Madison Avenue Meets Wall Street:
Mutual Fund Families, Competition and Advertising

by

Steven Gallaher
University of Texas
Department of Finance
Austin, TX 78712
(512) 232-2326
FAX: (512) 471-5073
sgallaher@mail.utexas.edu

Ron Kaniel
Duke University
Fuqua School of Business
134 Towerview Drive
Durham, NC 27708
(919) 660-7656
Fax (919) 660-7990
Ron.kaniel@duke.edu

and

Laura Starks
University of Texas
Department of Finance
Austin, TX 78712-1179
(512) 471-5899
FAX: (512) 471-5073
LStarks@mail.utexas.edu

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Abstract

We examine the effects of mutual fund families' strategic decisions on investor flows into the families. We identify a non linear relation between a family's flows and its relative levels of advertising expenditures. Advertising has a significant positive effect on family flows for relatively high advertisers. However, for relatively low advertisers there does not seem to be a relation between advertising and flows. Thus, advertising is a strategic decision for the fund family. We also find that other strategic decisions such as which distribution channels to employ, the number of categories in which to offer funds, and the relative level of advertising expenditures significantly affect not only investor flows to the family's funds, but also the volatility of those flows. Similar to evidence found at the individual fund level, investor flows as a function of a family's past performance display an increasing and convex relation for high performing families. However, in contrast to evidence about individual funds flow-performance relationship there exists an additional non-linearity, with the lowest performing fund families for which there is also a positive relationship.

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1. Introduction

Investment companies, particularly open-end mutual funds, have been the fastest growing segment of the institutional investor community in recent years. Despite the importance of this institutional investor class, questions still remain concerning the supply and demand for the financial services they provide. Regarding the supply, although early research tended to focus on individual funds (primarily growth funds), more recent research has considered the mutual fund family as the relevant unit of measure.[1] 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 primarily 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.

In this paper we address the supply and demand issues by focusing on these strategic decisions of the mutual fund family and examining how these decisions affect the demand. That is, we examine how the family's strategic decisions affect aggregate net flows of assets under management. Although the investment management company that sponsors the funds is certainly interested in the level of flows to each of their individual funds, they view those funds as a series of products, with the central interest

[1] Recent papers on mutual fund families include Khorana and Servaes (1999, 2003), Mamaysky and Spiegel (2002), Gaspar, Massa and Matos (2003), Massa (2003), Sigglekow (2003), Nanda, Wang and Zheng (2004), Elton, Gruber and Green (2004) and Kempf and Ruenzi (2004a, 2004b).

being in the aggregate flows to the entire family of funds. In our analysis, we first ignore the advertising decision and examine how aggregate family flows are affected by the outcome of the other family-level strategic decisions. This approach allows us to compare the determinants of family-level flows to the determinants of individual fund flows found in previous research. [2]

We find that at the top end of performance, the family flows have a convexity similar to that found in earlier studies on individual growth funds (e.g., Sirri and Tufano, 1998; Chevalier and Elison, 1997). However, in contrast to the Sirri-Tufano individual fund results we find the family flow-performance relation to be significantly positive for the lowest performing group as well.[3] Only the extreme performers have flows related to their performance. Also with regard to the relation between family flows and performance, we show that the aggregate flows to the family are increasing in the existence of at least one star fund in the family, consistent with the Nanda, Wang and Zheng (2004) analysis for individual funds.

Our results suggest that a family's strategic decisions beyond the portfolio management decision can significantly affect investor flows to the family. For example, the choices mutual fund families make regarding fund offerings has an effect on family flows, consistent with the implications of Khorana and Servaes (1999,2003), Massa (2003), and Gaspar, Massa and Matos (2003). Specifically, our results show that the

[2] Previous studies on demand for mutual funds tend to focus on the individual fund rather than the mutual fund family. See, for example, Ippolito (1992), Capon, Fitzsimons, and Prince (1996), Gruber (1996), Goetzmann and Peles (1997), Chevalier and Elison (1997), Sirri and Tufano (1998), Edelen (1999), Barber, Odean and Zheng (2002), and Wilcox (2002). Those studies that have focused on demand for the family of funds use different metrics than we do here. Khorana and Servaes (2003) examine determinants of family market shares rather than fund flows. Thus, they examine percentage levels of assets, while we examine percentage changes in levels of assets. Siggelkow (2003) examines the dollar amount of family flows on an annual basis. We employ the percentage flows, which is comparable to the earlier work on individual funds' flows.

[3] For mature funds the results in Chevalier and Elison (1997) are consistent with the ones in Sirri and Tufano (1998). However, for very young funds they also find a positive relationship for poorly performing funds.

more objective classes that a families' funds span, the larger the flows to the family, ceteris paribus.

Distribution channels make a difference as well in that flows are significantly related to both load fees and 12b-1 fees. Flows are positively related to the existence of a load, but then decreasing in the size of the load. Flows are positively related to the family's average 12b-1 fees. The implications of these results is that the choice of distribution channels has significant effects on flows into the family.

Finally, we find that investors appear to be sensitive to a family's average operating costs. The flows into a family of funds has a significantly negative relation with the family's average expense ratio (excluding 12b-1 fees). This result is at variance with a number of studies of individual funds, which have found no significant relation between flows and expense ratios. Our results suggest that investors pay attention to fees when selecting a family in which to purchase funds.

We then focus on the advertising decision and its effects on individual investors' choice of funds and the aggregate flows of funds into the family. The economic role of advertising in such consumer choice problems has been hypothesized to result in the lowering of consumer search costs because advertising provides the consumer with information about the product – such as the product's existence and characteristics (Bagwell and Ramey, 1994). Advertising has also been hypothesized to be a signal of product quality (Nelson, 1970, 1974; Kihlstrom and Riordan, 1984; Milgrom and Roberts, 1986). The implication of these hypotheses is that advertising increases sales of a product due to lowered search costs either for the product in general or for the high quality product. In a similar vein, the attention (or familiarity) hypotheses (e.g., Kahneman, 1973; Merton, 1987; Lee, 1992; Barber and Odean, 2003) imply that advertising has the ability to increase investors' awareness of a fund or fund family, which would be expected to affect mutual fund flows.

