Advertising and mutual fund asset flows

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Abstract

Purpose – The paper aims to examine the effect of advertising on mutual fund cash flows in the Finnish fund market.

Design/methodology/approach – The paper's unique data set allows the observation of the effects of monetary advertising spending and the choice of advertising media.

Findings – The paper finds that neither past year's performance nor advertising alone is sufficient to produce increased cash flows. However, advertising together with past performance is found to significantly affect cash flows. The positive effect of advertising is limited to the use of non-perishable advertising media. Additionally, it is found that fund families spending proportionately more on advertising receive higher asset flows.

Originality/value – The data are unique in that they can identify fund families that advertise, and also how much they spent on advertising in a given year and the dollar amount spent on five different media types. Obviously, having also fund level data available would enable more thorough analysis.

Keywords Unit trusts, Advertising, Banks, Distribution channels and markets, Finland

Paper type Research paper

1. Introduction

The academic examination of open-end mutual funds has broadened extensively over the last four decades. Beginning with Jensen (1969), numerous studies focus on fund performance and a manager's ability to outperform the market. Since the work by Ferris and Chance (1987), researchers have also considered how fund characteristics impact fund expense ratios and consequently how expense ratios impact fund performance (see Carhart, 1997)[1]. A recent development in the literature examines the determinants of new asset flows to a fund. A variety of determinants have been explored, including prior fund performance (e.g. Sirri and Tufano, 1998; Jain and Wu, 2000; Del Guercio and Tkac, 2002), rating systems such as Morningstar stars (e.g. Nanda *et al.*, 2004; Del Guercio and Tkac, 2005), and the impact of advertising (Jain and Wu, 2000; Yankow *et al.*, 2006).

This paper follows in the pattern of the latter group. Specifically, we examine the impact of advertising on the flow of new assets to Finnish mutual fund families over

the period 1999-2004. While there has been some work on the determinants of fund flows in Finland (see Kasanen *et al.*, 2001; Knuutila *et al.*, 2007), existing research focuses on flows at the fund level and on determinants primarily other than advertising[2]. We study how advertising impacts asset flows at the fund family level. Analyzing flows at the individual fund level, while important, ignores the impact of other funds in the family that may simultaneously experience reduced flows relative to funds that are advertised. Also, marketing decisions are usually made at the fund family level, providing an additional motivation to examine the effects of advertising at the family level.

Our paper offers three extensions to the literature. Our unique data set from Gallup® Finland allows us to perform tests that are new to the literature. First, by having the euro amount spent on advertising, we are able to examine not only whether fund family advertising has an impact on flows, but also whether the proportional amount spent on advertising in a given year has an impact on family flows. Second, Gallup® breaks advertising spending into media types – television, radio, the internet, newspaper, and periodicals – allowing us to examine if the form of advertising is a significant determinant of asset flows to fund families. Finally, previous research shows how Finnish mutual funds operated by banks have very different characteristics when compared to bank-operated funds in the USA. We extend this analysis by examining whether advertising by banks in the Finnish market has a different impact on fund flows when compared to other mutual fund companies in Finland.

In summary, we find evidence that advertising only leads to marginal increases in flows when the family has high-performing funds, and no increases occur when the family has no high-performing funds. This is consistent with previous findings that high performance, and advertising of that performance, attracts new cash flows. There is also evidence that fund families targeting large investors have lower asset flows over our sample period. Advertising through printed material such as newspapers and periodicals appears effective, but again only when the family has high-performing funds. Finally, we provide evidence that spending proportionally more on advertising leads to higher asset flows.

The remainder of the paper is as follows. In section 2, we provide a more extensive literature review and make connections between our work and that of others. In section 3, we discuss our data and outline our empirical strategy. In section 4, we discuss our results, and in section 5 we provide concluding remarks.

2. Background
A. Literature review
As stated above, most of the literature on new asset flows examines fund-specific flows. Early works by Warther (1995), Chevalier and Ellison (1997), and others suggest that funds with stronger past performance have higher flows. Ippolito (1992) and others[3] demonstrate the flow-performance relationship is asymmetric in that while investors tend to invest in funds with strong past performance, they withdraw funds at a much slower rate after poor performance. Combined with Jain and Wu's (2000) evidence that recent high performing funds do not outperform in subsequent periods, this literature has led to claims of investor irrationality.

Much of recent research has focused attention on how ratings from Morningstar impact fund flows. Del Guercio and Tkac (2005) find that ratings upgrades to five stars lead to abnormally high flows. Similarly, Yankow *et al.* (2006) find that funds with higher ratings have significantly higher flows. Finally, Knuutila *et al.* (2007) find that Finnish funds with five stars have significantly higher flows than lower-rated funds, although the result is conditional on the funds being distributed by non-bank institutions.

The analysis of how advertising impacts fund flows is a relatively new vein in the literature. Sirri and Tufano (1998) test the idea that advertising reduces search costs for investors. Consistent with this hypothesis, they find that advertising does lead to significantly higher fund flows, a result corroborated by Jain and Wu (2000), who also find that funds that advertise have strong past performance. Yankow *et al.* (2006) consider the content of fund advertisements, specifically examining whether it mentions past performance or not. Differentiating their tests by distribution channels, they find that funds advertising performance in the direct-market channel attract increased cash flow, while investors in the broker-sold channel increase investment in funds whether they advertise performance or not.

While most studies focus attention on flows at the fund level, Nanda *et al.* (2004) examine flows at the fund family level. They analyze whether fund families having highly rated funds exhibit spillover effects, in terms of additional flows, to other funds in the family. Their results support this hypothesis. Additionally, they find that the spillover effect is most valuable for fund families having funds in fewer fund categories.

