

明星基金、外溢效果與基金廣告關聯性之探討： 個別基金觀點與基金家族觀點

Star Funds, Spillover Effect and Fund Advertisements: From the Viewpoint of Individual Funds and Fund Families

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摘要

本文採用 Panel Data Approach 與 Logistic Regression 法，分別站在個別基金與基金家族觀點來探討基金廣告對個別基金及其家族的影響。本文的研究顯示採家族廣告對個別基金與基金家族而言都會是一個不錯的選擇。而單一基金廣告可能造成個別基金間的衝突，因為單一基金廣告佔用了家族的資源，但是只對被廣告的基金有利，卻無法創造出外溢效果。除非被單一廣告的基金是明星基金，才可得到更佳的廣告效果與外溢效果，因此明星基金被單一廣告的機率亦大為提高。此外，無論是在整體市場中或是家族內，只要能位居績效或是流量的明星或贏家地位，該基金被單一廣告的機率都將大幅提高，此點印證了符合家族利益的基金，在家族有限的資源中，將得到家族給予更多資源支持的論點 (Chevalier and Ellison, 1997)。

【關鍵字】基金廣告、明星基金、外溢效果

Abstract

This study adopts the Panel Data Approach and Logistic Regression to examine the effect of fund advertisements from the viewpoint of both individual funds and fund families. Our empirical results show that adopting family advertisements is a good decision both for individual funds and their families. However, there exists a conflict between individual funds when the individual fund advertisement is executed. The individual funds do not respond well to individual fund advertisements of other funds within the same family because it consumes the resources of the family and does not have a spillover effect. One exception is star funds. The individual fund advertisement of star funds not only results in more flows but also has a spillover effect, which thus brings the star funds a higher probability of being individually advertised. As long as the funds are performance (flow) star and winner funds within the whole stock funds or only the performance (flow) star and winner funds within the family, their advertisement probability is raised. This is consistent with the argument that if the funds confirm the benefit of the family, the family may decide to distribute more limited resources to these funds (Chevalier and Ellison, 1997).

【Keywords】 fund advertisements, star funds, spillover effect

1. Introduction

The vigorous development of the fund industry can be attributed to the expansion of not only individual funds but also that of the fund families.¹ The issue of the relationship between the mutual funds and their families is thus getting more and more attention (e.g., Massa, 2003; Nanda, Wang, and Zheng, 2004; Elton, Gruber, and Green, 2007). Kempf and Ruenzi (2008a) find that the more the money flows into the family, the more the money flows into the individual fund in the family. This indicates the importance of the families' characteristics and styles for investors. The individual funds and their families are closely related. When an individual fund is more valued by its family, it may attain more resources than other funds in the same family. Previous literature has verified that in order to maintain the good record, fund families may give special benefits to well-performing funds in their families at the cost of damaging the benefits of the poorly-performing funds (Guedj and Papastaikoudi, 2004) and fund families would strategically transfer the performance to the fund which makes profits for the families (Gaspar, Massa, and Matos, 2006). The findings of Gaspar et al. (2006), Löffler (2003) and Reuter (2005) show that families sometimes are unfair when distributing the IPOs. However, slanting the marketing resources such as advertisements to one single fund is also another kind of strategic cross-fund subsidization.

The family may choose to advertise the individual fund or the whole family funds. Some past literature has investigated the advertisement of funds, while the issue of individual fund advertisement and family advertisement is neglected.² Korkeamaki, Puttonen, and Symthe (2007) examine the fund advertisement effect by adopting the advertisement expenditure data, which does not distinguish the different effects between the individual fund advertisement and the family advertisement. Although Jain and Wu (2000) and Gallaher, Kaniel, and Starks (2008) adopt the image data of fund advertisement in the magazine or in the newspaper, they do not investigate the issue regarding the individual fund and family advertisements.

In fact, the effect of these two types of advertisements may be different between individual funds and their families. From the viewpoint of individual funds, there exists a conflict between individual funds when the individual fund advertisement is executed. The

1 Take Taiwan for example, the fund numbers reach to 555 in the end of 2010. At the same time, the number of fund families also grows to 39 families in the end of 2010. The fund families thus highly compete to each other as the growth of funds and families.

2 The individual fund advertisement denotes that only one fund is advertised, while the family fund advertisement denotes that only the family brand is advertised or more than one funds' names are listed in the advertisement.

individual advertisements of other funds within the same family may consume the resources of the family. Moreover, it may crowd out the purchase flow of other funds. From the viewpoint of the fund family, the purpose of the advertisement should be to not only raise the flows of individual funds, but ideally increase the flow of the whole family at the same time. This research contributes to the literature by focusing on four neglected topics from the viewpoint of individual funds and their families: (1) the advertisement effect of individual fund advertisements and family advertisements on the individual funds and their families, (2) the advertisement effect of star funds when they are in the individual fund advertisements and family advertisements, (3) whether the performance and flow stars (winners) have a higher probability to be individually advertised, and (4) investigating the information content of individual fund and family advertisements.

The first issue addresses the importance of the choice of advertisement types. Which type of advertisement is more advantageous? The conclusion may differ between the viewpoints of individual funds and fund families. The individual fund advertisement may focus on the star fund, while the family advertisement may hope to decrease the searching cost of fund investors and strengthen the brand loyalty of investors. Although Gallaher, Kaniel, and Starks (2005) show that the highly advertised family receives more inflows, they focus on the family advertisement expenditure. An inquiry into which ad type brings more inflows to the individual funds and their families remains unclear and is worthy of further investigation.

The second issue focuses on the star funds. Past literature investigating American funds found that the star funds have the spillover effect (Nanda et al., 2004). Nanda et al. (2004) indicate that the total flows of the family increase when the family has at least one star fund. Regarding the definition of star funds, Nanda et al. (2004) have adopted the three-factor alpha of Fama and French (1993) as star funds. In addition to employing the three-factor alpha, this study also adopts the raw return star funds. The reason for this is that most of the fund investors in Taiwan are individual investors, who can get raw return data more easily than the Fama and French alpha. Korkeamaki et al. (2007) find that the fund flow is not affected by the fund performance of previous year. But the combining of fund advertisements and performances has the positive influence on the fund flows. Korkeamaki et al. (2007) indicate that if the star funds get the opportunity to be individually advertised, they can get attention from fund investors. However, whether the combination of star fund and individual fund advertisements excessively attracts flow and crowds out the flow of other fund within the same family is worthy of further investigation. Another issue regarding star funds is

whether a family that has associated star fund advertisements in the newspaper sees resulting positive net flows to the family and the funds in the family. Generally, the appearance of star funds in the family advertisement may make a good impression on fund investors. Every fund in the family may benefit, which thus brings positive effects to the fund family as a whole.

Regarding the third issue, every fund could benefit from being individually advertised. However, when choosing which fund or funds should be advertised, it is important to be able to refer to a reliable standard. Therefore, the funds with outstanding performance or flow may get more attention than other funds (Kempf and Ruenzi, 2008a). Kempf and Ruenzi (2008a) investigating US mutual funds find that after controlling for other factors if the fund's performance is on the top group of its family, then the better its performance is the greater net flow this fund receives. However, this phenomenon does not exist in the middle and last groups. Moreover, Kempf and Ruenzi (2008a) also indicate that the funds with higher previous flows seem to receive higher flows in the next period. The result of Kempf and Ruenzi (2008a) stands out the importance to examine whether fund families advertise the funds which has the best performance and net flows in their family. This study will adopt logistic regression to investigate the advertisement probability of performance (flow) star funds and winner funds.³ This issue is important in that if the performance and flow star (winner) funds have higher probability to be individually advertised than other funds in their family, it implies that the star and winner funds can get more marketing resources. For fund managers, it is worthy of working hard to make the fund they manage a star.

Although it seems intuitive that the well-performing funds would have more opportunities to be individually advertised, this study fills the gap in the literature to consider the relationship among individual fund advertisement, family advertisement and star funds from the viewpoint of individual funds and fund families. This will help to clarify whether an individual fund is suitable to actively be a star or not and will ultimately help fund companies know whether to adopt individual fund advertisements or family advertisements.

The last issue is to examine whether the choice is right for fund investors who purchase the funds which are individually advertised and familiarly advertised. That is, this study

3 Following the research of Nanda et al. (2004), the star funds in this study are the funds whose performance is in top 5% of the whole equity funds. Moreover, this study defines the winner funds as the funds which perform in the first 1/3 of the equity funds. The family star (winner) funds are the funds whose performance is in top 5% (1/3) of their family. This study also defines the funds with previous net flow rate in top 5% (1/3) of the equity funds as "flow star (winner) funds" and the funds with previous net flow rate in top 5% (1/3) of their family as "family flow star (winner) funds."

investigates whether the two kinds of advertisements are information contented by observing the abnormal return of the advertised funds after the advertisement. Jain and Wu (2000) have shown that the US advertised funds do not perform well after the advertisement. This study extends the literature by investigating the abnormal return of the funds which are individually advertised and familiarly advertised. These issues are worthy of reference for fund companies, managers, and investors.

This paper proceeds as follows: Section 2 presents the literature review and hypotheses building. Section 3 describes the data and the design of this research. Section 4 is the empirical results to investigate issues regarding the fund flows, fund advertisements and star funds. Section 5 separates the sample periods into bull and bear markets to test the robustness of Section 4. Finally, Section 6 presents conclusions.