Under these hypotheses, the result of a mutual fund family's advertising expenditures would be an increase in assets under management, ceteris paribus, which in turn implies motivation for the use of advertising. It then follows that because the fund family sponsor's income is commonly a percentage of assets under management,[4] increased investor flows from advertising would result in a corresponding increase in the sponsor's income. Additional benefits of the increased investor flows from advertising would include the benefits of economies of scale since the shared expenses for fund management operations would become a smaller fraction of the assets under management, ceteris paribus.[5,6]

Surprisingly little attention has been paid to the link between advertising and fund flows. Since the decision is made at the family complex level, rather than the individual fund level, an examination needs to be conducted regarding how this decision affects family flows. 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, 2003) 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). Much of the fund family's advertising expenditures are paid by the management company, rather than being a direct expense to fund shareholders through 12b-1 fees. Consequently the full extent of advertising

[4] See, for example, Deli (2002), Golec (2003) or Golec and Starks (2004).
[5] Baumol, et. al. (1980), Collins and Mack (1997) and Latzko (2001) have found evidence of economies of scale in the mutual fund industry.
[6] Advertising could also be used as an attempt by fund management to create barriers to entry as suggested by Tirole (1995). Such barriers may be desired since previous research (Baumol, Goldfeld, Gordon and Koehn, 1980; Khorana and Servaes, 2003) suggests that the mutual fund industry is highly competitive with low barriers to entry.

expenditures are not observable through regulatory filings or other common mutual fund databases.

Several studies examined advertising in relation to managed funds. For example, Jain and Wu (2000) provide evidence that the existence of an advertisement in one of two business periodicals is associated with larger flows to the individual funds advertised than to a matched sample of funds.[7] Cronqvist (2004) examines advertising in Sweden by 401-k type funds around the time Sweden launched a partial privatization of their social security system (similar to that being proposed for Social Security in the U.S.).. He finds a relation between the funds that advertised and the investors' subsequent allocation choices.. Reuter and Zitzewitz (2004) examine advertising expenditures by fund families and conclude that such expenditures may influence mutual fund recommendations in personal finance magazines. Our study differs from these previous and contemporaneous studies in terms of focus, data and methodology.[8]

Fund family complexes typically budget their advertising expenditures and enter into advertising contracts on an annual complex-wide basis. They then often make the decisions regarding when to advertise, and which funds to advertise, later in the fiscal year. Thus, although the advertisement itself may focus on a particular fund, the decision on when to place the ad, how many ads to place, and which funds to include in the ads are made at the family level. The decision is generally not made by individual fund managers. Further, even in the case of ads focused on individual funds, the intent of the ad may be to attract attention to the fund complex rather than simply the fund

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

[8] Recent papers also consider advertising by corporations. Grullon, Kanatas and Weston (2004) find a relation between the level of corporate advertising and the breadth of ownership and liquidity of the firm's common stock. Fehle, Tsyplakov, and Zdorovtsov (2004) find that advertising in the Super Bowl broadcast is associated with increases in stock market volume the following Monday, and that the average trade size is smaller, suggesting a higher proportion of individual investors in the increased volume.

itself.[9] Because these are complex-wide decisions, it is most appropriate to examine the effects of these decisions on a complex-wide basis and to compare these effects to those of other complex-wide strategic decisions.

With regard to the relation between a mutual fund family's flows and its relative advertising expenditures, we find that advertising affects flows in a non-linear fashion with convexity at the upper end. High relative levels of advertising are significantly related to high fund flows. However, for low levels of relative advertising there is no significant relationship. Thus, considering the advertising expenditure as a strategic decision, these results imply that for advertising to matter, the family must ensure that they are one of the top advertisers on a relative basis.

Given our evidence regarding the effects of family strategic decisions on flows to the complex, we also examine whether these decisions affect the volatility of those flows. We find that the strategic decisions affect flow volatility in diverse, but significant ways.

Finally, in order to check for endogeneity problems, we examine the determinants of the family's advertising expenditures. We find that the level of the advertising expenditures is dependent on the average expense ratio of the fund family, the average load and the average turnover. We do not find that family return performance affects the family's advertising expenditures.

2. Data

We obtain monthly information on the print advertising expenditures of mutual fund families over the 1992-2001 time period from Competitive Media Research (CMR). CMR is a third-party collector and distributor of data on advertising expenditures for

[9] In conversations with mutual fund family executives, they indicated that the intent of the advertising is often not the particular fund advertised, but the fund family itself. Further, investors who call in on the advertisement may be counseled to invest in other funds, depending on their goals and risk tolerances.

many products, both print advertising and other media advertising.[10] Over our sample period these 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). Our data on characteristics of mutual fund families and their constituent funds (such as total net assets, expense ratios, load fees, 12b-1 fees, objectives and returns) is obtained from the CRSP mutual fund database. Since our focus is on the mutual fund family rather than individual funds, we only include families with a minimum of $1 billion under management. [11] Such a restriction has little impact on our 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 our sample period (2001) and 97% at the beginning (1992).

Table 1 provides characteristics of the mutual fund families included in our sample over the 1992-2001 time period. Consistent with the changes in mutual fund assets in general over the sample period (see Figure 1), the number of large fund families grows from 98 in 1992 to 124 in 1996 and then contracts to 109 in 2001. Figure 1 and Table 1 indicate that 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 our 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

[10] Our data is limited to the print advertising, but according to Reuter and Zitzewitz (2004), mutual fund print advertising accounts for about 80% of total advertising expenditures.
[11] We 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 large fund families.

other parts of the financial services industry."[12] Consistent with this statement, Table 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 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.

Table 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, 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 we 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 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 over the period, which have higher costs of operations.

The monthly advertising expenditures (as a percentage of fund assets) dropped over the sample period. Figure 2 shows more detail regarding how the dollar amount of

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

advertising as a percentage of fund family assets has generally decreased over time. Comparing Figure 2 to Figure 1 indicates that part of this decrease is undoubtedly from the fact that advertising expenditures have not grown as rapidly as have mutual fund assets under management.

3. Determinants of fund flows on the family level

In this section we provide a cross-sectional analysis of the determinants of fund flows on the family level using the same explanatory variables as in previous research on the individual fund level. This allows us to compare the results for family flows to those of previous studies that employ individual funds.[13]

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

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

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 3 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 past return performance of the fund. Accordingly, our primary independent variable in this section is the fund family's average return performance over the previous year, measured as the average return on the individual fund portfolios, weighted by the total net assets (i.e., market value) of the

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

funds. In addition, because we need to aggregate the monthly cross-sectional regression results across time, we normalize the family average returns within each period. To do so, we 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.[14] 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.

Our 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.[15,16, 17]

We 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, we employ 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, we include a dummy variable equal to one if the family has a star fund in the month (where star fund is defined as a

[14] 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.
[15] We average return, expense ratio, 12b-1 fees, load fees, and turnover by calculating the market-weighted average across funds in the family.
[16] Nanda, Wang and Zheng (2002) 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).
[17] Another strategic decision is whether to waive part of the fund's fees (see Christofferson,). As we do not have data on fee waivers, we 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 our results.

fund whose return is in the top five percent of returns for the fund's category for the past year). We also control for family size through the log of the total net assets (at the beginning of the month).

