

Do Ads Influence Editors?

Advertising and Bias in the Financial Media

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Abstract

We use mutual fund recommendations to test whether editorial content is independent from advertisers' influence in the financial media. We find that major personal finance magazines (*Money*, *Kiplinger's Personal Finance*, and *SmartMoney*) are more likely to recommend funds from families that have advertised in the past, controlling for fund characteristics like expenses, past returns and overall levels of advertising. We find little evidence of a similar bias in mentions in the *New York Times* or *Wall Street Journal*. Positive media mentions in both newspapers and magazines are associated with significant future inflows into the fund while advertising expenditures are not. Therefore, if we interpret our coefficients causally, a large share of the benefit of advertising in our sample of personal finance magazines comes via the biased content. The welfare implications of the bias are unclear, however, since tests suggest that bias does not lead publications to recommend funds with significantly lower future returns. In selecting funds to recommend, magazines heavily overweight past returns relative to expenses, and as a group their recommendations do not outperform even an equal-weighted average of their peers. But this approach leaves magazines with large numbers of funds with high past returns to select from, and so a bias towards advertisers can be accommodated without significantly reducing readers' future returns. Interestingly, the recommendations of *Consumer Reports*, which does not accept advertising, have future returns comparable to those of the commercial magazines.

1 Introduction

Experts face a problem getting paid. Consumers are uncertain of the quality of an expert's opinion before it is revealed, and they have the option of opportunistically underpaying after it is revealed. Two common solutions to this problem are the advertising model, in which experts bundle content with advertising, and the subscription model, in which experts charge for access and subscription fees are based on reputation. In this paper, we study a third model which we call the bias model: the expert bundles information with bias and payment comes in the form of influence over consumers' actions. The expert can either bias information to match her own tastes or business interests, or she can sell the bias to another party. In situations where direct payments for bias are unseemly, one might expect the bundling of bias with other services, such as advertising.

A problem with the bias model is that if consumers perceive the bias, it reduces the credibility of the information provided. An expert might therefore publicly commit to avoid bias. For example, the mainstream media often claims to be "fair and balanced" with respect to political bias, and they likewise seek to avoid a pro-advertiser bias through an ethical sanction. The idea that editorial content should be independent of advertisers' influence is prominent in journalistic codes of ethics and is commonly referred to as "the Separation of Church and State."

Of course, consumers may remain skeptical that the temptation to introduce bias is completely avoided. There has been considerable recent debate about and research interest in political bias in the media. Likewise, there are occasional questions about the existence of advertising-related bias. For example, in 1996, *Fortune* published an article accusing *Forbes* of "turning downbeat stories into upbeat stories in order to keep advertisers happy — even at the risk of misleading their own readers."¹ Later that year, an article in *Kiplinger's Personal Finance* printed statements from

¹As quoted in Goldberg, Steven, "Do the ads tempt the editors? (influence of mutual fund advertising on personal finance magazine editors)," *Kiplinger's Personal Finance*, May 1996.

editors at a number of personal finance publications (including the three in our study: *Money*, *Kiplinger's*, and *SmartMoney*) claiming that advertisers have no influence over published content.² However, we are aware of no systematic attempt to test the accuracy of these claims.

We test for advertising bias within the financial media by examining the relationship between past advertising by mutual fund families and publications' future recommendations of their mutual funds. We chose this setting because product reviews are a form of content that advertisers might expect to especially benefit from biasing. Moreover, mutual funds are products that are both numerous and have observable, objective characteristics that help determine their attractiveness.

Despite the relative objectivity with which mutual funds' ex-ante and ex-post quality can be observed, however, investment recommendations are not purely mechanical. Rather, these recommendations are the results of judgments, which opens the door to bias. Specifically, when predicting future mutual fund returns there is some subjectivity involved in assessing the relative importance of characteristics such as a low expense ratio, high past returns, an optimal fund size, a good past record for the manager, or membership in an attractive asset class. Academic studies like Carhart (1997) tend to emphasize the first characteristic (a low expense ratio), while financial journalism often put more weight on the others. Deemphasizing fund expense ratios might be viewed as a form of pro-industry bias, but we do not treat it as such. What we do interpret as possible evidence of bias is when, controlling for these and other factors, a publication is more likely to recommend the mutual funds of the mutual fund families that advertise the most within it.

We study mutual fund recommendations published between 1996–2002 in five of the top six recipients of mutual fund advertising expenditures. We document a positive correlation between a fund family's advertising over the prior 12 months and their funds' likelihood of receiving a positive mention for all three personal finance magazines in our sample (*Money Magazine*, *Kiplinger's*

²Ibid.

Personal Finance, and *SmartMoney*) but for neither national newspaper (the *New York Times* and *Wall Street Journal*). These correlations persist even after controlling for a fund's objective characteristics and its family's general level of advertising, suggesting that the personal finance magazines bias their recommendations to favor advertisers.

Positive mentions in these publications are valuable to mutual fund families whose funds are mentioned, since they appear to have a significant influence on investor decision making. Even when we control for past media mentions and a variety of fund characteristics, a single additional positive media mention for a fund is associated with inflows ranging from 5 to 10 percent of its assets over the following 12 months. While investors appear to respond to the media mentions, we find that the media mentions have little ability to predict future returns. Interesting, this lack of positive abnormal future returns is not due to the potential pro-advertiser bias in recommendations. When we attempt to predict which funds would have been mentioned without a bias, we find little difference in future returns (and expense ratios) between these funds and the ones actually mentioned.

2 Literature Review

Studies of the influence of expert opinion on product demand often implicitly assume that expert opinion is unbiased. In contrast, we are interested in better understanding the influence of advertising relations on expert opinion. Our tests of whether advertising expenditures by mutual fund families bias the recommendations that mutual fund investors receive from the financial media belong to two growing and related literatures.

The first literature focuses on potential sources of media bias. Baron (2003) presents a model in which interest groups compete to influence public sentiment (and thereby regulation and consumer demand) by advocating their positions through the news media. In addition to biases that arise

through the strategic disclosure of information to the media, Baron also allows the media to be biased by its concern for aggregate public welfare, or the ideological views of its journalists and owners. Alternatively, Mullainathan and Shleifer (2002) develop a model in which the media exhibits two biases: the first based on a publication's ideological orientation and the second based on a publication's desire to craft memorable stories. While competition between publications with different ideologies allows readers to undo the ideological bias, competition can increase the amount of bias associated with spin. With respect to ideological bias, Groseclose and Milyo (2003) present empirical evidence that news stories published by major US media outlets exhibit a very significant liberal bias. Finally, in the study most similar to our own, Reuter (2003) studies the influences of advertising on product reviews and finds limited evidence that wine ratings favor advertisers.

The second literature tests for biases in expert opinion more generally. For example, Lin and McNichols (1998) and Michaely and Womack (1999) find that sell-side analysts' recommendations are biased toward the companies with which their employers do investment banking business, suggesting that business relations are capable of influencing expert opinion. Miller (2003) examines a sample of firms that the SEC found guilty of accounting fraud and asks whether the media is less likely to break stories about firms in industries with a high propensity to advertise. He finds that the media is no less likely to break stories about accounting fraud in the 15 industries that *Advertising Age* classifies as doing the most advertising, although sample size and the lack of firm-level advertising statistics do limit the statistical power of this test. Finally, Zitzewitz (2002) finds that figure skating judges are nationalistically biased and "sell" bias to colleagues by engaging in vote trading.

For mutual fund families to benefit from biased recommendations, at least some investors must rely upon them. Therefore, after testing for bias, we attempt to quantify the impact that media mentions have on fund flows. Existing studies on the determinants of flows into U.S. mutual funds

largely focus on the relationship between measures of past performance (such as those reported by the media at year's end) and future flows (see, for example, Ippolito (1992) and Chevalier and Ellison (1997)). However, as Sirri and Tufano (1998) argue, these empirical tournaments implicitly assume that it is costless for investors to gather and process information on the universe of available funds. Consistent with investors having lower search costs for mutual funds they have been exposed to through the media, Sirri and Tufano find that mutual funds receiving more media attention receive correspondingly higher inflows. Similarly, Jain and Wu (2000) compare mutual funds that advertise with a matched sample of nonadvertisers and find significantly higher inflows into the advertised funds (despite the two sets of funds having similar future returns). More recently, Cronquist (2003) and Gallagher, Kaniel, and Starks (2004) provide additional evidence that individual investors respond to fund-level and family-level advertising. Collectively, these papers suggest that investors rely on both advertising and the media when deciding which mutual funds to buy. Del Guercio and Tkac's (2003) recent finding that Morningstar ratings influence fund flows foreshadows our finding that positive and negative media mentions also have significant influence on fund flows. Because we possess data on both media mentions and advertising expenditures, we are able to make a modest incremental contribution to this literature by estimating the relative importance of each in explaining fund flows. Interestingly, within our sample it appears that most of the returns to advertising come via biased recommendations.

Finally, we examine the future returns of funds receiving positive and negative media mentions. The guiding question here is whether investors benefit from or, in the case of biased recommendations, are harmed by the recommendations of experts. To the extent that the media mentions in our sample reflect predictions about future fund performance by relatively sophisticated investors, we might expect positive media mentions to identify better than average future performers. For example, Chevalier and Ellison (1999) present evidence that some fund manager characteristics are

associated with consistently higher risk-adjusted returns; since the financial media has access to information on fund managers, we might expect them to use fund manager characteristics when evaluating funds. Or since funds with low expenses consistently outperform funds with high expenses (Carhart, 1997), we might expect the financial media to benefit investors by recommending funds with lower than average expense ratios. On the other hand, Blake and Morey (2000) find little evidence that Morningstar ratings help predict future fund performance. Similarly, Desai and Jain (1995) find little evidence that investors benefit from the stock buying recommendations made by money managers in Barron's annual roundtable. Therefore it is an open question whether the media mentions in our sample help investors to choose funds with above average future returns.

