and Tufano results.

The level of net fund flows is also sensitive to the other dependent variables[12]. The existence of a load class for a fund results in higher net flows, but the higher the actual load charge, the lower the net fund flows. On the other hand, the existence of a class charging a 12b-1 fee had a slightly negative effect on fund flows, but the higher the 12b-1 fee, the higher the fund's average fund flows. This is consistent with these loads

[12] All of the relations mentioned here are statistically significant at the 5% level and all except the relation with expense ratios are significant at the 1% level or higher.

and fees being used to market (typically through brokers) and with investors being at least somewhat price-conscious.[13] Higher expense ratios are related to lower average flows. Fund flows are also somewhat persistent. Every dollar of fund flow is associated with an additional 21 cents of flows in the next month.

Next I decompose the net flows into inflows and outflows. Inflow results are reported in Model 2 of Table 3-3; outflow results are shown in Model 3. In these regressions, outflows are negative numbers, so a significantly positive coefficient means that the outflows are reduced and a significantly negative coefficient means that the outflows are increased. (That is, positive is good for the fund and negative is bad for the fund.) The ability to decompose the net flows into inflows and outflows through the N-SAR data allows for a better understanding of the effects of fund characteristics on the separate flow variables. Much is hidden by their aggregation.

Hypothesis 3-2: Better relative performance causes higher inflows (in all performance groups).

Hypothesis 3-3: Better relative performance causes lower outflows (in all performance groups).

[13] Only a small portion of 12b-1 fees is used for advertising. Most (over 80%) is used to pay brokers, dealers, and underwriters.

I find support for Hypothesis 3-2. The positive response of investors to higher relative performance, especially for top performers, is concentrated in new investment. Higher relative performance within the top performance quintile is related to higher inflows, just as with net flows. The same is true for the 'star fund effect'. The relation between being a star fund and inflows is positive and significant However, for the top performance group I do not find support for Hypothesis 3-3. In fact, I find support for the reverse. Higher relative performance in the top group is actually related to an increase in outflows. Thus, the entire positive relation between net flows and performance for the top performers is driven by new investment. I do not find any relation between being a 'star' fund and changes in outflows.

In the bottom performance group, I do find support for Hypothesis 3-3. Worse performance is related to greater outflows. In the middle performance group, the relation between performance and outflows is statistically insignificant, while inflows are positively related to better relative performance. It seems that new money is attracted to higher relative performance, while outflows are only affected at the extremes of relative performance.

These results support the hypothesis that published performance reports play an important role in solving search problems and attracting new investors. However, existing investors do not punish inferior relative performance with increased redemptions, except in the worst performing funds.

There are two possible explanations for the increased redemption activity for top performing funds. First, investors in such funds may simply be rebalancing their portfolios, selling their newly over-weighted top performers in favor of now under-weighted investment classes or funds. Second, top performing funds may attract very short term investors who are buying and then quickly redeeming fund shares. I cannot effectively distinguish between these possibilities.

Hypothesis 3-4: Higher 12b-1 fees increase inflows.

Hypothesis 3-5: Higher 12b-1 fees increase outflows.

I find support for both Hypothesis 3-4 and Hypothesis 3-5. The use of 12b-1 fees seems to be effective in attracting new investors. Higher 12b-1 fees are significantly related to higher inflows, indicating that brokers and underwriters are effectively reaching investors who prefer these distribution channels. However, both the existence and the magnitude of 12b-1 fees are also related to higher outflows (perhaps as investors find the expenses too high). 12b-1 fees effectively attract investors, but these investors seem to

be shorter time-horizon than average[14]. As mentioned above, the net effect on flows is positive.

Wilcox (2003) found in survey data that investors overweight load expenses relative to other costs when evaluating funds. Additionally, Barber, Odean and Zheng find that increased loads are associated with decreased flows and imply that this is due to decreased inflows. As a result, we may expect to find that load fees tend to reduce inflows. However, loads might also have a positive effect on flows for two reasons. First, load fees are used to pay financial advisors to market the funds to their clients. If these advisors are effective, this will lead to higher inflows. Second, having invested in a fund with a load, investors can spread the cost of that load over as many years as they own the fund. The per year cost decreases with time encouraging longer holding periods. Equivalently, as far as this empirical evidence is concerned, we may find that investors who plan to hold the fund for longer periods are more likely to choose load funds.

Hypothesis 3-6: Higher loads decrease inflows.

Hypothesis 3-6': Higher loads increase inflows.

Hypothesis 3-7: Higher loads decrease outflows.

[14] While I think this last conclusion is reasonable, I cannot completely confirm it. It is possible that the investors which are drawn to the fund by the efforts of brokers and underwriters are not relatively short-term investors and that the higher outflows are driven by investors who chose the fund for some other reason.

I find support for Hypothesis 3-6. Higher loads do seem to deter new investment. This is inconsistent with the hypothesis that loads are used to promote sales through commissioned based channels (or at least that they are effective in doing so). I also find support for Hypothesis 3-7. The magnitude of the load is related to decreased outflows. Investors are reluctant to invest in a fund with a load, but having once done so, they tend to withdraw their investment more slowly. Thus, it seems that long-term investors (for whom the loads are least costly) are attracted to load funds.

Higher expenses ratios are not significantly related to inflows, but they are related to higher outflows. Both this result and the relation between higher 12b-1 fees and increased outflows seem to indicate that investors learn about the effect of these fees only after they have made their investment decision.

In this chapter, I have shown evidence that the positive relation between relative performance and net fund flows among top performing funds found by numerous researchers is driven entirely by new investment. This confirms the earlier survey-based evidence that investors rely on reported performance rankings to help identify possible investments for further investigation. Surprisingly, investors do not appear to be induced to continue to hold these funds in response to this high relative performance. Improved relative performance actually increases redemption rates for these high flyers. While I have suggested one possible explanation for this (rebalancing effects), I do not have evidence on the cause of this result.

Performance does affect redemption activity for a different group of funds, however. For funds in the bottom performance quintile, outflows increase as relative performance worsens. Inflows are unaffected by relative performance for this group.

I have also shown that the two main sources of funds for commission-based sales activity, loads and 12b-1 fees, have very different effects on both inflows and outflows. Loads are a significant deterrent to new investment. This is consistent with previous research which has reported that investors overweight the costs of loads relative to other expenses. In short, whatever effect loads have on attracting the attention of possible investors, it is dominated by the aversion investors seem to have toward load funds. However, loads also deter fund redemptions. This is a significant benefit to the mutual fund.

12b-1 fees, on the other hand, do affect investors' search problem. While the existence of a 12b-1 fee lowers fund flows slightly, the money raised through these fees is very effective at increasing net fund flows and this benefit is entirely in new investment. The level of 12b-1 fees also increases the rate of fund outflows (though not as much as inflows). As 12b-1 fees are spent principally on brokers and other commission-based sales activity, this is consistent with such sales activity providing another independent way to attract the attention of possible investors and an effective way to help investors with their search problem.

In the next chapter, I look at another way of attracting this attention: advertising.

Chapter 4. Advertising and Individual Fund Flows

In addition to the various factors which might impact investors' search costs discussed in chapter 3, there is one more which is under the control of the mutual fund companies themselves: advertising.

Advertising might have an effect on the behavior of investors, and on search costs, in different ways. It is possible that advertising simply calls attention to top performing funds. If this is the case, the primary effect of advertising will be to strengthen the flow-performance relation. However, advertising may also provide a more-or-less independent means to reach prospective investors.[15] This effect would be largely independent of the flow-performance relation. In either case, advertising may affect new investors or current investors. That is, advertising could affect either inflows or outflows.

There is a second dimension to advertising which can affect investor behavior. Mullainathan, Schwartzenstein, and Shleifer (2008) suggest in their persuasion hypothesis that mutual fund advertisements should be more likely to have performance information following periods of higher returns versus periods of lower returns. They document this result for mutual find advertising as a group related to overall market

[15] Kihlstrom and Riordan (1984) and Milgrom and Roberts (1986) (both following the work of Nelson (1970 and 1974)), each provide models in which advertising expenditures (even for uninformative advertising) can be a signal of quality to customers. Bagwell and Ramey (1994) also provide a model which includes economies of scale in which even seemingly uninformative advertising can help guide customer search. Capon, Fitzsimmons, and Prince (1996) provide survey data which indicates that advertising is a significant source of information for mutual fund investors.

performance. This hypothesis is also consistent with cross-sectional differences in mutual fund companies' choice to include performance information in advertisements.

To investigate these possibilities, I add to the regressions of chapter 3 information on the existence of advertising for the fund. I also examine the factors which influence the mutual fund company's decision to advertise and the content of those advertisements.

Section 4.1 – Data

Video Monitoring Service (VMS) provides news media monitoring and advertising to corporate executives as well as marketing, public relations and advertising professionals. They provide images of print advertising by mutual funds in national newspapers and magazines. From these images, I have collected data on the mutual fund and mutual fund family doing the advertising, whether it reports past performance, and the number of funds included in the ad. Also collected was a subjective assessment of the 'informativeness' of the ad. An ad was deemed informative if it contained data on past performance or if it mentioned other specific 'hard' information about the fund. Non-informative ads typically were more 'feel good' ads and had little to do with the mutual fund per se, but instead simply provided fund name and contact information. I was able to obtain this data for two periods: 1994-1996 and 2000-2001. This data was then matched with the CRSP mutual fund data by hand based on fund and family name.

Over the 1994-1996 period, 4.2% of the funds with U.S. equity objective classes (aggressive growth, long-term growth and growth and income categories) have print advertisements in the VMS dataset. In this period, 5.85% of aggressive growth funds

advertised, while only 2.45% of growth and income funds did so. In the 2000-2001 period, 3.52% of funds with U.S. equity objective classes have at least one advertisement. In the later period aggressive growth funds were only slightly more likely to advertise (3.81% of aggressive growth funds advertised versus 3.23% of growth and income funds). In both periods long-term growth funds' advertising rate fell between those of the other two objective classess. These results are detailed in Table 4-1.

In Table 4-2 I present some descriptive statistics for the funds that have advertisements, as compared to funds in the same fund objective category (aggressive growth, growth and income or long term growth) without advertisements. Panel A shows that pure no-load funds are more likely to have advertisements, particularly for growth and income and long-term growth funds. I find that 50% of the growth and income funds and 53% of the long-term growth funds without ads have at least one share class with a load fee, whereas 30% of the growth and income funds and 23% of the long-term growth funds with advertisements have at least one share class with a load fee. There is less difference when comparing funds with and without at least one share class which charges 12b-1 fees.

I examine the relation between a fund's performance and its advertising more closely by conducting an examination of advertising choices within fund families. That is, although I find that funds that are advertised are more likely to be star funds, I address a somewhat different question – whether fund families tend to advertise their better performing funds over their other funds. To do so, I rank funds within their objective class across all families to find which funds are the better performing funds across families. I then rank funds within the family across objective classes and determine the

rank of the advertised funds. I find that the mean (median) rank is .742 (.750), suggesting that fund families have a tendency to advertise their higher performing funds.

In Panel B of Table 4-2 I report descriptive statistics, within each objective category, for funds without an ad, with an ad, and with an ad which reports past performance. Funds with advertisements tend to be larger than funds without advertisements. This could result for at least two reasons. First, larger fund families, which tend to have larger funds, advertise more. Second, fund families tend to advertise their larger funds. In fact, using the same process as I used to determine whether fund families advertise their better performing funds, but instead with the relative size of the fund, I find that the mean advertised fund was in the 76^{th} percentile of size within the family/objective code.

I do not find that funds with advertisements have larger expense ratios than those that do not advertise. Thus, a fund's expense ratio is not a reasonable proxy for whether a fund is advertised or not. Similarly, there is not a significant difference between 12b-1 fees for funds with advertisements and those without. Thus, a fund's 12b-1 fee is not a reasonable proxy for whether a fund is advertised or not. This is consistent with the data from the N-SAR filings which indicate that only 5% of 12b-1 fees are used for advertising.

Section 4-2 -- Determinants of Advertising

I first turn to the question of how the information content of advertisements varies with overall market performance. In the VMS data, I find that, on average, 78% (83%) of equity funds report performance in the ad over the 1994-1996 (2000-2001) time frame.

Figure 4-1 shows how this percentage varies over time by showing the percentage of the sample advertisements for equity funds that report performance information for each quarter of the two sample periods. Figure 4-1 also shows the average annual return of the S&P 500 Index for the three year period ending in the previous quarter. As can be seen from the figure, the percentage of ads that report performance information varies quite a bit, from a low of around 30% in the third and fourth quarters of 1994 to a high of almost 90% in the second, third and fourth quarters of 2000. The drop in the percentage of ads reporting performance information from the first quarter to the last quarter of 1994 corresponds to changes in returns. The S&P 500 Index return for the three years ending December 1993 is 12.2% as compared to 6.1% for the three years ending September 1994. Similarly, the highs in early 2000 correspond to very high returns from the three preceding years of 20.89%, 28.34% and 31.86%. The stock market peaked in March 2000, and the percentage of ads reporting performance drops from close to 90% in the fourth quarter of 2000 to 58% in the third quarter of 2001. Thus, these results correspond roughly to Proposition 7 in Mullainathan, Schwartzstein and Shleifer (2008), which proposes that when mutual fund returns have been high, advertisements will include performance information, but when mutual fund returns have been low, such information will be omitted.[16]

Cross-sectionally, I find some support for Mullainathan, Schwartzenstein and Shleifer's Proposition 7 as well. I find that advertised funds are more likely to be 'star' funds (funds in the top 5% of performance within their objective class). In the aggressive growth group, I find that, while 5% of the funds without ads are star funds, 20% of the funds with ads are star funds. An even bigger difference exists for the growth and

[16] Mullainathan, Schwartzstein and Shleifer (2008) also examine the presence of performance information in print advertisements in *Business Week* and *Money* magazine over the 1994-2003 period.

income category. I find that, while 6% of the funds without ads are star funds, 25% of the funds with ads are star funds. Finally, for long-term growth funds, 5.7% of the funds without ads are star funds versus 10.8% of the funds with ads.

Hypothesis 4-1: Load funds are less likely to advertise than no-load funds.

Hypothesis 4-2: Funds which charge 12b-1 fees are less likely to advertise than funds which do not charge such fees.

However, a broader analysis of the determinants of the existence of an advertisement do not show this support. In Table 4-3, I analyze the factors which affect the mutual fund's decision to advertise. Panel A shows the results considering all advertisements. Panel B shows the results restricted to informative ads only. It shows support for Hypothesis 4-1. Consistent with the idea that loads and advertisements target different investor clienteles, funds which have a share class that charges a load are less likely to advertise. I also find support for Hypothesis 4-2. The higher the level of 12b-1 fee charges (more accurately, the higher average 12b-1 fee charged across all share classes in the fund), the lower the likelihood of advertising. Advertising and 12b-1 fees appear to target different investors. I also find that larger funds are more likely to advertise, as are funds with higher expense ratios.

Hypothesis 4-3: Funds with better relative past performance advertise more.

Most surprisingly, I do not find support for Hypothesis 4-3. There is no statistical relation between relative performance and the existence of an advertisement. Being a star fund does not predict a higher incidence of advertising and higher relative performance has only a weak (t-stat = 1.7) positive relation. I do not find cross-sectional support for (or evidence contrary to) Mullainathan, Schwartzenstein, and Shleifer (2008)'s proposition that when mutual fund returns have been high, advertisements will include performance information.