2. Literature Review and Hypotheses Building

2.1 The Advertisement Effect of Individual Fund Advertisements and Family Advertisements

Advertisement has been an important source of fund information (Capon, Fitzsimons, and Prince, 1996). Regarding the attraction of individual funds and fund families to fund investors, Massa (2003) addresses that what affects fund investors' demand includes the family to which the fund belongs, the investment policy of the fund, and the performance of the fund. Among them, the familial characteristics may be more important than the investment policy and performance. The research result of Massa shows that investors regard funds as differential products. The family the fund belongs to plays an important role in the segment market. Wilcox (2003) also indicates that the brand of the fund company is important for long-term investors. Therefore, sometimes the fund company focuses on the family rather than the individual fund in the advertisement. Gaspar et al. (2006) point out that the existence of the fund family reduces the searching cost of investors due to the advantage of brand marketing. Fund investors may consider investing in the fund family because they want to get extra service (Kempf and Ruenzi, 2008a) such as the advantage to freely transfer funds within the family. As the above literature demonstrates, the fund family appears to be important to the individual funds. The individual fund advertisement may have positive effect on individual funds, so does the family advertisement. Thus, the first hypothesis of this study is set as

- H_{1a}. The individual funds with individual fund advertisements attract more flows than the non-advertised funds.**
- H_{1b}. The individual funds with family advertisements attract more flows than those which do not have family advertisements.**
- H_{1c}. The individual fund advertisement attracts more flows into the advertised families than non-advertised families.⁴**
- H_{1d}. The family advertisement attracts more flows into the advertised families than the non-advertised families.**

As the literature has pointed out, the fund family strategically distributes the best management to the best fund (Guedj and Papastaikoudi, 2004). The family may execute the strategic cross-fund subsidization in order to derive a well-performing fund (Gaspar et al., 2006). Guedj and Papastaikoudi (2004) indicate that if some fund is beneficial to the family, the family may decide to unfairly distribute the limited resources to this fund considering the spillover effect within the family (Khorana and Servaes, 2004; Nanda et al., 2004). For fund companies, the advertisement is another kind of limited resources. The fund companies make the advertisement decision on the family basis. Apparently, the individual fund advertisement is the strategy that the fund family gathers its marketing resources for one fund. Fund companies may think that investors may pay more attention to the family than to the individual fund even when the advertisement focuses on the individual fund (Gallaher et al., 2008). Whether this results in the spillover effect needs further investigation.

Most literature regarding individual funds and their families investigates whether there is the spillover effect of star funds (Nanda et al., 2004; Khorana and Servaes, 2004) or investigates the fund advertisement effect (Jain and Wu, 2000; Gallaher et al., 2008). There is little literature investigating the spillover effect of individual fund advertisements or investigating the spillover effect of the interaction between individual fund advertisements and star funds. This study thus fills the gap to focus on the spillover effect of individually advertised funds.

4 Although Elton et al. (2007) argued that investors should not hold funds within the same family, fund investors are not necessarily conscious of this argument. Whether there is the crowding-out effect of individual fund advertisement on fund-family level is inconclusive based on this argument. Huij and Verbeek (2007) demonstrate the marketing funds have the spillover effect. Consequently, the advertising crowding-out effect is not verified and the individual fund advertisement should have positive influence on the individual fund itself. Thus, the total influence of individual fund advertisement should be positive on the fund family. And thank you for the above suggestions of the referee.

Although Kempf and Ruenzi (2008a) address that fund investors may consider investing in the fund family because they want to get extra service, Elton et al. (2007) suggest investors be wise enough to choose funds that belong to different families and put them in their investment portfolio. Elton et al. (2007) investigating the US mutual funds find that the funds in the same family hold 17% of the same stocks even though the two funds belong to different investment styles. However, on the average the two funds in different families only hold 8% of the same stocks. That is, the correlation of funds in the same family is evident because these funds hold the same stocks. If fund investors would like to choose funds in the same family, their return should increase at least 50~70 points in order to maintain the same Sharpe ratio. If Taiwan's fund market also has the same phenomenon as what Elton et al. (2007) posit, choosing funds in the same family is not necessarily the best choice for Taiwan's investors. That is, if investors in Taiwan can realize this argument, what the individual fund advertisement produces is the crowding-out effect not spillover effect.⁵

Although Elton et al. (2007) argued that investors should not hold funds within the same family, whether fund investors are conscious of this argument is not verified. The following literature may lend support to the view that the individual fund advertisement has a spillover effect. Aaker and Keller (1990) have verified that the advertisement of tangible products of the firms have the advertising spillover effect. Balachander and Ghose (2003) also support this argument. Regarding the fund advertisement, the following literature addresses the help of fund advertisement to the brand marketing and to the other funds within the same family. Khorana and Servaes (2004) find that the market share of a fund in its market segment is affected not only by the family policy of this market segment but also by the spillover effect which the other funds in the same family produce. Huij and Verbeek (2007) demonstrate that high marketing funds have the spillover effect. Low marketing funds in the same family get the benefit of inflows. Based on the above argument, this study proposed that the individual fund advertisement may have the indirect advertising effect on the family brand and therefore produce the spillover effect. Furthermore, the positive effect may get stronger when the advertised funds are also star funds. Thus this study builds the following hypotheses:

H₂. The individual fund advertisement has spillover effect on other funds in the same family.

H₃. The interaction of individual fund advertisement and star funds has the spillover

5 If the investors are conscious of this argument, they may choose the advertised funds rather than holding the other funds within the same family at the same time. If the investors replace the funds they hold with advertised funds which are in the same family, this produces a crowding-out effect.

effect.

2.2 The Advertisement of Performance Stars and Flow Stars

The fund advertisement is a kind of information communication service, especially the description of fund performances in the fund advertisement helps lower the searching cost of investors. The findings of Yankow, Smythe, Jones, and Lesseig (2006) show that the advertised funds promoting their performance have higher returns and flows compared with the advertised funds promoting other items. Therefore, the probability of being advertised should be higher for well-performing funds than for poorly-performing funds. Fund families do not have any incentive to promote their poorly performing funds (Nanda et al., 2004). The funds which continue to perform well just have a better chance of being advertised (Kempf and Ruenzi, 2008a). The reason may be that the money may be invested not only in the star funds but also in other funds in the same family. The research of Nanda et al. (2004) shows that the star funds have the phenomenon of spillover effect. Guedj and Papastaikoudi (2004) posit that the fund family decides to distribute the limited resources to the specific fund because the fund family thinks the valued fund has the spillover effect (Nanda et al., 2004; Khorana and Serves, 2004). The above literature implies that the well-performing funds not only attract more flows for themselves but for other funds within the family. The well-performing funds should have higher probability to be individually advertised.

Gallaher et al. (2008) investigate the print fund advertisements in 1994-1996 and 2000-2001 finding that the percentage of star funds in the advertised fund group is higher than that in the non-advertised fund group. Huij and Verbeek (2007) address that families implementing strategic cross-fund subsidization subsidize with front-end load fees some specific funds which can attract investors. The star fund is one of the specific funds. The result of Huij and Verbeek (2007) shows that for fund families, marketing is an effective method to silhouette the well-performing funds. Nanda et al. (2004) suggest that the family which has at least one star fund can attract more flows than other families. Thus we anticipate that the star fund stands a good chance of being individually advertised.

Some funds do not perform in top 5% of the whole funds but at the head of their family. Do these funds also attract more flows? Kempf and Ruenzi (2008a) find that the fund flows are affected not only by the rank within the fund's market segment but also by the rank within its family. Kempf and Ruenzi (2008a) argue that no matter the fund performs better or worse than the other funds with the same investing style or not, the fund family advertises the fund which performs best in its family considering the limited advertisement budget.

Guedj and Papastaikoudi (2004) also indicate that the fund performance rank within the family has the power of predictability. Therefore, the fourth hypothesis of this study is

H_{4a}. The star funds have a higher probability to be individually advertised than other funds.⁶

H_{4b}. The star fund within a family has the higher probability to be individually advertised than other funds.

Previous literature (O'Neal, 2004; Kempf and Ruenzi, 2008b) has found that the current fund flow is influenced by the previous flow. Kempf and Ruenzi (2008a) indicate that the reason comes from that investors may make the same decisions even if they are not the best decisions. That is, the fund investors are used to buying the popular funds. In addition, fund companies may further take advantage of the herding behavior of investors (Devenow and Welch, 1996; Chang, Cheng, and Khorana, 2000) to advertise the flow winners or stars to attract more inflows. Devenow and Welch (1996) indicate that individual investors tend to refer to the behavior of others rather than getting information to make decisions by themselves. The trading volume is one of the measures of herding behavior. For fund companies, they may be more willing to advertise the flow winners or stars based on the herding behavior of fund investors. The purpose is to attract investors who have the habit of purchasing the same fund repeatedly or who are apt to be influenced by the past sales. The fifth hypothesis of this study is thus

H_{5a}. The flow star fund stands a good chance of being individually advertised.

H_{5b}. The family flow star fund stands a good chance of being individually advertised.

Past literature regarding the fund flow and performance has indicated that the performance winners are warmly rewarded by fund investors, yet the performance losers are not harshly punished (Ippolito, 1992; Sirri and Tufano, 1998). This may be due to the reluctance among investors to dispose their loss position. Although the poorly-performing funds are not penalized by outflows, their bad performance may affect the advertising decisions of fund companies. The individual fund advertisement represents that the family distributes marketing resources asymmetrically on one fund. The reason may come from the excellent performance of this fund or the poor performance of other funds (dog funds) in the

⁶ The numbers of star funds within the family in our sample period is 4334 times. There are only 664 funds which are also the star funds of the equity funds. The overlap ratio is only 15.23%.

family.⁷ If there is any dog fund in the family, it is probably inappropriate to promote the whole family. This argument leads to the sixth hypothesis:

H₆ The probability of individual advertisements is higher if there are other funds, viewed as dog funds within the family.

3. Research Method

3.1 The Data

The sample of this study is the equity funds in Taiwan. All the print advertisement data was hand collected from “Economic Daily News” and “Commercial Times” from Jan. 1997 to Dec. 2007. The newly raised funds were not included in our sample because the fund assets of newly raised funds are equal to the purchase value in the raising periods. Moreover, the redemption value is zero in the raising period because the prohibition of redemption. Thus, the newly raised funds are not included in our sample until the permission of their redemption. Following the study of Jain and Wu (2000), this study excluded the regional and foreign funds. According to the above criteria, there are 472 funds advertised in “Economic Daily News” and “Commercial Times”⁸ during the 11 sample years. The advertisement number is 2246. Among them, there are 1428 times of individual fund advertisements and 818 times of family fund advertisements. In the individual fund advertisements, the ratio of advertised funds which perform in top 5% (1/3) of the whole stock funds or their family is 63% (84%).