3 Data

We combine hand-gathered data on mutual fund media mentions, publication-level data on mutual fund family advertising from Competitive Media Research, and fund-level data on monthly returns, inflows, and other fund characteristics from the CRSP Mutual Fund Database. We collected the media mentions data from 1996 to 2002 for five of the top six recipients of mutual fund advertising expenditures, as well as for *Consumer Reports*, which does not accept advertising. Collectively, these publications account for almost half of total print media spending by the mutual fund industry over our sample period.

Our media mention data vary across publications and are summarized in Table 1. *Money Magazine* publishes a *Money 100* list of recommended mutual funds once a year; so for *Money*, we simply study the composition of this list. *Consumer Reports* publishes an analogous list, sometimes separating equity and bond funds. *Kiplinger's Personal Finance* and *SmartMoney* do not construct a master list of recommended funds, but instead run occasional articles that make either general recommendations of funds to buy or focus on an asset class or investment theme and make recom-

recommendations within that class or theme. In addition, they run articles that highlight a particular fund or fund family. For these publications, we analyzed every article containing the word “fund,” classifying the articles by type listed above and by whether the fund was mentioned in a positive or negative context. Given the nature of the magazines, this rarely involved close judgment calls, as suggested by the representative article titles reported in Table 1. If we could not determine whether a mention was positive or negative we dropped the mention; we did this for 8 of 668 mentions in *Kiplinger’s* and 10 of 2087 mentions in *SmartMoney*.

For the *New York Times*, we tracked the funds mentioned in a column entitled “Investing With” that runs in the Sunday Business section. This column spotlights a particular fund, providing details such as returns, expense ratios, and the fund company’s contact information. It also interviews fund managers on their views about future market movements. We judged that being mentioned in this article is unambiguously positive, since interviewing someone about their view of the market is commonly thought to imply that they have something useful to say. The *Wall Street Journal* lacks a similar column, but does regularly report on the fund industry through a daily column called Fund Track. Here funds are mentioned either because they are the subject of news (such as fund manager turnover) or because their managers are being quoted discussing an issue. One might expect being quoted in the *Wall Street Journal* to be positive on average, although the impact on inflows may be smaller than with other publications, since the articles rarely recommend a course of action for fund investors and because these quotes are interspersed with other fund industry news.³

The advertising data were purchased from Competitive Media Research (CMR), a firm which tracks advertising expenditures for national newspapers, consumer magazines, and nine other media

³Note that our sample period ends before the investigations into the mutual fund industry were announced in September 2003. After September 2003, we would be less comfortable with the assumption that *Wall Street Journal* mentions were positive on average.

channels. CMR tracks the size of each print media advertisement and estimates a dollar cost for the advertisement based on a publication's quoted advertising rates and CMR's estimate of any likely discount.⁴ According to CMR, the mutual fund industry's annual advertising expenditures averaged approximately \$307 million between 1996 and 2002, with \$80 million (26.2%) going to national newspapers and \$119 million (38.7%) going to consumer magazines. However, these averages mask significant time-series variation. Table 2 compares print advertising by mutual funds with total print advertising each year between 1998 and 2002 (because CMR does not report total advertising revenues in 1996 or 1997). While total advertising declined 26 percent in national newspapers and personal finance magazines between 2000 and 2002, advertising expenditures by the mutual fund industry within these publications declined between 66 and 68 percent. Mutual fund print advertising expenditures in 2001 and 2002 were well below their 1998 levels, potentially increasing competition among publications for the remaining advertising dollars.

Table 3 lists the twenty CMR-monitored publications with the largest average annual mutual fund advertising revenues between 1998 and 2002, as well as the fraction of advertising revenues for each publication that comes from the mutual fund industry. The six publications receiving the largest annual advertising revenues from the mutual fund industry are *Wall Street Journal* (\$48.5 million), *Money* (\$22.1 mil.), *Mutual Funds* (\$14.0 mil.), *New York Times* (\$14.0 mil.), *Kiplinger's Personal Finance* (\$12.2 mil.), and *SmartMoney* (\$8.7 mil.). We gathered media mentions from each of these publications except *Mutual Funds*, because we were unable to access *Mutual Funds* content electronically. In total, the five publications in our sample received 45.3 percent of the mutual fund advertising expenditures between 1998 and 2002. Note, however, that these publications differ substantially in the amount of advertising revenue they receive from non-mutual fund sources.

⁴To check the data, we compared the CMR bottom-up estimates of total print advertising revenue for the *New York Times* and *Wall Street Journal* to the figures reported in the parent companies' 10K. In both cases, figures were generally within 10 percent.

Whereas mutual fund advertising accounts for 3.8 percent of advertising revenues at the *Wall Street Journal* and 1.1 percent at the *New York Times*, it accounts for 15.1 percent at *Money*, 15.9 percent at *SmartMoney*, and 28.2 percent at *Kiplinger's*. Consequently, to the extent that mutual fund advertising influences mutual fund recommendations, we expect the influence to be stronger in the personal finance magazines than in either newspaper.

Data on mutual fund returns and characteristics come from the CRSP Mutual Fund Database. The unit of observation is fund i in month t . For mutual funds with multiple share classes, we calculate fund-level returns, inflows, and other characteristics and include one observation per fund per month in our sample. Table 4 provides summary statistics for the full sample of U.S. mutual funds from CRSP, for the period January 1996 through December 2002, as well as for the subsets of funds that received media mentions from each of the publications and for which we were able to locate a ticker in CRSP. Variables include the natural logarithms of fund size and fund family size; current expense ratio and 12b-1 fee; a dummy variable that indicates whether the fund charges a sales load when investors buy or sell shares; net flows into the fund from months $t - 11$ to month t ; and average fund return month $t - 11$ to month t minus the average return within its investment objective over that period. Note that our sample includes all domestic equity funds, international equity funds, hybrid funds (which invest in debt and equity), and bond funds; we exclude money market funds because they are rarely mentioned in the publications we study.

Advertising expenditures are classified as print or non-print and divided by family-level assets under management. Comparing the level of print advertising across columns, mutual funds receiving (both positive and negative) media mentions come from mutual fund families with higher than average levels of print advertising. Interestingly, the sample of funds recommended by *Consumer Reports* also come, on average, from families that spend an above-average amount on print advertising. This suggests that print advertising may be correlated with other unobservable (to the

econometrician) characteristics that the financial media uses to rank funds, and should be included as a control in the tests for advertising bias. The rows containing publication-level advertising shares indicate that mutual funds receiving media mentions from a particular publication tend to come from mutual fund families with higher than average levels of advertising in that publication. In the section 4.1, we explore this possible relation between media mentions and advertising in a multivariate setting. Comparing the full sample of funds to those receiving media mentions along other dimensions, funds receiving positive media mentions have higher past returns, lower expense ratios, and are less likely to charge a load. Finally, relative to the observed distribution of mutual funds across investment objectives, media mentions focus disproportionately on the subset of general equity funds.

4 Empirical Results

4.1 Do Media Mentions Favor Advertisers?

The publications we study receive revenue from two sources: subscribers and advertisers. Future subscription revenues, as well as future circulation and thus long-run future advertising revenues, depend on the publication maintaining a reputation for providing accurate and informative content. At the same time, short-run pressure to sell advertising may create an incentive to bias content in favor of past or potential future advertisers. We might thus expect publications to balance their long-run reputational concerns with short-run business concerns.⁵

In Table 5, we compare *Money 100* mentions for families that are heavy advertisers (greater than \$1 million in the prior 12 months) and light advertisers (less than \$100,000). In an average year, 15 percent of light advertising families are mentioned in the *Money 100* list, whereas 84

⁵See Reuter(2003) for a more formal discussion of the incentives that a publication has to bias its content.

percent of heavy advertisers are mentioned. This difference partially reflects the fact that heavy advertising families tend to have more funds, but an individual fund from a heavily advertising family is also three times as likely to be mentioned (3.0 percent vs. 1.1 percent).

This factor of three is suggestive of bias, but the comparison lacks controls for fund characteristics, time period, and the general level of advertising. To address these shortcomings, we model the process by which publications select funds to recommend. Publications face a constraint on the number of funds that they can mention. In some cases, this constraint follows from the format in which the funds are recommended (*e.g.*, the *New York Times*' weekly Investing With column; the *Money 100* list), whereas in other cases it follows from the fact that each additional recommendation will decrease the impact and value (to subscribers or advertisers) of previous ones. In either case, it is natural to model the decision of which funds to recommend by the following process. First, the publication ranks funds by the sum of the reputation and business benefits it expects to realize from recommending each fund. Second, the publication recommends those funds above some lower threshold (which may vary by period and, if a publication desires representation of certain asset classes, by asset class within each period).