No theory exists to give us guidance as to 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; Carhart, 1994; Gruber, 1996; Chevalier and Elison, 1997; Goetzmann and Peles, 1997; Sirri and Tufano, 1998; and Lynch and Musto, 2003).[18] Thus, we employ a specification that allows for this nonlinear relation. Specifically, we 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 we have run the cross-sectional regressions for each month, we then use the Fama-MacBeth (1973) technique to aggregate the coefficients across the 1992-2001 sample period.[19]

In Table 2, we 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. According to the Akaike Information Criterion (AIC) and Schwarz Criterion (SC) tests, the two-kink specification is at least as good as the four-kink specification.[20] The results from these specifications show a strong relation between the flows into a mutual fund family and the family's past average return performance if 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

[18] Most previous studies have examined individual fund flows on an annual basis (e.g., Sirri and Tufano, 1998), semiannual basis (Edelen, 1999), 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 we do here.

[19] All of the Fama-MacBeth (1973) t-statistics are based on the Newey-West (1987) heteroskedasticity and autocorrelation consistent standard errors.

[20] We also tried one kink and three kink specifications, but the analysis using the AIC or SC test did not support these specifications over the ones we have shown in the table.

bottom or top group of all families' average returns. If a mutual fund family is in the one of these extreme performance groups, the models suggest that the flows will be positively related to that performance.

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. In contrast to our analysis of the value-weighted family flows, most of these studies have restricted their samples to individual funds with a growth objective. The relation we find at the upper end of the return distribution is consistent with the previous 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 earlier Chevalier and Ellison results, but not with the earlier 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 third 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 our 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 our family results are influenced by different proportions of equity and fixed income funds across families, we also ran the cross-sectional regressions in Table 2 including only the growth funds in the families. We found the same qualitative results as we did when including all of the funds. The significantly positive coefficients were again in the bottom and top groups.

The coefficients on the strategic decisions suggests that these decisions can indeed have an effect on family demand. For example, a potential strategy for mutual fund families, suggested by Nanda, Wang and Zheng (2002), is to institute many funds so as to increase the likelihood of having a star fund that will attract flows to the whole family of funds. Consistent with their empirical evidence, we find that fund families with a fund in the top five percentile of performance of the funds in their investment category receive a higher inflow of performance, This result is also consistent with the evidence in Del Guercio and Tkac (2002) regarding the effects of high Morningstar ratings.

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 (2003), we 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 3 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 (2003) find a negative relation between individual fund flows and the magnitude of the load fees. Thus, although the load fee may be considered a marketing expense to increase flows into the fund, its magnitude has a detrimental effect on flows in the cross-section. That is, the benefit to the fund family comes from having a relation with a broker, but conditional on having such a relation, 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 marketing fees receive higher inflows. 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.

We have two proxy variables to capture the operating costs of the mutual funds that are borne by the shareholders: the average expense ratio (without 12b-1 fees) and the average turnover (which should be correlated with the funds' average trading costs). In contrast to much of the research on individual funds, we 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. 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 all three 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.

In summary, our specifications 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. Our results also indicate that a family's strategic decisions can have significant effects on investors flows to the family.[21]

4. Advertising and mutual fund flows

As pointed out earlier, the economic role of advertising in consumer choice problems has been hypothesized to result from the lowering of search costs for the consumer. For example, according to Bagwell and Ramey (1994), optimal consumer search uses advertising to guide that search. With regard to mutual funds in particular, Lettau (1997) points out that a rationale for individuals to invest in mutual funds "can be viewed as a decision in terms of an optimal allocation of time." If the investors want to reduce time spent on researching financial markets, they most likely would also want to reduce time spent on researching fund management and performance, particularly given that more mutual fund share classes exist than do stocks traded on the NYSE, AMEX and NASDAQ national markets combined. In fact, Sirri and Tufano (1998) and Huang, Wei and Yan (2004) argue that fund flow should be related to the mutual fund investors' search costs.[22] Similarly, the attention and familiarity hypotheses imply that advertising should increase investor awareness and subsequent fund flows.

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

[22] Tkac (2004) provides a discussion of mutual fund investor search costs as well.

4.1 Advertising and industry flows

The dollar amounts spent on mutual fund advertising vary through months of the year as well as across years. As Figure 4 shows, advertising varies quite a bit across time. Before examining whether advertising is a significant determinant of a family's fund flows, in this section we investigate whether aggregate flows to the mutual fund industry are affected by advertising in general. To do so, we 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 3, 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 later 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 3, we limit the dependent variable to flows into families that did not advertise. We find that their flows are affected by advertising by others in the industry as well, suggesting substantial spillover effects from advertising.

4.2 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.[23] They find no relation between the flow-performance relation and this proxy, except in the case

[23] Sirri and Tufano (1998) include one-seventh of any load fee in their total fees charged measure.

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.

Jain and Wu (2002) use a dummy variable approach to compare fund flows of individual funds that have advertisements in one of two magazines in a month to flows of funds without advertisements in these magazines. Over their July 1994 through June 1996 sample period, they find that the advertised funds have higher net inflows, after controlling for prior performance, lag flows, and size. In a study concurrent to ours, Cronqvist (2004) examines a number of issues with the advertising of the Swedish 401k-type funds, including what funds advertise, which types of advertising affect the investors allocation choices, whether fund advertising is a signal of future performance.

These studies have focused on the role of advertising in individual funds, but the advertising expenditure decision is a fund complex decision, not an individual fund decision. To examine whether the relative level of advertising expenditures affects family flows, we measure advertising as the total dollars in monthly family advertising expenditures scaled by the total family net assets. Because of the differences in size across the fund complexes (and consequent differences in ability to spend advertising dollars), we need to scale the advertising expenditures. Our choice is to use the total net assets under management for the fund complex. As in our measure of the return variable discussed in the previous section, we need to aggregate the cross-sectional relation between family fund flows and advertising expenditures across the multiple monthly periods. Accordingly, we normalize the advertising variables on a [0,1] interval analogous to the Sirri and Tufano (1998) normalization procedure for the performance variable. We 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, we include a dummy variable if the family did not advertise during the month.