Table 1 is the statistics description of sample funds. This study divides the sample into individual advertisement fund group (Panel A), family advertisement fund group (Panel B), and non-advertised fund group (Panel C). Table 1 lists the performance, risk (Standard Deviation) and flow rates of every fund group in every year from 1997 to 2007. The statistics in Table 1 shows few noticeable differences among the three groups in standard deviation. On the average, the monthly return of the individual advertisement fund group or the family fund group is higher than the non-advertised fund group. Although the average Fama-French

7 According to Nanda et al. (2004), dog funds denote the funds whose performance ranks bottom 5% of the equity funds.

8 An interview with the marketing executives from the large fund companies in Taiwan, they indicated that advertisements in the newspaper are very popular among Taiwan’s fund industries. Especially, the fund companies prefer advertising their funds in “Economic Daily News” and “Commercial Times”. The investigation shows that most of the financial newspaper readers have the consuming ability to invest in the mutual fund. This phenomenon attracts fund corporations to advertise in the financial newspapers. The effect of fund advertisement in the newspaper is therefore an important issue.

α is negative in every group, we can observe that the Fama-French α of advertised fund groups (Panels A and B) is higher than that of the other group (Panel C). When we compare the performance of the individual advertisement fund group and the family fund group, we find that the average monthly return of the individual advertisement fund group (3.2%) is markedly higher than that of the family advertisement group (1.3%). Regarding the fund flows, we find that the purchase, redemption and net flow rates of the advertised fund groups (Panels A and B) are higher than the non-advertised fund group (Panel C). When we compare the net flow rate of the individual advertisement fund group and family advertisement group, we find that the average net flow rate of the individual advertisement fund group (3.0%) is much higher than that of the family advertisement group (1.9%). Overall, the above analysis shows that the advertised funds have a better performance and higher flows than the non-advertised funds. Moreover, there shows significant differences in monthly returns and net flow rates between individual advertisement fund group and family advertisement group.

Table 1 The Returns and Flows of Individual Advertisement, Family Advertisement and Non-Advertised Funds

	monthly return	standard deviation	Fama-French α	purchase rate	redemption rate	net flow rate
Panel A the individual advertisement funds						
1997	3.4%	11.9%	-1.5%	29.7%	22.1%	7.5%
1998	1.1%	10.2%	-2.7%	10.7%	10.6%	0.1%
1999	3.3%	6.9%	-1.7%	17.6%	19.2%	-1.6%
2000	3.3%	10.0%	-1.8%	10.9%	14.0%	-3.1%
2001	3.1%	10.9%	-0.4%	18.2%	9.7%	8.5%
2002	1.7%	9.4%	0.2%	18.5%	17.3%	1.2%
2003	2.7%	6.2%	0.7%	16.4%	5.9%	10.5%
2004	2.0%	5.2%	1.6%	9.6%	8.9%	0.6%
2005	7.3%	6.7%	-1.6%	24.7%	24.3%	0.4%
2006	4.2%	7.7%	-2.9%	10.4%	9.9%	0.6%
2007	2.9%	4.4%	2.0%	17.0%	8.2%	8.8%
average	3.2%	8.1%	-0.7%	16.7%	13.6%	3.0%
Panel B family advertisement funds						
1997	2.1%	13.1%	0.1%	50.5%	33.0%	17.5%
1998	-2.5%	11.9%	-2.6%	30.2%	30.2%	0.0%
1999	5.0%	8.1%	-1.7%	13.2%	17.1%	-3.9%
2000	0.1%	9.2%	-1.3%	13.1%	8.7%	4.3%
2001	7.2%	12.3%	-1.4%	16.8%	13.7%	3.1%

2002	0.6%	11.7%	-0.7%	14.0%	11.8%	2.2%
2003	-1.4%	6.7%	-0.7%	7.1%	6.7%	0.4%
2004	-3.9%	5.8%	1.2%	7.0%	10.3%	-3.3%
2005	5.0%	5.7%	-2.0%	9.6%	12.0%	-2.4%
2006	2.0%	7.0%	-2.4%	8.3%	11.2%	-2.9%
2007	0.7%	6.5%	1.3%	15.0%	9.5%	5.5%
average	1.3%	8.9%	-0.9%	16.8%	14.9%	1.9%
Panel C non-advertised funds						
1997	3.1%	12.4%	-2.1%	23.8%	29.0%	-5.2%
1998	-1.0%	11.1%	-2.5%	8.0%	11.1%	-3.1%
1999	3.4%	8.0%	-1.3%	11.6%	15.2%	-3.6%
2000	-4.6%	9.5%	-2.4%	8.8%	12.0%	-3.2%
2001	2.4%	11.9%	-2.1%	5.6%	7.4%	-1.8%
2002	-2.0%	11.2%	-0.7%	5.8%	6.9%	-1.1%
2003	2.0%	6.8%	-1.2%	4.9%	6.7%	-1.8%
2004	0.1%	5.5%	0.4%	5.0%	6.5%	-1.5%
2005	2.9%	5.2%	-1.4%	5.8%	9.4%	-3.6%
2006	1.4%	6.7%	-2.2%	6.8%	9.6%	-2.8%
2007	1.2%	5.7%	0.8%	9.8%	9.6%	0.3%
average	0.8%	8.6%	-1.3%	8.7%	11.2%	-2.5%

Notes: Standard deviation is the standard deviation of raw return of fund *i* over the previous 24 months. The purchase rate, redemption rate and net flow rate are the ratios for purchase, redemption, and the net flow value of fund *i* in month *t* to net assets value of fund *i* in month *t*-1 respectively. The net flow value is defined as the purchase amount minus the redemption amount.

3.2 Research Design

3.2.1 The Advertisement Effect of Funds and Fund Families

This study adopts the panel data regression analysis to investigate the effect of individual fund advertisement and the family advertisement and the spillover effect of individual fund advertisements in Taiwan. The dependent variables are the fund flow rates (i.e., the purchase rate, the redemption rate and the net flow rate). The control variables include the previous flow rate (Jain and Wu, 2000; Shu, Yeh, and Yamada, 2002), previous raw return (Sirri and Tufano, 1998; Jain and Wu, 2000; O'Neal, 2004) and risk (Sirri and Tufano, 1998; O'Neal, 2004), fund size (Woerheide, 1982; Sirri and Tufano, 1998; Jain and Wu, 2000), fund turnover rate (Shu et al., 2002) and fund expense rate (Khorana and Servaes, 2004; Barber, Odean, and Zheng, 2005). When we are investigating the relation

between fund advertisement and fund flows, we group the above variables as control variables. The regression model is set as follows:⁹

$$FLOW_{i,t} = a_1 + b_1 D_{ad} + b_2 FLOW_{i,t-1} + b_3 PERF_{i,t-1} + b_4 STD_{i,t-1} + b_5 CRO_{i,t-1} + b_6 TURN_{i,t-1} + b_7 LNSIZE_{i,t-1} + b_8 EXP_{i,t-1} + \varepsilon_{it} \quad (1)$$

$$FFLOW_{i,t} = a_1 + b_1 DF_{ad} + b_2 FFLOW_{j,t-1} + b_3 FPERF_{j,t-1} + b_4 FSTD_{j,t-1} + b_5 FCRO_{j,t-1} + b_6 FTURN_{j,t-1} + b_7 FLNSIZE_{j,t-1} + b_8 FEXP_{j,t-1} + \varepsilon_{jt} \quad (2)$$

Equation (1) aims to investigate the influence of individual fund advertisement and family advertisement on individual funds. Equation (2) aims to investigate the influence of individual fund advertisement and family advertisement on the fund family. In Equation (1), the dependent variables $FLOW_{i,t}$ represents the current fund flow rates including the purchase rate ($BUY_{i,t}$), the redemption rate ($SELL_{i,t}$) and the net flow rate ($NFLOW_{i,t}$). They are the ratios for purchase, redemption, and the net flow value of fund i in month t to net assets value of fund i in month $t-1$ respectively. $FLOW_{i,t-1}$ denotes the previous fund flow rates including the previous purchase rate ($BUY_{i,t-1}$), the previous redemption rate ($SELL_{i,t-1}$) and the previous net flow rate ($NFLOW_{i,t-1}$). In Table 3 (4), D_{ad} (DF_{ad}) is termed as D_{inad} (DF_{inad}) and D_{faad} (DF_{faad}). D_{inad} (DF_{inad}) equal to 1 represents the fund with the individual fund advertisement in the previous month. D_{faad} (DF_{faad}) equal to 1 represents the fund with the family advertisement in the previous month.¹⁰ The coefficients of D_{inad} , D_{faad} , DF_{inad} and DF_{faad}

9 Thank you for referee’s suggestions to add sale force as the control variable. Most literature investigating American funds has used the loads as the proxy of fees paid to the brokers or financial advisors. However, the results of the literature show that the fund loads and fund flows are negatively correlated (e.g., Nanda et al., 2004; Gallaher et al., 2005; Kempf and Ruenzi, 2008a). The reason may be that the fund investors are more reluctant to purchase the funds when the funds’ loads are higher because sale loads are salient for investors (Barber et al., 2005). Barber et al. (2005) indicate that although sale loads are also spent on marketing, the net inflows resulting from the marketing does not appear to sufficiently offset the aversion attitude of investors toward loads. From this viewpoint, the loads have a negative effect on the fund flow. However, the sale force which the brokers or financial advisors provide should affect the fund flows positively because the brokers or financial advisors are paid the loads and will try hard to sell the funds. The above two effects may offset by each other. This study is limited to the inability to include the sale force into the models due to the unavailability of the fees paid to the brokers or financial advisors in Taiwan. We suggest that future researchers add the sale force into the model if they can obtain the data of fees paid to the brokers or financial advisors in Taiwan.