B. Relationship to prior work

The current study is most closely related to those of Sirri and Tufano (1998), Jain and Wu (2000), and Yankow *et al.* (2006) with regard to advertising, and Nanda *et al.* (2004) with regard to examining flows at the fund family level. As noted above, all of the prior fund-level studies confirm a relationship between advertising and fund flows, while Nanda *et al.* (2004) find increased flows for families that have star funds, indicative of a spillover effect. Our study examines whether advertising, a decision made at the fund family level, leads to increased family flows at the margin.

In addition to examining whether the simple presence of advertising leads to increased family flows as examined in earlier studies, our unique data set that includes the total annual euro amount spent on advertising for fund families allows us to investigate whether more spending leads to higher flows[4]. Also, our advertising data are broken down by media source: television, radio, internet, newspaper, and periodicals, allowing for the analysis of whether one media source is more effective than another. Each of these data characteristics represents an extension to the existing literature.

Finally, this study is related to a growing body of research examining the Finnish mutual fund market[5]. Earlier studies show that the Finnish market, while having similarities to the USA, also has very distinct differences. Of the differences, the most prominent is the bank-centered nature of the market. Korkeamaki and Smythe (2004) find that unlike US counterparts, bank-managed funds in Finland have higher expense ratios. They attribute this to a less competitive market environment. Additionally, Knuutila *et al.* (2007) find that the effect of a five star Morningstar rating is different for

bank-managed funds, when compared to funds managed by independent money managers. Their evidence suggests that more money flows to funds with mediocre performance when the fund is bank managed.

3. Data and methodology
A. Data
Our data on fund families come from Rahastoraportti, a comprehensive print data source covering all mutual funds available in Finland. The data set from Rahastoraportti includes total fund assets, the number of investors in the fund family, fund expenses, fund standard deviations, and top performing funds[6]. From these data, we are also able to construct a variable identifying fund companies operated by Finnish banks. Finally, our advertising data come from Gallup® Finland, which reports total fund family expenditures on advertising and segregates the spending among the major media outlets: television, radio, internet, newspaper, and periodicals[7].

While the advertising data from Gallup® has unique benefits when compared to previous studies, it also has limitations. Specifically, the advertising spending data only report top spenders in the industry for a given year, meaning that some low-level advertisers are not detected, making it more difficult to identify empirical relationships. This implies that any significant results that we report are conservative. Finally, the data are collected at the family level, effectively forcing us to perform our analysis at that level.

Our full sample includes 145 Finnish fund family years over the period of 1999-2004. In order to calculate lagged flow measures, we require a minimum of two years of data. When new fund families appear in the middle of the sample, we only include them in the empirical analysis after a full year of lagged data are available. This reduces the sample size to 114. We also exclude one outlier that has proportional advertising spending approximately ten standard deviations from the mean.

Empirical methodology. Our empirical methodology is to examine the impact of fund family characteristics on asset flows using a multivariate regression framework. Our data represent an uneven panel of fund families over a six-year period. As such, we estimate the model below using ordinary least squares, corrected for the dependence within families across years[8], and a random effects model. The random effects model is chosen because our sample does not include all fund families marketed in Finland. Specifically, the sample does not include families that are sold but not registered in Finland. In this situation, Kennedy (1993) indicates that random effects estimation is preferred[9]. Our base model is as follows:

$$\text{FundFlow} = \alpha + \gamma \text{AD(ADPct)} + \phi \text{Bank} + \Sigma \beta_i X_i + \varepsilon. \qquad (1)$$

FundFlow is defined as the asset flow from period $t-1$ to t in percentage terms. Our data source, Rahastoraportti, provides information on actual net cash flows. Therefore, unlike previous studies where flow is extrapolated from the family's total net assets in year $t-1$ and year t adjusted for fund returns, our flow measure is an actual euro amount scaled by the family's total net assets as of year $t-1$. Initially, our primary variable of interest is AD, which takes a value of one if the fund family spent money on advertising in year $t-1$ and zero otherwise. We also replace AD with ADPct, defined as the lagged amount spent on advertising scaled by total family assets in year $t-1$,

to ascertain if proportionally higher amounts spent on advertising lead to increased flows. If advertising (higher proportional amount of spending) leads to increased flows, we expect AD (ADPct) to have a positive and significant coefficient estimate. Bank is a dummy variable equal to one if the fund family is part of a Finnish bank and zero otherwise. Prior work in the Finnish fund industry (e.g. Korkeamaki and Smythe, 2004; Kasanen *et al.*, 2001; Knuutila *et al.*, 2007) suggests that banks have a captive audience and investors respond differently to fees, past performance, and Morningstar ratings. If banks have a captive audience, then flows to these fund families may in fact be higher, all else equal, due to their marketing power, relative to non-bank investment companies. Under such a scenario, we would expect the coefficient on Bank to be positive and significant. Finally, the vector X_i represents control variables identified in prior literature and defined below. In addition to the base model described in equation (1), we also examine whether there are interactive effects between advertising and past performance, bank managed families and past performance, and advertising and bank managed families.

The control variables in the vector X_i come largely from prior literature; however, we include one that is mechanical in nature, Yr. Yr takes a value from 1999 to 2004. This variable controls for the macroeconomic factors that likely impact flows during our sample, especially given the worldwide market decline from 2000-2002[10].