Formally, we model this decision using a fixed effect logit model

$$M_{it} = \Phi(B_{it} \geq B_{jt}) \tag{1}$$

where M_{it} equals one if fund i is mentioned in a particular publication in month t and B_{it} , the expected benefit of recommending fund i in month t , is given by

$$B_{it} = \alpha E(R_{it}|X_{it}) + \beta E(U_{it}|X_{it}) + \gamma E(A_{it}|X_{it}) + \epsilon_{it}.$$

The publication will mention fund i if the benefit to doing so B_{it} is greater than the critical value

for that fund objective j and month t combination. The benefit of mentioning the fund depends on the expected future returns R_{it} of fund i , readers' subjective utility gain from being informed about the fund U_{it} , and the expected advertising-related business gains from recommending the fund A_{it} . All of these expectations are formed using a vector of fund and fund family characteristics X_{it} . Since the critical value for an objective-by-month combination may be correlated with the B_{it} in its category, we estimate equation (1) as a fixed effects logit model with objective-by-month fixed effects. Since this fixed effects logit specification ignores funds with investment objectives other than those recommended in month t , we are effectively assuming that the publication decides each month on the number of recommendations it wants to make within each investment objective and then goes about ranking eligible funds.⁶

The first two terms capture the long-run and short-run reputational concerns of the publication. Publications want to recommend funds that readers will value having been informed about in both the short and long run. The length of readers' memories will affect the relative importance of these two factors. For example, a fund's expense ratio has been shown to be the single best predictor of its future returns, but many investors appear at least as responsive to past returns as to expenses. A publication with short-memory readers or with only short-run reputational concerns may recommend funds with high past returns, since investors who believe past returns are informative will value learning about these funds. A publication with long-memory readers and long-run reputational concerns may recommend primarily low-expense ratio funds, knowing that these funds will produce better future returns.

We begin by testing for the correlation between advertising and content by estimating a flexible version of equation (1), where B_{it} is a linear function of X_{it} , and where X_{it} includes fund

⁶Since advertising expenditures are made at the family level and the majority of mutual fund families offer funds that span the set of investment objectives, we are unable to test whether the choice of investment objectives systematically favors advertisers.

characteristics, the fund family’s general level of print and non-print advertising, and its level of advertising in the publication in question. If we assume that, once fund characteristics and the general level of advertising are controlled for, own-publication advertising should be uncorrelated with expected future returns or investor utility, then finding a partial correlation between own-publication advertising and recommendation implies that the coefficient γ is greater than zero for that publication. In other words, it implies that the publication’s content is influenced by business as well as reputational concerns.

In Table 6, we estimate the fixed effects logit specification individually for each type of media mention. For example, the dependent variable in the column titled “SmartMoney (Positive)” equals one if fund i received a positive media mention in *SmartMoney* in month t and zero otherwise; the number of observations reflects the number of mutual funds with the same investment objectives as those mentioned by *SmartMoney* in any given month. Advertising expenditures are reported for each mutual fund family. In addition to advertising expenditures within the publication in question over the prior 12 months (“own-publication” advertising), we also include total print and non-print advertising expenditures by fund i ’s family over the prior 12 months. As additional controls we include the natural logarithm of dollars under management within both fund i and the mutual fund family to which it belongs, fund i ’s current expense ratio and 12b-1 fee, and a dummy variable that indicates whether fund i currently charges a sales commission (known as a load). We also include net inflows into fund i over the prior twelve months, the raw return earned by fund i over the prior twelve months as well as the raw return squared, and five variables that capture fund i ’s Morningstar rating in month t . Standard errors are reported below the coefficients and cluster on the investment objective-by-month pairs.

Looking across columns, the correlation between own-publication advertising and positive media mentions is positive and statistically significant for all three personal finance magazines.

The observed positive correlations are also economically significant. For example, for *Money* and *Kiplinger's*, variation in own-publication advertising is more important than variation in either past returns or expense ratios in explaining positive mentions. However, the correlation between own-publication advertising and media mentions is indistinguishable from zero for the two types of negative media mentions as well as the mentions in the *New York Times* and *Wall Street Journal*.

In Table 7, we explore the robustness of our tests for advertising bias. Each cell reports the estimated coefficient on own-publication advertising expenditures for a particular specification and type of media mention. The first row simply repeats the fixed effects logit estimates from Table 6. Although not reported, the correlations in Table 6 are robust to defining asset classes using Morningstar categories, which divide equity funds more finely according to their holdings' capitalization and price-to-book, instead of the ICDI objective codes available in CRSP. They are also robust to the inclusion of additional fund characteristics available in the CRSP dataset (such as fund age and manager turnover). The second row adds variables that control for the past media mentions in other publications, as an additional measure of fund *i*'s quality. The coefficients on own advertising are attenuated relative to the baseline specification but the positive coefficients on positive media mentions in the three personal finance magazines retain statistical and economic significance.

In the third row, we add an additional control for the level of advertising within our sample of personal finance magazines. Our concern is that some funds may appeal to personal finance magazine readers for reasons uncorrelated with their observable characteristics and therefore advertise exclusively in personal finance magazines. Consistent with this hypothesis, the estimated coefficients on *Money 100* and *SmartMoney (Positive)* become statistically indistinguishable from zero. However, the coefficient on own-publication advertising for *Kiplinger's (Positive)* remains near one while the coefficient on own-publication advertising for *Kiplinger's (Negative)* falls from

a statistically insignificant -0.587 to an statistically and economically significant -2.613. In other words, controlling for the level of advertising in personal finance publications increases the evidence that advertising influences recommendations in *Kiplinger's*.⁷

In the final two rows of Table 7, we switch from the fixed effects logit specification to a linear probability model. Using the same set of observations as in the fixed effects logits, we estimate the marginal impact of advertising expenditures via a fixed effects regression. Relative to our fixed effects logit specification, the linear probability model yields positive and statistically significant coefficients on own advertising in the three personal finance publication. It also yields a much smaller, but statistically significant coefficient on media mentions in the *Wall Street Journal*, and a negative and statistically significant coefficient on *Kiplinger's* (Negative). (Again, standard errors cluster on the investment objective by month pairs.) In the final row, we redefine our dependent and independent variables as annual first differences and again estimate a fixed effects regression. Testing for advertising bias through time-series variation in own-advertising, we find that the coefficient on *Kiplinger's* (Positive) is again positive and statistically. Also, the estimated coefficient on *SmartMoney* (Negative) turns out to be negative and statistically significant.⁸ Overall, Tables 6 and 7 suggest that advertising expenditures may influence media mentions at one or more of the personal finance magazines. Interestingly, among our sample of publications, *Kiplinger's*, the publication for which the evidence of bias is consistently strongest, also receives the largest fraction of its advertising dollars from mutual funds (28.2%).

⁷It is still possible unobservable characteristics lead specific funds to appeal to the readers of specific magazines and that this might contribute to the correlations. While this hypothesis is difficult to dismiss entirely absent a purely exogenous source of variation in advertising, we examined detailed demographic data on the three magazines' reader characteristics (e.g., age, sex, income, boat ownership) and found them to be very similar. Also, since all three publications are New York-based, geography is unlikely to be an important source of segmentation.

⁸We use levels rather than first differences as our central estimates because both advertising and media mentions fail unit root tests.

4.2 Source of Observed Relation between Advertising and Content

This section presents additional tests investigating the mechanism that produces the observed correlation between advertising and content. We consider four possibilities. First, the correlation may be the result of journalists being exposed primarily to advertising in their own publication and being unconsciously influenced by it. This explanation seems to be ruled out by the magnitudes of the correlations. Journalists read publications other than their own. If the mechanism is the subconscious influence of advertising, we should find effects for other print advertising in addition to own-publication advertising, but these effects are less than one-tenth the size of the effects of own-publication advertising, even for other personal finance magazines.⁹

Second, we considered the possibility that the content bias may be generated by stories suggested by editors. Interviews with reporters suggest that articles on specific funds or fund families are often suggested by editors; these articles may in turn be suggested to editors by their superiors. At the same time, the recommendation of specific funds in articles that provide general recommendations or recommendations within an investment theme seem less subject to subtle influence by editors. For example, if an editor instructed a reporter to write a story about small-cap funds and then recommend five specific funds, it presumably would be a more obvious indication of bias to the reporter. Table 8 repeats the analysis in Table 6 for different types of articles in *Kiplinger's* and *SmartMoney*. The results suggest that correlations between advertising and content are present for all article types. While advertising within *Kiplinger's* is most highly correlated with articles that spotlight a single fund or family, the point estimate is very close to zero for this type of article in *SmartMoney*.

Third, we considered the possibility that past advertising stimulates reader interest in the fund

⁹A related subconscious bias story is that a journalist is more favorably influenced by an own publication ad due to unconscious feelings of gratitude. This is almost observationally equivalent to a conscious bias in favor of advertisers, and so we cannot rule this story out. Were this the story, we argue that our results should still be interesting, including to journalists interested in understanding and correcting for any subconscious biases.

of a particular family, leading the magazine to be more likely to cover their funds. This should produce a positive correlation between past advertising and future positive coverage, but it should likewise produce a positive correlation between past advertising and future *negative* coverage, since readers should want to know about advertised funds to avoid. We do not find evidence of such a correlation: in *Kiplinger's*, past advertising may protect a family against negative coverage, whereas in *SmartMoney* the effect is a fairly precisely estimated zero. For both magazines, we can reject the hypothesis that the correlation is of a similar magnitude as with positive coverage.

Finally, we considered the possibility that the pressures created by the decline in mutual fund advertising in 2001 and 2002 may have contributed to a relaxation in journalistic ethics. Since financial pressure due to the decline in advertising revenue has been present at all three publications to roughly equal degrees, the only source of variation we have is time series. Table 9 reports coefficients on own publication advertising for the specification from Table 6 estimated for each year in our sample period. In general, across the three publications, the association between advertising and positive mentions appears to have increased from 1997 to 2000, when mutual fund advertising expenditures were increasing, and then declined in 2001 and 2002, when mutual fund advertising expenditures were sharply falling. In 2002, only the coefficient for *SmartMoney* (*Positive*) is positive and statistically significant, but it is significantly higher than in earlier years. Therefore, the evidence that the correlation between advertising and content increased in 2001 and 2002 as a result of increased competition for advertising dollars is mixed at best.