Section 4-3 – Fund Flows and Advertising

Using the data on individual advertisements combined with the N-SAR flow data and the CRSP data, I examine the relation of the fund's various flow variables to the existence of an advertisement. I follow the same two-step process from the previous chapter in treating past performance. That is, I employ the Sirri and Tufano (1998) piecewise linear specification for past performance. First, within each month the performance of each fund is ranked within its objective class. These rankings are then normalized to range from zero to one. Finally, this relative performance variable is broken into sub-variables. The low and high performance groups range from 0-.20, while the middle group ranges from 0-0.6. The sum of the sub-variables is equal to the original variable. That is, sensitivity to past performance is allowed to be a continuous, piece-wise linear relation. Cross-sectional regressions are run on a monthly basis and these

monthly cross-sectional regressions are then aggregated across the sample period using the Fama-MacBeth (1973) technique.[17]

I now include several proxies to capture the effects of advertising on individual fund flows. I add a dummy variable which takes the value of one if a print advertisement for that fund appeared in the previous three months (and zero otherwise). Given possible spillover effects from ads for another fund in the family, I include a dummy variable equal to one if another fund in the family has an ad in the last month and zero otherwise.

One of the central questions is whether advertising affects relation between flows and past relative performance. Based on the evidence I have already reported that families tend to advertise their better performing funds and that better performing funds have higher levels of flows, it is reasonable to expect that advertising plays a part in these increased flows. To test this hypothesis I include interaction terms between the existence of an ad and whether a fund's performance is in the top performance group. (I also add an interaction term for the bottom performance group.)

Hypothesis 4-4: The fund flow-performance relation for top performing funds is accentuated (steepened) by the existence of advertising.

Advertising may also have an effect on fund flows independent of past performance, and this effect can come through two avenues. First, advertising may attract new investors by

[17] All of the Fama-MacBeth t-statistics are based on the Newey-West (1987) heteroskedasticity and autocorrelation consistent standard errors.

calling attention to the fund and helping to solve the search problem investors face. This effect would be found in a change in inflows.

Hypothesis 4-5: The existence of advertising causes an increase in inflows.

However, there is some evidence from the advertising literature that advertising may have an effect on existing customers. Tellis, 1998 found that television advertising for toilet paper served primarily to reinforce preference for current brands rather than induce consumers to switch. That is, the advertising reinforced brand loyalty.[18] Similarly, Manchanda, Dube, Goh, and Chintagunta (2003) found in a sample of internet banner advertising by drug companies that the advertising can act as a customer retention tool. While these studies were focused on repeat purchase situation, it is possible that advertising has a similar effect in customer retention for mutual funds.

Hypothese 4-6: The existence of advertising causes a decrease in outflows.

The results of the regressions when the advertising variables are included are provided in Table 4-5. As in Table 3-3, the dependent variable in Model 1 is monthly net flow, in Model 2 is monthly inflows, and in Model 3 is monthly outflows. As before, the outflows variable is negative so a positive coefficient implies a lessening of outflows.

Examining the coefficient on the dummy variable for the existence of an ad in a month in Model 1, I find that advertising does have an effect on net fund flows. The

[18] Other studies have found the reverse. In a sample of consumer purchasing behavior for household goods (ketchup and laundry detergent), Deighton, Henderson, and Neslin found that advertising had no effect on customer retention, but rather that it was related to brand switching.

presence of advertising is related to a significant increase in net fund flows of about 1% percent of fund assets per month.

However, I do not find support for Hypothesis 4-5. The relation between the existence of an ad and inflows is not statistically significant. (See Model 2.) On the other hand, I do find support for Hypothesis 4-6. Advertising does serve to reduce the rate of investor redemptions (outflows).

An examination of the interaction terms provides even further insights into the effects of advertising on fund flows. I do not find support for Hypothesis 4-4. The existence of ads does not affect the relation between flows and performance for top performers. However, the interaction term between the third performance group and the existence of an ad shows that the ad reduces the flow-performance sensitivity. That is, poorly performing funds do not have as large an effect on flows by their poor performance if the management company advertises that fund.

These results imply that advertising does not play a significant role in the reduction of search or participation costs as hypothesized by Sirri and Tufano (1998) and Huang, Wei and Yan (2007). Instead, advertising's effect is primarily in customer retention.

I now look to see if there is a difference in the effect of advertising on the flows to different classes of the same mutual fund. [19] It is possible that advertising targets a

[19] I am unable to look at inflows and outflows separately because I do not have that data at the share class level, but only at the fund level.

completely different investor clientele than loads or 12b-1 fees do – that it reaches investors who do not use commission-based distribution channels. If so, I should see the effect of advertising concentrated in the no-load or no-12b-1 fee classes (of funds which have both).

Hypothesis 4-7: Advertising affects no-load classes more than load classes of the advertised fund.

Hypothesis 4-8: Advertising affects non-12b-1 charging classes more than 12b-1 charging classes of the advertised fund.

I consider only funds which have both a no-load class and a load class in a regression similar to the analysis in the previous section. To the previous control variables, I add two dummy variables: one for the existence of an advertisement for that fund in the last three months and another which is equal to one if that share class charges a load and that fund had an advertisement. Model 1 of Table 4-6 reports the results of this regression. I find support for Hypothesis 4-7. As expected, advertising has a greater effect on no-load share classes than on load classes.

Model 2 of Table 4-6 reports the same result, but this time looking at which have both a 12b-1-charging class and no-12b-1 fee class. As with loads, I find support for Hypothesis 4-8. The effect of advertising on fund flows is concentrated in the non-12b-1 fee charging share classes of the fund. This is consistent with advertising primarily affecting non-commission based distribution channels.

In this chapter, I show evidence of two distinct effects of advertising on fund flows. First, advertising seems to primarily work to stem outflows rather than attract new investment. This is a surprising finding and is not consistent with the survey data previously reported. Advertising seems to increase the investor's confidence in the funds they already own. It does not effectively draw new investors on its own

However, advertising affect inflows by intensifying the flow-performance relation. For top performing funds advertising (particularly non-informative advertising) augments the performance flow relation. As they are non-informative, these advertisements do not seem to be informing potential investors about the funds superior performance. Instead, they seem only to call attention to the fund, perhaps making it stand out to potential investors on reported performance ranking lists.

Chapter 5. Mutual Fund Family Flows

In this chapter I look at the relation between fund flows and performance and other strategic variables at the mutual fund family level rather than at the individual fund level. This is an important distinction because many decisions are made from a family, rather than individual fund, perspective since most mutual funds are managed by an investment advisory company that manages a family of such funds. Decisions such as advertising budget, what and when to advertise, the types and number of funds to offer, which distribution channels to pursue, service quality, or individual manager appointments originate on the mutual fund family level. Thus, to fully understand the motivation and impact of these types of decisions, one needs to focus on the mutual fund family complex.

Section 5.1 - Data

I obtain data on the characteristics and returns of mutual fund families over the 1992-2001 period from the Center for Research in Securities Prices Survivorship-Bias Free Mutual Fund Database (CRSP). Data on the characteristics (such as total net assets, expense ratios, load fees, 12b-1 fees, objectives and returns) of the set of mutual funds managed by the same investment manager under the same name (termed mutual fund family) is obtained from the CRSP mutual fund database. These data are aggregated to the fund family level by taking the total net asset weighted average of the variables of the individual funds in the family. Since my focus is on the mutual fund family rather than individual funds, I only include families with a minimum of $1 billion under management. Although there are a number of very small mutual fund families (see, for example, Kempf and Ruenzi (2005)), this size restriction has little impact on my sample

as the fund families with at least $1 billion in assets under management covers 99.5% of the total net assets of mutual funds that advertised in the CMR database at the end of the sample period (2001) and 97% at the beginning (1992).[20]

Table 5-1 describes characteristics of the mutual fund families included in the sample over the 1992-2001 time period. Consistent with the changes in mutual fund assets in general over the sample period, the number of large fund families grows from 98 in 1992 to 124 in 1996 and then contracts to 109 in 2001. The total assets under management at these families increases from $935 billion to over $5 trillion, ending at about $4.2 trillion. Consistent with the mergers of mutual fund complexes in the late 1990s, there appears to have been some consolidation in the industry. However, 109 mutual fund families with over $1 billion in assets under management are still remaining at the end of the sample period. Thus, it is perhaps not surprising that an analyst for the mutual fund industry stated that the "degree of fragmentation is greater today than it was in 1990, contrary to other parts of the financial services industry."[21] Consistent with this statement, Table 5-1 shows that although the average assets under management for a fund family grew from $9.54 billion in 1992 to $38.76 billion in 2001, a four-fold increase, the share that this represented of the total market fell slightly from 1% to 0.9%. The table also shows the growth in assets under management was strong in the early 1990's, with average monthly net flows of about 4% of assets, but these flows fell to less than 2% in 2001.

[20] I omit the very small fund families because their differences from the typical fund family (including the small assets under management, the small number of funds offered, and the lack of capability for advertising) potentially results in a decision process that would vary considerably from that of the other fund families. The fact that very few of the small fund families show up in the advertising database supports my assumption that they lack the capability of advertising in the same manner as the fund families with more than $1 billion under management.

[21] Presentation by Guy Moszkowski at Wharton Financial Institutions Center's "Mutual Fund Portfolios in Theory and Practice" Conference, May 7, 2004.

Table 5-1 provides information on distribution channels of the families in the sample. The broad use of 12b-1 fees and load fees implies that mutual fund complexes, in general, use multiple distribution strategies. At the beginning of the sample period, almost 70% of the families had at least one share class that charged 12b-1 fees. By the end of the sample, 83% of the families had at least one share class with 12b-1 fees. Similarly, at the beginning of the sample period about 70% of the families had at least one fund with a front-end load fee, and by the end of the sample period 75% of the families charged such fees. Thus, not only do most families use multiple channels, but the use of multiple channels has been increasing over time. Across all funds in a family, the average front-end load fee was about 1.82% in 1992 and 1.61% in 2001; however, when I restrict the average to funds within a family that have a load, there is little change in the average load fee across time, remaining between 4% and 5%. The difference is due to the offering of more funds without load fees.

Table 5-1 shows a small increase in average expense ratios over the ten-year period. This increase in average expense ratios for the fund families is most likely due to an increase in specialized or international funds, which have higher costs of operations, over the period.

Section 5.2 -- Determinants of Fund Flows on the Family Level

I now examine the determinants of fund flows at the family level using the same explanatory variables as in previous research on the individual fund level. This allows

me to compare the results for family flows to those of previous studies that employ individual funds.[22]

For each month, the dependent variable is the net flows into fund family *k* for month *t*:

$$NetFlow_{k,t} = \Sigma_i \{TNA_{i,t} - (TNA_{i,t-1} * (1+R_{i,t}))\}/TNA_{k,t-1}$$

where $TNA_{i,t}$ represents fund i's total net assets at time t, R_{it} represents fund i's return in month t and $TNA_{k,t}$ represents fund family k's total net assets at time t. Figure 5-1 shows more detail regarding net fund flows over the sample period. As the figure shows, quite a bit of volatility exists in family flows over the sample period. Such large volatility suggests that a mutual fund complex may be able to influence the flows into their complex through their strategic decisions.

The primary independent variable employed in previous research on determinants of flows into individual funds is the fund's return performance relative to that of other funds. Accordingly, the primary independent variable in this section is the fund family's relative return performance over the previous year. A complicating factor is that the individual funds within a family compete against other funds in general as well as in different asset classes. The question then arises as to whether the family performance measure should be aggregated across funds within a family using raw returns or whether the returns should be adjusted for asset classes. Consequently, I employ two different methods for aggregating individual fund performance to the family level. In this

[22] Examples include Ippolito (1992), Gruber (1996), Goetzmann and Peles (1997), Chevalier and Ellison (1997), Sirri and Tufano (1998), Lynch and Musto (2003) and Huang, Wei and Yan (2007). A reverse relation (the effects of fund flows on future returns) has also been considered, theoretically by Berk and Green (2004) and empirically by Wermers (2003).

subsection, I measure family return performance as the average return on the individual fund portfolios, weighted by the total net assets (i.e., market value) of the funds. In Section 5.3, I measure family return performance by aggregating each individual fund's excess return over their objective category average.

Once I have aggregated the individual fund performance to the family level, I run a cross-sectional regression each month with fund flows as the dependent variable and the family strategic decision and control variables as the independent variables. I then aggregate the monthly cross-sectional regression results across time using Fama-MacBeth (1973) methodology. To be able to sensibly compare family average returns across periods, I follow the Sirri and Tufano (1998) technique of ranking the sample average returns over the immediate past year and then normalizing these rankings onto the [0,1] interval.[23] The advantage of this technique is that it converts the family's average returns into their rankings in comparison to other families' returns on a period-by-period basis.

The strategic decision variables for this regression are: the log of the number of fund objectives offered by the family (the maximum is 17), a dummy variable to indicate fund families that have at least one fund with a load fee, the average front-end load fee ranked against other families, a dummy variable to indicate fund families that have no 12b-1 fees, the average 12b-1 fee ranked against other families, the average expense ratio (excluding 12b-1 fees) ranked against other families, and the average turnover of the funds' portfolios as a proxy for fund trading costs.[24,25]

[23] That is, each family is assigned a number between 0 and 1, with the best performer getting a 1 and the worst a 0. In between, the numbers are evenly spaced.

[24] I average return, expense ratio, 12b-1 fees, load fees, and turnover by calculating the market-weighted average across funds in the family.

I also include several control variables in the regression. Since a potential complicating factor in the empirical specification of the model is the existence of persistence in fund flows, the first control variable is lag fund flows (i.e., the fund's flows over the previous month). Given prior evidence showing that star performance results in greater cash inflow to the fund and to other funds in the family, I include a dummy variable equal to one if the family has a star fund in the month (where star fund is defined as a fund whose return is in the top five percent of returns for the fund's category for the past year). [26] I also control for family size through the log of the total net assets (at the beginning of the month).

No theory exists to give guidance regarding the correct specification for the fund flow-performance relation. Previous empirical studies at the individual fund level have employed a variety of specifications, with a large number of studies providing evidence of a nonlinear relation (e.g., Ippolito (1992); Gruber (1996); Chevalier and Ellison (1997); Goetzmann and Peles (1997); Sirri and Tufano (1998); and Lynch and Musto (2003)).[27] My results from previous chapters confirm this relation. Thus, I employ the same specification from previous chapters that allows for this nonlinear relation. Specifically, I employ the Sirri and Tufano (1998) piecewise linear specification using cross-sectional regressions on a monthly basis and assuming that the kinks are identical across the months. Once I have run the cross-sectional regressions for each month, I then

[25] Another strategic decision is whether to waive part of the fund's fees (see Christofferson, 2001). As I do not have data on fee waivers, I do not explore this decision from a family level perspective. It should be noted that since CRSP reports actual expense ratios, such decisions are imbedded in these results.
[26] Nanda, Wang and Zheng (2004a) define star fund as a fund in the top 100 performers of a category. They further state that the star funds constitute about 5% of their sample. Such funds should also be related to funds with top Morningstar rankings as Morningstar ratings are heavily dependent on returns (Blume, 1998; Sharpe, 1998; Del Guercio and Tkac, 2002).
[27] Most previous studies have examined individual fund flows on an annual basis (e.g., Sirri and Tufano, 1998), semiannual basis (Edelen, 1999), quarterly basis (e.g., Barber, Odean and Zheng, 2005) or aggregate flows on a daily basis (e.g., Edelen and Warner, 2001). Previous studies have not examined the determinants of flows into a family of funds on a monthly basis as I do here.

use the Fama-MacBeth (1973) technique to aggregate the coefficients across the 1992-2001 sample period. The Fama-MacBeth method is the most appropriate approach for the pooled times series data because it allows for differences in relative advertising across periods and controls for seasonality in advertising. Using a panel data set with fixed effects would not allow the slopes to change over time. All of the Fama-MacBeth t-statistics are based on the Newey-West (1987) heteroskedasticity and autocorrelation consistent standard errors.