10 Jain and Wu (2000) investigated the funds advertised in the magazines *Barron’s* and *Money*. They set the dummy variable D_i equal to 1 when the funds are advertised no matter in *Barron’s* or *Money* and no matter whether the funds are advertised more than once in the same quarter. Following Jain and Wu, in the current study, it is deemed that there is the individual fund advertisement (Family Advertisement) as

correspond to hypotheses H_{1a} , H_{1b} , H_{1c} and H_{1d} , respectively. In Tables 5 and 6, D_{ad} is termed as D_{oinad} . D_{oinad} represents the individual fund advertisement of other funds (not fund i) within the family in the previous month, which correspond to hypothesis H_2 . The significantly positive coefficient of D_{inad} (D_{faad}) and DF_{inad} (DF_{faad}) represents that the individual fund (family) advertisement can attract significantly positive flows for the individual funds (Table 3) and for their families (Table 4). And the significantly positive coefficient of D_{oinad} represents that the individual fund advertisement has the spillover effect (Tables 5 and 6). That is, the flows of non-advertised funds are benefited by the advertised funds in the same family. Huij and Verbeek (2007) find that marketing is an effective method to outline the good performance of the funds. Thus, we add the interaction ($CRO_{i,t-1}$) of individually advertised funds and star funds into the models in Table 3 and 4, and add into the models in Tables 5 and 6 the interaction of other funds within the family being advertised and these advertised funds are also classified as star funds. The interaction variable $CRO_{i,t-1}$ is termed as ($D_{inad} * star$) in Table 3, which is the interaction of individually advertised funds and star funds. The interaction variable $FCRO_{i,t-1}$ is termed as ($DF_{inad} * star$) in Table 4, which is the interaction of individually advertised funds and star funds in the family. In Tables 5 and 6, $Crosr$ and $Crosa$ are the interaction of other funds within the family being advertised and these advertised funds are also classified as star funds, which corresponds to hypothesis H_3 . The significantly positive coefficients of $Crosr$ and $Crosa$ represent that the interaction of individual fund advertisement and star funds has the spillover effect. In equation (1), $STD_{i,t-1}$ is the standard deviation of raw return of fund i over the previous 24 months, which is the proxy variable of the risk. If the regression adopts the risk-adjusted return (Fama-French α) as the performance proxy variable, $STD_{i,t-1}$ is not included in the regression model. $TURN_{i,t-1}$ denotes the turnover rate of the fund in the previous month, $EXP_{i,t-1}$ denotes the fund expense rate during the previous month, $LNSIZE_{i,t-1}$ denotes the logarithmic value of fund net assets for the previous month. $RERF_{i,t-1}$ represents the performance of funds. This study employs two definitions for fund performances. One is the raw return of funds of previous month ($RET_{i,t-1}$) and the other is three-factor risk-adjusted return of Fama and French (1993) (α , ALPHA).

In Equation (2), $FFLOW_{j,t}$ ($FFLOW_{j,t-1}$) is the flow rate sums of the equity funds in family j in the current (previous) month, including the family purchase, redemption and net

the individual funds (families) are advertised no matter in which newspaper and in which day of the same month.

flow rates. $FSTD_{j,t-1}$ is the standard deviation of raw return of family j in the previous 24 month, which is the proxy of the risk of family performance. $FTURN_{j,t-1}$ denotes the turnover rate of the family in the previous month, $FEXP_{j,t-1}$ denotes the family expense rate during the previous month, $FLNSIZE_{j,t-1}$ denotes the logarithmic value of family net assets for the previous month. $FRERF_{j,t-1}$ represents the performance of family j . This study employs two definitions for family performance. One is the average raw return of the equity funds of family j in the previous month ($FRET_{j,t-1}$) and the other is three-factor risk-adjusted return of Fama and French (1993) (α , FALPHA).

3.2.2 Star funds and Fund Advertisements

This study adopts Logistic regression to examine the probability of star (top 5% performance of the equity funds) or winner (top 1/3 performance of the equity funds) funds to be advertised. The logistic model of this study is as follows:

$$L_i = \ln(P_i/(1-P_i)) = a_1 + b_1 D_{star} (D_{win}) + b_2 NFLOW_{i,t-1} + b_3 STD_{i,t-1} + b_4 TURN_{i,t-1} + b_5 LNSIZE_{i,t-1} + b_6 EXP_{i,t-1} + \varepsilon_{i,t} \quad (3)$$

The sample of Equation (3) is the equity funds in Taiwan. The logit L_i ($=\ln(P_i/(1-P_i))$) is log of odd ratio—the ratio between the probability that fund i is individually advertised and the probability that it is not individually advertised. D_{star} equal to 1 denotes the performance star funds (hypothesis H_{4a} and H_{4b} ; Tables 7 and 8) or the flow star funds (hypothesis H_{5a} and H_{5b} ; Table 9) and D_{win} equal to 1 represents the performance winner fund. $NFLOW_{i,t-1}$ denotes the net flow rate of fund i in the previous month. The other variables are as what describes in regression (1). When b_1 is significantly positive, it means the probability of star funds or winner funds to be advertised is higher than other equity funds.

The other issue of this study is to predict the probability of advertising individual funds when the family has the dog fund:

$$L_i = \ln(P_i/(1-P_i)) = a_1 + b_1 D_{sdog} + b_2 NFLOW_{i,t-1} + b_3 STD_{i,t-1} + b_4 TURN_{i,t-1} + b_5 EXP_{i,t-1} + b_6 LNSIZE_{i,t-1} + \varepsilon_{i,t} \quad (4)$$

The sample of Equation (4) is the advertised funds in Taiwan. The logit L_i ($=\ln(P_i/(1-P_i))$) is log of odd ratio – the ratio between the probability that fund i is individually advertised and the probability that it is familiarly advertised. D_{sdog} equal to 1 denotes that there is the dog fund (not fund i) in the family. The dog fund in the family may eclipse the

effect of the family advertisement, so the fund company may choose to advertise an individual fund to evade the negative impact from dog funds. The aim of Model (4) is to predict the probability of advertising an individual fund when there is the dog fund within the family. The coefficient of D_{sdog} corresponds to hypothesis H_6 . The significantly positive coefficient of D_{sdog} represents that when other funds in the same family with fund i are the dog funds, fund i is more likely to be individually advertised than familially advertised.¹¹

4. Empirical Results

4.1 Fund Performance, Advertisements and Flows

The first purpose of this study aims to investigate the relationships among fund performance, advertisement, and flows. We divide the equity funds into star funds (winner funds) and non-star funds (non-winner funds) and investigate the effect of fund advertisement on flows. Table 2 is the result of regression (1). The star (winner) funds in Panels A and B (Panel C) of Table 2 are the funds whose annual performances are in the top 5% and 10% (33%) of the equity funds, while the non-star (non-winner) funds are the remaining 95% and 90% (67%) of the equity funds. D_{ad} equal to 1 represents the advertisement funds. The statistics in Table 2 shows that almost all of the coefficients of D_{ad} are significantly positive. This result indicates that the fund advertisements considerably affect the purchase, redemption, and net flow rates of star (winner) and non-star (non-winner) funds. That is, the star (winner) funds with advertisements attract significantly more flows than the star (winner) funds without advertisements. The same phenomenon exists in the non-star (non-winner) group. This result confirms the remarkable influence of fund advertisement on the fund flows. We further observe the marginal contribution of advertisement on fund flow. Table 2 shows that the purchase and net flow rates' coefficients of star (winner) funds are greater than those of non-star (non-winner) funds. This result indicates that newspaper advertisements have more effect on the star funds than the non-star funds. This phenomenon is revealed especially in Panel A of Table 2. The statistics demonstrate that the honor of star funds and the effect of advertisement make the redemption insignificant.

11 To clarify the multicollinearity problem, this study calculates the VIF (Variance Inflation Factor) in the regression models in section 3.2. The result shows that the VIFs of all the independent variables are below 2.0, which is far below the 5.0 criterion of Marquardt and Snee (1975), which demonstrates that the multicollinearity problem does not appear in the current analysis.

Table 2 The Influence of Fund Advertisement on the Star and Non-star Funds

		Dependent Variables					
		purchase rate		redemption rate		net flow rate	
<u>Panel A: star funds at top 5%, non-star funds the remaining 95%</u>							
		star	non-star	star	non-star	star	non-star
D_{ad}		0.043 (2.83)**	0.018 (4.40)**	0.003 (0.35)	0.021 (4.67)**	0.039 (2.60)**	0.013 (3.00)**
N		736	13,314	736	13,314	736	13,314
<u>Panel B: star funds at top 10%, non-star funds the remaining 90%</u>							
		star	non-star	star	non-star	star	non-star
D_{ad}		0.027 (2.74)**	0.018 (4.17)**	0.014 (2.05)	0.015 (3.08)**	0.021 (2.04)**	0.015 (3.14)**
N		1,472	12,578	1,472	12,578	1,472	12,578
<u>Panel C: winner funds at top 33%, non-star funds the remaining 67%</u>							
		winner	non-winner	winner	non-winner	winner	non-winner
D_{ad}		0.031 (4.55)**	0.018 (2.65)**	0.016 (3.38)**	0.027 (3.83)**	0.016 (3.37)**	0.009 (1.88)*
N		4,858	9,192	4,858	9,192	4,858	9,192

Notes: The sample of Table 2 is the equity funds in Taiwan. Table 2 is the result of model (1). D_{ad} equal to 1 represents the advertisement funds. All regressions include the control variables mentioned in Section 3.2.1 and a constant term (not shown in Table 2). The statistics in the parentheses is t value. * significant at 0.10 level, **significant at 0.05 level.

4.2 The Effect of Individual Fund Advertisements and Family Advertisements

Table 2 has shown that the advertisement works whether for the star or non-star funds. This section further investigates the effect of individual fund advertisement and family advertisement from the viewpoint of individual funds (Table 3) and their families (Table 4).