Interestingly, to the extent that the positive correlation between own-publication advertising and positive media mentions constitutes evidence of bias, *Kiplinger's* claim that ads do not influence the editors appears closer to being true at the time it was made in 1996 than it was in 2000. Of course, we should caution that the cross-sectional evidence of advertising bias in Tables 6 through 9 is suggestive at best. Better understanding the mechanism may require interviews and documentary

evidence (e.g., emails) in addition to outside-in statistical analysis.¹⁰

4.3 Do Investors Respond to Media Mentions?

Media mentions are only valuable to mutual fund families to the extent that they influence investor behavior. Consistent with the analysis in Sirri and Tufano (1998), Table 9 presents the results of Fama-MacBeth (1973) style regressions of future fund inflows on media mentions, fund characteristics, and advertising. Each month between January 1996 and December 2001, we estimate a cross-sectional regression of inflows over the subsequent twelve months on the media mentions and control variables. We then report the time-series means and standard errors associated with these cross-sectional estimates.

Our dependent variable measures the future net inflows into fund i as the percentage change in the size of fund i between months $t + 1$ and $t + 12$ minus the return earned by fund i over this twelve month period. The number of media mentions in month t is measured separately for each publication and for each type of mention (positive versus negative). To test whether advertising expenditures are systematically related to future inflows, we include family-level advertising expenditures on print and nonprint media over the past twelve months normalized by the average dollars under management within the fund family over this period. In addition, we include a standard set of control variables: the natural logarithm of dollars under management in fund i in month $t - 1$, the natural logarithm of dollars under management in fund i 's fund family in month $t - 1$, net inflows into fund i between months $t - 11$ and t , the raw return earned by fund i between months $t - 11$ and t , fund i 's current expense ratio and 12b-1 fee, and a dummy variable that indicates whether

¹⁰For example, a former reporter from one of the magazines in our sample described a common fund selection procedure as running database screens as a first step, but then selecting which of several eligible funds to include based on, in part, whether the reporters had existing high-level contacts available for quotation. The reporter noted many large advertisers were fairly proactive about meeting reporters when visiting their offices for business reasons. This mechanism for an advertising-content correlation seems to be a grey area. One could view it as a pro-advertiser bias or, alternatively, one could view the media mentions as the result of an investment in public relations and the correlation as being due to PR and advertising being complements.

fund i charges a sales load. We include the future raw returns of fund i between months $t + 1$ and $t + 12$ to control for an important source of future inflows. Finally, we include fixed effects for each investment objective within each monthly cross-sectional regression. Since the control variables are highly persistent, we estimate their standard errors from the time-series of estimated coefficients via Newey and West (1987) and allow 12 monthly lags. Since media mentions within a publication are not very persistent across months, and since for many of the media mentions we are unable to estimate a coefficient for each of the 72 months, we estimate the standard errors for the media mention variables via White (1980).¹¹

Looking across the columns in Table 9, we see that media mentions are associated with future inflows in the direction one would expect. The magnitudes are largest in our baseline specification in column (2) and decline a bit when we control for fund i 's lagged Morningstar rating (column (3)) and prior media mentions (column (4)). However, they change very little when we add controls for the current and prior media mentions of other funds in fund i 's family. Overall, positive mentions in personal finance magazines and *Consumer Reports* are associated with a 5-8 percent increase in fund size over the next 12 months, while a positive mention in the *New York Times* is associated with a 10 percent increase. Negative media mentions in both *Kiplinger's* and *SmartMoney* yield estimated future outflows of 5-6 percent, but only the coefficient on *SmartMoney* is statistically significant.

Interestingly, in none of the specifications is the coefficient on the print advertising ratio statistically different from zero. If we interpret the correlations in Tables 6 and 10 causally, this suggests that all of the returns to print advertising by mutual funds may come via biased content. On the other hand, if content and advertising are merely correlated, then past work on advertising may suffer from an omitted variable bias by failing to control for free media mentions.

¹¹Estimating the coefficient for *SmartMoney (Positive)* via Newey-West with 12 lags increases the standard error from 0.020 to 0.021.

4.4 Do Media Mentions Contain Information About Future Returns?

As discussed in section 2, there is a large literature that seeks to predict future fund performance with fund characteristics, fund manager characteristics, and measures of past fund performance. Here we ask whether investors who use positive (or negative) media mentions to buy (or sell) funds earn positive (or negative) abnormal returns relative to other funds they might have chosen.

The top panel of Table 11 focuses on the full sample of U.S. mutual funds between 1996 and 2002. Each month, we calculate the relative return of fund i in month t as its raw return in month t minus the equal-weighted average return of funds with the same investment objective in the same month. For each type of media mention, we then regress relative monthly returns on a dummy variable that indicates whether fund i received the specified media mention within the 12 months ending month t .¹² In other words, we are assuming that an investor uses the media mentions to construct an equal-weighted portfolio: she buys each fund in the month it is recommended and holds the fund for 12 months. We report the coefficients on the dummy variable (and report heteroscedasticity robust standard errors). The estimated coefficients indicate that funds mentioned in the *New York Times* and *Money 100* earn monthly returns between 14 and 20 basis points higher than their peers over the following twelve months. In addition, the estimated coefficients indicate that funds receiving negative mentions in *Kiplinger's* and *SmartMoney* go on to underperform their peers by 26 to 28 basis points per month. On the basis of relative returns, each of these media mentions appears to yield abnormal returns. In contrast, the coefficients for the *Wall Street Journal*, positive mentions in *SmartMoney*, and positive mentions in *Consumer Reports* are all negative, although only the *Wall Street Journal* is statistically different than zero.

The middle and bottom panels repeat the fund-level analysis of relative monthly returns for

¹²The number of observations is higher than in previous tables because we only require that fund i report a raw return and investment objective in month t .

two subsets of mutual funds. The middle panel excludes bond funds (leaving a subset of domestic equity funds, international equity funds, and hybrid funds) while the bottom panel is restricted to domestic equity funds. In both cases, the estimated coefficients are quantitatively similar to those for the full sample. However, within the subset of domestic equity funds, positive media mentions in *SmartMoney* and *Consumer Reports* are both associated with relative monthly returns that are negative and statistically significant.

In the middle and bottom panels, since we are focusing on subsets of equity funds, we also estimate the risk-adjusted returns of the portfolio of recommended funds. Each month we calculate the equal-weighted return of funds that received a particular media mention within the past 12 months and subtract the equal-weighted return earned by the full sample of equity funds that month. This yields one observation per type of media mention per month. We then regress these monthly portfolio returns on excess market returns and other mimicking portfolios, and we report the intercepts (alphas) in Table 11. The “CAPM” specification includes the market return in excess of the risk-free rate, the “Three-Factor” specification adds the size and book-to-market portfolios of Fama and French (1993), and the “Four-Factor” specification adds a momentum portfolio as in Carhart (1997).

At the portfolio level, negative mentions in *SmartMoney* continue to underperform their peers by a statistically significant amount. Among domestic equity funds, there is some evidence that positive mentions in *Kiplinger’s* also underperform their peers. In general, however, few of the portfolios of mentioned funds yield statistically significant alphas. For example, the statistically insignificant alphas for the *New York Times* and *Money 100* suggest that their positive relative returns are due to differences in risk, or other characteristics that imply predictable differences in returns. Since our portfolio return subtracts the equal-weighted return of all equity funds (rather than the asset-weighted returns of all equity funds), we conclude that positively mentioned funds,

on average, do not outperform randomly chosen ones.¹³

4.5 To What Extent Does the Observed Relation between Advertising and Media Mentions Harm Investors?

In Table 12, we ask whether the observed link between advertising expenditures and media mentions significantly distorts the recommendations that investors receive from the personal finance magazines in our sample, the three publications in which advertising appears to influence content. The top panel of Table 12 continues the fund-level analysis of relative monthly returns begun in Table 11. Again, we calculate the relative return of fund i in month t as the raw return of fund i in month t less the equal-weighted return of funds with the same investment objective in the same month. We then regress these relative monthly returns on a dummy variable that equals one if fund i received the specified media mention within the 12 months ending month t , and zero otherwise. The top row reports estimated coefficients when the media mention dummy variable is based on actual media mentions (and simply replicates the results from the top panel of Table 11). While these coefficients suggest that investors benefit from some media mentions and not others, they do not speak to what the returns of recommended funds would have been if these publications placed zero weight on own publication advertising expenditures.

The row labeled “Predicted mentions” uses the coefficients from the fixed effect logits of media mentions on fund characteristics (from Table 6) to rank funds within each investment objective and month. It then uses the pattern of actual recommendations across investment objectives and months to predict media mentions. For example, if *Kiplinger’s* recommended five small cap growth funds in March, 1997, we designate the five small cap growth funds with the highest predicted values as *Kiplinger’s* predicted recommendations in that month. When comparing the set of predicted

¹³Furthermore, as a group, mentioned funds significantly underperform the value-weighted average. Therefore, investors who follow recommendations do worse in the future than the average fund investor.

media mentions to the set of actual media mentions, the overlap varies between 12.6% for negative mentions in *SmartMoney* to 36.3% for the *Money* 100. In general, the set of actual mentions yields higher relative returns than the set of predicted mentions, suggesting that publications rely on fund characteristics beyond those we consider.