In Table 5-2, I show the results of two piecewise linear specifications, one of which (Model 1) assumes four kinks in the specification and the second of which (Model 2) assumes two kinks.[28] The results from these specifications show a strong positive relation between the flows into a mutual fund family and the family's past average return performance for the cases in which the family exhibits extreme return performance. In Models 1 and 2 monthly family flows are significantly related to whether the family's average return in the previous year is in the bottom or top group of all families' average returns.

In general, previous studies find that the flows to individual funds are related to the fund's past performance, but more so for the highest-performing funds than the lowest-performing funds. I expect that this pattern aggregates up to the family level.

Hypothesis 5-1: Higher relative performance causes higher net flows at the family level (in all performance groups).

I find support for Hypothesis 5-1 for the top and bottom performance groups. The relation I find at the upper end of the return distribution is consistent with the previous

[28] Allowing for one kink or three kinks does not change my conclusions.

results for individual funds (e.g., Sirri and Tufano (1998); Chevalier and Ellison (1997)). The relation at the lower end of the return distribution is consistent with the Chevalier and Ellison results, but not with the Sirri and Tufano results. Further, the magnitudes of the coefficients and t-statistics on the top and bottom performance groups suggest a stronger relation for the top performers than the bottom performers. The positive coefficient for the worst fifth (Model 1) or worst third (Model 2) of performers suggests that investors do respond, and leave, the worst performing fund families.

Some fund families specialize in certain categories of mutual funds such as fixed income funds. Even without such specialization, the proportions (and net assets) in the different fund categories vary across families, suggesting that the results on the flow-performance relation at the family level could be driven by the different proportions of fund categories in the families. This concern is supported by Lettau's (1997) analysis in which he correlates mutual fund flows with lag returns for different categories of funds and finds stronger correlations for aggressive growth and growth funds than for growth and income or balanced funds. To test whether the family results are influenced by different proportions of equity and fixed income funds across families, I also ran the cross-sectional regressions in Table 5-2 including only the growth funds in the families to be consistent with previous studies on individual funds). I found the same qualitative results as I did when including all of the funds. The significantly positive coefficients were again in the bottom and top groups.

Hypothesis 5-2: More fund objectives offered by the family is related to higher flows.

I find support for Hypothesis 5-2. Consistent with the implications of the family analyses of Mamaysky and Siegel (2002), Khorana and Servaes (1999,2003), Massa (2003) and Gaspar, Massa and Matos (2006), I find that the family fund flows are increasing in the number of objectives in which the family offers funds. One-stop shopping seems to pay off. For example, Mamaysky and Spiegel (2002) develop a model of mutual funds in which the fund families do not specialize; rather the optimal strategy is for the families to offer their products in multiple fund categories. Their model is consistent with empirical and theoretical work by Sigglekow (2003), Massa (2003), and Khorana and Servaes (2003). Sigglekow finds that fund families with more diversified offerings (i.e., less focus) have greater dollar flows. Massa similarly argues that a family's tendency to offer multiple funds across fund categories is a tool that fund families can employ to limit competition and increase market coverage. Khorana and Servaes find that product differentiation is an important aspect of competition among mutual fund families.

Table 5-2 also provides implications regarding strategic decisions for the family's distribution channels. Being a fund family with at least one fund with front-end load fees is associated with higher fund flows. This result suggests that brokers and financial advisers, who receive the load fees, can increase flows into funds for which they receive a commission. However, the coefficient on the family's ranked front-end load fee shows that fund flows are decreasing in the magnitude of the load fee, implying that larger loads impose an impediment to increased flows. This negative relation is consistent with previous evidence on the deterrents of load fees to mutual fund purchases. For example, Barber, Odean and Zheng (2005) do not include a dummy variable for the existence of a load in their specification but they do include the magnitude of the load fees. Consistent

with the results for fund family flows, they find a negative relation between individual fund flows and the magnitude of the load fees. Although the load fee may be considered a marketing or distribution expense to increase flows into the fund family, its magnitude has a detrimental effect on flows in the cross-section. That is, the benefit to the fund family comes from having a relationship with a broker, but conditional on having such a relationship, the higher magnitude load fee has a detrimental effect.

The results for the 12b-1 fees are somewhat different. While there is no difference in flows between families with 12b-1 fees and those families that do not pay such fees, those families that pay a higher magnitude of these distribution and marketing fees receive higher inflows. Barber, Odean and Zheng (2005) also find a positive relation between flows and 12b-1 fees.

In summary, these results on strategic decisions regarding distribution channels indicate that fund families with multiple distribution channels, but low load fees, do the best in terms of increasing their overall fund flows.

I include two variables intended to capture the operating costs of the mutual funds borne by shareholders: the average expense ratio (without 12b-1 fees) and the average turnover (which should be correlated with the funds' average trading costs). I find that the coefficient on the ranked average expense ratio is significant and negative, implying that investors are sensitive to this source of fund costs on a family level. Although Barber, Odean and Zheng (2005) find a positive relation between individual fund flows and total fees, once they split out the 12b-1 fees, they find a negative relation individual fund flows and expense ratios without the 12b-1 fees. Thus, the results for fund family flows are consistent with theirs for individual fund flows.

The coefficient on the other proxy for fund costs, portfolio turnover, has a significantly negative relation with fund flows, indicating that families with higher turnover are less attractive to investors, ceteris paribus.

In terms of the control variables, the coefficients remain at approximately the same sign, magnitude and significance across the two models. The coefficient on the lag flow variable shows a strong persistence in flows to a family across periods. The large persistence in fund flows (about 30% of the previous month's flows) suggests that funds receive a sizable proportion of their flows from fixed commitments such as retirement accounts or savings plans. In addition, larger families receive smaller percentage flows, on average.

Hypothesis 5-3: The existence of a star fund in the family causes higher flows to the family.

I find support for Hypothesis 5-3. Consistent with the empirical evidence of Nanda, Wang and Zheng (2004a), I find that fund families with a fund in the top five percentile of performance of the funds in their investment category (a star fund) receive a higher inflow of performance. This result is also consistent with the evidence in Del Guercio and Tkac (2007) regarding the effects of Morningstar ratings.

In summary, this specification for the determinants of fund flows on the family level support the hypothesis that the convexity in the flow-performance relation found for the high-performance individual funds continues for the fund family in aggregate and that there exists a further non-linearity with the lowest performing mutual fund families. My

results also indicate that a family's strategic decisions can have significant effects on investor flows to the family.[29]

Section 5.3 -- Aggregating Returns Adjusted for Average Objective Category Performance

In order to consider the relative performance across funds in the same asset class, as well as the differences in proportions of asset classes across families, in this subsection I examine the flow-performance relation when family performance is aggregated on an adjusted return basis. I adjust individual fund returns for their average objective category performance in the following way. For each individual fund's monthly return, the total net asset weighted average return for funds in the associated ICDI objective code is calculated and deducted to obtain the fund's return excess to their market segment average. I then calculate the average excess return for the family by taking the average excess return on the individual fund portfolios, weighted by the total net assets (i.e., market value) of the funds. Using this measure of families' returns, I then again conduct the analysis in Table 5-2. The results, presented in Table 5-3, are similar to Table 5-2, with a few notable exceptions. There is no longer a significant relation between family flows and performance for the lowest performing group, although the convexity at the high end still exists. Also, several of the other variables are no longer significant: log of fund objectives offered, presence of a star fund in family and family total net assets.

[29] For an additional robustness check, I also ran cross-sectional regressions in which I used average load fees, 12b-1 fees, and expense ratios, rather than using their ranked values as I have in Table 5-2. I found no qualitative difference in results in terms of magnitudes or significance.

As it is not clear which is the most appropriate specification, in the next chapter I employ the raw return specification, noting any differences from the adjusted return specification where appropriate.

Chapter 6. Mutual Fund Family Flows with Advertising

In this chapter I examine the effect of fund family level advertising expenditures on mutual fund flows. I also look at the effect of advertising on the volatility of family level flows and on the determinants of the level of advertising expenditures.

Section 6.1 - Data

I obtained information on the print advertising expenditures of mutual fund families over the 1992-2001 time period from the from Competitive Media Research (CMR), a third party collector and distributor of data on advertising expenditures. The CMR database[30] reports the name of the company placing the ad, the publication, the size of each advertisement and estimates the cost of the advertisement from published advertising rates, adjusted for estimated discounts.

CMR collected data on a monthly basis in the early part of the sample and later moved to weekly reporting. I aggregate the data to monthly throughout to match the flows data which is calculated on a monthly basis because CRSP provides the mutual fund total net asset value data on a monthly basis. The advertisements appeared in over 288 publications, from the *Wall Street Journal* (the greatest amount of advertising dollars spent) to the *Elgin Courier News* (the least amount of advertising dollars spent). However, the expenditures tended to be concentrated in a set of publications. For example, aggregating the dollars spent over the last five years of the sample period, the *Wall Street Journal* received by far the largest proportion, 23.5% of the dollars spent. The next two greatest recipients were *Money* magazine with 10.7% and the *New York*

[30] Although CMR collects data on both print and other media advertising, the data is limited to the print advertising. According to Reuter and Zitzewitz (2006), mutual fund print advertising accounts for about 80% of total advertising expenditures.

Times with 6.8%. The top ten recipients received 69.2% of the total advertising dollars spent and the top twenty-five recipients received 88.9%.

Section 6.2 - Advertising and Industry Flows

Figure 6-1 presents the dollar amounts spent on mutual fund advertising across the sample period. As the figure shows, there exists quite a bit of variation throughout the time period, with an apparent seasonality. Figure 6-2 presents the average percentage of each year's advertising expenditures that occurs in a given month, showing that most monthly advertising is relatively higher in the beginning of the year.[31] Before testing the hypothesis that advertising affects family flows, I first test the hypothesis that flows in the mutual fund industry in general are affected by aggregate levels of advertising in the industry. To do so, I regress percentage monthly flows to the industry against the advertising expenditures as a percent of total assets under management (lagged by one month), the total industry flows from the previous month, and the average industry return from the previous year. The results, provided in Model 1 of Table 6-2, show that there exists a strong positive relation between aggregate industry flows and advertising expenditures. The table also shows a strong positive relation between flows to the industry and returns in the previous period. This latter relation is consistent with that found by Edelen and Warner (2001) for daily aggregate flows to equity mutual funds.

Advertising by a mutual fund family has the potential to affect not only its own flows, but flows to other fund families as well. In Model 2 of Table 6-2, I test this related hypothesis by limiting the dependent variable to flows into families that did not advertise.

[31] Using the Fama-MacBeth (1973) regressions in the analysis controls for this seasonality.

I find that their flows are affected by advertising by others in the industry as well, suggesting substantial spillover effects from advertising.

Section 6.3 - Family Fund Flows and Advertising Expenditures

Several previous studies have examined the relation between individual fund flows and proxies for advertising of those funds. For example, Sirri and Tufano (1998) use total fees charged as a proxy for marketing and distribution expenditures.[32] They find no relation between the flow-performance relation and this proxy, except in the case in which they separate the funds into those with high fees and those with low fees. In that case they find that funds with higher fees, which the authors assume are funds with greater marketing efforts, have greater flow-performance sensitivity. However, because they are forced to employ a coarse proxy for marketing efforts, they cannot ensure that their results are not caused by confounding factors, such as funds with higher service levels (associated with the higher fees) attracting greater flows.

Jain and Wu (2000) focus on the impact of advertising in individual fund flows by including a dummy variable for the existence of an advertisement in two magazines and comparing advertised funds to a sample of matched funds without advertising in the two magazines. However, it is crucial to keep in mind that the advertising expenditure decision is a fund complex decision, not an individual fund decision. Their results do not provide evidence of the effect of advertising on family flows. Thus, I test the hypothesis that advertising affects flows on the complex level. Because of the differences in size across the fund complexes (and consequent differences in ability to spend advertising

[32] Sirri and Tufano (1998) define total fees as total expense ratio plus one-seventh of any load fee. Thus, their total fee measure includes the fund's operating expense ratio, 12b-1 fee, and one-seventh of the load fee, if any.

dollars), I need to scale the monthly advertising expenditures. I use the total net assets under management for the fund complex. As in the measure of the return variable discussed in the previous section, I need to aggregate the cross-sectional relation between family fund flows and advertising expenditures across the multiple monthly periods. Accordingly, I normalize the advertising variables on a [0,1] interval analogous to the Sirri and Tufano (1998) normalization procedure for the performance variable. I then assume a piecewise linear relation between family flows and advertising expenditures, an assumption similar to the assumption regarding the relation between family flow and past performance. In addition, I include a dummy variable if a family did not advertise during a month.

My specifications for the flow-performance relation in these analyses are the same piecewise linear specifications employed in the previous section. I also include the same strategic decision and control variables: the log number of objectives that the family's funds span, a load dummy, the ranked average load fee, a dummy for 12b-1 fees, the ranked average 12b-1 fees, the ranked average expense ratio, the average turnover of the funds' portfolios, the lag family fund flow, the log of the total net assets from the previous month, and a dummy variable equal to one if the family has a star fund.[33]

Hypothesis 6-1: Higher relative advertising expenditures causes higher net fund flows.

Table 6-3 shows the results from this analysis. For easier comparisons of coefficients, Model 1 shows the two-kink piecewise linear flow-performance relation without advertising variables from Table 5-2. Models 2 and 3 include the advertising variables. Model 2 has the simplest linear specification of advertising in which I have a

[33] In these cross-sectional analyses I omit any fund families that are less than three years in age or that have only three months of advertising expenditures over the entire sample period.

variable for no advertising and a variable for the advertising expenditures ranked against other families. Model 3 employs the piecewise linear specification as described above. In Model 2, the linear specification, I do not find support for the hypothesis. There is no relation between relative advertising and net flows. However, in the piece-wise specification, I find support for the hypothesis for the heaviest advertisers. Model 3 shows that advertising has a significantly positive effect on fund flows only for the top advertisers.[34] These results suggest that a threshold of advertising expenditures relative to competitors' advertising expenditures exists before the advertising has significant effects on flows into the family. The advertisers who spend the least have no significant relation between their advertising dollars and fund flows. In contrast, those families in the middle range of advertising spending per assets under management show either a negative or no relation between flows and advertising. The results imply that simply advertising is not sufficient for significantly increasing flows; rather the family has to extensively advertise relative to other families' decisions in that period.

Comparing Model 1 (with no advertising variables) to Models 2 and 3 (with advertising variables), the coefficients on the other strategic variables show little to no change. That is, the strategic decision and control variables still have effects similar to those when the advertising variable is absent. For example, conceptually, one might expect advertising to affect the flow-performance relation in that advertising could mitigate or magnify the importance of fund performance. I do not find this to be the case. The convexity in the flow-performance relation appears for the top performing funds in all specifications. Thus, while Table 6 shows that family advertising expenditures can

[34] In a separate analysis (not reported) I run a pooled cross-sectional analysis of the effects of advertising on the fund flows. The results are consistent with those reported in Table 6-3. I also ran the regression by normalizing the ad variable by the beginning of the year TNA instead of the beginning of the month TNA. I found no change in results.

affect family flows, it does so independent of the family return performance.[35] Similarly, the relation between fund flows and advertising also does not affect the relation between flows and the magnitude of the 12b-1 fees. Families with larger 12b-1 fees have higher net inflows regardless of the extent to which they advertise.