The variables D_{inad} and D_{faad} in Table 3 are dummy variables which represent the advertisement type. D_{inad} equal to 1 represents that the fund is individually advertised, and D_{faad} equal to 1 represents the family advertisement. $D_{inad} * rawstar$, $D_{faad} * rawstar$, $D_{inad} * alphastar$, and $D_{faad} * alphastar$ are the interactions between the advertisement type and the star funds. The variable rawstar (Alphastar) represents the star funds which are measured based on the raw return (Fama-French α) of the funds. Table 3 shows that the coefficients of D_{inad} are positive in every model of this table. This result indicates that the individual fund advertisement can attract investors' attention. Most of the models show that the significant purchase of individually advertised funds (Models 1, 3, and 4) results in the significant net

flow rate of these funds (Models 9 and 11). In addition to the noteworthy effect of individual fund advertisements, the result also shows that the coefficients of D_{faad} in every model of Table 3 are significantly positive. Fund investors not only buy more familially advertised funds, but they redeem more of them as well. However, the net flow rate of familially advertised funds increases significantly. Table 3 demonstrates that the coefficients of D_{faad} in models 1 and 9 are significantly positive, and they remain significantly positive after adding the interaction of family advertisement and star funds ($D_{faad} * rawstar$ in Models 2 and 10). This result implies that even after controlling for the interaction of family advertisement and star funds, the funds which are advertised in the family advertisement receive significantly positive purchase and net flow rates. Meanwhile, Table 3 reveals that the coefficients of D_{inad} in models 1 and 9 are significantly positive, while they turn insignificantly positive after adding the interaction of individual fund advertisements and star funds ($D_{inad} * rawstar$ in Models 2 and 10).¹² This result indicates that part of the advertisement effect of individually advertised funds is due to the fact that they are also star funds.¹³

Table 3 shows the individual funds. Table 4 further adopts the fund families as the sample. Although Table 3 shows that the individual fund advertisements and family advertisements have a positive influence on the individual funds, Table 4 shows that generally the individual fund advertisement has no significant influence on the family. This

12 The authors are grateful for the reviewer's suggestion to investigate the effect of advertisement persistence. This study attempts to investigate whether the fund advertisements in the previous three months (month t-3) have an effect on the fund flow in the current month (month t). The unreported results show that the individual fund advertisement in the previous three months no longer has an effect on the flow of funds in the current month. Although the persistence of family advertisements is better than that of the individual fund advertisements, this effect is relatively weak in comparison with cases when the family advertisement was printed one month prior. This result corresponds to Gallaher et al. (2008) who argued that the effect of advertisement on the family is short-lived, and to Tellis, Chandy, and Thaivanich (2000), who found that the advertisement stimulates a direct response. In short, the effect dissipates very fast. Moreover, this result verifies the viewpoint that the half-life memory of investors is very short (Sirri and Tufano, 1998). This study further adopts the advertisement number as the proxy of advertisement duration. The unreported table shows that the longer (more frequent) the funds are advertised, the greater the influence of the individual fund advertisements and family advertisements on the fund flows.

13 As for the effect of star funds on the flows, the unreported table shows that the flow rates of star funds are significantly higher than the non-star funds. Moreover, this study tries to employ two proxies of sale force. The two proxies are the service variables which were employed in the past literature. One is the logarithm of the total assets of the family (Sirri and Tufano, 1993), the other is the logarithm of fund numbers of the family (Harless and Peterson, 1998). The larger the fund family is or the more funds the fund family has, usually the more well-known the family brand is. The distributors or the brokers are more willing to sell the funds within these fund families. Consequently, the number of distributors will increase. Thus the sale force gets stronger. The result of unreported tables show that even after controlling for the two sale force proxies, the individual fund and family ads still have significantly positive influence on the fund flows even after considering the condition of sale force.

Table 3 The Effect of Individual Fund Advertisements and Family Advertisements – from the Viewpoint of Individual Funds

Models	Dependent Variables											
	BUY _t			SELL _t			NFLOW _t					
	1	2	3	4	5	6	7	8	9	10	11	12
intercept	0.04 (3.40)**	0.05 (3.48)**	0.05 (3.72)**	0.05 (3.70)**	-0.25 (-12.89)**	-0.25 (-12.79)**	-0.27 (-12.81)**	-0.27 (-12.86)**	0.03 (1.360)	0.03 (1.490)	0.06 (3.18)**	0.06 (3.14)**
D _{inad}	0.05 (4.31)**	0.02 (1.59)	0.05 (4.39)**	0.06 (3.87)**	0.02 (1.45)	0.01 (0.55)	0.02 (1.81)	0.03 (2.00)**	0.03 (2.66)**	0.01 (0.53)	0.03 (2.32)**	0.02 (1.19)
D _{read}	0.02 (6.26)**	(4.22)**	0.02 (6.49)**	0.02 (6.36)**	0.02 (5.02)**	0.02 (3.71)**	0.02 (5.89)**	0.02 (5.63)**	0.02 (4.11)**	0.01 (2.61)**	0.01 (3.14)**	0.01 (3.15)**
D _{inad} * rawstar	0.13 (4.59)**					0.05 (1.50)				0.11 (3.79)**		
D _{read} * rawstar	0.04 (4.60)**					0.03 (2.64)**				0.03 (3.36)**		
D _{inad} * alphastar				-0.01 (-0.27)				-0.03 (-1.02)				0.04 (-1.50)
D _{read} * alphastar				-0.01 (-0.71)				0.00 (-0.01)				-0.01 (-0.48)
BUY _{t-1}	0.48 (69.08)**	0.47 (68.43)**	0.49 (69.68)**	0.49 (69.48)**								
SELL _{t-1}					0.09 (18.44)**	0.09 (18.36)**	0.10 (19.88)**	0.10 (19.85)**				
NFLOW _{t-1}									0.04 (8.24)**	0.04 (8.18)**	0.04 (7.87)**	0.04 (7.87)**
RET _{t-1}	0.002 (20.82)**	0.002 (20.93)**			0.003 (29.95)**	0.003 (29.98)**			-0.0004 (-4.76)**	-0.0004 (-4.74)**		
STD	-0.13 (-5.50)**	-0.13 (-5.54)**			-0.18 (-6.95)**	-0.18 (-6.94)**			0.09 (3.50)**	0.09 (3.50)**		
ALPHA			0.004 (8.71)**	0.004 (8.73)**			0.003 (5.70)**	0.003 (5.68)**			0.003 (8.10)**	0.003 (8.10)**
TURN	0.07 (26.45)**	0.07 (26.38)**	0.07 (27.17)**	0.07 (27.18)**	0.02 (6.00)**	0.02 (5.92)**	0.02 (6.88)**	0.02 (6.87)**	0.07 (23.15)**	0.07 (23.08)**	0.07 (24.37)**	0.07 (24.35)**
LNSIZE	0.003 (4.08)**	0.003 (4.01)**	0.003 (3.36)**	0.003 (3.35)**	0.01 (7.70)**	0.01 (7.59)**	0.01 (7.96)**	0.01 (8.20)**	0.02 (14.38)**	0.02 (14.19)**	0.02 (12.17)**	0.02 (12.19)**
EXP	-49.43 (-14.67)**	-49.54 (-14.69)**	-51.02 (-15.01)**	-51.32 (-15.07)**	132.46 (31.09)**	132.67 (31.13)**	125.64 (28.64)**	125.77 (26.65)**	-212.76 (-52.40)**	-212.87 (-52.44)**	-212.74 (-52.35)**	-212.96 (-52.31)**
N	14085	14085	14088	14088	14085	14085	14088	14088	14085	14085	14088	14088
Adjusted R ²	0.374	0.377	0.353	0.354	0.294	0.294	0.221	0.249	0.271	0.273	0.273	0.274

Notes: The sample in Table 3 is the equity funds in Taiwan. D_{inad} and D_{read} are dummy variables which represent the advertisement type. D_{inad} equal to 1 represents that the fund is individually advertised and D_{read} equal to 1 represents the family advertisement. D_{inad} * rawstar, D_{read} * rawstar, D_{inad} * alphastar and D_{read} * alphastar are the interactions between the advertisement type and the star funds. The variable rawstar (alphastar) represents the star funds which are measured based on the raw return (Fama-French α) of the funds. Please refer to section 3.2.1 for the definition of other variables. The statistics in the parentheses is t value. * significant at 0.10 level, **significant at 0.05 level.

Table 4 The Effect of Individual Fund Advertisements and Family Advertisements – from the Viewpoint of Fund Families

Models	Y:BUY _t				Y:SELL _t				Y:NFLOW _t			
	1	2	3	4	5	6	7	8	9	10	11	12
intercept	0.265 (12.41)**	0.269 (12.48)**	0.267 (12.34)**	0.269 (12.32)**	-0.280 (-6.97)**	-0.285 (-7.03)**	-0.271 (-6.20)**	-0.274 (-6.22)**	0.446 (11.66)**	0.450 (11.66)**	0.512 (12.57)**	0.512 (12.46)**
DF _{fund}	0.014 (1.32)	0.004 (0.31)	0.018 (1.66)*	0.005 (0.36)	0.012 (1.06)	0.006 (0.49)	0.019 (1.65)*	0.008 (0.54)	0.007 (0.71)	0.003 (0.27)	0.004 (0.34)	0.000 (-0.02)
DF _{fund}	0.029 (4.43)**	0.012 (1.44)	0.028 (4.22)**	0.028 (3.36)**	0.020 (2.91)**	0.018 (2.07)**	0.023 (3.15)**	0.030 (3.34)**	0.021 (3.17)**	0.003 (0.38)	0.015 (2.38)**	0.007 (0.87)
DF _{fund} * Frawstar	0.047 (1.88)*	0.042 (1.88)*	0.047 (1.88)*	0.047 (1.88)*	0.025 (0.95)	0.025 (0.95)	0.025 (0.95)	0.025 (0.95)	0.049 (1.77)**	0.049 (1.77)**	0.049 (1.77)**	0.049 (1.77)**
DF _{fund} * Frawstar	0.042 (3.35)**	0.042 (3.35)**	0.042 (3.35)**	0.042 (3.35)**	0.005 (0.34)	0.005 (0.34)	0.005 (0.34)	0.005 (0.34)	0.043 (3.41)**	0.043 (3.41)**	0.043 (3.41)**	0.043 (3.41)**
DF _{fund} * Falphstar				0.034 (1.58)				0.030 (1.27)				0.010 (0.48)
DF _{fund} * Falphstar				0.000 (-0.02)				-0.019 (-1.38)				0.021 (1.64)
FBUY _{t-1}	0.499 (33.32)**	0.493 (32.87)**	0.515 (33.53)**	0.511 (33.18)**								
FSELL _{t-1}					0.210 (12.97)**	0.209 (12.93)**	0.251 (15.07)**	0.251 (15.02)**				
FNFLOW _{t-1}												
FRET _{t-1}	0.187 (11.48)**	0.188 (11.57)**			0.278 (16.01)**	0.279 (16.03)**	0.334 (3.34)**	0.338 (3.38)**	0.093 (5.96)**	0.091 (5.84)**	0.085 (5.42)**	0.085 (5.38)**
FSTD	0.003 (0.06)	0.000 (-0.00)			-0.252 (-5.26)**	-0.253 (-5.28)**			-0.060 (-3.71)**	-0.061 (-3.74)**		
FALPHA				0.371 (4.09)**					0.134 (2.96)**	0.136 (3.02)**	0.516 (5.69)**	0.512 (5.64)**
FTURN	-0.006 (-1.11)	-0.006 (-1.18)	0.000 (0.08)	0.000 (0.08)	0.006 (0.84)	0.005 (0.82)	0.013 (1.92)*	0.013 (1.92)*	0.019 (2.90)**	0.019 (2.90)**	0.018 (2.90)**	0.018 (2.91)**
FLNSIZE	-0.007 (-6.60)**	-0.007 (-6.63)**	-0.007 (-6.44)**	-0.007 (-6.37)**	0.006 (2.60)**	0.007 (2.70)**	0.006 (2.17)**	0.006 (2.23)**	-0.002 (-0.76)	-0.002 (-0.85)	-0.006 (-2.30)**	-0.006 (-2.27)**
FEXP	-87.643 (-10.88)**	-88.359 (-10.94)**	-89.806 (-11.06)**	-90.851 (-11.13)**	180.157 (18.29)**	180.399 (18.30)**	166.834 (16.31)**	166.764 (16.29)**	-309.096 (-33.09)**	-309.372 (-33.15)**	-303.549 (-32.61)**	-303.669 (-32.61)**
n	3278	3278	3278	3278	3278	3278	3278	3278	3278	3278	3278	3278
Adjusted R2	0.349531	0.356045	0.321922	0.326618	0.351581	0.351654	0.293341	0.293898	0.312154	0.314484	0.314782	0.315057