The row labeled “Predicted mentions without advertising bias” also uses the coefficients from the fixed effect logits reported in Table 6 to rank funds, but sets the coefficient on own publication advertising equal to zero. Comparing the set of predicted mentions to the set of predicted mentions when advertising expenditures are excluded from fund ranking, the overlap varies between 73.8% for positive mentions in *Kiplinger’s* (where the coefficient on own publication advertising was estimated to be 0.977) to 97.0% for negative mentions in *SmartMoney* (where the coefficient on own publication advertising was estimated to be 0.093). To determine whether investors are harmed by the influence of advertising expenditures on fund rankings, we compare the relative returns on the set of predicted mentions to the relative returns on the set of predicted mentions without advertising bias. To the extent that advertised funds have lower expected returns, the influence of advertising expenditures on fund rankings will harm investors. Alternatively, to the extent that funds with higher expected returns also advertise more — as in Milgrom and Roberts (1986) — the influence of advertising expenditures on fund rankings will benefit investors. We find that the observed differences in relative returns are small and none are statistically different from zero. In other words, as in Jain and Wu (2000), we find evidence that the relative returns of advertisers are significantly different from those of other funds.

The final row in the top panel ranks funds within each investment objective and month based solely on the basis of their expense ratios. For positive media mentions, we take the funds with the lowest expense ratios and for negative media mentions, we take the funds with the highest expense ratios. We find that the funds with the highest expense ratios consistently underperform their peers

(as in Carhart (1997)) while the funds with the lowest expense ratios consistently outperform their peers. Compared to the actual media mentions, in every case except for the *Money 100*, investors would have earned higher relative returns by picking low cost funds.

The second panel in Table 12 replaces the fund-level analysis of relative monthly returns with a fund-level analysis of relative annual expense ratios. We calculate the relative annual expense ratio of fund i in month t as its expense ratio minus the average expense ratio of other funds within the same investment objective in month t . Because expense ratios are highly persistent, we then regress the expense ratio of fund i in month t on a dummy variable that indicates whether fund i received the specified media mention in month t . Across publications, actual positive mentions feature funds with below average expense ratios within their investment objectives. Comparing actual mentions with predicted mentions, the expense ratios of the predicted mentions are lower still. However, comparing predicted mentions and predicted mentions without advertising bias, we see that removing the influence of advertising on fund rankings actually increases the average relative expense ratio of recommended funds. Therefore, we conclude that while advertising bias may lead investors to invest in a slightly different set of mutual funds, it does not cause them to invest in funds with appreciably higher expense ratios or lower returns.

5 Conclusion

We present evidence that personal finance magazines are more likely to recommend the funds of their advertisers, even after we control for a large number of the fund's other observable characteristics. We also find that recommendations in these publications significantly influence investor behavior. If we interpret these correlations as reflecting causal relationships, then a non-trivial share of the returns to advertising in personal finance magazines comes via a biased content channel.

This link between advertising and media mentions raises the possibility that investors who

follow the investment advice published in personal finance magazines are being harmed by biased advice. Specifically, if these magazines were to stop favoring advertisers, they might instead recommend funds with higher expected after-expense returns (such as index funds or actively managed funds with lower-than-average expense ratios). However, when we attempt to remove the influence of advertising from media mentions, we find little difference between the returns of those funds predicted to receive media mentions because of advertising and the returns of funds that a debiased version of the magazines' methodology would prefer. Unless we count underweighting expense ratio as a form of general pro-industry bias, bias toward advertisers does not appear to be harming investor's returns. Along these lines, the recommendations of *Consumer Reports*, which does not accept advertising, have future returns that are comparable to those of the commercial magazines.

Our results raise three additional issues. First, from the perspective of a mutual fund investor, it is clear that following published recommendations yields little in the way of positive abnormal returns. In fact, risk-adjusted future returns of recommended funds are little different from the equal-weighted average of all funds and below the value-weighted average, suggesting that investors would do just as well picking at random and might do better asking their neighbor. Following magazine recommendations, like practically all apparently irrational economic behavior, can be rationalized by appealing to information costs. In this case, one would argue that following published advice does outperform picking at random for many products, and discovering that this is not so for mutual funds would require costly research, as would the alternative of picking funds using data such as expense ratios. For some level of information costs, the low-cost investment advice available from personal finance publications — even if biased — may dominate the costs associated with investor self-education and mutual fund research.

Second, if magazines did not bundle bias with advertising, their advertising rates would presumably be lower, and in long-run equilibrium this might affect either the price charged by the

magazines, the quantity of advertising sold, the quality of content provided, or the number of choices. It is not obvious that the bias model for paying experts yields lower welfare than the subscription or pure advertising models. In fact, our results suggest that the direct effect of bias on readers may be less negative than one might have supposed.

Finally, our results raise questions about the reliability of content in advertiser-supported media more generally. For example, they raise questions about whether we can rely on the media to cover politics without being biased by political advertising, to cover regulatory issues without being influenced by special-interest advertising, and to uncover corporate malfeasance without regard to the sensitivities of corporate advertisers. Unfortunately, these questions are far more difficult to answer on anything but an anecdotal level.

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Table 1. Summary of media mention data collected

Publication	Article type	Content/sample title	Character	Frequency	Articles	Fund mentions
<i>Wall Street Journal</i>	"Fund track" column	Industry news	Generally neutral	Daily	853	2702
<i>New York Times</i>	"Investing with" column	Profile of funds and their managers	Positive	Weekly	206	180
<i>Money</i>	"Money 100" fund list	Recommended funds	Positive	Annual	5	465
<i>Kiplinger's</i>	All articles mentioning funds			Varies	144	660
	General recommendations	"Best Funds to Buy Now"	Positive		31	251
		"Hall of Shame"	Negative		11	56
	Within-asset-class recommendations	"Six Ways to Own the World"	Positive		49	244
		"The Wild Bunch"	Negative		3	10
	Single fund/family articles	"Magellan's Driven Boss"	Positive		38	66
		"Is It Time to Leave Magellan?"	Negative		12	33
<i>Smartmoney</i>	All articles mentioning funds			Varies	686	2077
	General recommendations	"Retire Ten Years Early"	Positive		232	882
		"The Underachievers Club"	Negative		65	303
	Within-asset-class recommendations	"Four Great Energy Funds"	Positive		116	384
		"It's Not Easy Being Green"	Negative		46	161
	Single fund/family articles	"How Janus Got It's Groove Back"	Positive		171	247
		"What is Janus Thinking?"	Negative		56	115
<i>Consumer Reports</i>	Mutual funds review issue	Recommended funds	Positive	Annual	10	673

Table 2. Mutual fund advertising by year, 1998-2002

	1998	1999	2000	2001	2002	Change 1998-2000	Change 2002	2000
All print media								
Mutual fund	277	280	304	195	110	10%	-64%	
Total	32,000	36,047	39,348	35,094	36,490	23%	-7%	
National newspapers								
Mutual fund	82	93	98	52	31	19%	-68%	
Total	2,815	3,353	3,822	2,947	2,814	36%	-26%	
Major personal finance magazines								
Mutual fund	88	78	84	64	29	-4%	-66%	
Total	338	383	429	354	316	27%	-26%	

Note: Advertising expenditures were obtained from Competitive Media Research. "National newspapers" include the Wall Street Journal, New York Times, and USA Today. "Major personal finance magazines" include Money, Mutual Funds, Kiplingers, Smartmoney, Barron's, and Worth. Units are millions of dollars per year.

Table 3. Annual advertising by publication, 1998-2002

Rank	Name	Mutual fund (\$ mil.)	Total (\$ mil.)	MF as share of Total
1	WALL STREET JOURNAL	48.5	1,264	3.8%
2	MONEY	22.1	147	15.1%
3	MUTUAL FUNDS	14.0	31	45.1%
4	NEW YORK TIMES	14.0	1,219	1.1%
5	KIPLINGERS PERSONAL FINANCE	12.2	43	28.2%
6	SMARTMONEY	8.7	55	15.9%
7	USA TODAY	8.7	667	1.3%
8	U S NEWS & WORLD REPORT	7.8	214	3.6%
9	BARRONS	6.8	53	12.8%
10	TIME	6.6	602	1.1%
11	FORBES	5.8	321	1.8%
12	WORTH	4.6	35	13.3%
13	FORTUNE	4.5	337	1.3%
14	BUSINESS WEEK	4.0	425	0.9%
15	INVESTMENT NEWS	3.3	9	35.8%
16	LOS ANGELES TIMES	3.1	1,390	0.2%
17	REGISTERED REPRESENTATIVE	3.1	14	22.5%
18	NEWSWEEK	3.0	401	0.8%
19	INVESTMENT ADVISOR	2.7	12	22.9%
20	FINANCIAL PLANNING	2.5	12	21.8%
Total for CMR-monitored publications		232.9	34,716	0.7%
Studied publications (WSJ, Money, NYT, Kiplingers, SmartMoney)		105.6	2,728	3.9%

Note: Advertising expenditures obtained from Competitive Media Research. Since total advertising revenue data across all products is only available beginning in 1998, we rank the publications by total mutual fund advertising received between 1998 and 2002.