Of the controls in previous studies, the one garnering the most interest is past performance. Prior studies have used a variety of different measures ranging from raw performance to risk-adjusted measures such as Jensen's alpha and Fama-French three-factor alphas (e.g. Jain and Wu, 2000; Del Guercio and Tkac, 2002; and others), all yielding similar findings, i.e. investors chase past performance. Our choices for this variable are somewhat limited. While we do have some information regarding actual fund returns within a family, the data are difficult to compile at the fund family level due to differing sets of investment objectives within different families. As such, we use a dummy variable, TopRank, equal to one if the fund family had at least one fund ranked in the top 10 percentile of its category in more than eight months in year $t - 1$ and zero otherwise[11]. While this measure deviates to some extent from the past performance measures in previous studies, it is consistent with the work of Nanda *et al.* (2004) who examine the spillover effects to a fund family when a family has one or more star performers. What makes TopRank an appealing measure of past performance is that Rahastoraportti is the most comprehensive source of mutual fund data in Finland, and within Rahastoraportti, funds are listed in rank order by investment objective, based on one-year performance. We argue that a common way for Finnish investors to judge past fund performance is to study whether the fund considered appears at or near the top of the Rahastoraportti rankings.

Other common controls from previous work include fund family size and lagged flows. We measure FamilySize as the natural logarithm of total assets under management as of year t. Sirri and Tufano (1998) and Christoffersen (2001) both find that family size has a positive impact on fund flows. Previous work also finds that fund flows tend to persist from one year to the next (e.g. Atkinson *et al.*, 2003; Del Guercio and Tkac, 2005; Yankow *et al.*, 2006). We define LagPctFlow as the net cash flow to the fund in year $t - 1$ divided by total assets in year $t - 1$, which we anticipate to have a positive impact on family asset flows.

Recent studies have included measures of return standard deviation and fund
expense ratios in their models explaining fund cash flows. The results for the standard
deviation measure have been mixed. Nanda *et al.* (2004) and Cooper *et al.* (2005) find
either no effect or a positive relationship between fund flows and return volatility,
while Barber *et al.* (2005) find an inverse relationship between flows and volatility.
Since we measure the flows at the fund family level, we use the average fund standard
deviation, LagStd, across the family from year $t - 1$. Barber *et al.* (2005) are the first to
focus attention on how fund expense ratios and other fees impact flows. They find that
load funds receive lower flows at the margin, but higher expense ratios have no
influence on fund flows. They argue that investors "get it" when the fees are in their
faces, as loads are, but when the fees are "hidden", investors either do not understand
the impact on performance or do not consider expense ratios important. We include
Expense, which is the average expense ratio across all funds in a family[12]. Based on
the findings of Barber *et al.* (2005), we expect this variable to have little impact on fund
family flows.

Most prior studies have focused almost exclusively on how retail investors make
decisions about which funds to invest in (Jain and Wu, 2000). Yankow *et al.* (2006)
segregate the retail market into funds targeted to the direct-market channel and those
targeted to the broker-sold channel. Little has been done on the characteristics that
institutional or large net worth investors consider important[13]. However, mutual
funds that are targeted to large investors play an important role in the mutual fund
market. In the USA, there are funds or classes of funds designated exclusively for these
investors. While the designations are less precise in Finland, some funds and fund
families are clearly catering to larger investors. Since Rahastoraportti provides
information on both net assets and number of investors, we are able to calculate the
average investment in each fund family. We thus include a variable, LrgInv, that is
equal to one if the average account size of the fund family is larger than 50,000 euros,
and zero otherwise[14]. The results from Del Guercio and Tkac (2002), paired with the
argument that large investors are likely more sophisticated than retail investors, lead
us to believe that large investors are less likely to make their decisions based on
advertising, compelling us to control for this investor group[15].

B. Descriptive statistics
We present our sample descriptive statistics in two ways. In Table I, we show variable
summaries across the entire sample, whereas in Table II, we show the same variables
for each year, separately. Table I indicates that the average new flow for a fund family
is quite high at 36 percent of lagged assets. Table II reveals wide variation in fund
flows, larger flows occurring in 1999 and 2000, prior to the market decline beginning in
2000. The average number of families advertising is 32 percent, but again, this number
is driven by 1999-2001. Advertising drops off considerably in the latter half of the
sample. Nonetheless, advertising appears to drop precipitously as the broader market
declines. On average, fund families spend less than one hundredth of 1 percent
annually on advertising relative to their asset base.

In 1999 39 percent of families are operated by banks, however the number drops to
30 percent by 2004. This is consistent with the fund market becoming more
competitive over time. The proportion of assets under management also changes over
time. In 1999, bank-managed funds held approximately 2.7 times more in assets than

Variable	Mean
FundFlow	0.359
AD	0.316
ADPct	0.000056
Bank	0.272
TopRank	0.509
FamilySize[a]	1.14
LagPctFlow	0.276
LagStd	17.210
Expense	1.267
LrgInv	0.167
No. obs.	114

Notes: This table reports reports the mean values for the entire sample across all years. FundFlow is the asset flow of a fund family in year t expressed as a proportion of family assets in year $t-1$. AD is a dummy variable equal to 1 if a fund family has reported advertising in year $t-1$ and 0 otherwise. ADPct is the amount of money spent on advertising by a fund family in year $t-$, 1 scaled by family assets in year $t-1$. Bank is a dummy variable equal to 1 if the fund family is a bank and 0 otherwise. TopRank is a dummy variable equal to 1 if a fund family has a top ranked fund in more than eight months during the previous year and 0 otherwise. FamilySize is the total assets under management for a fund family in year t, measured in billions of euros. LagPctFlow is the lagged measure of FundFlow for year $t-1$. LagStd is the lagged average standard deviation of all funds in a fund family from year $t-1$. Expense is the lagged average expense ratio of all funds in a fund family from year $t-1$. LrgInv is a dummy variable equal to 1 if a fund family caters to large investors, when large investor means the average account size for the family is greater than 50,000 euros; [a] measured in billions of euros