The results from Table 6-3 suggest that mutual fund families can affect net flows through the performance of their funds, including achieving star status for at least one fund in the complex. They also have additional independent strategies with which they can affect their net flows: spend a sufficient percentage of assets on advertising relative to their competitors, offer funds in a large range of objectives, pay marketing expenses for distribution channels through load or 12b-1 fees, or lower their expense ratios.

My evidence on the effects of advertising and its role is consistent with the arguments of Massa (2003). In discussing fund family decisions, Massa argues that performance-maximization is not necessarily the optimal strategy for fund families – that the profit-maximizing mix of fees, performance and number of funds could result in lower levels of performance. This results from the ability of fund families to differentiate themselves in terms of non-performance related characteristics so that they do not need to compete solely on the basis of performance.

The levels of significance in Table 6-3 show that heavy advertisers can increase flows into the family. The economic significance of these results is reflected in Figure 6-1 which shows the total returns to advertising in terms of the flow/advertising relation. The figure shows the times series results for the 85th and 95th percentile advertisers at each point in time. That is, at each point in time I take the advertising expenditures of the

[35] Adding an interaction term between performance and advertising does not change these conclusions.

fund family that was closest to (and above) the 85th (95th) percentile in advertising expenditures and applied the coefficients from that period's regression to generate the dollar flows to advertising. The dollar flows to advertising were then divided by the actual advertising cost to derive the returns to advertising. As Figure 6-1 indicates, the returns to advertising for the heavy advertiser can be economically large. For the heavy advertiser, one above the 85th percentile, the returns to advertising in terms of flows were usually above 20% and sometimes as high as 100%.

In order to determine whether these results were driven by flows to the star funds in the family (which are more likely to be the advertised funds as well), I reran the regressions in Table 6-3 eliminating star funds from the computation of both the dependent and independent variables. That is, the dependent variable, flows to the family, does not include flows to any star funds, and each of the independent variables is calculated without the inclusion of the star funds. For the advertising variables, the results are qualitatively identical to the results when star funds are included. Heavy advertising relative to other families results in significantly increased flows to non-star funds in the family.

Given the volatility in advertising expenditures across time, I examined whether advertising expenditures have differential effects in up-markets as compared to down-markets. Accordingly, I divide the sample period into those months in which market returns were positive over the month and those periods in which market returns were negative. I find that advertising does not have significant effects during down-markets.

My results are driven by the relation between fund flows and advertising expenditures during up-market periods. [36]

Two potential problems in this analysis could develop from the methodology of scaling the advertising expenditures. The first problem is that these results could be driven by a spurious correlation between fund returns and advertising. That is, since I scale the advertising variable by the previous month's total net assets under management of the fund family, I could be inducing a result between the change in the total net assets and the fund flows. To check this potential problem, I reran the regressions in Table 6-3 and scaled the advertising expenditures by the total net assets from the beginning of the calendar year. That is, for each month in a year, a family's advertising expenditures is scaled by the same variable, which does not change during the year. My results from this analysis do not qualitatively differ from those reported, suggesting that these results are not driven by variation in performance rather than advertising expenditures.

The second potential problem is that this scaling methodology is inappropriate because of the differences in sizes across the fund families. To check this problem, I divided the advertisers into three groups by size of assets under management, and then ranked the advertising expenditures within each group. Again the results are qualitatively the same as those reported.

[36] Over the sample period, only 35% of the months were down months according to this definition. I also define up-markets and down-markets for the market return compared to the risk-free rate. In this case 39% were down months. The results remain unchanged.

Section 6-4 - Family Fund Flow Volatility and Strategic Decisions

Chordia (1996), Edelen (1999), Greene and Hodges (2002), and Rakowski (2003) have suggested that fund flow volatility is costly to mutual fund operations. That is, the uncertainty with regard to the level of the investors' investment in the portfolio can affect the performance of the portfolio. Thus, an important factor in a fund complex's strategic decisions could be the effects on the complex's average flow volatility across its funds. A priori, the direction of these effects is unclear. On the one hand, the strategic decisions could bring in a constant stream of dollars or result in lower overall redemptions by shareholders in the family complex of funds, thus reducing flow volatility, ceteris paribus. (For example, Goetzmann and Peles (1997) hypothesize that advertising could discourage shareholder redemptions by reducing their cognitive dissonance.) The mutual fund family could then make strategic decisions in part to manage the cost of their average flow volatility across funds. On the other hand, if these decisions successfully attract additional flows to funds, they could also have the unintended consequence of increasing average flow volatility and costs. For example, in the case of advertising, the decision could increase average flow volatility by attracting additional assets in an uneven fashion, particularly if the advertising is sporadic or targeted toward particular funds based on their previous performance. Previous research seems to support this hypothesis. Kempf and Ruenzi (2004) find that a fund's growth is dependent not only on the fund's return relative to its peers, but also relative to other funds in the same family. Such a result would be consistent with families advertising their best funds and those funds having higher growth due to the advertising.[37]

[37] Consistent with this result, Jain and Wu (2000) find that advertised funds previously earned higher returns than their category benchmarks.

In this section I examine whether the family's strategic choices affect the family's average fund flow volatility in either of these directions. The dependent variable for these tests is the average standard deviation of fund flows over the previous twelve months, where the average is taken across the funds within the family.[38] Under the assumption that the family would be most concerned about the flow volatility in the smaller funds in the family, I employ an equal-weighted average of the individual funds' flow volatility.[39] I control for the persistence in family flow volatility by including the previous year's flow volatility measure. Larger families with more funds being offered could have lower average flow volatility simply because of the size of the flows and because the averaging process could make outliers less important. I control for this effect with two variables: current family flows and the log of total net assets.[40] Whether having a star fund in the family adds to the family's flow volatility is an empirical question I address in this analysis by including a dummy variable for whether the family had a star fund in the previous period.

Hypothesis 6-2: Advertising causes a reduction in fund flow volatility.

Hypothesis 6-2': Advertising causes a reduction in fund flow semi-volatility.

[38] The results are similar if volatility is computed over six months rather than twelve months.
[39] For robustness I also looked at the case where fund volatilities are value weighted. The results for the strategic decision variables, including the advertising variables, are similar to the ones reported.
[40] Total net assets is highly correlated with number of fund in the family. If I use the latter variable, I get similar results.

I find support for Hypothesis 6-2. The results of these analyses, provided in Table 6-4, show that the family's strategic decisions have mixed effects on the family flow volatility. The decision to advertise decreases flow volatility. However, the relative level of advertising does not seem to significantly impact flow volatility. I also find that the existence of a load or 12b-1 fee increases the family's average flow volatility. These results suggest that the use of distribution channels increases the variability of the flows into the funds, adding more uncertainty. However, the size of the load fees reduces the volatility of the flows. Families with higher average load fees tend to have smaller flow volatility as well, suggesting that paying brokers more can reduce the volatility of fund flows, thus reducing the costs to the existing fund shareholders (who do not encounter the front-end load fees).

The size of the family's average expense ratio relative to other fund families reduces the volatility of the flows. The latter could occur if the expense ratios are a proxy for service, as suggested by Sirri and Tufano (1998), and investors are more likely to stay in a fund where there is increased service.[41] The result could also occur if investors who choose the families with greater expenses are more stable investors, either because they value some aspect of the more expensive fund families (e.g., service) or because they are passive investors as suggested by Christoffersen and Musto (2002).

One issue with the fund flow volatility analysis is that if fund families make strategic decisions so as to reduce fund flow volatility, they would be more concerned about reducing the volatility on the downside rather than the upside. To test whether there are asymmetric effects on volatility from these variables, I reran the regressions in

[41] The willingness of investors to pay for mutual fund service (or for financial advisers' service) may explain the willingness of such investors to pay differential fees for S&P 500 index funds and explain the puzzle of the Elton, Gruber, and Busse (2004) results.

Table 6-4, using semi-variance rather than variance as the dependent variable. I find support for Hypothesis 6-2'. The results are shown in Table 6-5. The results for the strategic decision variables, including the advertising variables, are similar to those in Table 6-4.

Section 6-5 - Determinants of Advertising

Economic studies of firm advertising have proposed various motivations and roles for advertising.[42] For example, as discussed earlier, advertising can reduce search costs for the consumer. Additionally, Nelson (1970, 1974) argues that for some types of products ('experience' products) the quality of the product is not ascertainable prior to purchase. For such products, the existence of advertising itself can reflect a high-quality product. Nelson further argues that the key to advertising is in repeat purchases for a product. Since consumers are more likely to repeat a purchase of a high-quality product, it becomes important for the high-quality producers to advertise and reach the consumer on the first purchase. In the mutual fund market, the repeat purchases would manifest themselves in maintaining and increasing investment in the fund.[43] The quality of a mutual fund family could depend on several factors, including performance and services.

Thus, one issue that arises from the models of the relation between advertising and family flow is the question of whether an endogeneity exists in the relation. For

[42] Additional economic models of advertising examine the role of advertising across different industry structures (e.g., Greer, 1971). For analysis of these types of models in thrift and banks, see DeYoung and Ors (2005) and Ors (2005). Because I have data on only one market, which is national, these industrial organization models are outside the scope of this paper.

[43] Nelson's (1970, 1974) hypothesis considers repeat purchases to be the key goal of advertising. However, with regard to mutual funds, Johnson (2004) finds that most individual investors do not make repeat purchases of the same mutual fund. The question of who the advertisements are reaching to increase fund flows is the subject of ongoing research.

example, fund management companies with higher flows, and thus higher resultant management fees, could have more resources with which to pay for advertising. I investigate this question in two ways: first, by examining the correlations between the advertising variables and the other strategic variables, and second, by examining whether systematic determinants exist for a family's choice of the amount of advertising dollars to spend.

Table 6-6 provides the correlations between the advertising variables and the other strategic variables. As the table shows, although sizable correlations exist between some of the strategic variables, there is little correlation between the advertising variables and the other strategic variables. Based on this, there does not appear to be an endogeneity in the advertising-family flow relation.

To test determinants of family advertising expenditures, the dependent variable is the relative level of advertising, i.e., the annual advertising dollars spent by the family normalized by the family's total net assets under management. The denominator in the dependent variable is lagged by one year because the relation between performance and the current level of assets under management could mask a relation between the advertising variable and performance. The potential explanatory variables are proxies for family quality plus other strategic decision and control variables used in the earlier analyses.

A fund family's quality can be reflected in various dimensions, such as in their return performance or investor service. The two measures of return performance that I employ are the current month's return and the previous year's return. Unfortunately, a good proxy for the quality of a fund family's service is not available. Sirri and Tufano

(1998) posit that total expenses may be a measure of services provided by the fund. Consequently, I employ the fund family's ranked average expense ratio (excluding 12b-1 fees). My proxies for the distribution channel decisions are a dummy variable for the existence of load fees, the ranked average load, a dummy variable for the existence of 12b-1 fees and ranked average 12b-1 fee.

As I have hypothesized that the other strategic decisions are exogenous to the annual advertising decision (due to their long lead times), I examine whether the proxies for these decisions can help explain the advertising decision. In the long run, the strategic decisions would be potential substitutes for each other.

The control variables in this regression are the previous year's flow, the previous year's flow volatility, the logarithm of total net assets, and ranked average turnover (as a proxy for trading costs). Because a fund family's size can affect the ability to advertise as well as the benefits it receives from the advertising, I also divide the sample of families at the median for the size of total net assets under management. I run the cross-sectional regressions on an annual basis and use the Fama-MacBeth (1973) technique to aggregate the coefficients across the periods.[44]

The results when all mutual fund families are included in the regression are shown in Model 1 of Table 6-7. In Models 2 and 3 the families are divided by the size of assets under management, where assets under management are measured one year prior to the observation.[45] The evidence suggests that endogeneity is not a problem for the

[44] Because of the limited power of the Fama-MacBeth (1973) technique with the annual regressions, I also ran a pooled, cross-sectional regression. There was no increase in the significance of the independent variables – the results were basically the same.

[45] The results do not change when current total net assets is used instead of lag assets.

earlier results on the flow-advertising relation. I find that neither the family's previous annual flow nor the volatility of the flows appears to influence the advertising budget.

Hypothesis 6-3: Higher relative performance causes higher advertising expenditures.

Hypothesis 6-4: Having a 'star' fund in the family causes higher advertising expenditures.

I find little support for these hypotheses. According to all three models, the amount of advertising dollars spent by a family is not affected if the family's relative average current return or return in the previous year is in the highest performers. Thus, it is not the case that when a complex performs well, it advertises more. The one group for which performance matters is the small families who are the poorest performers. These families tend to have a significantly higher level of relative advertising.

Across both large and small mutual fund families, the amount of advertising dollars spent by a family is positively related to the family's average expense ratio.

Hypothesis 6-5: Higher family expense ratios are related to higher advertising expenditures.

I expect relation between expense ratios and advertising at the family level to be positive. If one assumes that quality of the mutual fund family can be captured by return performance, higher expenses may lead to higher advertising as families attempt to identify themselves to consumers as high quality. Alternately, the returns to higher flows

(and higher assets under management) are higher to mutual fund families which charge higher expenses. Thus they may have more incentive to spend on advertising. I find support for this hypothesis only among the larger families. Larger families tend to spend relatively more on advertising. I do not fund support in the smaller family subset.

Fund families with more fund objective classes do not advertise as much as do families with fewer objectives. This is consistent with the hypothesis that having more funds in different objective classes in and of itself provides more exposure for the fund family.

As advertising seems from the individual fund results to represent an attempt to access an alternate distribution channel than loads and 12b-1 fees, we may expect to find lower advertising expenditures for families which make heavier use of these fees.

Hypothesis 6-6: Families with higher loads advertise less than families with lower loads.

Hypothesis 6-7: Families with higher 12b-1 fees advertise less than families with lower 12b-1 fees.

I find support for Hypothesis 6-6. Fund families with higher average load fees do not advertise as much as do fund families with lower average load fees. This result holds for both large and small families and is consistent with the hypothesis that advertising is directed more toward the retail investor than the financial advisers who would be

receiving the commissions reflected in the load fees. Load funds rely more on the brokers and dealers, rather than advertising, to reach their investors.[46]

However, I do not find support for Hypothesis 6-7. For large fund families, there is no relation between relative advertising and 12b-1 fees. For small families, however, I find support for the reverse of the hypothesis. The higher the average 12b-1 fees for the family, the more the family spends on advertising. One important implication of this result is that studies that use 12b-1 fees to proxy for advertising expenditures are using an imperfect proxy at best. These proxies may be misleading, particularly for larger funds.

In sum, Table 6-7 shows that the fund family's other strategic decisions can affect the advertising decision, but these relations tend to be concentrated in the smaller funds of the sample.

[46] See Bergstresser, Chalmers and Tufano (2006) for a discussion of the roles of brokers in the mutual fund industry.

Chapter 7. Conclusion

In this dissertation, I have extended the existing research in four ways. First, I have collected data which allows flows into and out of the mutual fund to be examined separately. Second, I have examined the effect of advertising on flows and the flow-performance relation. Third, I have looked at mutual fund flows at the mutual fund family level. Finally, I have looked at the advertising decision at the fund family level.

For individual funds, this research has reveal two important results. First, the previously identified relation between improved relative performance and increase net fund flows in entirely explained by new investments. I did not find any statistical relation between better performance and reduced redemption activity. In fact, the opposite relation exist. Higher performance leads to a higher rate of outflows. The increased inflow levels dominate the increased outflow levels, so the net flows are increased, but the underlying pattern is more complicated.