Table 4. Summary statistics for mutual funds with media mentions

	All obs.	WSJ	NYT	Money 100	Kiplinger's		SmartMoney		Consumer Reports
					Pos.	Neg.	Pos.	Neg.	
Fund mentions	245299	2702	180	465	561	99	1513	564	673
With fund characteristics data		2027	152	422	360	81	1058	404	626
Date of first media mention collected		Jan-96	Jan-96	Jun-98	Jan-96	Jan-96	Jan-96	Jan-96	May-97
Date of last media mention collected		Dec-02	Dec-02	Dec-02	Dec-02	Dec-02	Dec-02	Dec-02	Oct-02
Ln(Fund Total Net Assets in \$millions)	5.01	6.97	5.92	7.53	6.85	6.40	6.96	6.63	6.77
Ln(Family Total Net Assets in \$millions)	9.03	9.96	8.65	9.59	9.12	9.12	9.59	9.79	9.72
Current expense ratio (%)	1.28	1.27	1.38	1.08	1.12	1.56	1.24	1.34	0.94
Current 12b-1 fee (%)	0.21	0.17	0.17	0.12	0.08	0.09	0.16	0.20	0.02
Load fund? (%)	56.14	46.52	50.65	29.38	22.78	34.57	41.30	56.44	19.01
Net flows in last 12 months (%)	0.17	12.40	33.49	2.95	38.75	-16.58	29.09	-13.36	12.66
Returns in last 12 months less category average (%)	-0.01	9.88	15.29	1.30	7.02	-17.48	15.59	-3.57	5.91
Family print advertising to assets (in basis points)	0.10	0.14	0.10	0.09	0.11	0.17	0.16	0.09	0.12
Family non-print advertising to assets (in basis points)	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Share of print advertising by publication (%)									
Wall Street Journal	19.7	20.5	19.3	13.3	15.0	24.6	18.9	22.1	23.1
New York Times	5.0	4.7	4.4	3.5	3.9	2.4	4.2	6.2	4.7
Money	5.6	9.8	8.3	9.6	9.7	10.2	9.7	8.8	10.7
Kiplinger's	3.4	4.9	3.4	5.3	6.2	6.1	5.5	4.2	6.0
Smart Money	2.3	3.9	2.6	3.9	3.7	4.9	4.1	3.1	4.1
Share of funds by broad asset class (%)									
General equity	41.3	63.9	69.7	73.0	63.6	75.3	59.6	70.3	73.0
Specialized equity	17.2	16.7	11.2	8.3	12.5	4.9	16.8	15.3	6.2
International/global equity	16.3	12.8	16.4	18.7	12.8	8.6	14.7	10.6	13.6
Bonds	25.1	6.7	2.6	0.0	11.1	11.1	8.8	3.7	7.2

Notes: This table compares the characteristics of U.S. mutual funds that receive media mentions to the full sample of U.S. mutual funds for the period January 1996 through December 2002. The mutual fund data comes from CRSP. The media mention data were hand collected. (Note that the sample periods for the Money 100 list and Consumer Reports are both shorter than January 1996 through December 2002.)

Table 5. Advertising and the *Money 100 List*

Family Advertising in Money, prior 12 months	No ad data	Under \$100k	\$100- 500k	\$500k- \$1m	> \$1 m
Fund Families	332	194	11.2	7.6	7.4
Families represented in Money 100 List	24	29	4.2	4.4	6.2
% Represented	7.2%	14.9%	37.5%	57.9%	83.8%
Fund Families	2446	3489	388	399	472
Families represented in Money 100 List	33	39	5.2	7.4	14.2
% Represented	1.3%	1.1%	1.3%	1.9%	3.0%

Note: Figures reported are per year averages over the five years (1998-2002) for which we possess both CMR advertising data and the composition of the Money 100 list.

Table 6. Fixed Effect Logits Predicting Media Mentions

Dependent variable: one if fund received media mention in month t and 0 otherwise

Type of mention	WSJ	NYT	Money 100	Kiplinger's (Positive)	Kiplinger's (Negative)	SmartMoney (Positive)	SmartMoney (Negative)	Consumer Reports
Obs.	162,010	57,535	11,409	58,416	17,250	124,205	62,406	16,202
Objective*Month combinations	525	132	35	161	43	400	192	52
Fund family advertising in last 12 months (\$ billions)								
Own publication	0.025 (0.022)	-0.259 (0.303)	0.368 *** (0.092)	0.976 *** (0.189)	-0.587 (0.494)	0.706 *** (0.123)	0.057 (0.231)	
Total print	0.013 ** (0.007)	0.022 (0.033)	-0.047 *** (0.014)	-0.021 (0.013)	0.091 *** (0.024)	-0.010 (0.007)	0.027 *** (0.010)	0.024 *** (0.007)
Non-print	0.010 * (0.006)	0.016 (0.024)	-0.046 ** (0.019)	-0.022 (0.018)	-0.063 (0.067)	-0.010 (0.010)	0.025 * (0.014)	0.031 ** (0.014)
Ln(Fund TNA, month t-1)	0.670 *** (0.019)	0.207 *** (0.066)	1.099 *** (0.054)	0.708 *** (0.048)	0.863 *** (0.107)	0.669 *** (0.027)	0.603 *** (0.042)	0.452 *** (0.038)
Ln(Family TNA, month t-1)	-0.123 *** (0.016)	-0.162 *** (0.052)	-0.369 *** (0.043)	-0.314 *** (0.040)	-0.277 *** (0.079)	-0.210 *** (0.023)	-0.107 *** (0.034)	-0.118 *** (0.032)
Current Expense ratio	0.224 *** (0.017)	0.218 ** (0.092)	0.304 *** (0.068)	0.255 *** (0.062)	0.177 *** (0.057)	0.250 *** (0.030)	0.170 *** (0.038)	0.038 (0.135)
Current 12b-1 fee	-0.629 *** (0.117)	-0.759 * (0.413)	-1.341 *** (0.340)	-1.488 *** (0.039)	-2.453 *** (0.815)	-0.182 (0.163)	-0.461 * (0.245)	-6.277 *** (0.623)
Load fund dummy	-0.367 *** (0.057)	0.188 (0.195)	-0.971 *** (0.151)	-0.951 *** (0.153)	-0.424 (0.274)	-0.396 *** (0.080)	0.068 (0.125)	-0.008 *** (0.001)
Net Inflows from month t-11 to t	0.209 *** (0.049)	0.413 *** (0.135)	0.464 *** (0.135)	0.693 *** (0.082)	-0.750 ** (0.295)	0.516 *** (0.054)	-0.499 *** (0.144)	0.694 *** (0.103)
Raw return from month t-11 to t	0.223 * (0.130)	4.105 *** (0.781)	-0.760 * (0.409)	1.502 *** (0.480)	-6.954 *** (1.266)	1.604 *** (0.274)	-4.710 *** (0.478)	0.665 (0.561)
Raw return t-11 to t, Squared	1.052 *** (0.090)	-1.958 ** (0.887)	-3.121 *** (0.701)	-0.106 (0.680)	-1.657 (1.118)	-0.101 (0.288)	-1.976 *** (0.617)	-3.683 *** (1.072)
Lagged Morningstar = 1 Star	0.291 ** (0.117)	-1.888 (1.388)	-2.186 ** (0.931)	-1.490 ** (0.709)	1.218 ** (0.492)	-0.369 (0.253)	0.772 *** (0.237)	1.828 ** (0.756)
2 Stars	-0.150 (0.100)	0.078 (0.502)	-0.334 (0.304)	-0.612 * (0.329)	0.433 (0.470)	-0.236 (0.167)	0.459 ** (0.209)	2.478 *** (0.597)
3 Stars	-0.293 *** (0.091)	0.953 ** (0.385)	-0.123 (0.259)	-0.623 ** (0.272)	-0.875 (0.537)	-0.192 (0.143)	-0.077 (0.216)	3.659 *** (0.565)
4 Stars	-0.358 *** (0.092)	1.603 *** (0.368)	0.462 * (0.245)	0.524 ** (0.223)	-1.138 ** (0.560)	0.399 *** (0.131)	-0.401 * (0.239)	4.207 *** (0.563)
5 Stars	-0.029 (0.094)	2.013 *** (0.369)	0.898 *** (0.249)	1.179 *** (0.220)	-1.012 * (0.613)	1.130 *** (0.129)	-0.082 (0.261)	4.521 *** (0.565)

Notes: Each column reports the estimated coefficients from a fixed effects logit model. The dependent variable equals one if fund i received the specified media mention in month t and 0 otherwise. Specifications include a separate fixed effect for each investment objective combination each month. Since Morningstar ratings are awarded at the share class level, lagged Morningstar ratings dummies are multiplied by the fraction of fund i's dollars under management that receive each rating. Standard errors reported below coefficients and cluster on the fixed effects. Significance at the 10-percent, 5-percent, and 1-percent levels denoted by *, **, and ***.

Table 7. Predicting Media Mentions -- Robustness

Dependent variable: one if fund received media mention in month t and 0 otherwise

Type of mention	WSJ	NYT	Money 100	Kiplinger's (Positive)	Kiplinger's (Negative)	SmartMoney (Positive)	SmartMoney (Negative)
Obs.	162,010	57,535	11,409	58,416	17,250	124,205	62,406
Objective*Month combinations	525	132	35	161	43	400	192
Baseline fixed effects logit specification	0.025 (0.022)	-0.259 (0.303)	0.368 *** (0.092)	0.976 *** (0.189)	-0.587 (0.494)	0.706 *** (0.123)	0.057 (0.231)
Baseline logit + past media mentions in other publications	0.0053 (0.0224)	-0.2540 (0.3027)	0.2409 ** (0.0977)	0.8263 *** (0.1930)	-0.2167 (0.5060)	0.6602 *** (0.1255)	0.0776 (0.2377)
Baseline logit + fund family advertising in tabloids in past 12 months	0.0684 *** (0.0249)	-0.1095 (0.3303)	0.0045 (0.4244)	1.0101 ** (0.4207)	-2.6131 ** (1.1469)	-0.0779 (0.2999)	-0.4349 (0.5389)
Baseline fixed effects regression w/ month-by-objective fixed effects	0.0010 *** (0.0004)	-0.0004 (0.0007)	0.0311 *** (0.0045)	0.0152 *** (0.0017)	-0.0056 * (0.0029)	0.0140 *** (0.0016)	-0.0005 (0.0018)
Baseline fixed effects regression estimated as annual first differences	-0.0046 (0.0077)	0.0049 (0.0051)	-0.0007 (0.0091)	0.0438 ** (0.0178)	-0.0025 (0.0032)	0.0451 (0.0316)	-0.0566 *** (0.0217)

Notes: In the top panel, each column reports the estimated coefficient on the "Own publication" variable from a fixed effects logit model like that in Table 6. The dependent variable equals one if fund i received the specified media mention in month t and 0 otherwise. All specifications include a fixed effect for each investment objective combination each month. The list of independent variables in the baseline case is the same as in Table 6. Morningstar ratings dummy variables are included but not reported. Standard errors reported below coefficients and cluster on the fixed effects. In the bottom panel, we switch to a linear probability model. Instead of estimating a fixed effects regression, we estimate a fixed effects regression with investment objective-by-month fixed effects. As in the fixed effects logit, we drop observations belonging to investment objectives that are not mentioned in month t. Standard errors again cluster on the fixed effects. In the final row, the dependent and independent variables are all estimated as annual first differences and the standard errors cluster on fund-by-year. Significance at the 10-percent, 5-percent, and 1-percent levels denoted by *, **, and ***.