Notes: The sample in Table 4 is the fund family in Taiwan. DF_{fund} and DF_{fund} are dummy variables which represent the advertisement type. DF_{fund} equal to 1 represents that family j has the family advertisement in the previous month. DF_{fund} * Frawstar, DF_{fund} * Falphstar and DF_{fund} * Falphstar are the interactions between the advertisement type and the star funds in the family. The variable Frawstar (Falphstar) represents family j has star funds which are measured based on the raw return (Fama-French α) of the funds. The statistics in the parentheses is t value. * significant at 0.10 level, **significant at 0.05 level.

result may be associated with the minimal spillover effect of individual fund advertisements (shown in Tables 5 and 6). However, the family advertisement notably affects the family, which may result from family advertisements aiming to promote the family brand or promote several funds at the same time (the coefficient of DF_{faad} in Models 1, 3, 4, 9, and 11 of Table 4 is significantly positive.). The raw return star funds in the family advertisement have a significant influence on the net flow rate of the family (the coefficient of $DF_{faad} * Frawstar$ in Model 10 is significantly positive), while the 3-factor alpha star funds in the family advertisement have little influence (the coefficient of $DF_{faad} * Falphastar$ in Model 12 is insignificant). Fund investors seem to have greater responses to the raw return star funds than the alpha star funds.¹⁴

The statistics in Tables 2 show that the redemption rate of Taiwan's advertised funds is higher than the non-advertised funds. Moreover, the coefficients of D_{faad} and DF_{faad} in Models 5-8 of Tables 3 and 4 are significantly positive. The reason may come from that the advertisement of funds seems to remind fund investors of redeeming the funds if they just hold these funds in their portfolio. Fund investors may make profits or reform a new portfolio by redeeming the advertised funds. The other explanation may be derived from the rapidly trading behavior of fund investors in Taiwan. The models of Daniel, Hirshleifer, and Subrahmanyam (1998), Barberis, Shleifer, and Vishny (1998) and Hong and Stein (1999) posit that investors' emotional status will affect their investment. The turnover rate is often used as a proxy variable of investors' emotion status when they make an investment (e.g., Baker and Stein, 2004; Baker and Wurgler, 2006). The turnover rate of Taiwan's stock market is always very high, pointing out the rapidly trading behavior of investors in Taiwan.

If the increase of redemption rate comes from the first reason, the advertisement of funds may have the side effect of reminding investors to redeem the funds they hold. If the increase of redemption rate comes from the second reason, the fund advertisement will cause the increase of purchase and redemption simultaneously. However, if we want to examine the net effect of advertisements, we should observe the net flow rate. The net flow rate of the advertised funds is still significantly positive (Table 2). And the coefficients of D_{faad} and DF_{faad} in Models 9-12 of Tables 3 and 4 are markedly positive, which indicates the increase of purchase is greater than that of the redemption. From the viewpoint of the net effect, the

14 This study employs "whether the fund advertisement has mentioned fund performance" as the dummy variable of advertisement characteristics. The unreported results show that the advertisement of fund performance has a positive influence from the viewpoint of net flow rate, which implies good news for investors.

advertisement of funds in Taiwan still has positive effect.

4.3 The Spillover Effect of Individual Fund Advertisements and Star Funds

Tables 5 and 6 aim to investigate the spillover effect which the individual fund advertisements and star funds bring to the other funds within the family. D_{oinad} equal to 1 represents the individual fund advertisement of other funds (not fund i) within the family of fund i. Moreover, Srawstar (Salphastar) represents other funds (not fund i) within the family as the star funds whose raw return (Fama-French α) is in top 5% of the equity funds. The coefficients of D_{oinad} in Tables 5 and 6 are not significant, indicating that the individual fund advertisement does not have significant spillover effect. Meanwhile, the star funds have significant spillover effect to the other funds in the same family. This conclusion is confirmed by the significantly positive coefficients of srawstar in Table 5 and of salphastar in Table 6.

Crosr (Crosa) in Table 5 (6) is the interaction of other funds within the family being individually advertised and these advertised funds are also classified as star funds measured by the raw return (Fama-French α). The coefficients of Crosr and Crosa are positive, and the coefficients of Crosr in Models 3 and 9 of Table 5 are significantly positive. This implies that the individually advertised funds have the spillover effect if they are also star funds. The fund family should advertise the star funds if they want to execute the individual fund advertisement considering the net flow rates of the family. In the past literature, there is a conflicting argument regarding the spillover effect (Huij and Verbeek, 2007; Sirri and Tufano, 1998) and crowding-out effect (Elton et al., 2007) of funds. This study finds no significant spillover effect of individually advertised funds. Unless they are also raw return star funds, the individually advertised funds do not have a spillover effect on the other funds in the same family.

Model 10 in Table 4 reveals that the appearance of raw star funds in the individual fund advertisement has a positive effect on the net flow of the family (the coefficient of $DF_{inad} * Frawstar$ in Model 10 is significantly positive). Meanwhile, the individual fund advertisements of alpha star funds do not significantly influence the net flow of the family (the coefficient of $DF_{inad} * Falphastar$ is 0.010 with t value 0.48). This result is consistent with the insignificant effect of individual fund advertisements of alpha star funds, shown in Table 3, as and the insignificant spillover effect of individual fund advertisements of alpha star funds, shown in Table 6. Patel, Zeckhauser, and Hendricks (1991) have indicated that investors value raw return more than risk-adjusted return. Most fund investors in Taiwan are

Table 5 The Spillover Effect of Individually Advertised Funds and Star Funds (The proxy of the star performance is the annual raw return)

Models	Dependent Variables								
	BUY _t			SELL _t			NFLOW _t		
	1.	2.	3.	4.	5.	6.	7.	8.	9.
intercept	0.04 (2.90)**	0.05 (4.28)**	0.04 (2.89)**	-0.26 (-13.36)**	-0.23 (-11.90)**	-0.26 (-13.37)**	0.08 (3.42)**	0.11 (4.46)**	0.08 (3.17)**
D _{olnad}	0.000 (0.02)		0.002 (0.77)	0.004 (0.46)		0.004 (0.45)	-0.003 (-0.29)		-0.003 (-0.39)
Srawstar		0.05 (15.14)**			0.04 (12.33)**			0.04 (11.70)**	
Crosr			0.08 (1.77)*			0.007 (0.14)			0.107 (2.04)**
BUY _{t-1}	0.48 (70.22)**	0.46 (66.42)**	0.48 (70.14)**						
SELL _{t-1}				0.09 (18.58)**	0.08 (17.90)**	0.09 (18.59)**			
NFLOW _{t-1}							0.03 (10.77)**	0.03 (10.77)**	0.03 (10.75)**
RET _{t-1}	0.002 (21.04)**	0.002 (21.04)**	0.002 (21.03)**	0.003 (30.17)**	0.003 (29.99)**	0.003 (30.17)**	0.000 (0.00)	0.10 (3.71)**	-0.00 (-0.10)
STD	-0.13 (-5.74)**	-0.15 (-6.51)**	-0.13 (-5.73)**	-0.18 (-7.11)**	-0.20 (-7.87)**	-0.18 (-7.11)**	0.12 (4.36)**	0.10 (3.71)**	0.12 (4.37)**
TURN	0.07 (26.62)**	0.07 (26.44)**	0.07 (26.63)**	0.02 (6.20)**	0.02 (6.00)**	0.02 (6.19)**	0.03 (7.26)**	0.03 (7.22)**	0.03 (7.26)**
LNSIZE	0.004 (4.82)**	0.002 (3.06)**	0.004 (4.83)**	0.01 (8.30)**	0.01 (6.52)**	0.01 (8.32)**	-0.003 (-2.05)**	-0.006 (-3.69)**	-0.003 (-2.07)**
EXP	-49.33 (-14.66)**	-47.56 (-14.29)**	-49.37 (-14.66)**	132.09 (30.99)**	133.42 (31.45)**	132.14 (30.99)**	-41.17 (-8.38)**	-39.26 (-8.20)**	-41.25 (-8.39)**
N	14085	14085	14085	14085	14085	14085	13954	13955	13954
Adjusted R ²	0.369	0.370	0.370	0.293	0.299	0.293	0.049	0.058	0.049

Notes: The sample of Table 5 is the equity funds. D_{olnad} equal to 1 represents the individual fund advertisement of other funds within the family of fund i. And Srawstar refers to other funds (not fund i) within the family as the star funds whose raw return is in top 5% of the equity funds. Crosr is the interaction of other funds within the family being individually advertised and these advertised funds are also classified as star funds measured by the raw return. The statistics in the parentheses is t value. * significant at 0.10 level, **significant at 0.05 level.