Second, I find that advertising expenditures have little to do with this performance-flow relation, except for the worst performing funds. Advertising appears to operate on a different subset of investors. Rather than acting to solve investors' search problem by calling attention to the fund, or indeed, by calling attention to the fund's superior performance, advertising instead reduces fund redemption activity. I do not find that better performing funds advertise more intensively. I also find that funds without loads and funds without 12b-1 fees advertise more. I conclude that these various means

of reaching customers – high performance, higher direct advertising, and higher broker activity (proxied for by loads and 12b-1 fees) – do in fact reach different groups of investors.

I also looked at fund flows at the mutual fund family level. I find support for spill-over effects, that families with top performing funds see higher flows to the family as a whole. In addition, I find that flow-performance relation from the individual fund level scales up to the fund family level. In addition, various strategic decision of the family also have a relationship with overall net family fund flows. Families with a broader range of fund objective classes have higher net flow levels, as do families who use load-based channels as a part of their distribution mix.

Finally, I looked at the effect advertising has at the fund family level. I can only detect a statistical relation between levels of advertising expenditures and increased family fund flows for the families which spend the most on advertising. It seems that, should a family decide to include advertising as a part of their marketing efforts, they should fund it strongly, and not just commit a small scale advertising effort. Such small advertising efforts do not appear to have a meaningful impact on investor behavior.

Mutual fund investors face an enormous task in attempting to narrow the available pool of funds to a small enough group to make further research feasible. They need some criteria to make this task possible. In addition, investors are faced with redemption and

rebalancing decisions for the funds they have previously selected. In this dissertation, I have investigated how relative performance and advertising, along with other fund and family level characteristics, affect investor behavior in these investing decisions.

Tables and Figures

Table 3-1
Statistics on coverage of the CRSP database by the N-SAR data

Data collected from N-SAR filings is matched to the CRSP Mutual Fund Database by fund name and family name and then verified by comparing assets under management. This table provides information on the percentage coverage of the CRSP universe of funds by this matched data, both by number of funds and by total net assets under management. Also reported is the total number of funds included and the minimum number of funds included in any one month in the data. The statistics are reported separately for each of the two contiguous time periods included in the data.

Coverage for 1994-1995

Fund Objective	CRSP coverage by number of funds	CRSP coverage by TNA	Number of funds	Min Funds per Time Slice
Aggressive Growth	55.17%	68.76%	240	108
Long-Term Growth	60.54%	68.16%	394	209
Growth and Income	58.98%	61.52%	244	129

Coverage for 1996-2002

Fund Objective	CRSP coverage by number of funds	CRSP coverage by TNA	Number of funds	Min Funds per Time Slice
Aggressive Growth	68.39%	80.39%	492	252
Long-Term Growth	68.08%	82.71%	632	383
Growth and Income	68.98%	78.41%	343	219

Table 3-2

Descriptive Statistics on Individual Funds by Fund Objective

This table provides descriptive statistics on the funds that had advertisements as compared to funds without advertisements in each of the categories: aggressive growth, growth and income and long-term growth. Panel A provides descriptive statistics on percentages of funds with at least one share class with a load fee, at least one share class with a 12b-1 fee and the percentage of funds in the group that are star funds, where star fund is defined as a fund whose return is in the top five percent of returns for the fund's category for the past year. Panel B provides the means and the standard deviations for the fund's total net assets, average expense ratios, 12b-1 fees and load fees across classes, average turnover.

Panel A

Fund Objective	Returns	Net flows	Inflows	Outflows
Aggressive Growth	0.83%	2.49%	7.18%	-4.70%
	3.46%	7.03%	8.48%	5.61%
Long-Term Growth	0.73%	1.91%	4.97%	-3.06%
	2.57%	5.81%	6.58%	3.95%
Growth and Income	0.72%	1.74%	4.31%	-2.58%
	1.81%	5.24%	5.67%	3.23%

Panel B

Fund Objective	Expense Ratio	12b-1 Fees	Total Load	Total Cost	Total Net Assets	Turnover
Aggressive Growth	1.39%	0.18%	1.57%	1.793%	709	1.025
	0.61%	0.24%	2.14%	0.92%	2,388	0.777
Long-Term Growth	1.25%	0.19%	1.92%	1.717%	1,259	0.866
	0.52%	0.26%	2.32%	0.89%	4,679	0.725
Growth and Income	1.07%	0.17%	1.79%	1.498%	1,711	0.618
	0.68%	0.24%	2.29%	0.99%	5,815	0.606

Table 3-3

The Relation of Individual Mutual Fund Netflows, Inflows, and Outflows and Performance

This table provides the results of piecewise linear specifications of the individual fund flow relation with explanatory variables. Model 1 shows the net flows. Models 2 and 3 show the decomposition of the net flows into inflows and outflows, respectively. For the piecewise linear specifications, the fund's return performance variable is broken into sub-variables. The low and high performance groups range from 0-.20, while the middle group ranges from 0-0.6. The sum of the sub-variables is equal to the original variable. The other explanatory variables include the lag flow from the previous month, the log of the total net assets (TNA), dummies for whether the fund is a star fund, has a front-end load fee, or a 12b-1 fee. Also included are the magnitude of the load fees, 12b-1 fees and expense ratios (without 12b-1 fees) and portfolio turnover. The models are run cross-sectionally each month. The coefficients shown are the averages across the months. The table also provides Newey-West (1987) t-statistics for the Fama-MacBeth (1973) coefficients and the average adjusted R-squareds from the regressions.

		Model 1: Net flows			Model 2: Inflows			Model 3: Outflows		
	Variable	Mean coefficient	t-statistic		Mean coefficient	t-statistic		Mean coefficient	t-statistic	
	Intercept	0.013	3.08	***	0.021	5.75	***	-0.009	-4.7	***
	% Net flow (t-1)	0.213	9.29	***						
	% Inflow (t-1)				0.468	22.07	***			
Lagged flows	% Outflow (t-1)							0.614	35.08	***
	3rd performance group	0.045	5.6	***	-0.002	-0.19		0.02	4.05	***
	2nd performance group	0.022	10.18	***	0.015	7.83	***	0.001	1.06	
Past return	1st performance group	0.096	10.14	***	0.079	7.76	***	-0.019	-2.9	***
performance	Dummy - star fund	0.011	5.73	***	0.009	3.76	***	-0.001	-0.62	
	Log TNA	-0.001	-3.84	***	0	-1.36		0	-2.45	**
	Dummy - front-end load fee	0.003	2.82	***	0.001	0.81		0.001	1.14	
	Load fee	-0.077	-3.72	***	-0.155	-7	***	0.085	6.42	***
	Dummy - 12b-1 fees	-0.002	-2.85	***	0.001	1.56		-0.002	-4.88	***
	12b-1 fees	1.214	6.33	***	1.135	6.75	***	-0.27	-3.7	***
Fund	Expense ratio	-0.19	-2.02	**	0.043	0.6		-0.103	-2.95	***
characteristics	Turnover	0.002	3.21	***	0.006	9.08	***	-0.003	-11	***
	Adj. R-squared	0.135			0.283			0.404		

Table 4-1
Advertising in individual funds

Panel A provides information on the percentage of domestic equity funds in each time period (1994-1996 and 2001-2002) and objective category which advertise and on the percentage of those advertisements which include information on past performance. Panel B shows how frequently funds which advertise ever advertise within my sample.

Panel A.

Fund Objective	% with ad (1994-1996)	% with ad (2000-2001)	% ads reporting performance (1994-1996)	% ads reporting performance (2001-2002)
All funds	4.20%	3.52%	78.0%	82.5%
Aggressive Growth	5.85%	3.81%	77.5%	84.6%
Long-Term Growth	4.34%	3.45%	78.4%	84.8%
Growth and Income	2.45%	3.23%	77.8%	75.0%

Panel B.

Percent of months with ad (for a given fund)	Percent of funds
< 10%	69.23%
10-20%	12.59%
20-30%	12.59%
30-40%	4.20%
40-50%	0.70%
over 50%	0.70%

Table 4-2

Descriptive statistics on individual funds with or without advertisements

This table provides descriptive statistics on the funds that had advertisements as compared to funds without advertisements in each of the categories: aggressive growth, growth and income and long-term growth. Panel A provides descriptive statistics on percentages of funds with at least one share class with a load fee, at least one share class with a 12b-1 fee and the percentage of funds in the group that are star funds, where star fund is defined as a fund whose return is in the top five percent of returns for the fund's category for the past year. Panel B provides the means and the standard deviations for the fund's total net assets, average expense ratios, 12b-1 fees and load fees across classes, average turnover.

Panel A.

	Aggressive Growth			Growth and Income			Long-term Growth		
	No Ad	With Ad	Report Perf.	No Ad	With Ad	Report Perf.	No Ad	With Ad	Report Perf.
% with load share class	48.70%	43.20%	42.00%	50.10%	30.00%	25.70%	53.40%	23.20%	17.80%
% with 12b-1 share class	55.60%	63.10%	62.00%	53.20%	53.40%	52.90%	57.60%	47.50%	45.10%
% that are star funds	5.20%	19.90%	22.70%	6.00%	25.00%	28.60%	5.69%	10.80%	10.80%

Panel B.

Variable	Aggressive Growth			Growth and Income			Long-term Growth		
	No Ad	With Ad	Report Perf.	No Ad	With Ad	Report Perf.	No Ad	With Ad	Report Perf.
	649	6413	7172	1427	6051	5262	1181	5958	6523
TNA	(2132)	(11119)	(11782)	(4887)	(11030)	(6998)	(4687)	(8047)	(8645)
	0.014	0.013	0.013	0.011	0.01	0.01	0.013	0.011	0.011
Expense ratio	(0.006)	(0.004)	(0.004)	(0.007)	(0.003)	(0.002)	(0.005)	(0.003)	(0.003)
	0.002	0.002	0.002	0.002	0.001	0.001	0.002	0.001	0.001
12b-1 fee	(0.003)	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)
	0.016	0.013	0.013	0.018	0.014	0.013	0.02	0.009	0.007
Load fee	(0.022)	(0.020)	(0.020)	(0.023)	(0.023)	(0.023)	(0.024)	(0.019)	(0.016)
	1.044	0.962	1.012	0.623	0.781	0.825	0.877	1.178	1.214
Turnover	(0.786)	(0.622)	(0.621)	(0.620)	(0.676)	(0.615)	(0.722)	(0.888)	(0.839)

Table 4-3

Correlations between Strategic Decisions Variables - Individual Funds

This table provides the results of correlations of mutual fund strategic decision variables. % Net flow is the dollars net fund flow divided by the total net assets at the beginning of the month. 3rd, 2nd, and 1st performance group are dummy variables equal to one if the fund is on that group of a higher performing one. Dummy-Star fund is eual to one if the fund's performance was in the top 5% of the fund category for the month. Log TNA is log of beginning of period total net assets. Dummy-front-end load fee and Dummy-12b-1 fees indicate that at least one class of the mutual fund charges such a fee. Load fee and 12b-1 fees indicate the average level of those fees for the fund. Existence of ad indicates that the fund advertised in the previous month.

Variable	% Net flow	% Net flow (t-1)	Dummy – Star fund	Log TNA	Dummy – Front-end load fee	Load fee	Dummy – 12b-1 fees	12b-1 fees	Expense ratio	Turn over	Dummy – Existence of ad	Dummy – Non-informative ad	Dummy – Ad in family	3rd perf X Exist. of ad	1st perf X Exist. of ad
% Net flow	1	0.23	0.16	-0.02	0.01	0	0	0.03	0.01	0.03	0.02	0	-0.01	-0.01	0.04
% Net flow (t-1)	0.23	1	0.16	-0.01	0.01	0	0	0.03	0.01	0.03	0.02	0	-0.02	-0.01	0.03
3rd performance group	0.13	0.13	0.1	0.11	0.02	0	-0.02	-0.02	-0.17	-0.09	0.02	0	-0.01	-0.05	0.02
2nd performance group	0.2	0.19	0.3	0.07	-0.02	-0.03	-0.05	-0.05	-0.09	-0.03	0.04	0.01	0.02	-0.04	0.08
1st performance group	0.2	0.2	0.75	0.01	-0.05	-0.03	-0.04	-0.01	0.03	0.05	0.05	0.01	0.02	-0.01	0.12
Dummy – Star fund	0.16	0.16	1	0	-0.04	-0.02	-0.03	-0.01	0.03	0.05	0.04	0	0.01	-0.01	0.09
Log TNA	-0.02	-0.01	0	1	0.11	0.12	0.07	0.08	-0.35	-0.06	0.12	0.04	-0.05	0.04	0.06
Dummy – Front-end load fee	0.01	0.01	-0.04	0.11	1	0.78	0.56	0.49	0.22	0	-0.04	0.01	-0.13	-0.02	-0.02
Load fee	0	0	-0.02	0.12	0.78	1	0.46	0.55	0.27	0.01	-0.03	0.01	-0.13	-0.02	-0.02
Dummy – 12b-1 fees	0	0	-0.03	0.07	0.56	0.46	1	0.64	0.3	0.07	0	0.01	-0.09	0	0.01
12b-1 fees	0.03	0.03	-0.01	0.08	0.49	0.55	0.64	1	0.47	0.09	-0.02	0.02	-0.1	-0.01	-0.01
Expense ratio	0.01	0.01	0.03	-0.35	0.22	0.27	0.3	0.47	1	0.22	-0.02	-0.01	-0.02	-0.01	-0.01
Turnover	0.03	0.03	0.05	-0.06	0	0.01	0.07	0.09	0.22	1	0.02	0	0.04	0.01	0.03
Dummy – Existence of ad	0.02	0.02	0.04	0.12	-0.04	-0.03	0	-0.02	-0.02	0.02	1	0.32	0.1	0.33	0.61
Dummy – Non-informative ad	0	0	0	0.04	0.01	0.01	0.01	0.02	-0.01	0	0.32	1	0.04	0.14	0.16
Dummy – Ad in family	-0.01	-0.02	0.01	-0.05	-0.13	-0.13	-0.09	-0.1	-0.02	0.04	0.1	0.04	1	0.04	0.05
3rd perf X Exist. of ad	-0.01	-0.01	-0.01	0.04	-0.02	-0.02	0	-0.01	-0.01	0.01	0.33	0.14	0.04	1	0
1st perf X Exist. of ad	0.04	0.03	0.09	0.06	-0.02	-0.02	0.01	-0.01	-0.01	0.03	0.61	0.16	0.05	0	1

Table 4-4 - Panel A
Determinants of Mutual Fund Advertising

This table provides the results of a regression of the existence of an advertisement on predictive variables. Model 1 presents the results for all funds Models 2 present the results when the regression is run for funds in families which advertise at any time in the data. Models 3 present the results when the regression is run for funds in families which advertise during that calendar year. For the piecewise linear specifications, the fund's return performance variable is broken into sub-variables. The low and high performance groups range from 0-.20, while the middle group ranges from 0-0.6. The sum of the sub-variables is equal to the original variable. The other explanatory variables include the lag flow from the previous month, the log of the total net assets (TNA), dummies for whether the fund is a star fund, has a front-end load fee, or a 12b-1 fee. Also included are the magnitude of the load fees, 12b-1 fees and expense ratios (without 12b-1 fees) and portfolio turnover. The models are run cross-sectionally each month. The coefficients shown are the averages across the months. The table also provides Newey-West (1987) t-statistics for the Fama-MacBeth (1973) coefficients and the average adjusted R-squareds from the regressions.