Our specifications for the flow-performance relation in these analyses are the same piecewise linear specifications employed in the previous section. We 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.[24]

Table 4 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 2. Models 2, 3, and 4 then include the advertising variables. Model 2 has the simplest linear specification of advertising in which we have a 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. The results of Models 2 and 3 show that advertising has a significantly positive effect on fund flows for the heavy advertisers, but that advertising viewed from a simple linear specification appears to have no significant effect. [25] 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

[24] In these cross-sectional analyses we 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.
[25] In a separate analysis (not reported) we run a pooled cross-sectional analysis of the effects of advertising on the fund flows. The results are consistent with those reported in Table 4.

no flow-advertising relation. Given that advertising has a significantly positive impact only at the top end, the advertising decision becomes a strategic decision for the fund family management. The results imply that just advertising is not sufficient for significantly increasing flows, rather the family has to extensively advertise relative to other families' decisions in that period.

As in the analysis without advertising expenditures in Model 1, the convexity in the flow-performance relation appears for the top performing funds. The strategic decision and control variables still have effects similar to those when the advertising variable is absent. Conceptually, one might expect advertising to affect the flow-performance relation in that advertising could mitigate or magnify the importance of fund performance. We do not find this to be the case. Comparing the coefficients on the performance variables between Model 1 and Models 2 or 3 shows virtually no change when advertising is included in the regressions. Thus, while Table 4 shows that family advertising expenditures can affect family flows, it does so independent of the family return performance. 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 4 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, 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.[26]

[26] We also ran the regression by normalizing the ad variable by the beginning of the year TNA instead of the beginning of the month TNA. We found no change in results.

Our evidence on the effects of advertising and its role would be 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.

Thus far, we have found that heavy advertising by a mutual fund family results in increased flows to the family. The question that naturally arises is the degree to which the advertising has persistent effects. That is, does the advertising affect individuals who are making investment choices soon or is there a residual effect on individuals who make their choices later? We reran the regressions in Table 4 and included the advertising lagged by one month, or alternatively the cumulative advertising of the previous two months. This was done for a linear specification, as well as a piece wise linear specification, for the advertising lagged variables.The results (not shown) indicate that the advertising from previous months has no effect on the flows, suggesting that there is no persistence in advertising – the level of the most recent month's advertising expenditures dominates. That is, advertising is short-lived.

In order to determine whether our results were driven by flows to the star funds in the family (which are more likely to be the advertised funds as well), we reran the regressions in Table 4 eliminating star funds from both the left and righthandside 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, we examined whether advertising expenditures have differential effects in up-markets as compared to down-markets. Accordingly, we 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. We find that advertising does not have significant effects during down-markets. Our results are driven by the relation between fund flows and advertising expenditures during up-market periods.

Two potential problems in our analysis could develop from our methodology of scaling the advertising expenditures. The first problem is that our results could be driven by a spurious correlation between fund returns and advertising. That is, since we scale our advertising variable by the previous month's total net assets under management of the fund family, we could be inducing a result between the change in the total net assets and the fund flows. To check whether this potential problem, we reran the regressions in Table 4 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. Our results from this analysis do not qualitatively differ from those reported, suggesting that our results are not driven by variation in performance rather than advertising expenditures.

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

5. 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. Thus, an important factor in a fund complex's strategic decisions could be the concomitant 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 flow volatility. On the other hand, if these decisions successfully attract additional flows to funds, they could also have the unintended consequence of increasing flow volatility and costs. For example, in the case of advertising, the decision could increase 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. This could be the case given previous research. Kempf and Ruenzi (2004b) 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.[27]

In this section we examine whether the family's strategic choices affect the family's average fund flow volatility in either of these directions. The dependent variable for our 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.[28] Given that it is likely the family would be most concerned about the flow volatility in the smaller funds in

[27] Consistent with this result, Jain and Wu (2002) find that advertised funds previously earned higher returns than their category benchmarks.
[28] The results are similar if volatility is computed over six months rather than twelve months.

the family , we employ an equal-weighted average of the individual funds' flow volatility.[29] . We control for the persistence in family flow volatility by including the previous year's flow volatility measure. One aspect of family flow volatility is that larger families with more funds being offered could have lower average flow volatility simply because the averaging process could make outliers less important. We control for this effect with two variables: current family flows and the log total net assets. Whether having a star fund in the family adds to the family's flow volatility is an empirical question we address in this analysis by including a dummy variable for whether the family had a star fund in the previous period.

The results of these analyses, provided in Table 5, show that the family's strategic decisions have mixed effects on the family flow volatility. Not advertising increases flow volatility. However, the relative level of advertising does not seem to significantly impact flow volatility. We do find that load fees, 12b-1 fees, and expense ratios significantly affect the volatility. The existence of a load fee increases flow volatility as does the existence of 12b-1 fees. These results combined suggest that the use of distribution channels increases the variability of the flows into the funds, adding more uncertainty. 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 employing brokers 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). In addition, 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

[29] For robustness we 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.

when there is increased service.[30] 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 is that if fund families advertise to reduce fund flow volatility, they would be most concerned about reducing the volatility on the downside rather than the upside. To test whether there are asymmetric effects on volatility from advertising, we reran the regressions in Table 5, using semi-variance rather than variance as our dependent variable. The results are shown in Table 6. The results for the strategic decision variables, including the advertising variables, are similar to the ones in Table 5.

5. Determinants of advertising

One issue that arises from the models of the relation between advertising and family flow is the issue of whether an endogeneity exists in the relation. For example, fund management companies with higher flows, and thus, higher resultant management fees, could have more resources with which they could pay for advertising. We investigate this issue by examining whether systematic determinants exist for a family's choice of the amount of advertising dollars to spend.

Economic studies of firm advertising have proposed various motivations and roles for the advertising. 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

[30] 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.

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 terms of the mutual fund market, the repeat purchases manifest themselves in maintaining and increasing investment in the fund.[31] The quality of a mutual fund family could depend on several factors, including performance and services.

To test determinants of family advertising expenditures, our 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. The proxies for quality are the current month's return, the previous year's return and the average expense ratio (omitting 12b-1 fees). Sirri and Tufano (1998) posit that total expenses may be a measure of services provided by the fund. The control variables are the previous year's flow, the previous year's flow volatility, the logarithm of total net assets, the average 12b-1 fee, average load, and average turnover. Because economies of scale can affect the ability to advertise as well as the benefits from the advertising, we also divide the sample of families at the median for the size of total net assets under management. We run the cross-sectional regressions on an annual basis and use the Fama-MacBeth (1973) technique to aggregate the coefficients across the periods.[32]

[31] 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.

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

The results when all mutual fund families are included in the regression are shown in Model 1 of Table 7. In Models 2 and 3 the families are divided by the size of assets under management, where assets under management is measured one year prior to the observation. According to all three models, the amount of advertising dollars spent by a family is not affected by the family's relative average current return or return in the previous year (as ranked against other families). Thus, it is not the case that when a complex performs well, they advertise more. Across both large and small mutual fund families, the amount of advertising dollars spent by a family is positively influenced by the family's average expense ratio.