Table 6 The Spillover Effect of Individually Advertised Funds and Star Funds (The proxy of the star performance is the Fama-French α)

Models	Dependent Variables								
	BUY _t			SELL _t			NFLOW _t		
	1.	2.	3.	4.	5.	6.	7.	8.	9.
intercept	0.04 (3.27)**	0.04 (3.18)**	0.04 (3.27)**	-0.28 (-13.25)**	-0.27 (-13.14)**	-0.28 (-13.25)**	0.16 (6.62)**	0.21 (8.41)**	0.16 (6.62)**
D _{onad}	0.002 (0.77)		0.002 (0.30)	0.01 (0.85)		0.01 (0.85)	-0.01 (-0.53)		-0.01 (-0.53)
Salphastar		0.03 (8.07)**			0.03 (7.18)**			0.03 (7.46)**	
Crosa			0.07 (1.48)			0.01 (0.16)			0.05 (0.96)
BUY _{t-1}	0.50 (70.69)**	0.49 (69.84)**	0.50 (70.63)**						
SELL _{t-1}				0.10 (20.06)**	0.10 (19.95)**	0.10 (20.05)**			
NFLOW _{t-1}							0.03 (11.23)**	0.03 (10.90)**	0.03 (11.11)**
ALPHA	0.004 (9.29)**	0.003 (7.01)**	0.004 (9.26)**	0.003 (6.19)**	0.002 (4.44)**	0.003 (6.16)**	0.01 (14.60)**	0.01 (14.59)**	0.01 (14.58)**
TURN	0.07 (27.30)**	0.07 (27.36)**	0.07 (27.30)**	0.02 (7.08)**	0.02 (7.03)**	0.02 (7.07)**	0.03 (8.54)**	0.03 (7.34)**	0.03 (8.52)**
LNSIZE	0.003 (3.96)**	0.003 (3.90)**	0.003 (3.98)**	0.01 (8.54)**	0.01 (8.25)**	0.01 (8.56)**	-0.01 (-5.62)**	-0.01 (-6.93)**	-0.01 (-5.62)**
EXP	-50.92 (-15.01)**	-50.92 (-15.01)**	-51.07 (-15.04)**	125.16 (28.50)**	125.67 (28.67)**	125.19 (28.56)**	-36.29 (-7.59)**	-52.26 (-11.43)**	-36.28 (-7.59)**
N	14088	14088	14088	14088	14088	14088	13957	14953	13957
Adjusted R ²	0.348	0.352	0.348	0.244	0.246	0.246	0.062	0.086	0.062

Notes: The sample of Table 6 is the equity funds. D_{onad} equal 1 represents the individual fund advertisement of other funds within the family of fund i. And Salphastar refers to other funds (not fund i) within the family as the star funds whose Fama-French α is in top 5% of the equity funds. Crosa is the interaction of other funds within the family being individually advertised and these advertised funds are also classified as star funds measured by Fama-French α . The statistics in the parentheses is t value. * significant at 0.10 level, **significant at 0.05 level.

individual investors. They are generally unfamiliar with alpha, and they therefore react less enthusiastically to alpha stars than to raw return stars.

The conclusions of Tables 3-6 are as follows: (1) For the individual funds, the appearance of individual funds in the individual fund advertisement or the family advertisement helps them get more net flows than the non-advertised funds. (2) For the fund family, adopting the family advertisement can help them get more net flows than the non-advertised family, regardless of whether there is a star fund in the advertisement or not. Generally, family advertisement is a good choice for both individual funds and their family. This conclusion is consistent with Kempf and Ruenzi (2008a), who stated that the more the money flows into the family, the more the money flows into the individual fund in the families. Similarly, Farnsworth and Taylor (2006) argued that the bonuses received by fund managers depend largely on the profitability of the fund family.

4.4 The Relationship between Performance (Flow) Star Funds, Dog Funds, and Advertisements

The results of Tables 3-6 demonstrate that a conflict may exist between individual funds in the same family when they face individual fund advertisement. The individual funds may prefer to be individually advertised, which can consequently raise their flows. However, they do not respond well to individual fund advertisements of other funds within the same family because it consumes the resources of the family and does not have a spillover effect. It is suggested that fund families advertise raw return star funds if they do want to adopt individual fund advertisements. In this section, we will examine whether the star funds have a higher probability to be individually advertised.

Table 7 further adopts the logistic regression analysis to investigate whether there is more advertisement of star funds than of other funds. The variables D_{rawstar} and $D_{\text{alphastar}}$ in Table 7 represent the raw return and alpha star funds, respectively. Moreover, D_{rawwin} and D_{alphawin} represent the winner funds, whose performances are measured by the raw return and Fama-French α , respectively. The statistics in Table 7 reveals that the coefficients of star and winner funds are significantly positive. This result indicates that if the funds can enter the group of star or winner funds, their individually advertised probability will increase greatly.

Table 7 aims to investigate whether the star funds that perform in the top 5% of the equity funds have a higher probability of being individually advertised. In the meanwhile, Table 8 examines whether the family star funds whose performance is in the top 5% of the family to which they belong have a higher probability of being individually advertised. The

Table 7 The Individually Advertised Probability of Performance Star and Winner Funds

Models	1.	2.	3.	4.
intercept	-9.314 (0.001)***	-9.297 (0.000)***	-10.389 (0.000)***	-10.740 (0.000)***
D _{rawstar}	1.389 (0.001)***			
D _{rawwin}		1.448 (0.000)***		
D _{alphastar}			1.751 (0.000)***	
D _{alphawin}				1.149 (0.001)***
NFLOW _{t-1}	-0.690 (0.240)	-0.660 (0.331)	-0.047 (0.977)	0.035 (0.983)
STD	-3.068 (0.616)	-4.809 (0.465)	-1.157 (0.841)	-0.525 (0.924)
TURN	0.400 (0.529)	0.394 (0.566)	0.416 (0.546)	0.451 (0.506)
LNSIZE	0.398 (0.020)**	0.351 (0.039)**	0.437 (0.011)**	0.418 (0.055)**
EXP	-1681.051 (0.001)***	-1566.448 (0.001)***	-1477.737 (0.002)***	-1316.789 (0.001)***
N	12602	12602	12602	12602
LR	28.424	37.801	31.367	31.475
MacFadden R ²	0.251	0.277	0.261	0.265

Notes: The sample of Table 7 is the equity funds. The variables D_{rawstar} and D_{alphastar} represent the star funds, whose performances are measured by the raw return and Fama-French α , respectively. D_{rawwin} and D_{alphawin} denote the winner funds, whose performances are measured by the raw return and Fama-French α , respectively. The statistics in the parentheses is p value. * significant at 0.10 level, **significant at 0.05 level, ***significant at 0.01 level.

variables D_{frawstar} and D_{falphastar} represent the family star funds whose performances are measured via the raw return and Fama-French α , respectively, and D_{frawwin} and D_{falphawin} represent the family winner funds whose performances are measured via the raw return and Fama-French α , respectively. The family winner funds are the funds whose performance is in the top 1/3 of the funds within the family. Table 8 shows that the coefficients of family star and winner funds are significantly positive. This result implies that the individually advertised probability of funds increases as long as the funds perform in top 5% or 1/3 of the funds

within their family.

Generally, the purpose of fund advertisement is to attract investors to purchase the advertised funds to increase the fund flows. However, fund investors tend to make the same decision, regardless of whether this decision is the best or not (Kempf and Ruenzi, 2008a). Past literature has found that the current fund flow is influenced by the previous fund flow (O'Neal, 2004; Kempf and Ruenzi, 2008a). Thus, whether the past flow star or winner funds obtain more ad resources than other funds needs further investigation. Table 9 aims to examine whether the advertisement probability of the flow star funds, family flow star funds, flow winner funds and family flow winner funds is higher than that of other funds. The variable $(D_{\text{flowstar}}) D_{\text{flowstar}}$ in Table 9 represents the (family) flow star funds, while the variable $(D_{\text{flowwin}}) D_{\text{flowwin}}$ represents the (family) flow winner funds. The coefficients of D_{flowstar} (D_{flowwin}) and D_{flowstar} (D_{flowwin}) in the models of Table 9 are significantly positive, indicating the tendency of advertising flow star (winner) funds and family flow star (winner) funds. For individual funds, if their net flow rates can be in the top 5% or top 1/3 of the equity funds or of their family, the individually advertised probability of these funds will significantly increase.

The above analysis focuses on the star funds. However, the influence of dog funds on fund advertisement is an interesting issue worthy of investigation as well. This study further investigates the probability of funds to be individually advertised when there are dog funds in their family. Firstly, we investigate the spillover effect of dog funds. The unreported result indicates that the flow rates of raw return dog funds are not significantly different from those of other funds. This result is consistent with the argument that fund winners are rewarded, while fund losers are not necessarily punished by investors (Ippolito, 1992; Sirri and Tufano, 1998; Goetzmann and Peles, 1997; Chevalier and Ellison, 1997). Moreover, we see no spillover effect of raw return dog funds and alpha dog funds when we observe the net flow rate.

If there are dog funds in the family, it is worthwhile to consider whether the domestic shame should be made public and whether the fund company should make a decision to advertise the individual funds rather than the whole family. Table 10 aims to investigate whether the individually advertised probability is higher for funds when other funds within their family are dog funds. The coefficient of D_{srawdog} in Table 10 is insignificantly positive and the coefficient of $D_{\text{salphadog}}$ in Table 10 is insignificantly negative. This result demonstrates that the dog fund in the family does not affect the decision to advertise individual funds or the whole family. Generally, the results of Tables 7, 8, and 9 demonstrate that the

performance or flow star funds in the family affects the fund companies' decisions to advertise. However, there is no significant spillover effect of dog funds when we observe the net flow rate. Thus, the dog funds in the family have little impact on fund companies' decisions to advertise individual funds or the family.