		All Funds			Funds in families which have advertised			Funds in families which have advertised in that year		
	Variable	**Mean coefficient**	**t-statistic**		**Mean coefficient**	**t-statistic**		**Mean coefficient**	**t-statistic**	
	Intercept	-0.083	-7.13	***	-0.281	-5.76	***	-0.429	-5.63	***
Lagged flows	% Net flow (t-1)	0.026	4.45	***	0.068	2.79	***	0.220	2.27	**
Past return performance	3rd performance group	-0.006	-0.57		0.038	0.90		-0.080	-0.75	
	2nd performance group	0.006	1.47		0.028	1.74	*	0.061	1.71	*
	1st performance group	0.031	1.37		-0.001	-0.02		0.048	0.22	
Fund characteristics	Dummy - Star fund	0.003	0.74		0.006	0.38		0.012	0.38	
	Log TNA	0.007	7.92	***	0.018	6.26	***	0.031	6.05	***
	Dummy - Front-end load fee	-0.011	-7.29	***	-0.017	-3.11	***	-0.019	-1.05	
	Load fee	-0.025	-0.77		-0.250	-1.95	*	-0.270	-0.44	
	Dummy - 12b-1 fees	0.006	3.23	***	0.019	2.13	**	0.014	0.59	
	12b-1 fees	-1.656	-5.21	***	-9.674	-6.32	***	5.444	0.45	
	Expense ratio	0.766	5.78	***	5.661	6.78	***	6.931	4.04	***
	Turnover	0.003	3.80	***	0.009	2.35	**	0.012	1.72	*
	Adj. R-squared	0.024			0.046			0.067		

Table 4-4 - Panel B

Determinants of Mutual Fund Advertising - Informative Ads

This panel provides the results of a regression of the existence of an informative advertisement on predictive variables. The independent variables are identical to panel A.

		All Funds			Funds in families which have advertised			Funds in families which have advertised in that year		
	Variable	**Mean coefficient**	**t-statistic**		**Mean coefficient**	**t-statistic**		**Mean coefficient**	**t-statistic**	
	Intercept	-0.080	-7.33	***	-0.266	-5.83	***	-0.406	-5.58	***
Lagged flows	% Net flow (t-1)	0.027	4.48	***	0.072	2.87	***	0.232	2.36	**
Past return performance	3rd performance group	-0.002	-0.21		0.043	1.04		-0.070	-0.65	
	2nd performance group	0.005	1.42		0.023	1.62		0.055	1.65	*
	1st performance group	0.030	1.40		0.013	0.16		0.082	0.39	
Fund characteristics	Dummy - Star fund	0.003	0.78		0.006	0.43		0.012	0.39	
	Log TNA	0.007	7.86	***	0.017	6.27	***	0.029	5.82	***
	Dummy - Front-end load fee	-0.011	-7.59	***	-0.020	-3.93	***	-0.027	-1.92	*
	Load fee	-0.032	-1.12		-0.223	-2.11	**	-0.231	-0.45	
	Dummy - 12b-1 fees	0.006	3.24	***	0.019	2.05	**	0.016	0.68	
	12b-1 fees	-1.784	-4.94	***	-10.052	-5.71	***	3.522	0.30	
	Expense ratio	0.804	6.51	***	5.682	6.82	***	7.176	4.33	***
	Turnover	0.003	4.04	***	0.007	2.21	**	0.011	1.72	*
	Adj. R-squared	0.025			0.047			0.063		

Table 4-5

The Relation of Individual Mutual Fund Netflows, Inflows, and Outflows and the Existence of an Advertisement

This table provides the results of piecewise linear specifications of the individual fund flow relation with explanatory variables, a variable to indicate the existence of an advertisement for the fund during the month, and interaction terms between performance and ad existence or informativeness. Model 1 shows the net flows. Models 2 and 3 show the decomposition of the net flows into inflows and outflows, respectively. For the piecewise linear specifications, the fund's return performance variable is broken into sub-variables. The low and high performance groups range from 0-.20, while the middle group ranges from 0-0.6. The sum of the sub-variables is equal to the original variable. The other explanatory variables include the lag flow from the previous month, the log of the total net assets (TNA), dummies for whether the fund is a star fund, has a front-end load fee, or a 12b-1 fee. Also included are the magnitude of the load fees, 12b-1 fees and expense ratios (without 12b-1 fees) and portfolio turnover. The models are run cross-sectionally each month. The coefficients shown are the averages across the months. The table also provides Newey-West (1987) t-statistics for the Fama-MacBeth (1973) coefficients and the average adjusted R-squareds from the regressions.

		Model 1: Net flows			**Model 2: Inflows**			**Model 3: Outflows**		
	Variable	**Mean coefficient**	**t-statistic**		**Mean coefficient**	**t-statistic**		**Mean coefficient**	**t-statistic**	
	Intercept	0.016	3.67	***	0.024	6.53	***	-0.010	-5.12	***
Lagged flows	% Net flow (t-1)	0.212	9.24	***						
	% Inflow (t-1)				0.467	21.91	***			
	% Outflow (t-1)							0.614	35.16	***
Past return performance	3rd performance group	0.044	5.53	***	-0.002	-0.24		0.021	4.09	***
	2nd performance group	0.022	9.99	***	0.015	7.72	***	0.001	1.01	
	1st performance group	0.095	10.30	***	0.078	7.77	***	-0.018	-2.83	***
Fund characteristics	Dummy – Star fund	0.011	5.75	***	0.009	3.75	***	-0.001	-0.64	
	Log TNA	-0.001	-4.37	***	-0.001	-2.00	**	0.000	-1.76	*
	Dummy – Front-end load fee	0.003	2.86	***	0.001	0.72		0.001	1.45	
	Load fee	-0.077	-3.77	***	-0.153	-6.91	***	0.081	6.09	***
	Dummy – 12b-1 fees	-0.003	-3.06	***	0.001	1.44		-0.002	-4.92	***
	12b-1 fees	1.189	6.15	***	1.098	6.53	***	-0.256	-3.53	***
	Expense ratio	-0.181	-1.91	*	0.058	0.80		-0.110	-3.07	***
	Turnover	0.002	3.03	***	0.006	8.91	***	-0.003	-10.75	***
Existence of ad variables	Dummy – Existence of ad	0.009	2.88	***	0.002	0.64		0.004	2.52	**
	Dummy – Non-informative ad	0.000	0.26		0.001	0.67		0.001	1.79	*
	Dummy – Ad in family	-0.002	-1.15		0.000	0.25		-0.002	-1.41	
Interaction terms - ad and perf	3rd perf group X Exist. of ad	-0.005	-1.76	*	-0.002	-0.71		-0.001	-0.58	
	1st perf group X Exist. of ad	0.004	1.30		0.007	1.70	*	-0.003	-1.50	
	Adj. R-squared	0.136			0.283			0.404		

Table 4-6

The Relation of Flows to Individual Mutual Fund Classes and the Existence of an Advertisement

This table provides the results of piecewise linear specifications of the relation of the fund flow to individual fund classes with the variables of the previous regression, and dummies for the existence of a load or 12b-1 fee for the fund share class. Also inluded are interaction dummies for the existence of a load or 12b-1 fee and the existence (in the previous three months) of an advertisment for the fund. Model 1 includes funds with both load and no-load share classes. Model 2 contains funds with both share classes which charge a 12b-1 fee and share classes which do not. As before, for the piecewise linear specifications, the fund's return performance variable is broken into sub-variables. The low and high performance groups range from 0-.20, while the middle group ranges from 0-0.6. The sum of the sub-variables is equal to the original variable. The other explanatory variables include the lag flow from the previous month, the log of the total net assets (TNA), dummies for whether the fund is a star fund, has a front-end load fee, or a 12b-1 fee. Also included are the magnitude of the load fees, 12b-1 fees and expense ratios (without 12b-1 fees) and portfolio turnover. The models are run cross-sectionally each month. The coefficients shown are the averages across the months. The table also provides Newey-West (1987) t-statistics for the Fama-MacBeth (1973) coefficients and the average adjusted R-squareds from the regressions.

		Load/Noload			12b-1/non-12b-1		
	Variable	Mean coefficient	t-statistic		Mean coefficient	t-statistic	
	Intercept	0.014	1.58		0.008	0.59	
Past returns	3rd performance group	0.046	2.31	**	0.093	2.88	***
	2nd performance group	0.039	8.17	***	0.036	6.87	***
	1st performance group	0.195	5.25	***	0.161	4.21	***
Strategic decisions	Dummy - advertising	0.001	0.44		0.006	1.88	*
	Dummy - Non-informative ad	0.011	1.88	*	0.016	1.94	*
	Dummy - Load * ad	-0.002	-0.34				
	Dummy - Load * Non-informative ad	-0.010	-2.09	**			
	Dummy - x2b1 * ad				0.002	0.43	
	Dummy - x2b1 * Non-informative ad				-0.020	-2.90	***
	Dummy - Ad in family	0.004	1.01		-0.006	-1.48	
	Dummy - star fund	-0.005	-0.63		0.006	1.04	
	Dummy - front-end load fee	0.008	5.45	***	0.004	1.58	
	Load fee	0.309	4.53	***	0.207	3.62	***
	Dummy - 12b-1 fees	0.009	4.61	***	0.018	9.75	***
	12b-1 fees	1.248	3.20	***	0.669	1.18	
	Expense ratio	-1.411	-4.69	***	-0.999	-3.32	***
	Turnover	-0.002	-1.23		-0.002	-1.15	
Control variables	Lag %Flow from previous month	0.087	5.99	***	0.098	4.84	***
	Log TNA	-0.002	-2.83	***	-0.002	-2.17	**
	Adj. R-squared	0.158			0.175		

Table 5-1
Mutual Fund Family Characteristics

This table provides descriptive statistics on the sample and mutual fund family characteristics as of the first quarters of three years in the sample, 1992, 1996, and 2001. The table provides the number of mutual fund families in the sample along with their total assets. For the family characteristics, the table shows the total mutual fund assets under management, the aggregate monthly family flows as a percentage of assets, the percent of families with at least one 12b-1 fund share class, the percent of families with at least one fund share class with a front-end load fee, the average load fees across funds in the families, the average load fees across funds with loads in the family, and the average expense ratio.

			1992	1996	2001
Sample characteristics	Number of families		98	124	109
	Total assets for all families ($billion)		$935.40	$1,970.20	$4,225.00
Family characteristics	Total assets per family ($billion)	Mean	$9.54	$15.89	$38.76
		S.D.	1.93	3.48	9.01
	Flows as a percentage of assets	Mean	4.35%	2.76%	1.79%
		S.D.	0.74%	0.44%	0.35%
	Percent with at least one 12b-1 fee share class		69.39%	77.42%	83.49%
	Percent with at least one front-end load fee share class		70.41%	76.61%	75.23%
	Average load fees	Mean	1.82%	1.53%	1.61%
		S.D.	0.22%	0.17%	0.18%
	Average load fees (load funds only)	Mean	4.46%	4.54%	4.98%
		S.D.	0.12%	0.08%	0.08%
	Average expense ratio	Mean	1.13%	1.21%	1.25%
		S.D.	0.06%	0.05%	0.05%

Table 5-2

The Relation between Mutual Fund Family Flows, Previous Performance, and Strategic Decisions

This table provides the results of piecewise linear specifications of the mutual fund family flow with explanatory variables for that flow. Models 1 and 2 show the piecewise linear specifications with four kinks and two kinks, respectively. For the piecewise linear specifications, the family's value-weighted average return performance variable is broken into sub-variables. In model 1, these sub-variables range from 0-.20. In model 2, the low and high performance groups range from 0-.20, while the middle group ranges from 0-0.6. In each model the sum of the sub-variables is equal to the original variable. The other variables are the lag flow from the previous month, the log of the total net assets (TNA), dummies for whether the following are in a family: star fund, front-end load fee, 12b-1 fee. Also included are load fees, 12b-1 fees and expense ratios (without 12b-1 fees) averaged across the funds in the family and the average is ranked against other families in the sample and average portfolio turnover. The models are run cross-sectionally each month from 1992-2001. The coefficients shown are the averages across the 114 months. The table also provides Newey-West (1987) t-statistics for the coefficients from the Fama-MacBeth (1973) aggregation technique and the average adjusted R-squareds from the regressions.

		Model 1			**Model 2**		
	Variable	**Mean coefficient**	**t-statistic**		**Mean coefficient**	**t-statistic**	
	Intercept	0.004	1		0.006	1.23	
	5th performance group	0.061	4.11	***			
	4th performance group	-0.021	-1.56				
	3rd performance group	0.014	1.67	*	0.045	4.01	***
	2nd performance group	0.005	0.73		0.002	0.66	
Past returns	1st performance group	0.082	7.43	***	0.089	8.02	***
	Log fund objectives offered	0.002	2.56	**	0.002	2.6	***
	Dummy - front-end load fee	0.005	4.17	***	0.006	4.3	***
	Ranked average load fee	-0.008	-4.86	***	-0.008	-4.91	***
	Dummy - 12b-1 fees	-0.002	-1.01		-0.002	-0.99	
	Ranked average 12b-1 fees	0.008	3.43	***	0.008	3.79	***
	Ranked average expense ratio	-0.007	-2.75	***	-0.008	-2.95	***
Strategic decisions	Average turnover	-0.002	-2.07	**	-0.002	-2.21	**
	Lag Flow from previous month	0.067	2.26	**	0.067	2.28	**
	Log TNA	-0.001	-3.31	***	-0.002	-3.19	***
Control variables	Dummy - star fund in family	0.003	3.26	***	0.003	3.26	***
	Adj. R-squared	0.131			0.131		

Table 5-3

The Relation between Mutual Fund Family Flows, Adjusted Previous Performance, and Strategic Decisions

This table provides the results of piecewise linear specifications of the mutual fund family flow with explanatory variables for that flow. Models 1 and 2 show the piecewise linear specifications with four kinks and two kinks, respectively. In aggregating family return performance, each individual fund's performance is adjusted for the return performance in the fund's ICDI objective class. For the piecewise linear specifications, the family's value-weighted average return performance variable is broken into sub-variables. In model 1, these sub-variables range from 0-.20. In model 2, the low and high performance groups range from 0-.20, while the middle group ranges from 0-0.6. In each model the sum of the sub-variables is equal to the original variable. The other variables are the lag flow from the previous month, the log of the total net assets (TNA), dummies for whether the following are in a family: star fund, front-end load fee, 12b-1 fee. Also included are load fees, 12b-1 fees and expense ratios (without 12b-1 fees) averaged across the funds in the family and the average is ranked against other families in the sample and average portfolio turnover. The models are run cross-sectionally each month from 1992-2001. The coefficients shown are the averages across the 114 months. The table also provides Newey-West (1987) t-statistics for the coefficients from the Fama-MacBeth (1973) aggregation technique and the average adjusted R-squareds from the regressions.