Interpreting the results for mutual fund family performance and family expense ratios as reflections of quality would provide conflicting interpretations. If one assumes that quality of the mutual fund family can be captured by return performance, then our results suggest that quality does not influence the advertising decision. On the other hand, if one assumes that quality of the fund family can be captured by the family's expenses as a proxy for service, then our results suggest that higher quality funds are the ones that advertise more heavily. Alternatively, one could interpret the coefficient on the expense ratio as suggesting that higher fee families can afford to expend more on advertising.

The evidence in Table 7 suggests that endogeneity is not a problem for our earlier results on the flow-advertising relation. We find that neither the family's previous annual flow nor the volatility of the flows appear to influence the advertising budget. The amount of advertising is affected by the average turnover for the family, the average load fee for the family, and whether the family is in the top half or bottom half of fund families in terms of size. Advertising expenditures are increasing in smaller families' 12b-1 fees and marginally decreasing in large fund families' 12b-1 fees. One important implication of this result is that it points to a problem in studies that use 12b-1 fees to proxy for advertising expenditures. These proxies may be misleading, particularly for larger funds.

The regression also shows that families with load funds do not spend advertising dollars as much as do families with only no-load funds. This result is expected because of the differences in distribution systems. Load funds rely more on brokers and dealers, rather than advertising, to reach the investors.

7. Conclusions

Our interest in this paper is in the decisions a mutual fund family makes regarding the supply and demand of mutual fund products. We examine several strategic decisions on the family level and the effects of these decisions on the family's net flows into its funds. We establish that the previously documented convexity in the relation between high past return performance and flows into the fund at the individual fund level (on an annual basis) also exists at the mutual fund family level (on a monthly basis) In contrast to evidence in Sirri and Tufano (1998) at the individual fund level, our results also show a nonlinear relation for poor past return performance as well. Thus, past returns are a significant predictor of future family flows, but only for extreme relative returns. We also find, consistent with previous research on individual funds, that family level flows are related to load fees and 12b-1 fees.

The addition of advertising expenditures to this analysis does not significantly change the performance-flow relation, but advertising does affect fund flows. In fact, the form of the advertising-flow relation has a convexity at the upper end similar to that of the flow-performance relation, but is flat at the low end. That is, high relative levels of advertising are significantly related to high fund flows at the family level, while variations of relative levels of advertising within the low advertising group do not have a significant impact on flows to the family. Our results show that the relative amount of the expenditure has a nonlinear relation with fund flows. In fact, a simple linear specification of advertising expenditures does not identify reveal the relationship between advertising

and flows, coming in insignificant. Further, the increased flow is independent of the flow-performance relation.

We find that a family's average flow volatility is related to its choice of distribution channels and its overall expenses, but not to the relative level of advertising expenditures. Whether the latter result is due to offsetting effects is a subject for future research with data sources that allow the differentiation between fund inflows and outflows.

Economic theory has suggested that high quality fund families should be the families that expend resources on advertising. If one assumes that the quality of fund families is reflected in their performance and in their services (proxied by expense ratios), then our results on this theory are mixed. No significant relation exists between prior year's returns and advertising expenditures, but we do find that the amount of advertising expenditures per dollar of assets is significantly related to a family's average expense ratio (excluding 12b-1 fees), which could be consistent with high quality funds advertising. These mixed results also require further study.

The results of our analyses indicate that previous proxies of marketing expenses do not reflect the entire picture as advertising expenditures have not been included. In particular, our results on the relation between advertising expenditures and 12b-1 fees in which we find that advertising is marginally decreasing in 12b-1 fees for large fund families implies that studies which use 12b-1 fees to proxy for advertising expenditures are not capturing the true advertising expenditures and thus, the relation between fund flows and the advertising.

Overall, our results suggest that the fund's strategic decisions are important mechanisms through which mutual fund family management companies can affect their fund flows and consequent income. Specifically, we show that the relative level of advertising is an important strategic decision which has a nonlinear impact on the resulting flows to the fund family. Our work contributes to previous evidence on the other

decisions by mutual fund family complexes, as well as to the literature that tries to understand the impact of increased visibility on investors decisions

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Table 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, the average expense ratio and the monthly advertising expenditures as a percentage of assets (in thousandths of a percent).

Date	Year		1992	1996	2001
Sample characteristics	Number of families		98	124	109
	Total assets ($billion)		935.37	1970.19	4224.97
Family characteristics	Total assets ($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 fund share class		69.39%	77.42%	83.49%
	Percent with at least one front-end load fee fund 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%
	Advertising monthly expenditures as a percentage of assets	Mean	3.35%	4.18%	2.26%
	(in thousandths of a percent)	S.D.	0.94%	0.79%	1.01%

Table 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 that range from 0-.20 in the four-kink case (or 0-.33 in the two kink case) and the sum of which 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	1.00	0.009	1.63
Past returns	5th performance group	0.061	4.11***		
	4th performance group	-0.021	-1.56		
	3rd performance group	0.014	1.67*	0.021	3.45***
	2nd performance group	0.005	0.73	-0.005	-1.31
	1st performance group	0.082	7.43***	0.048	8.49***
Strategic decisions	Log fund objectives offered	0.002	2.56**	0.002	2.56**
	Dummy - front-end load fee	0.005	4.17***	0.006	4.56***
	Ranked average load fee	-0.008	-4.86***	-0.009	-5.12***
	Dummy - 12b-1 fees	-0.002	-1.01	-0.002	-1.01
	Ranked average 12b-1 fees	0.008	3.43***	0.007	3.62***
	Ranked average expense ratio	-0.007	-2.75***	-0.007	-2.81***
	Average turnover	-0.002	-2.07**	-0.002	-2.03**
Control variables	Lag Flow from previous month	0.067	2.26**	0.068	2.32**
	Log TNA	-0.001	-3.31***	-0.001	-3.12***
	Dummy - star fund in family	0.003	3.26***	0.003	3.38***
	Adj. R-squared	0.131		0.129	

Table 3
The Relation between Aggregate Flows to Fund Families, Advertising Expenditures, and Aggregate Fund 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 All Families		**Model 2 Non-advertising Families**	
Variable	**Mean coefficient**	**t-statistic**	**Mean coefficient**	**t-statistic**
Intercept	0.002	1.06	0.000	0.15
Lag flow - previous month	-0.249	-2.88**	-0.231	-2.66**
Aggregate advertising expenditures	0.482	2.68**	0.177	1.93*
Lag performance – previous year	0.023	2.28**	0.042	2.62**
Adj. R-squared	0.093		0.081	