Table I.
Descriptive statistics – full sample

Variable	1999	2000	2001	2002	2003	2004
FundFlow	0.638	0.503	0.293	0.287	0.270	0.263
AD	0.692	0.450	0.429	0.143	0.158	0.15
ADPct	0.000186	0.000035	0.000064	0.000046	0.000041	0.00001
Bank	0.385	0.250	0.238	0.238	0.263	0.300
TopRank	0.692	0.450	0.429	0.571	0.474	0.500
FamilySize[a]	0.687	0.668	1.01	0.979	1.48	1.87
LagPctFlow	0.177	0.400	0.407	0.158	0.257	0.218
LagStd	16.647	14.587	20.775	19.875	17.795	13.099
Expense	1.379	1.348	1.296	1.218	1.184	1.213
LrgInv	0.077	0.15	0.143	0.190	0.211	0.200
No.obs.	13	21	21	19	19	20

Notes: This table reports the means by year. FundFlow is the asset flow of a fund family in year t expressed as a proportion of family assets in year $t-1$. AD is a dummy variable equal to 1 if a fund family has reported advertising in year $t-1$ and 0 otherwise. ADPct is the amount of money spent on advertising by a fund family in year $t-$, 1 scaled by family assets in year $t-1$. Bank is a dummy variable equal to 1 if the fund family is a bank and 0 otherwise. TopRank is a dummy variable equal to 1 if a fund family has a top ranked fund in more than eight months during the previous year and 0 otherwise. FamilySize is the total assets under management for a fund family in year t, measured in billions of euros. LagPctFlow is the lagged measure of FundFlow for year $t-1$. LagStd is the lagged average standard deviation of all funds in a fund family from year $t-1$. Expense is the lagged average expense ratio of all funds in a fund family from year $t-1$. LrgInv is a dummy variable equal to 1 if a fund family caters to large investors, when large investor means the average account size for the family is greater than 50,000 euros; [a] measured in billions of euros

Table II.
Descriptive statistics – year by year sample

non-bank firms, while in 2004 the ratio had dropped to 1.7[16]. Approximately 50 percent of fund families have top performing funds in nine months or more in any given year. The family must also advertise to achieve higher flows. Not surprisingly, family size increases over time, as mutual funds become an increasingly popular investment vehicle in Finland during our sample period. Generally, fund family risk profiles stay relatively constant over time, although there is some variation. Expense ratios on the other hand drop substantially between 2001 and 2002, consistent with the findings of Korkeamaki and Smythe (2004). Finally, approximately 17 percent of fund families cater to larger investors.

4. Empirical results
A. Baseline findings
The results from estimating equation (1) using AD as our variable of interest are presented in column (1) of Table III. The results suggest that fund families that advertise in a given year do not receive higher flows at the margin when compared to fund families that do not advertise, a finding inconsistent with prior studies of flows at the fund level (e.g. Sirri and Tufano, 1998; Kasanen *et al.*, 2001). This result may be explained by the possibility that when fund families advertise a particular fund they may receive higher flows to that fund, but not incrementally increase flows to the family[17].

Many of our control variables have the expected signs but not the statistical significance found in prior work. By itself, being a bank-managed fund family has no significant effect on fund flows, indicating that banks do not appear to have a captive audience in terms of capturing marginal fund flows. This result contrasts with prior results; however, prior studies have focused on flows at the fund level instead of the family level. We further address the role of banks as a determinant of family flows below. Unlike previous studies, our measure of performance suggests that past top performance does not lead to marginally higher flows as the coefficient estimate for TopRank, while positive, is not statistically different from zero. Consistent with prior work, flows from one year to the next are persistent in our sample. Fund families that experience strong flows in year $t-1$ continue to do so in year t. Neither lagged volatility nor lagged expense ratios correspond to family flows, the latter result consistent with Barber *et al.* (2005). During our sample period, fund families catering to large investors have lower relative flows than fund families that focus attention on retail investors. The result is statistically and economically significant. Finally, family flows decline over our sample period as indicated by the negative and significant coefficient estimate for Yr.

We next replace AD with ADPct in equation (1) where ADPct is the proportional amount that a fund family spends on advertising in a given year. This aspect of our analysis is new to the literature, since it requires knowledge of the monetary amount spent on advertising. In column (2), the coefficient for ADPct, is positive and statistically significant at the 10 percent level, indicating that higher proportional spending leads to incrementally higher flows to a fund family. Results for other variables are consistent with those in column (1).

Prior studies have linked the prior performance of funds to advertising. Jain and Wu (2000) find that funds that advertise in year t have significantly higher returns in year $t-1$ compared to funds that do not advertise. Similarly, Yankow *et al.* (2006) find that

Variable	(1)	(2)	(3)	(4)
AD	0.0888		− 0.0823	
	(0.334)		(0.288)	
ADPct		431.9626		192.9382
		(0.093)*		(0.012)*
ADTop			0.2756	
			(0.032)*	
ADPctTop				1015.964
				(0.111)
Bank	− 02156	− 0.1337	− 0.1576	− 0.0994
		(0.332)	(0.246)	(0.430)
TopRank	0.0528	0.0651	− 0.0339	0.0049
	(0.319)	(0.194)	(0.638)	(0.934)
FamilySize	0.0169	0.0208	0.0198	0.0234
	(0.599)	(0.512)	(0.558)	(0.464)
LagPctFlow	0.3530	0.3386	0.3455	0.3378
	(0.024)*	(0.023)*	(0.028)*	(0.028)*
LagStd	− 0.0083	− 0.0091	− 0.0090	− 0.0094
	(0.314)	(0.210)	(0.280)	(0.188)
Expense	0.0107	− 0.0290	0.0261	− 0.0240
	(0.902)	(0.733)	(0.770)	(0.782)
LrgInv	− 0.3419	− 0.3005	− 0.3312	− 0.2749
	(0.007)**	(0.012)*	(0.008)**	(0.013)*
Yr	− 0.0593	− 0.0619	− 0.0622	− 0.0637
	(0.047)*	(0.035)*	(0.035)*	(0.023)*
Constant	118.9673	124.0404	124.6688	127.5586
	(0.047)*	(0.035)*	(0.035)*	(0.023)*
No. obs.	114	114	114	114
R^2	0.225	0.244	0.242	0.275