		Model 1			Model 2		
	Variable	Mean coefficient	t-statistic		Mean coefficient	t-statistic	
	Intercept	0.004	0.83		0.006	1.12	
	5th performance group	0.006	0.5				
	4th performance group	-0.018	-1.76	*			
	3rd performance group	0.012	1.37		-0.007	-0.62	
	2nd performance group	0.007	0.89		0.002	0.99	
Past returns	1st performance group	0.091	8.93	***	0.096	10.5	***
	Log fund objectives offered	0	0.15		-0.001	-1.04	
	Dummy - front-end load fee	0.004	2.56	**	0.004	2.73	**
	Ranked average load fee	-0.006	-3.16	***	-0.005	-3.03	***
	Dummy - 12b-1 fees	-0.002	-1.13		-0.002	-1.09	
	Ranked average 12b-1 fees	0.007	3.35	***	0.006	3.19	***
	Ranked average expense ratio	-0.008	-3.04	***	-0.008	-2.94	***
Strategic decisions	Average turnover	-0.002	-2.54	**	-0.002	-2.41	**
	Lag Flow from previous month	0.063	2.06	**	0.065	2.13	**
	Log TNA	0	0.73		0	0.36	
Control variables	Dummy - star fund in family	0.001	1.53		0.002	1.76	*
	Adj. R-squared	0.127			0.126		

Table 6-1
Mutual Fund Family Advertising Characteristics

This table provides descriptive statistics on the advertising characteristics of the mutual fund families in the sample as of the first quarters of three years in the sample, 1992, 1996, and 2001. The table provides the percent of the mutual fund families in the sample each year that advertised during the first quarter, the percent of the sample total net assets under management represented by the advertising mutual fund families' assets under management, total monthly advertising expenditures by all fund families, average fund family monthly advertising expenditures, minimum and maximum fund family monthly advertising expenditures, average monthly advertising expenditures as a percentage of assets (in thousandths of a percent).

		1992	1996	2001
Family Advertising Characteristics	Percent of families advertising	73.50%	71.00%	64.20%
	Percent of sample TNA represented by advertisers' TNA	62.20%	61.10%	68.60%
	Total monthly advertising expenditures ($millions)	$31.34	$42.58	$105.88
	Fund family monthly advertising expenditures ($ thousands)			
	Average	$1,253	$1,216	$2,786
	Minimum	$9	$25	$8
	Maximum	$11,062	$12,070	$38,492
	Average monthly advertising expenditures as a % of assets (in thousandths of a percent)	3.35%	4.18%	2.26%

Table 6-2
The Relation between Aggregate Flows to Fund Families, Advertising Expenditures, and Performance

This table provides the results of times series regressions in which the dependent variable is the aggregate monthly flow to all fund families in our sample in Model 1 and aggregate monthly flows to the non-advertising fund families in Model 2. The independent variables are the lag flow to the family, the aggregate advertising expenditures across all funds, and the lag annual average performance across the fund families. The table also provides Newey-West (1987) t-statistics for the coefficients and the average adjusted R-squareds from the regressions.

	Model 1		**Model 2**	
	All Families		**Non-advertising Families**	
Variable	**Mean coefficient**	**t-statistic**	**Mean coefficient**	**t-statistic**
Intercept	0.002	1.06	0	0.15
Lag aggregate flows - previous month	-0.249	-2.88**	-0.231	-2.66**
Aggregate advertising expenditures	0.482	2.68**	0.177	1.93*
Lag return performance – previous year	0.023	2.28**	0.042	2.62**
Adj. R-squared	0.093		0.081	

Table 6-3

The Relation between Mutual Fund Family Flows, Performance, and Strategic Decisions with Advertising Expenditures

This table provides the results of piecewise linear specifications of the family flow relation with explanatory variables including advertising expenditures. For comparison purposes, Model 1 shows the family flow relation without advertising from Table 5-2. Models 2 and 3 include the flow-performance advertising relation as well. For the piecewise linear specifications, the low and high advertising groups range from 0-.20, while the middle group ranges from 0-0.6. The sum of these sub-variables is equal to the original variable. The other control variables are the lag flow from the previous month, the log of the total net assets (TNA), dummies for whether the following are in a family: star fund, front-end load fee, 12b-1 fee. Also included are load fees, 12b-1 fees and expense ratios (without 12b-1 fees) averaged across the funds in the family where the average is ranked against other families in the sample and average portfolio turnover. The models are run cross-sectionally each month from 1992-2001. The coefficients shown are the averages across the 114 month. The table also provides Newey-West (1987) t-statistics for the Fama-MacBeth (1973) coefficients and the average adjusted R-squareds from the regressions.

		Model 1			**Model 2**			**Model 3**		
	Variable	**Mean coefficient**	**t-statistic**		**Mean coefficient**	**t-statistic**		**Mean coefficient**	**t-statistic**	
	Intercept	0.006	1.23		0.004	0.68		0.004	0.7	
	No advertising dummy				0.002	1.53		0.001	0.84	
	Ranked advertising				0.002	1.08				
	Low advertising group							0.002	0.22	
	Mid advertising group							-0.002	-0.71	
Ad variables	High advertising group							0.037	2.81	***
	Low performance group	0.045	4.01	***	0.046	4.04	***	0.045	3.7	***
	Mid performance group	0.002	0.66		0.001	0.41		0.001	0.36	
Past returns	High performance group	0.089	8.02	***	0.089	8.03	***	0.09	8.02	***
	Log fund objectives offered	0.002	2.6	***	0.002	2.56	**	0.002	2.82	***
	Dummy - front-end load fee	0.006	4.3	***	0.006	4.59	***	0.006	4.56	***
	Ranked average load fee	-0.008	-4.91	***	-0.008	-4.41	***	-0.008	-4.18	***
	Dummy - 12b-1 fees	-0.002	-0.99		-0.002	-1.17		-0.002	-1.15	
	Ranked average 12b-1 fees	0.008	3.79	***	0.008	3.89	***	0.008	3.45	***
	Ranked average expense ratio	-0.008	-2.95	***	-0.008	-3.1	***	-0.008	-3.02	***
Strategic decisions	Average turnover	-0.002	-2.21	**	-0.002	-2.13	**	-0.002	-2.16	**
	Lag Flow from previous month	0.067	2.28	**	0.067	2.25	**	0.064	2.13	**
	Log TNA	-0.002	-3.19	***	-0.001	-2.7	***	-0.001	-2.61	***
Control variables	Dummy - star fund in family	0.003	3.26	***	0.003	3.1	***	0.003	2.84	***
	Adj. R-squared	0.131			0.128			0.123		

Table 6-4

The Effects of Family Strategic Decisions on Mutual Fund Family Flow Volatility

This table provides the results of regressions of family average flow volatility on strategic decisions and control variables. Model 1 provides a linear specification for advertising in which advertising expenditures are ranked against other families in the sample. Model 2 provides a piecewise linear specification for advertising. The other strategic decision and control variables are the relative performance of the family, the volatility from the previous year, the current flows into the family, the log of the total net assets (TNA), dummies for whether the following are in a family: star fund, front-end load fee, 12b-1 fee. Also included are load fees, 12b-1 fees and expense ratios (without 12b-1 fees) averaged across the funds in the family and the average is ranked against other families in the sample, average portfolio turnover and log of the number of fund objectives offered. The coefficients shown are the averages across the model run cross-sectionally each month from 1992-2001. Also provided are the Newey-West (1987) t-statistics for the Fama-MacBeth (1973) coefficients and the average adjusted R-squareds.

		Model 1			Model 2		
	Variable	Mean coefficient	t-statistic		Mean coefficient	t-statistic	
	Intercept	0.048	4.69	***	0.049	4.54	***
Ad variables	Advertising	0.007	1.64				
	No advertising	0.009	3.98	***	0.009	1.74	*
	Low advertising group				0.009	0.28	
	Mid advertising group				0.001	0.11	
	High advertising group				0.051	1.57	
Past returns	Low performance group	-0.074	-3.83	***	-0.07	-3.57	***
	Mid performance group	-0.014	-3.46	***	-0.014	-3.32	***
	High performance group	0.035	1.62		0.039	1.82	*
Strategic decisions	Log fund objectives offered	0.007	3.68	***	0.014	11.03	***
	Dummy - front-end load fee	0.013	10.48	***	0.007	2.32	**
	Ranked average load fee	0.007	2.45	**	-0.015	-2.71	***
	Dummy - 12b-1 fees	-0.015	-2.94	***	0.029	13.48	***
	Ranked average 12b-1 fees	0.03	14.55	***	0.004	0.83	
	Ranked average expense ratio	0.003	0.82		-0.019	-3.6	***
	Average turnover	-0.018	-3.6	***	-0.002	-1.07	
Control variables	Previous year flow volatility	-0.001	-0.74		0.466	17.7	***
	Current family flows	0.465	17.6	***	-0.034	-1.49	
	Log lag TNA	-0.039	-1.75	*	-0.004	-3.22	***
	Dummy - star fund in family	-0.003	-3.19	***	0.008	3.97	***
	Adj. R-squared	0.23			0.228		

Table 6-5

The Effects of Family Strategic Decisions on Mutual Fund Family Flow Volatility

This table provides the results of regressions of family average flow semi-variance on strategic decisions and control variables. Model 1 provides a linear specification for advertising in which advertising expenditures are ranked against other families in the sample. Model 2 provides a piecewise linear specification for advertising. The other strategic decision and control variables are the relative performance of the family, the volatility from the previous year, the current flows into the family, the log of the total net assets (TNA), dummies for whether the following are in a family: star fund, front-end load fee, 12b-1 fee. Also included are load fees, 12b-1 fees and expense ratios (without 12b-1 fees) averaged across the funds in the family and the average is ranked against other families in the sample, average portfolio turnover and log of the number of fund objectives offered. The coefficients shown are the averages across the model run cross-sectionally each month from 1992-2001. Also provided are the Newey-West (1987) t-statistics for the Fama-MacBeth (1973) coefficients and the average adjusted R-squareds.

		Model 1			**Model 2**		
	Variable	**Mean coefficient**	**t-statistic**		**Mean coefficient**	**t-statistic**	
	Intercept	0.048	4.69	***	0.049	4.54	***
	Advertising	0.007	1.64				
	No advertising	0.009	3.98	***	0.009	1.74	*
	Low advertising group				0.009	0.28	
	Mid advertising group				0.001	0.11	
Ad variables	High advertising group				0.051	1.57	
	Low performance group	-0.074	-3.83	***	-0.07	-3.57	***
	Mid performance group	-0.014	-3.46	***	-0.014	-3.32	***
Past returns	High performance group	0.035	1.62		0.039	1.82	*
	Log fund objectives offered	0.007	3.68	***	0.014	11.03	***
	Dummy - front-end load fee	0.013	10.48	***	0.007	2.32	**
	Ranked average load fee	0.007	2.45	**	-0.015	-2.71	***
	Dummy - 12b-1 fees	-0.015	-2.94	***	0.029	13.48	***
	Ranked average 12b-1 fees	0.03	14.55	***	0.004	0.83	
	Ranked average expense ratio	0.003	0.82		-0.019	-3.6	***
Strategic decisions	Average turnover	-0.018	-3.6	***	-0.002	-1.07	
	Previous year flow volatility	-0.001	-0.74		0.466	17.7	***
	Current family flows	0.465	17.6	***	-0.034	-1.49	
	Log lag TNA	-0.039	-1.75	*	-0.004	-3.22	***
Control variables	Dummy - star fund in family	-0.003	-3.19	***	0.008	3.97	***
	Adj. R-squared	0.23			0.228		

Table 6-6
Correlations between Strategic Decisions Variables

This table provides the results of correlations of mutual fund family strategic decision variables. Advertising is the relative advertising of the family against other families in the sample. Low advertising group, Mid advertising group and High advertising group are dummy variables for whether the family is a member of each of these groups. Also included are load fees, 12b-1 fees and expense ratios (without 12b-1 fees) averaged across the funds in the family and the average is ranked against other families in the sample. The table also includes the log of the fund objectives offered by the family. All correlations are significant beyond the .001 level with the exception of correlations between the log fund objectives and the advertising variable, the mid advertising variable and the ranked average expense ratio which have significance levels of .7168, .0298, and .1478, respectively

Variable	Advertising	Ranked average expense ratio	Dummy - load fee	Ranked average load fee	Dummy - 12b-1 fees	Ranked average 12b-1 fees	Log fund objectives offered
Advertising	1	0.15	-0.12	-0.18	-0.08	-0.03	0
Low advertising group		0.1	-0.08	-0.14	-0.08	-0.04	0.12
Mid advertising group		0.15	-0.12	-0.18	-0.08	-0.04	-0.02
High advertising group		0.18	-0.13	-0.15	0.01	0.05	-0.2
Ranked average expense ratio	0.15	1	0.12	0.44	0.27	0.67	-0.01
Dummy - front-end load fee	-0.12	0.12	1	0.65	0.49	0.38	0.33
Ranked average load fee	-0.18	0.44	0.65	1	0.46	0.66	0.22
Dummy - 12b-1 fees	-0.08	0.27	0.49	0.46	1	0.62	0.18
Ranked average 12b-1 fees	-0.03	0.67	0.38	0.66	0.62	1	0.1
Log fund objectives offered	0	-0.01	0.33	0.22	0.18	0.1	1

Table 6-7

Determinants of Mutual Fund Family Annual Advertising Expenditures

This table provides the results of a regression of family advertising expenditures on a set of family characteristics. Model 1 presents the results for all families with a dummy variable if the family is a large family, defined as a family above the median in assets under management. Models 2 and 3 present the results when the regression is run separately for small and large families, respectively. The other control variables are the lag flow from the previous year, the lag volatility from the previous year, the log of the total net assets (TNA), dummies for whether the following are in a family: star fund, front-end load fee, 12b-1 fee. Also included are load fees, 12b-1 fees and expense ratios (without 12b-1 fees) averaged across the funds in the family and the average is ranked against other families in the sample and average portfolio turnover. The models are run cross-sectionally each year from 1992-2001. The coefficients shown are the averages across the 10 years. The table also provides the Newey-West (1987) t-statistics for the coefficients from the Fama-MacBeth (1973) aggregation technique and the average adjusted R-squareds from the regressions.

		Model 1			**Model 2**			**Model 3**		
		All families			**Small families**			**Large families**		
	Variable	**Mean coefficient**	**t-statistic**		**Mean coefficient**	**t-statistic**		**Mean coefficient**	**t-statistic**	
	Intercept	0.033	0.1		-0.286	-0.38		0.441	1.68	**
	Low performance	0.107	0.31		1.056	3.35	***	-0.28	-1.01	
	Mid performance	-0.065	-0.48		-0.059	-0.21		-0.144	-0.56	
Past returns	High performance	-0.563	-0.76		-0.095	-0.1		0.396	0.36	
	Log fund objectives offered	-0.273	-3.61	***	-0.185	-1.63		-0.004	-0.05	
	Load dummy	0.135	1.56		0.069	0.48		0.074	0.61	
	Ranked average load	-0.461	-3.3	***	-0.436	-2.38	**	-0.183	-2.24	***
	12b-1 fees dummy	-0.033	-0.38		0.02	0.19		-0.091	-1	
	ranked 12b-1	0.171	1.78	*	0.366	3.94	***	-0.083	-1.1	
	ranked expense ratio	0.361	2.8	***	0.332	1.27		0.06	0.68	
Strategic decisions	Average turnover	0.09	1.96	*	0.064	1.02		0.087	1.62	
	Previous year flow	0.201	1.53		0.031	0.21		0.296	1.16	
	Previous year flow volatility	0.789	0.41		-0.353	-0.12		0.087	0.08	
	Log lag TNA	0.065	1.98	**	0.051	0.58		-0.011	-0.34	
	Dummy - star fund in family	0.042	1.09		0.093	1.7	*	-0.048	-0.51	
Control variables	Size dummy	0.037	0.86							
	Adj. R-squared	0.286			0.134			0.197		

Figure 4-1

Percent of Advertisements Reporting Performance Information

This figure shows for each quarter of my sample periods (1994-1996, 2000-2001) the percentage of the advertisements that reported performance on the mutual funds on the left axis and the percentage average annual return on the S&P 500 Index for the previous three years (ending the preceding quarter-end) on the right axis.