Table 4

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 2. Models 2 and 3 include the flow-performance advertising relation as well. For the piecewise linear specifications, the advertising variable is broken into sub-variables that range from 0-.33, and the sum of which 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	0.009	1.63	0.006	1.06	0.007	1.13
Ad variables	No advertising dummy			0.002	1.57	0.001	1.00
	Ranked advertising			0.002	0.99		
	Low advertising group					0.003	0.58
	Mid advertising group					-0.011	-2.25**
	High advertising group					0.026	3.17***
Past returns	Low performance group	0.021	3.45***	0.022	3.63***	0.021	3.31***
	Mid performance group	-0.005	-1.31	-0.006	-1.46	-0.005	-1.23
	High performance group	0.048	8.49***	0.048	8.50***	0.048	8.26***
Strategic decisions	Log fund objectives offered	0.002	2.56**	0.002	2.52**	0.002	2.85***
	Dummy - front-end load fee	0.006	4.56***	0.006	4.86***	0.006	4.87***
	Ranked average load fee	-0.009	-5.12***	-0.009	-4.74***	-0.009	-4.44***
	Dummy - 12b-1 fees	-0.002	-1.01	-0.002	-1.18	-0.002	-1.19
	Ranked average 12b-1 fees	0.007	3.62***	0.008	3.76***	0.007	3.44***
	Ranked average expense ratio	-0.007	-2.81***	-0.008	-2.96***	-0.008	-3.01***
	Average turnover	-0.002	-2.03**	-0.002	-1.97**	-0.002	-2.12**
Control variables	Lag Flow from previous month	0.068	2.32**	0.068	2.29**	0.065	2.19**
	Log TNA	-0.001	-3.12***	-0.001	-2.62***	-0.001	-2.62***
	Dummy - star fund in family	0.003	3.38***	0.003	3.22***	0.003	3.08***
	Adj. R-squared	0.129		0.125		0.121	

Table 5
The Effects of Advertising Expenditures on Mutual Fund Family Flow Volatility

This table provides the results of regressions of mutual fund family average flow volatility on advertising expenditures 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 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 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 the Newey-West (1987) t-statistics for the Fama-MacBeth (1973) coefficients and the average adjusted R-squareds from the regressions.

		Model 1		Model 2	
	Variable	**Mean coefficient**	**t-statistic**	**Mean coefficient**	**t-statistic**
	Intercept	0.044	4.28***	0.045	4.16***
	Advertising	0.006	1.54		
	No advertising	0.009	3.74***	0.010	2.22**
Ad variables	Low advertising group			0.013	0.72
	Mid advertising group			-0.005	-0.40
	High advertising group			0.021	1.30
	Low performance group	-0.034	-3.39***	-0.032	-2.98***
Past returns	Mid Performance group	-0.027	-3.68***	-0.028	-3.80***
	High performance group	0.022	1.91*	0.023	1.99**
	Log fund objectives offered	0.013	10.29***	0.013	10.59***
	Dummy - front-end load fee	0.007	2.46**	0.007	2.39**
	Ranked average load fee	-0.015	-2.92***	-0.015	-2.76***
Strategic decisions	Dummy - 12b-1 fees	0.030	14.85***	0.029	13.95***
	Ranked average 12b-1 fees	0.002	0.62	0.003	0.58
	Ranked average expense ratio	-0.016	-3.06***	-0.016	-3.13***
	Average turnover	-0.001	-0.57	-0.001	-0.73
	Previous year flow volatility	0.462	17.97***	0.462	18.01***
Control variables	Current family flows	-0.042	-1.87*	-0.036	-1.61
	Log lag TNA	-0.003	-3.05***	-0.003	-3.17***
	Dummy - star fund in family	0.007	3.53***	0.008	3.82***
	Adj. R-squared	0.230		0.227	

Table 6

The Effects of Advertising Expenditures on the Semi-Variance of Mutual Fund Family Flows

This table provides the results of regressions of mutual fund family average flow semi-variance on advertising expenditures 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 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 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 the Newey-West (1987) t-statistics for the Fama-MacBeth (1973) coefficients and the average adjusted R-squareds from the regressions.

		Model 1		Model 2	
	Variable	**Mean coefficient**	**t-statistic**	**Mean coefficient**	**t-statistic**
	Intercept	0.022	2.29**	0.022	2.22**
Ad variables	Advertising	0.007	1.76*		
	No advertising	0.011	4.65***	0.011	2.82***
	Low advertising group			0.005	0.32
	Mid advertising group			0.006	0.58
	High advertising group			0.011	0.81
Past returns	Low performance group	-0.014	-1.56	-0.012	-1.28
	Mid Performance group	-0.028	-3.60***	-0.030	-3.79***
	High performance group	0.013	1.23	0.014	1.29
Strategic decisions	Log fund objectives offered	0.010	8.65***	0.010	8.53***
	Dummy - front-end load fee	0.006	2.50**	0.006	2.45**
	Ranked average load fee	-0.009	-1.96**	-0.009	-1.97**
	Dummy - 12b-1 fees	0.028	14.77***	0.028	13.88***
	Ranked average 12b-1 fees	-0.005	-1.30	-0.005	-1.24
	Ranked average expense ratio	-0.012	-2.26**	-0.012	-2.30**
	Average turnover	0.000	-0.06	0.000	-0.11
Control variables	Previous year flow semivariance	0.342	13.23***	0.344	12.95***
	Current family flows	-0.059	-2.40**	-0.058	-2.31**
	Log lag TNA	-0.002	-2.10**	-0.002	-2.13**
	Dummy - star fund in family	0.006	2.94***	0.006	2.96***
	Adj. R-squared	0.168		0.164	

Table 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.