Table 8. Determinants of positive media coverage by article type

Dependent variable: one if positive mention within specified article type, zero otherwise

Article type	Observations (Obj*Months)	Advertising by family in last 12 months (\$ billions)			Ln(TNA)	Ln(Fam TNA)	Expense	Fund characteristics			Net Inflow	Past Return	Return ^ 2
		Own pub.	Total print	Non-print				12b-1	Load				
Kiplinger's (positive)	58,416 (161)	0.976*** (0.189)	-0.021 (0.013)	-0.022 (0.018)	0.708*** (0.048)	-0.314*** (0.040)	0.255*** (0.062)	-1.486*** (0.389)	-0.951*** (0.153)	0.693*** (0.082)	1.502*** (0.480)	-0.106* (0.680)	
General	31,699 (81)	0.554* (0.311)	-0.024 (0.023)	-0.044 (0.031)	0.843*** (0.077)	-0.335*** (0.065)	0.275*** (0.084)	0.233 (0.484)	-1.708*** (0.265)	0.751*** (0.123)	0.344* (0.738)	-0.557* (1.102)	
Within-asset-class	21,233 (62)	0.702** (0.337)	-0.028 (0.022)	0.000 (0.025)	0.625*** (0.073)	-0.256*** (0.059)	0.261** (0.115)	-3.143*** (0.704)	-0.582*** (0.219)	0.686*** (0.123)	2.213*** (0.717)	0.374* (0.969)	
Single fund/family	16,832 (39)	1.901*** (0.372)	0.022 (0.028)	0.035 (0.043)	0.502*** (0.134)	-0.378*** (0.112)	0.228 (0.381)	-3.198** (1.459)	-0.020 (0.384)	0.595** (0.268)	4.326** (1.845)	-3.250* (3.064)	
SmartMoney (positive)	124,205 (400)	0.706*** (0.123)	-0.010 (0.007)	-0.010 (0.010)	0.669*** (0.027)	-0.210*** (0.023)	0.250*** (0.030)	-0.181 (0.163)	-0.396*** (0.080)	0.516*** (0.054)	1.604*** (0.274)	-0.101* (0.288)	
General	90,006 (265)	1.001*** (0.158)	-0.029*** (0.010)	-0.012 (0.012)	0.724*** (0.037)	-0.206*** (0.031)	0.243*** (0.045)	0.123 (0.211)	-0.567*** (0.108)	0.486*** (0.078)	1.629*** (0.366)	-0.562* (0.408)	
Within-asset-class	39,907 (134)	0.408* (0.238)	0.011 (0.013)	-0.058** (0.029)	0.663*** (0.050)	-0.234*** (0.043)	0.28*** (0.053)	-1.037*** (0.329)	-0.014 (0.145)	0.587*** (0.094)	1.189** (0.465)	0.566* (0.410)	
Single fund/family	35,111 (106)	0.035 (0.359)	0.029* (0.017)	0.04** (0.020)	0.418*** (0.071)	-0.167*** (0.059)	0.222*** (0.066)	0.196* (0.403)	-0.461** (0.216)	0.449*** (0.119)	2.587*** (0.814)	-0.558* (0.767)	

Notes: Each row reports the estimated coefficients from a fixed effects logit model like that estimated in Table 6. The dependent variable equals one if fund *i* received the specified media mention in month *t* and 0 otherwise. Specifications include a fixed effect for each investment objective combination each month. The list of independent variables is the same as in Table 6. Morningstar ratings dummy variables are included but not reported. Standard errors reported below coefficients and cluster on the fixed effects. Significance at the 10-percent, 5-percent, and 1-percent levels denoted by *, **, and ***.

Table 9. Determinants of positive media coverage by year

Dependent variable: one if fund received media mention in month t and 0 otherwise

Year	Money 100		Kiplinger's (Positive)		SmartMoney (Positive)	
	Observations (Obj*Months)	Advertising by family in last 12 months (\$ billions)	Observations (Obj*Months)	Advertising by family in last 12 months (\$ billions)	Observations (Obj*Months)	Advertising by family in last 12 months (\$ billions)
		Own pub.		Own pub.		Own pub.
1997-2002	11,409 (35)	0.368 *** (0.092)	58,416 (161)	0.976 *** (0.189)	124,205 (400)	0.706 *** (0.123)
1997			8,521 (31)	0.997 * (0.563)	21,239 (91)	0.439 (0.278)
1998	1,802 (7)	0.381 ** (0.195)	9,948 (33)	0.801 * (0.372)	20,076 (77)	0.414 * (0.237)
1999	2,027 (7)	0.379 ** (0.154)	4,104 (10)	1.009 * (0.586)	16,998 (48)	0.659 ** (0.301)
2000	2,298 (7)	0.612 * (0.259)	6,094 (17)	2.302 *** (0.583)	20,639 (62)	1.257 *** (0.319)
2001	2,521 (7)	0.064 (0.291)	10,285 (26)	0.923 * (0.461)	18,759 (50)	0.361 (0.435)
2002	2,761 (7)	0.150 (0.384)	19,131 (42)	0.314 (0.773)	24,898 (64)	2.074 *** (0.656)

Notes:

Each row reports the estimated coefficient on the "Own Publication" variable from a fixed effects logit model like that estimated in Table 6. The dependent variable equals one if fund i received a positive media mentions from the stated publication (Money, Kiplinger's or SmartMoney) in month t and 0 otherwise. Specifications include a fixed effect for each investment objective combination each month. The first row pools observations for the period 1997-2002; other rows are restricted to the observations for individual years. The list of independent variables is the same as in Table 6. Morningstar ratings dummy variables are included but not reported. Standard errors are reported below coefficients and cluster on the fixed effects. Significance at the 10-percent, 5-percent, and 1-percent levels denoted by *, **, and ***.

Table 10. Fama-MacBeth Regressions of Future Net Inflows on Media Mentions

Dependent variable: Net Inflows at fund level between months t+1 and t+12						
	N	(1)	(2)	(3)	(4)	(5)
Ln(Fund Total Net Assets in month t-1)	72	-0.041 *** (0.003)	-0.041 *** (0.003)	-0.046 *** (0.004)	-0.048 *** (0.004)	-0.049 *** (0.004)
Ln(Family TNA in month t-1)	72	0.018 *** (0.002)	0.018 *** (0.002)	0.019 *** (0.003)	0.019 *** (0.003)	0.017 *** (0.003)
Net Inflows from month t-11 to t	72	0.180 *** (0.026)	0.179 *** (0.026)	0.172 *** (0.025)	0.171 *** (0.025)	0.169 *** (0.025)
Raw return from month t-11 to t	72	0.407 *** (0.094)	0.403 *** (0.095)	0.340 *** (0.089)	0.338 *** (0.090)	0.341 *** (0.090)
Raw return from month t-11 to t, Squared	72	0.712 ** (0.336)	0.706 ** (0.336)	0.681 ** (0.310)	0.681 ** (0.310)	0.685 ** (0.310)
Raw return from month t+1 to t+12	72	0.707 *** (0.060)	0.709 *** (0.059)	0.744 *** (0.051)	0.743 *** (0.052)	0.740 *** (0.053)
Current expense ratio	72	-0.016 *** (0.005)	-0.017 *** (0.005)	-0.0102 * (0.005)	-0.011 ** (0.005)	-0.011 * (0.006)
Current 12b-1 fee	72	0.047 ** (0.022)	0.048 ** (0.022)	0.0492 ** (0.022)	0.052 ** (0.022)	0.057 ** (0.022)
Load fund dummy	72	0.019 * (0.010)	0.020 * (0.010)	0.0302 *** (0.009)	0.033 *** (0.009)	0.037 *** (0.009)
Print Advertising Expenditures / Family Assets	72	0.003 (0.003)	0.004 (0.003)	0.0037 (0.003)	0.004 (0.003)	0.003 (0.003)
Non-Print Advert. Expenditures / Family Assets	72	0.017 (0.016)	0.016 (0.015)	0.0244 (0.016)	0.018 (0.015)	0.005 (0.015)
Current-month media mentions						
WSJ "Fund Track" column	72		0.051 *** (0.008)	0.043 *** (0.008)	0.036 *** (0.009)	0.038 *** (0.010)
NYT "Investing With" column	65		0.129 *** (0.028)	0.102 *** (0.027)	0.099 *** (0.028)	0.099 *** (0.028)
Money 100	4		0.091 ** (0.017)	0.073 ** (0.018)	0.085 * (0.033)	0.096 * (0.040)
Kiplinger's (positive)	48		0.077 *** (0.028)	0.060 ** (0.027)	0.050 * (0.028)	0.050 * (0.028)
Kiplinger's (negative)	13		-0.046 (0.091)	-0.039 (0.093)	-0.019 (0.098)	0.011 (0.099)
SmartMoney (positive)	72		0.117 *** (0.02)	0.094 *** (0.02)	0.083 *** (0.019)	0.080 *** (0.020)
SmartMoney (negative)	61		-0.050 *** (0.018)	-0.058 *** (0.018)	-0.062 *** (0.019)	-0.064 *** (0.020)
Consumer Reports	6		0.084 *** (0.018)	0.060 ** (0.018)	0.051 * (0.024)	0.067 * (0.031)
Controls for past Morningstar ratings?	--	--	--	Yes	Yes	Yes
Controls for past media mentions at fund level?	--	--	--	--	Yes	Yes
Controls for current & past media mentions at family level	--	--	--	--	--	Yes