Notes: This table represents the estimation of equation (1) using ordinary least squares where the error terms are corrected for clustering within fund families across years. The dependent variable is FundFlow, which is the asset flow of a fund family in year t expressed as a proportion of family assets in year $t − 1$. AD is a dummy variable equal to 1 if a fund family has reported advertising in year $t − 1$ and 0 otherwise. ADPct is the amount of money spent on advertising by a fund family in year $t − 1$, scaled by family assets in year $t − 1$. TopRank is a dummy variable equal to 1 if a fund family has a top ranked fund in more than eight months during the previous year and 0 otherwise. ADTop(ADPctTop) are interactions between AD(ADPct) and TopRank. Bank is a dummy variable equal to 1 if the fund family is a bank and 0 otherwise. FamilySize is the total assets under management for a fund family in year t, measured in billions of euros. LagPctFlow is the lagged measure of FundFlow for year $t − 1$. LagStd is the lagged average standard deviation of all funds in a fund family from year $t − 1$. Expense is the lagged average expense ratio of all funds in a fund family from year $t − 1$. LrgInv is a dummy variable equal to 1 if a fund family caters to large investors, when large investor means the average account size for the family is greater than 50,000 euros. Yr takes on the values 1999-2004; *,** significant at the 5 and 1 percent levels respectively

Table III.
Pooled estimation of
flows on advertising

funds that advertise performance have higher returns and flows than funds that advertise factors other than performance, and funds that do not advertise. While we cannot link specific advertising with past performance, it would seem logical that fund advertising would be linked in some way to performance. As such in columns (3) and (4), we interact AD(ADPct) with our measure of top performance, TopRank, to create

ADTop(ADPctTop). If advertising and top performance are important to investors, then we would expect these interaction terms to be positively related to family fund flows.

Column (3) displays the results for ADTop. Families that advertise and have at least one top-performing fund in nine months from the previous year have significantly higher flows at the margin. The coefficient estimate for ADTop is positive and significant at the five percent level. The results for ADTop are generally consistent with the findings of Yankow *et al.* (2006) who find that funds that advertise past performance have higher flows. While our data do not permit us to determine if a family's advertising includes past performance, anecdotal evidence would suggest that families would promote such performance in advertising. The results in column (4), where we use ADPct and include the interaction term ADPctTop, show that when we control for advertising and top performance, the results become stronger[18].

B. Bank concentration

Previous work demonstrates that the role of banks in the Finnish fund market leads to effects that are quite different from those found in US studies (see Korkeamaki and Smythe, 2004; Knuutila *et al.*, 2007). In this study, we examine two interactive effects associated with banks, one of which has been previously studied. The interactive effect between bank management of funds and past performance was initially examined by Frye (2001). She finds that flows to bank-managed bond funds in the USA are not as sensitive to past performance as non-bank-managed funds. These results would lead us to expect either no relation between an interactive term identifying bank management and past performance or an inverse relationship to flows. We capture this effect with the variable BankTop, which is an interaction term between Bank and TopRank.

The second interactive term that we consider is between advertising and bank management of funds and is new to the literature. Bank managed families have distinct advantages over non-bank managed families in terms of reducing search costs because of branch networks and existing banking relationships. As a result, the need for advertising may not exist. However, it is also possible that bank distribution and advertising serve as complementary effects. If so, we would expect a positive and significant coefficient estimate on the interaction term. If on the other hand, investors see advertising as duplicative in nature and therefore costly, we might see a negative relationship for banks that advertise. We capture this effect by interacting Bank and AD to create BankAD.

The results for these effects are found in Table IV. In column (1), we include BankTop in our base model from equation (1) to see how investors in bank managed fund families respond to performance. The coefficient estimate is not statistically different from zero, which is consistent with Frye (2001). When we include ADTop in column (2) of Table IV, our results for ADTop are consistent with those in Table III and BankTop remains insignificant. So, bank managed fund family flows are no more sensitive to having top performers than families that are not bank owned.

Next, we examine whether advertising by banks serves as a complementary effect to bank branches in terms of reducing search costs. In column (3), we add the variable BankAD to equation (1). The coefficient for the variable is not significant, suggesting that advertising does not affect flows to bank-managed funds. Column (4) is consistent with our prior results while BankAD remains insignificant. Finally, in column (5), we