		All families Model 1		**Small families Model 2**		**Large families Model 3**	
	Variable	**Mean coefficient**	**t-statistic**	**Mean coefficient**	**t-statistic**	**Mean coefficient**	**t-statistic**
	Intercept	0.022	0.07	-0.165	-0.18	0.370	1.69*
Past returns	Low performance	0.200	0.85	0.807	3.85***	0.175	1.04
	Mid performance	-0.208	-0.83	-0.203	-0.48	-0.265	-0.58
	High performance	-0.139	-0.44	-0.095	-0.20	0.154	0.29
Strategic decisions	Log fund objectives offered	-0.254	-3.45***	-0.170	-1.70*	-0.034	-0.31
	Load dummy	0.128	1.48	0.077	0.65	0.029	0.28
	Ranked average load	-0.456	-3.21***	-0.453	-2.19**	-0.208	-2.69***
	12b-1 fees dummy	-0.037	-0.39	0.047	0.35	-0.088	-0.90
	ranked 12b-1	0.190	2.03**	0.325	2.81***	0.011	0.12
	ranked expense ratio	0.367	2.78***	0.359	1.30	0.144	2.06**
	Average turnover	0.082	1.70*	0.094	1.37	0.008	0.10
Control variables	Previous year flow	0.207	1.62	0.016	0.12	0.338	1.59
	Previous year flow volatility	0.767	0.44	0.062	0.02	-1.398	-0.86
	Log lag TNA	0.058	1.91*	0.023	0.23	0.002	0.07
	Dummy - star fund in family	0.032	0.72	0.069	1.23	-0.090	-0.72
	Size dummy	0.052	0.96				
	Adj. R-squared	0.285		0.190		0.216	

Figure 1
Total Net Assets

This figure shows how total assets under management for fund families in sample change through the sample period.

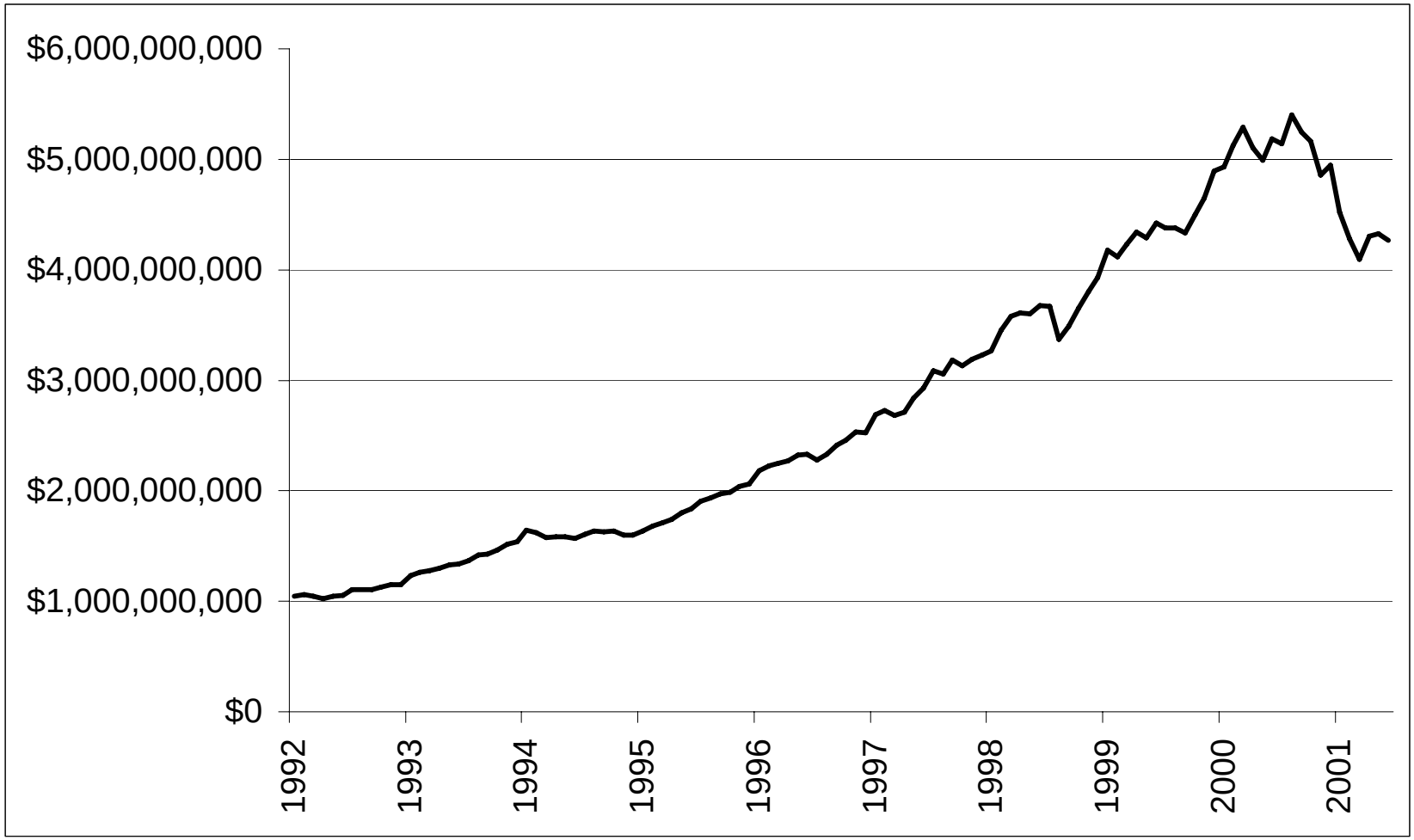

Figure 2
Advertising Expenditures as a Percentage of Assets Under Management

This figure shows how percentage advertising expenditures change through the sample period. For each month, total advertising expenditure in the sample (times 1000 for scale) is divided by total net assets for all families in the sample for that month.