Note: Coefficients estimated via Fama MacBeth (1973). Each month between Jan-96 and Dec-01 we estimate a separate cross-sectional regression. We then report the time-series mean and time-series standard error for each estimated coefficient. Since the control variables are highly persistent, standard errors for the control variables are estimated via Newey-West (1987) with 12 lags. Standard errors for the media mention coefficients are estimated via White (1980). (The column "N" indicates the number of cross-sectional regressions in which we were able to estimate the coefficient.) The dependent variable in our cross-sectional regressions is measured as the percentage change in the size of fund *i* between months t+1 and t+12, less the fund's return between months t+1 and t+12. All monthly regressions include investment objective fixed effects. Since different share classes of a mutual fund can receive different Morningstar ratings, we multiple the Morningstar ratings dummy variables by the fraction of dollars in the fund that received the Morningstar rating. Past media mentions are the sum of media mentions by publication in months t-12 to t-1. Family-level media mentions exclude media mentions for fund *i*. Significance at the 10-percent, 5-percent, and 1-percent levels is denoted by *, **, and ***.

Table 11. Comparing the Future Returns of Recommended and Non-Recommended Funds

Type of mention	WSJ	NYT	Money 100	Kiplinger's (Positive)	Kiplinger's (Negative)	SmartMoney (Positive)	SmartMoney (Negative)	Consumer Reports
FULL SAMPLE OF U.S. MUTUAL FUNDS, 1996-2002								
Fund-Level Analysis:								
Relative Return	-0.103*** (0.024)	0.206*** (0.079)	0.140** (0.057)	0.051 (0.046)	-0.286 (0.208)	-0.043 (0.039)	-0.264*** (0.055)	-0.045 (0.043)
N	348,918	348,918	246,821	348,918	348,918	348,918	348,918	295,789
SUBSET OF DOMESTIC EQUITY FUNDS, INTERNATIONAL EQUITY FUNDS, AND HYBRID FUNDS								
Fund-Level Analysis:								
Relative Return	-0.110*** (0.029)	0.212*** (0.090)	0.141** (0.064)	0.051 (0.059)	-0.320** (0.133)	-0.054 (0.037)	-0.275*** (0.054)	-0.046 (0.049)
N	265,508	265,508	192,307	265,508	265,508	265,508	265,508	238,294
Portfolio-Level Analysis:								
CAPM	-0.135 (0.122)	0.224 (0.149)	0.105 (0.145)	-0.020 (0.077)	0.146 (0.426)	-0.001 (0.154)	-0.283** (0.124)	-0.064 (0.091)
Three-Factor	-0.049 (0.068)	0.265** (0.112)	0.096 (0.074)	-0.027 (0.080)	-0.076 (0.423)	0.114 (0.084)	-0.308** (0.121)	-0.063 (0.084)
Four-Factor	-0.096 (0.067)	0.175 (0.108)	0.145** (0.067)	0.000 (0.081)	-0.054 (0.438)	0.034 (0.078)	-0.216* (0.117)	-0.059 (0.087)
N	84	84	55	84	84	84	84	68
SUBSET OF DOMESTIC EQUITY FUNDS								
Fund-Level Analysis:								
Relative Return	-0.082** (0.034)	0.293*** (0.103)	0.179** (0.073)	0.007 (0.067)	-0.153 (0.141)	-0.124*** (0.044)	-0.357*** (0.061)	-0.117** (0.053)
N	146,188	146,188	107,048	146,188	146,188	146,188	146,188	131,659
Portfolio-Level Analysis:								
CAPM	-0.127 (0.089)	0.141 (0.138)	0.074 (0.191)	-0.179* (0.091)	0.215 (0.424)	-0.077 (0.138)	-0.452*** (0.113)	-0.146 (0.090)
Three-Factor	-0.084 (0.054)	0.160 (0.110)	0.073 (0.099)	-0.185* (0.094)	-0.011 (0.420)	0.005 (0.093)	-0.435*** (0.109)	-0.126 (0.083)
Four-Factor	-0.126** (0.051)	0.117 (0.112)	0.159** (0.078)	-0.099 (0.088)	-0.012 (0.435)	-0.042 (0.093)	-0.311*** (0.096)	-0.100 (0.084)
N	84	84	55	84	84	84	84	68

Notes: The top panel includes the full sample of U.S. mutual funds, 1996-2002; the middle panel excludes bond funds but includes international equity and hybrid funds; the bottom panel is restricted to the set of domestic equity mutual fund. "Fund-level analysis" reports the coefficient from an OLS regression of monthly fund returns, less the equal-weighted return on funds with the same investment objective in the same month, on a dummy variable that equals one if the fund received the media mention within the past twelve months. "Portfolio-level analysis" calculates the equal-weighted monthly return of funds recommended within the past twelve months, subtracts off the equal-weighted monthly return for the full sample of funds, and regresses these monthly portfolio returns on the market return (in excess of the risk-free rate) and other factors. Hence, for each publication, the number of observations is the number of months for which we are able to calculate portfolio returns based on our media mention data. Heteroscedasticity robust standard errors are reported below coefficients. Significance at the 10-percent, 5-percent, and 1-percent levels is denoted by *, **, and ***.

Table 12. Estimating the cost of biased mutual fund recommendations

Type of mention	Money 100	Kiplinger's (Positive)	Kiplinger's (Negative)	SmartMoney (Positive)	SmartMoney (Negative)
Fund-Level Analysis of Relative Monthly Returns (measured in percentage points):					
Actual mentions	0.140** (0.057)	0.051 (0.046)	-0.286 (0.208)	-0.043 (0.039)	-0.264*** (0.055)
Predicted mentions	-0.104** (0.052)	-0.102 (0.071)	-0.635** (0.283)	-0.176*** (0.063)	-0.163* (0.096)
Predicted mentions without advertising bias	-0.146*** (0.054)	-0.092 (0.077)	-0.653** (0.282)	-0.227*** (0.066)	-0.151 (0.096)
Predicted mentions based solely on expense ratio	0.081* (0.045)	0.165*** (0.050)	-1.619*** (0.340)	0.144*** (0.049)	-0.700*** (0.146)
Fund-Level Analysis of Relative Annual Expense Ratios (measured in percentage points):					
Actual mentions	-0.307*** (0.016)	-0.203*** (0.017)	0.399 (0.250)	-0.123*** (0.013)	0.050 (0.079)
Predicted mentions	-0.387*** (0.065)	-0.281*** (0.014)	0.535 (0.392)	-0.186*** (0.056)	0.150 (0.149)
Predicted mentions without advertising bias	-0.301*** (0.088)	-0.139 (0.086)	0.538 (0.392)	0.045 (0.082)	0.156 (0.149)
Predicted mentions based solely on expense ratio	-1.036*** (0.010)	-1.136*** (0.010)	6.033*** (0.656)	-1.118*** (0.006)	4.792*** (0.256)
Number of Actual Media Mentions:	465	565	99	1513	564
Fraction of Media Mentions that Overlap:					
Actual & Predicted	36.6%	18.7%	31.0%	14.0%	12.6%
Predicted & No Advertising Bias	86.5%	72.7%	83.3%	76.0%	98.1%
Predicted & Solely Expense Ratio	12.3%	1.9%	4.8%	0.9%	3.4%

Note: The analysis in Table 12 is based upon the full sample of US mutual funds, 1996-2002. The fund-level analysis of relative monthly returns relates to that in the top panel of Table 11. Each cell reports the coefficient from an OLS regression of monthly fund returns, less the equal-weighted return on funds with the same investment objective in the same month, on a dummy variable that equals one if the fund received the specified media mention within the past twelve months and zero otherwise. For each publication, we compare the relative returns of the funds it actually recommended to the relative returns of funds we predict it might have recommended. Specifically, for each publication, we condition on the number of media mentions within each investment objective and month. We then use fund attributes and the estimated coefficients from the fixed effects logit models in Table 6 to rank funds within each investment objective and month, taking the appropriate number of top ranked funds as the predicted media mentions. Predicted mentions uses all of the coefficients from Table 6 when ranking funds; "predicted mentions without advertising bias" ignores the coefficient on "Own Publication" advertising; finally, "predicted mentions based solely on expense ratio" ranks the funds within each investment objective and month based solely on fund expense ratios.

The fund-level analysis of relative annual expense ratios is similar. Each cell reports the coefficient from an OLS regression of expense ratios, less the equal-weighted expense ratio on funds with the same investment objective in the same month, on a dummy variable that equals one if fund *i* received the specified media mention that month and zero otherwise. Heteroscedasticity robust standard errors are reported below coefficients. Significance at the 10-percent, 5-percent, and 1-percent levels is denoted by *, **, and ***.