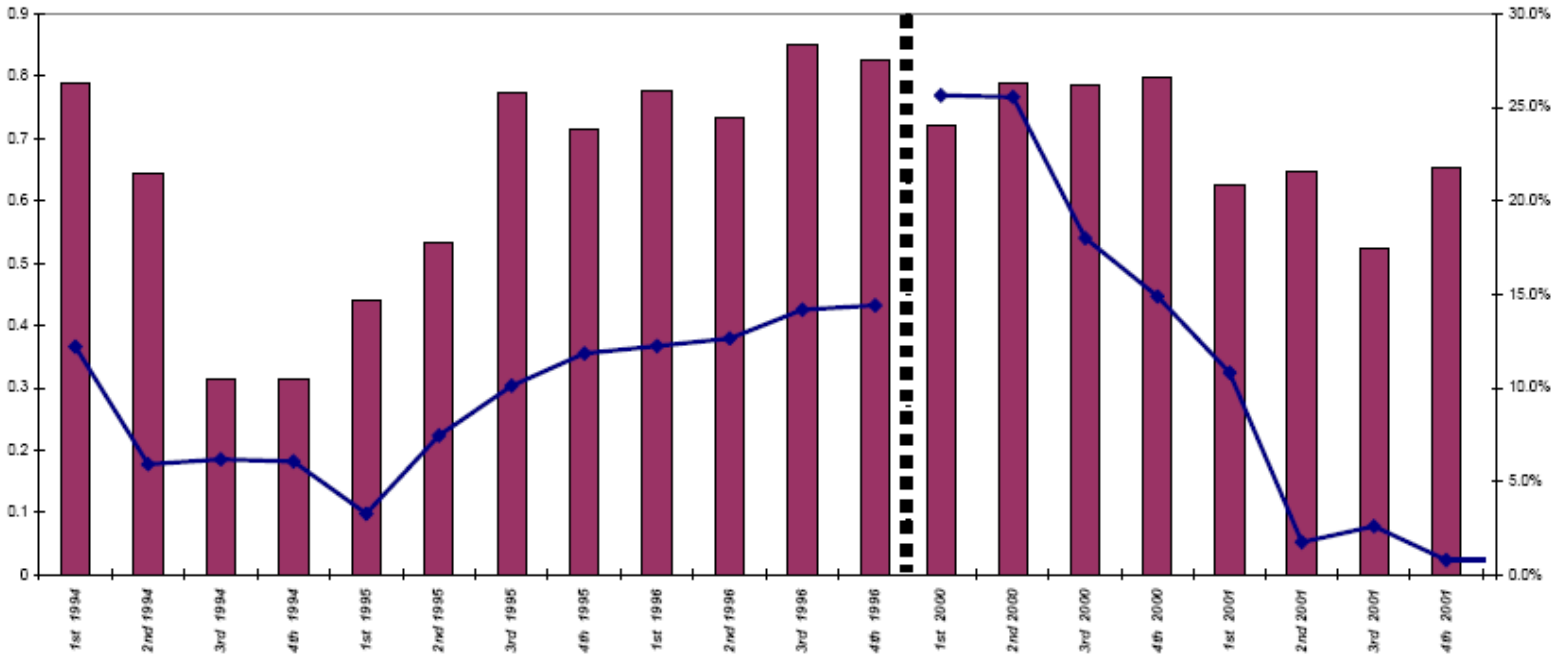


Figure 5-1

Average Monthly Family Fund Flows

This figure shows how average family fund flows vary over the sample period. I computed the flow for each family as a percentage of total net assets and then found the average across families in the sample.

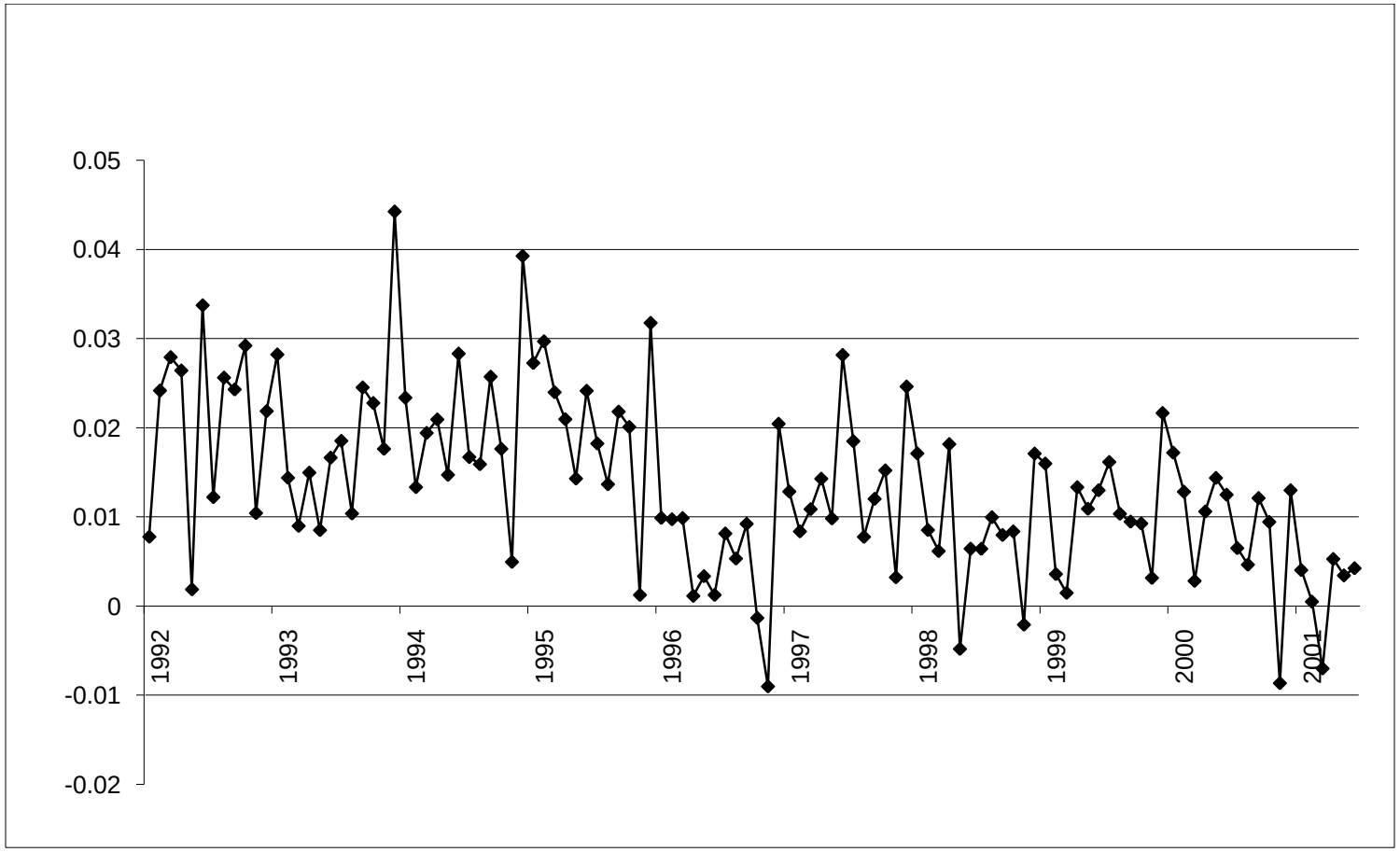


Figure 6-1

Estimated Total Return to Advertising

This figure shows the total returns to advertising in terms of the flow/advertising relation by showing the times series results for the 85th and 95th percentile advertisers at intervals over the 1992-2001 sample period. At each point in time I took the advertising expenditures of the fund family that was closest to (and above) the 85th (95th) percentile in advertising expenditures and applied the coefficients from that period's flow-performance regression to generate the dollar flows to advertising. The dollar flows to advertising were then divided by the actual advertising to derive the returns to advertising.

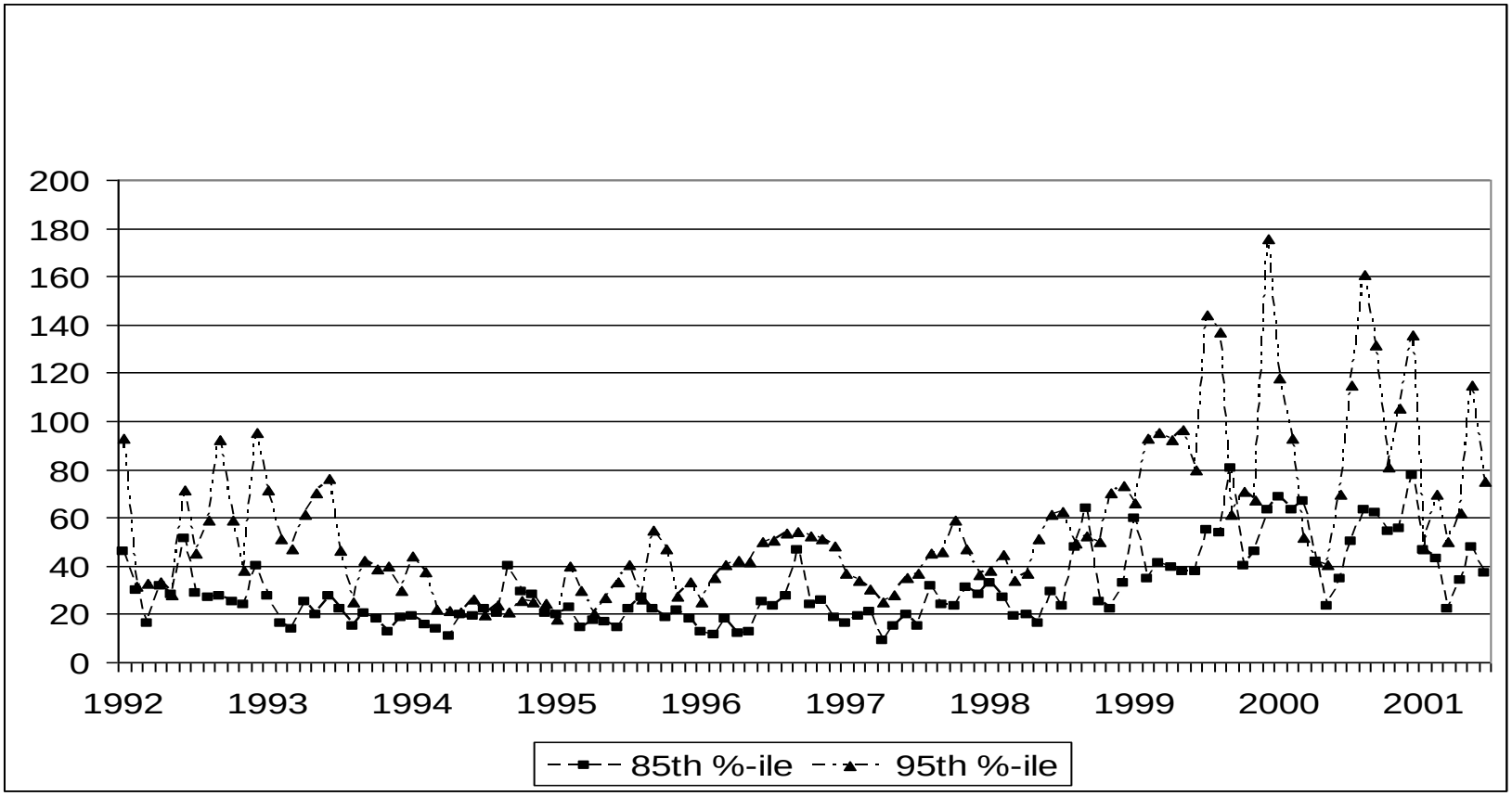
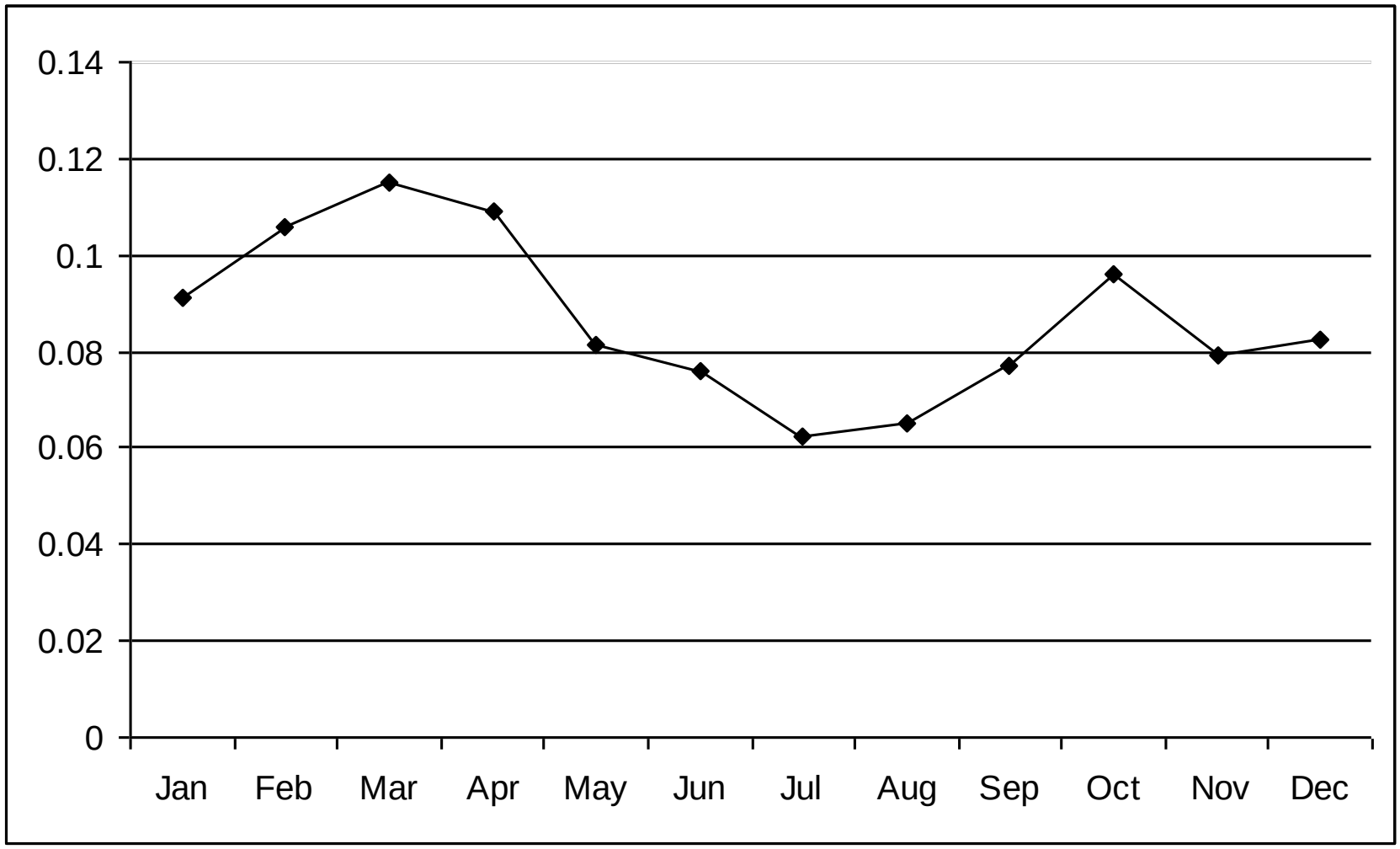


Figure 6-2

Seasonality in Advertising Expenditures

This figure shows the percentage of advertising expenditures averaged across each month in the 1992-2001 sample period.



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