Variable	(1)	(2)	(3)	(4)	(5)
AD	0.0794	− 0.0848	0.0958	− 0.0767	− 0.0809
	(0.397)	(0.296)	(0.384)	(0.410)	(0.378)
ADTop		0.2686		0.2752	0.2684
		(0.044)*		(0.030)*	(0.043)*
Bank	− 0.1213	− 0.1175	− 0.1695	− 0.1525	− 0.1144
	(0.422)	(0.395)	(0.197)	(0.225)	(0.401)
BankTop	− 0.0997	− 0.0737			− 0.0726
	(0.451)	(0.552)			(0.542)
BankAD			− 0.0286	− 0.0218	− 0.0153
			(0.887)	(0.897)	(0.928)
TopRank	0.0814	− 0.0105	0.0508	− 0.0353	− 0.0119
	(0.280)	(0.911)	(0.368)	(0.638)	(0.901)
FamilySize	0.0168	0.0197	0.0174	0.0202	0.0199
	(0.601)	(0.562)	(0.604)	(0.563)	(0.570)
LagPctFlow	0.3522	0.3451	0.3547	0.3468	0.3460
	(0.021)*	(0.026)*	(0.027)*	(0.031)*	(0.029)*
LagStd	− 0.0084	− 0.0090	− 0.0083	− 0.0090	− 0.0090
	(0.313)	(0.280)	(0.320)	(0.285)	(0.286)
Expense	0.0107	0.0257	0.0101	0.0256	0.0253
	(0.902)	(0.772)	(0.909)	(0.775)	(0.776)
LrgInv	− 0.3399	− 0.3300	− 0.3425	− 0.3318	− 0.3304
	(0.008)**	(0.008)**	(0.008)**	(0.009)**	(0.009)**
Yr	− 0.0608	− 0.0632	− 0.0593	− 0.0621	− 0.0631
	(0.042)*	(0.032)*	(0.050)*	(0.037)*	(0.033)*
Constant	121.8528	126.6547	118.8318	124.5570	126.5480
	(0.041)*	(0.031)*	(0.049)*	(0.037)*	(0.033)*
No. obs.	114	114	114	114	114
R^2	0.227	0.243	0.225	0.242	0.243

Notes: This table represents the estimation of equation (1) using ordinary least squares where the error terms are corrected for clustering within fund families across years. The dependent variable is FundFlow, which is the asset flow of a fund family in year t expressed as a proportion of family assets in year $t − 1$. AD is a dummy variable equal to 1 if a fund family has reported advertising in year $t − 1$ and 0 otherwise. TopRank is a dummy variable equal to 1 if a fund family has a top ranked fund in more than eight months during the previous year and 0 otherwise. ADTop is the interaction of AD and TopRank. Bank is a dummy variable equal to 1 if the fund family is a bank and 0 otherwise. BankTop(BankAD) is an interaction with the variable TopRank(AD). FamilySize is the total assets under management for a fund family in year t, measured in billions of euros. LagPctFlow is the lagged measure of FundFlow for year $t − 1$. LagStd is the lagged average standard deviation of all funds in a fund family from year $t − 1$. Expense is the lagged average expense ratio of all funds in a fund family from year $t − 1$. LrgInv is a dummy variable equal to 1 if a fund family caters to large investors, when large investor means the average account size for the family is greater than 50,000 euros. Yr takes on the values 1999-2004; *, ** significant at the 5 and 1 percent levels respectively

Table IV.
Impact of bank management and performance/advertising

expand equation (1) to include ADTop, BankTop, and BankAD. The results are consistent with those in columns (1)-(4), and Table III.

C. Advertising medium and fund flows
Our attention now turns to the advertising medium chosen by fund families, to determine whether mediums differ in their effectiveness to attract cash flows. To this

point, our results indicate that advertising while having top performing funds leads to significantly higher flows. We now replace our variables AD and ADTop with variables representing television, radio, internet, newspaper, and periodical advertising (TV, Radio, Internet, Newspaper, Periodical), which are equal to one if the fund family advertised in the respective media during the previous year, and zero otherwise. We estimate equation (1) separately for these five variables.

The results appear in Table V. The type of advertising examined is indicated in the column heading for each column. Media and MediaTop are the type of advertising and the type, as labeled by the column heading, interacted with TopRank. For brevity, we do not display the results for bank interactions, but the conclusions from Table IV generally hold, as families that advertise and have top performers (NewspaperTop, PeriodicalTop) exhibit significantly higher flows. The results for the columns (TV), (Radio), and (Internet) suggest that advertising with these media types has no impact on fund flows; however, we urge caution when interpreting these results. As stated in footnote [7], newspaper and periodical spending accounts for approximately 83 percent of all advertising in our sample.

In order to fully examine the issue of advertising type, we also estimate equation (1) by replacing the specific type of medium, as in Table V, with a composite measure delineated by whether the advertising source is perishable or non-perishable. The terms perishable and non-perishable are set to capture whether advertising can be recalled or reviewed after its initial distribution. For example, an investor can review advertising in newspapers, periodicals, and on the internet for long periods after a particular ad comes out because these sources do not perish as readily as advertising sources such as television and radio, where an investor might see or hear the ad but cannot return to the advertisement for additional information. It would seem that for this reason, non-perishable sources of advertising would be more effective than perishable sources.

We test this hypothesis by creating two dummy variables. Two variables are needed because advertising using non-perishable sources does not preclude using perishable sources. First, we examine Perishable, which is equal to one if a family used television and/or radio advertising in the previous year, and zero otherwise. Non-Perishable is equal to one if the family used newspaper, periodical, or internet advertising during the preceding year and zero otherwise. If non-perishable sources of advertising are more effective, then the coefficient estimate on Non-Perishable will be positive and significant. In contrast, if perishable sources are no more effective, then the coefficient estimate for Perishable will be either indeterminate or negative and significant.

The results are presented in Table VI under the column headings Perishable and Non-Perishable. In the Perishable column, we find that using perishable advertising sources has no impact on fund family flows. While we urge caution in interpreting this result because of the low amount spent on television and radio advertising, the result has intuitive appeal.