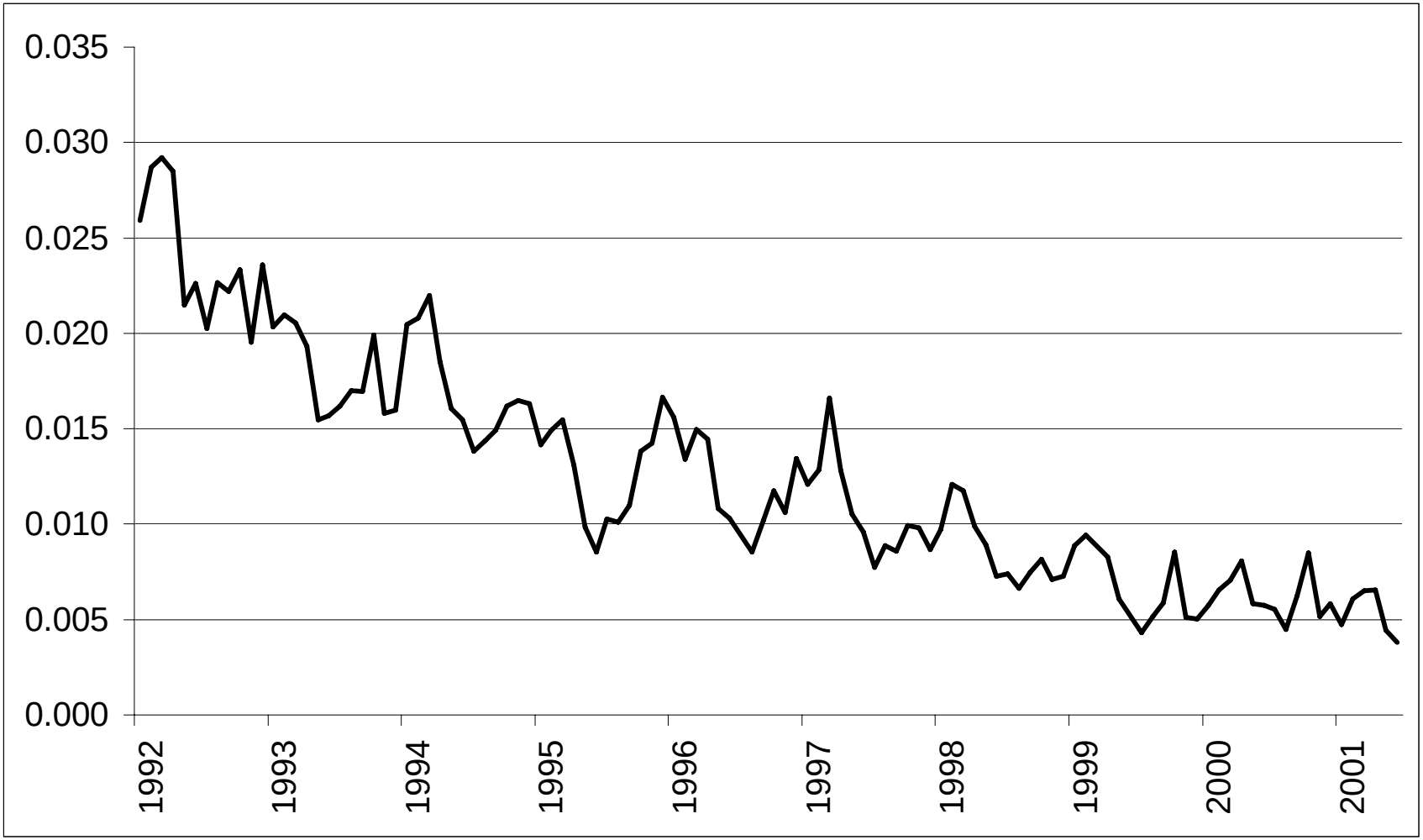

Figure 3
Total Mutual Fund Family Flows

This figure shows how total flows change through the sample period. Flow is calculated for each month as $Flow_t = \{TNA_t – (TNA_{t-1} * (1+R_t))\} / TNA_{t-1}$, where TNA is the total net assets in the sample and R is the market value weighted return for all funds in the sample.

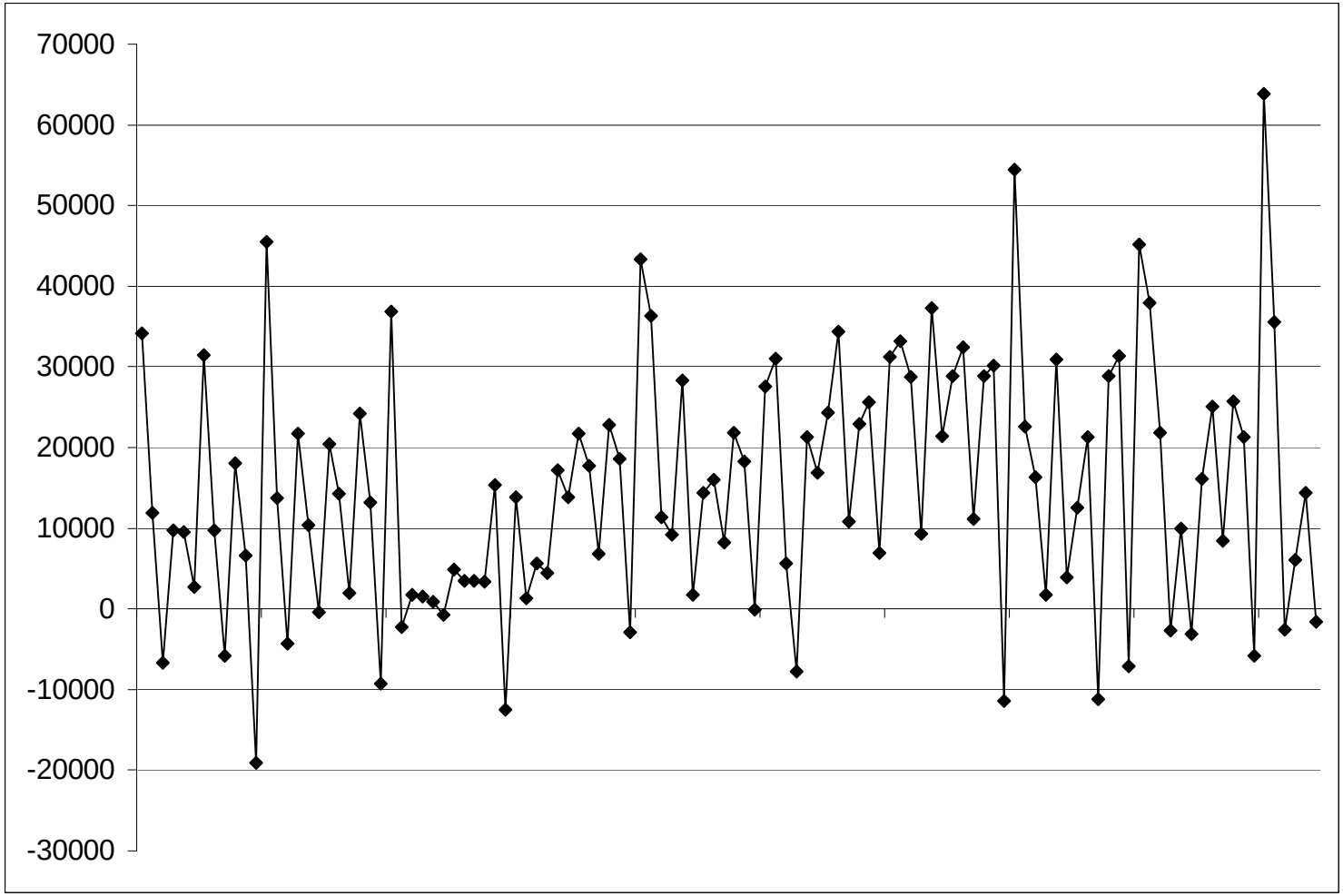

Figure 4
Dollar Advertising Expenditures

This figure shows how dollar advertising expenditures change through the sample period.