However, our results suggest that advertising spending in non-perishable venues is effective. Namely, the Non-Perishable column of Table VI indicates that if the fund family has top performing funds and they advertise, they receive higher flows, consistent with earlier results. This is an intuitive result and is consistent with Yankow

Variable	(TV)	(Radio)	(Internet)	(Newspaper)	(Periodical)
Media	−0.0634	−0.0054	0.0256	−0.0823	−0.0721
	(0.291)	(0.966)	(0.798)	(0.288)	(0.409)
MediaTop	0.0545	0.1084	0.2132	0.2756	0.2829
	(0.881)	(0.529)	(0.691)	(0.032)**	(0.071)*
Bank	−0.1949	−0.1980	−0.1581	−0.1576	−0.1435
	(0.212)	(0.176)	(0.193)	(0.246)	(0.274)
TopRank	0.0584	0.0574	0.0395	−0.0339	−0.0332
	(0.311)	(0.291)	(0.632)	(0.638)	(0.674)
FamilySize	0.0214	0.0203	0.0186	0.0198	0.0237
	(0.525)	(0.559)	(0.560)	(0.558)	(0.494)
LagPctFlow	0.3297	0.3246	0.3182	0.3455	0.3520
	(0.019)**	(0.025)**	(0.027)**	(0.028)**	(0.031)**
LagStd	−0.0092	−0.0093	−0.0094	−0.0090	−0.0080
	(0.226)	(0.229)	(0.177)	(0.280)	(0.347)
Expense	0.0316	0.0247	0.0124	0.0261	0.0272
	(0.702)	(0.768)	(0.888)	(0.770)	(0.763)
LrgInv	−0.3353	−0.3360	−0.3198	−0.3313	−0.3274
	(0.011)**	(0.008)***	(0.003)***	(0.008)***	(0.008)***
Yr	−0.0699	−0.0713	−0.0684	−0.0622	−0.0584
	(0.009)***	(0.009)***	(0.016)**	(0.035)**	(0.068)*
Constant	140.0217	142.9081	137.2095	124.6688	116.9443
	(0.009)***	(0.009)***	(0.016)**	(0.035)**	(0.069)*
No. obs.	114	114	114	114	114
R^2	0.219	0.220	0.231	0.242	0.242

Notes: This table represents the estimation of equation (1) using ordinary least squares where the error terms are corrected for clustering within fund families across years. The dependent variable is FundFlow, which is the asset flow of a fund family in year t expressed as a proportion of family assets in year $t − 1$. Media is a dummy variable equal to 1 if a fund family has reported advertising in the media types represented by the column headings: TV, Radio, Internet, Newspaper, or Periodical, in year $t − 1$ and 0 otherwise. TopRank is a dummy variable equal to 1 if a fund family has a top ranked fund in more than eight months during the previous year and 0 otherwise. MediaTop is the interaction of Media (as identified in the column headings) and TopRank. Bank is a dummy variable equal to 1 if the fund family is a bank and 0 otherwise. FamilySize is the total assets under management for a fund family in year t, measured in billions of euros. LagPctFlow is the lagged measure of FundFlow for year $t − 1$. LagStd is the lagged average standard deviation of all funds in a fund family from year $t − 1$. Expense is the lagged average expense ratio of all funds in a fund family from year $t − 1$. LrgInv is a dummy variable equal to 1 if a fund family caters to large investors, when large investor means the average account size for the family is greater than 50,000 euros. Yr takes on the values 1999-2004; *, **, *** significant at the 10, 5, and 1 percent levels respectively

Table V.
Impact of media type
on flows

et al. (2006) who find that when a fund advertises performance in *Money* magazine, flows increase substantially[19].

5. Conclusions
We examine the impact of advertising on fund family flows in Finland over the period 1999-2004. Our data are unique in that we can identify fund families that advertise, but also how much they spent on advertising in a given year and the dollar amount spent on five different media types: television, radio, internet, newspaper, and periodicals. In addition, we examine if family flows vary by whether the family is bank operated or

Variable	(Perishable)	(Non-Perishable)
MediaGroup	− 0.0309	− 0.0823
	(0.707)	(0.288)
MediaGroupTop	0.0611	0.2756
	(0.791)	(0.032)*
Bank	− 0.1914	− 0.1576
	(0.196)	(0.246)
TopRank	0.0533	− 0.0339
	(0.338)	(0.638)
FamilySize	0.0214	0.0198
	(0.534)	(0.558)
LagPctFlow	0.3250	0.3455
	(0.022)*	(0.028)*
LagStd	− 0.0094	− 0.0090
	(0.222)	(0.280)
Expense	0.0274	0.0261
	(0.770)	(0.770)
LrgInv	− 0.3346	− 0.3313
	(0.010)**	(0.008)**
Yr	− 0.0708	− 0.0622
	(0.005)**	(0.035)*
Constant	141.7752	124.668
	(0.005)**	(0.035)*
No. obs.	114	114
R^2	0.219	0.242

Notes: This table represents the estimation of equation (1) using ordinary least squares where the error terms are corrected for clustering within fund families across years. The dependent variable is FundFlow, which is the asset flow of a fund family in year t expressed as a proportion of family assets in year $t − 1$. MediaGroup is a dummy variable equal to 1 if a fund family has reported advertising in the media types represented by the column headings: Perishable, which includes TV, and Radio advertising and Non-Perishable, which includes Internet, Newspaper and Periodical advertising, in year $t − 1$ and 0 otherwise. TopRank is a dummy variable equal to 1 if a fund family has a top ranked fund in more than eight months during the previous year and 0 otherwise. MediaGroupTop is the interaction of Media (as identified in the column headings) and TopRank. Bank is a dummy variable equal to 1 if the fund family is a bank and 0 otherwise. FamilySize is the total assets under management for a fund family in year t, measured in billions of euros. LagPctFlow is the lagged measure of FundFlow for year $t − 1$. LagStd is the lagged average standard deviation of all funds in a fund family from year $t − 1$. Expense is the lagged average expense ratio of all funds in a fund family from year $t − 1$. LrgInv is a dummy variable equal to 1 if a fund family caters to large investors, when large investor means the average account size for the family is greater than 50,000 euros. Yr takes on the values 1999-2004; *,** significant at the 5 and 1 percent levels respectively

Table VI.
Impact of aggregated
media type on flows

not. Our results can be summarized as follows. Advertising when the fund family has top performing funds leads to higher flows. When we examine these relationships looking at specific media outlets, we find that newspaper and periodical advertising follow the same pattern. Additionally, although not a primary focus of examination, we find that fund families that target large investors experience significantly lower flows over our sample period, which was dominated by the worldwide market decline from 2000-2002. Finally, fund families that spend proportionately more on advertising have higher flows.

Notes

1. Other examples include Chance and Ferris (1991), McLeod and Malhotra (1994), Malhotra and McLeod (1997), Tufano and Sevick (1997), Dellva and Olson (1998), Livingston and O'Neal (1998), and Lesseig *et al.* (2002).

2. Kasanen *et al.* (2001) do examine the impact of advertising on specific funds in a manner similar to Jain and Wu (2000) and Yankow *et al.* (2006).

3. A non-comprehensive list includes Gruber (1996), Carhart (1997), and Sirri and Tufano (1998).

4. Earlier studies most commonly use an indirect measure of advertising spending by considering a sampling of newspaper/magazine advertisements.

5. See for example Hecht and Vuolteenaho (1996), Kasanen *et al.* (2001), Korkeamaki and Smythe (2004), Korpela and Puttonen (2006), and Knuutila *et al.* (2007).

6. While we collect some data at the fund level, in the analysis below, these data are aggregated at the family level using an equal weighting methodology.

7. Approximately 83 percent of the spending is in the newspaper and periodical outlets.

8. See Rogers (1993).

9. While we also estimate our models using random effects, doing so only strengthens our findings. As such, we only present the OLS estimates in tabular form. Random effects results are available upon request.

10. For robustness, we also re-estimate equation (1) by replacing Yr with dummy variables for 2000, 2001, 2002, 2003, and 2004, with 1999 being the omitted year and find almost identical results, with the dummies for 2003 and 2004 being significantly negative.

11. Eight months is the median number of months in our sample that fund families have at least one top performing fund.

12. While estimating expenses in this manner may seem *ad hoc*, expense ratios in Finland tend to follow family patterns, some families having higher fees across fund types than others.

13. An exception is Del Guercio and Tkac (2002) who find that pension funds use tools such as Jensen's alpha to make investment decisions when compared to retail investors.

14. For robustness, we also use 100,000 euros as a cut off. This gives us results that are generally robust to those reported below, except the variable LrgInv loses statistical significance.

15. A table summarizing the variables used in the study is presenting in Del Guercio and Tkac (2002, Appendix Table A.1).

16. Results are available on request.

17. We are unable to verify this, as our data source is family-specific, and does not provide information about the content of advertising.

18. For the remainder of the paper, we concentrate the discussion on the dummy variable definitions of advertising.

19. Note, the results for the interaction between Non-Perishable and TopRank hold when we include Non-Perishable and Perishable in the same model. Also, in our sample all families use non-perishable advertising, but none use just perishable. When we re-estimate the model defining Non-Perishable in this manner, our results hold, although the coefficient estimate on the interaction term is significant at the 10 percent level.

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Appendix

FundFlow	This is our dependent variable throughout the analysis and is equal to the dollar flow during year t scaled by total fund family assets as of year $t-1$.
AD	Dummy variable equal to 1 if a fund family is reported by Gallup® advertising in year $t-1$ and 0 otherwise.
Media	Dummy variable that equals 1 if fund family, alternately, used TV, Radio, Internet, Newspaper, or Periodical advertising in year $t-1$ and 0 otherwise. When used in Table V, only one media outlet is examined at a time.
MediaGroup	Similar to Media, however, we group media types into a Perishable group (TV and Radio) meaning that investors cannot re-examine the advertisement after initial perusal, and Non-Perishable (Internet,

	Newspaper, and Periodical), where investors can return to the initial advertisement.
ADPct	Proportional amount spent on advertising in year $t-1$ where advertising euros are scaled by fund family assets in year $t-1$.
TopRank	A dummy variable equal to 1 if a fund family has a top ranked fund in more than eight months during the previous year and 0 otherwise.
ADTop	Interaction term between AD and TopRank.
MediaTop	Interaction term between Media (each type independently) and TopRank.
MediaGroupTop	Interaction term between MediaGroup (Perishable or Non-Perishable as defined above) and TopRank.
ADPctTop	Interaction term between ADPct and TopRank.
Bank	Dummy variable equal to 1 if fund family is bank operated and 0 otherwise.
BankTop	Interaction term between Bank and TopRank.
BankAD	Interaction term between Bank and AD.
FamilySize	Natural logarithm of total fund family assets as of year t.
LagPctFlow	The lagged version of FundFlow for year $t-1$.
LagStd	The average fund standard for a fund family in year $t-1$.
Expense	The average fund expense ratio for a fund family in year t.
LrgInv	Dummy variable equal to 1 if the average account size for a fund family is greater than 50,000 euros and 0 otherwise.
Yr	A variable taking on the values 1999-2004 representing the year of an observation.

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