Table 8 The Individually Advertised Probability of Family Performance Star and Winner Funds

Models	1.	2.	3.	4.
intercept	-11.208 (0.000)***	-10.861 (0.000)***	-11.961 (0.000)***	-11.477 (0.000)***
$D_{frawstar}$	1.878 (0.000)***			
D_{frawin}		1.586 (0.000)***		
$D_{falhpastar}$			1.527 (0.000)***	
$D_{falphawin}$				1.209 (0.000)***
$NFLOW_{t-1}$	-0.833 (0.007)***	-0.655 (0.395)	-0.127 (0.937)	-0.130 (0.936)
STD	-2.142 (0.723)	-3.233 (0.608)	-0.420 (0.939)	-0.692 (0.903)
TURN	0.406 (0.514)	0.540 (0.413)	0.428 (0.538)	0.501 (0.471)
LNSIZE	0.487 (0.002)***	0.430 (0.009)***	0.512 (0.002)***	0.417 (0.006)***
EXP	-1702.168 (0.000)***	-1484.64 (0.002)***	-1439.311 (0.002)***	-1360.979 (0.005)***
N	12602	12602	12602	12602
LR	53.289	40.408	41.672	32.522
MacFadden R ²	0.292	0.278	0.279	0.262

Notes: The sample of Table 8 is the equity funds in Taiwan. The variables $D_{frawstar}$ and $D_{falhpastar}$ represent the family star funds whose performances are measured via the raw return and Fama-French α , respectively. And D_{frawin} and $D_{falphawin}$ represent the family winner funds whose performances are measured via the raw return and Fama-French α , respectively. The statistics in the parentheses is p value. * significant at 0.10 level, **significant at 0.05 level, ***significant at 0.01 level.

Table 9 The Individually Advertised Probability of (Family) Flow Star and Winner Funds

Models	1.	2.	3.	4.	5.	6.	7.	8.
intercept	-11.340 (0.000)***	-10.508 (0.000)***	-10.804 (0.000)***	-10.512 (0.000)***	-11.458 (0.000)***	-10.610 (0.000)***	-8.751 (0.002)***	-8.416 (0.003)***
D _{flowstar}	1.405 (0.001)***				1.267 (0.002)***			
D _{flowwin}		1.057 (0.001)***				0.979 (0.003)***		
D _{flowstar}			0.844 (0.009)***				0.752 (0.015)**	
D _{flowwin}				0.897 (0.007)***				0.829 (0.011)**
RET _{t-1}	3.898 (0.017)**	4.002 (0.014)**	3.223 (0.065)*	3.265 (0.062)*				
STD	-8.123 (0.115)	-8.470 (0.099)*	-2.641 (0.670)	-3.611 (0.566)				
ALPHA					33.023 (0.002)***	33.846 (0.002)***	32.513 (0.004)***	32.603 (0.003)***
TURN	0.310 (0.639)	0.331 (0.608)	0.204 (0.760)	0.230 (0.722)	0.352 (0.603)	0.362 (0.575)	0.140 (0.827)	0.155 (0.804)
LNSIZE	0.567 (0.0001)***	0.493 (0.001)***	0.453 (0.004)***	0.409 (0.011)**	0.575 (0.0003)***	0.498 (0.002)***	0.292 (0.099)*	0.244 (0.187)
EXP	-1466.81 (0.121)	-1577.93 (0.124)	-1204.12 (0.022)**	-1096.97 (0.045)**	-1641.26 (0.073)*	-1731.86 (0.080)*	-1060.04 (0.027)***	-1986.44 (0.048)**
N	13954	13954	12601	12601	13955	13955	12844	12844
LR	35.607	37.348	27.498	28.753	40.634	42.658	39.518	40.763
MacFadden R ²	0.059	0.062	0.256	0.259	0.067	0.070	0.275	0.277

Notes: Table 9 aims to examine whether the advertisement probability of the flow star funds (with the previous net flow rate in top 5% of the equity funds), family flow star funds (with the previous net flow rate in top 5% of the family), flow winner funds (with the previous net flow rate in top 1/3 of the equity funds) and family flow winner funds (with the previous net flow rate in top 1/3 of the family) is higher than that of other funds. The variable (D_{flowstar}) D_{flowstar} in Table 9 represents the (family) flow star funds, while the variable (D_{flowwin}) D_{flowwin} represents the (family) flow winner funds. The statistics in the parentheses is p value. * significant at 0.10 level, **significant at 0.05 level, ***significant at 0.01 level.

Table 10 The Individually Advertised Probability for Funds when Other Funds within Their Family are Dog Funds

	1.	2.
Intercept	1.016 (0.766)	1.245 (0.712)
$D_{srawdog}$	0.596 (0.334)	
$D_{salphadog}$		-0.010 (0.985)
$NFLOW_{t-1}$	-0.576 (0.731)	-0.632 (0.700)
STD	-0.637 (0.912)	-1.025 (0.864)
TURN	-0.213 (0.796)	-0.074 (0.925)
LNSIZE	-0.158 (0.467)	-0.179 (0.404)
EXP	-934.424 (0.346)	-896.479 (0.364)
N	583	583
LR	12.376	11.461
MacFadden R ²	0.03	0.02

Notes: The sample of Table 10 is the advertised funds in Taiwan. The variables $D_{srawdog}$ and $D_{salphadog}$ represent that there are other funds which are dog funds in the family. The statistics in the parentheses is p value. * significant at 0.10 level, **significant at 0.05 level, ***significant at 0.01 level.

Generally, the results of Tables 3-6 reveal that the individual fund advertisements and family advertisements have a significantly positive effect on the individual funds, which accept hypotheses H_{1a} and H_{1b} . Moreover, the family advertisements can bring significantly positive net flows for the advertised family (accept hypothesis H_{1d}). On the other hand, the individual fund advertisement does not significantly affect the flow of the family (reject hypothesis H_{1c}), which is associated with the result that the individual fund advertisement does not have a spillover effect (reject hypothesis H_2) unless the individually advertised funds are star funds (accept hypothesis H_3). The results of Tables 7-10 demonstrate that the probability of individual advertisement is higher for star (winner) funds and family star (family winner) funds (accept hypothesis H_{4a} , H_{4b} , H_{5a} , and H_{5b}). Finally, the probability of individual fund advertisements is not higher if there are other funds, viewed as dog funds,

within the family (reject hypothesis H_6).

4.5 The Post Performance of Individually Advertised Funds and Familiably Advertised Funds

Past literature about signaling theory of marketing has suggested consumers regard advertising as the signal of quality (Kirmani and Wright, 1989; Kirmani, 1997). The results of this study (Tables 7 and 8) reveal that the individually advertised probability is higher for star funds of the equity funds or of their family than for other funds. This study will further investigate whether the choice of individually and familiably advertised funds is right or not for fund investors. Panel A of Table 11 lists the abnormal return of the individually advertised funds within one year of the advertisement. This study employs three proxy items accounting for the abnormal return. One is the raw return of the individually advertised funds minus the stock market return ($R_i - R_m$). Another is the raw return of the individually advertised funds minus the average raw return of the equity funds in Taiwan ($R_i - R_a$). The last proxy is Fama-French α of the individually advertised funds minus that of the average of the equity funds in Taiwan. Fama-French α is calculated by using the three-factor data of 12 months after the advertisement. Panel A of Table 11 reveals no significant difference between the market return and the raw return of the individually advertised funds within three month of the advertisement, while the abnormal return of the individually advertised funds is significantly positive after six and twelve months of the individual fund advertisement. Moreover, the Fama-French α of the individually advertised funds is significantly higher than the average of the equity funds. Generally, fund investors make the right decisions to choose the individually advertised funds. The raw return of the individually advertised funds is higher than the market return, and their risk-adjusted return is higher than the average of the equity funds.

Panel B of Table 11 aims to observe the abnormal return of familiably advertised funds within one year of the family advertisement. The statistics in Panel B show that the abnormal returns of the familiably advertised funds are significantly positive after six or twelve months of the advertisement, regardless of which benchmark they are measured by. This result demonstrates that the family advertisement is information contented. Investors make the right decision if they choose the familiably advertised funds. The results of Tables 11 demonstrate that both the individually and familiably advertised funds are worthy of investing in. However, the abnormal return after six and twelve months of the advertisement is better for familiably advertised funds than for individually advertised funds.

Table 11 The Abnormal Returns of Individually and Familiably Advertised Funds within One Year of Advertisement Release

Panel A Individually Advertised Funds			
	$R_i - R_m$	$R_i - R_a$	Fama-French α
abnormal return (three months)	1.2%	0.2%	—
	(1.52)	(0.25)	
abnormal return (six months)	3.0%	0.4%	—
	(2.86)**	(0.37)	
abnormal return (twelve months)	6.4%	1.4%	0.2%
	(3.84)**	(1.03)	(1.92)**
Panel B Familiably Advertised Funds			
	$R_f - R_m$	$R_f - R_a$	F(Fama-French α)
abnormal return (three months)	-0.2%	-0.2%	—
	(-0.62)	(-0.77)	
abnormal return (six months)	5.2%	1.3%	—
	(8.96)**	(3.09)**	
abnormal return (twelve months)	9.3%	2.8%	0.2%
	(10.09)**	(4.01)**	(3.71)**

Notes: R_i is the raw return of the advertised funds. R_m is the stock market return. R_a is the average raw return of the equity funds in Taiwan. Fama-French α is the Fama-French α of the individually advertised funds minuses the average of the equity funds in Taiwan. $R_f - R_m$ is the raw return of the familiably advertised funds minus the stock market return. $R_f - R_a$ is the raw return of the familiably advertised funds minus the average raw return of the equity funds in Taiwan. F (Fama-French α) is the average Fama-French α of familiably advertised funds minus the average of the equity funds in Taiwan. The statistics in the parentheses is t value. *significant at 0.10 level, **significant at 0.05 level.

5. Robustness Test

This section adopts the robustness test to investigate the advertisement effect of individual fund advertisements and family advertisements, as well as to investigate the spillover effect of individual fund advertisements and star funds in the bull and bear markets.¹⁵

15 Following the definition of Fabozzi and Francis (1979), the bull (bear) market is when a stock market

5.1 The Advertisement Effect of Individual Fund and Family Advertisements in the Bull and Bear Markets

Tables 12 and 13 aim to test the advertisement effect of individual fund and family advertisements in the bull and bear markets, respectively. The results in Panels A and B of Table 12 show that investors purchase a lot of individually advertised funds both in the bull and bear markets. Regarding the net flow rate, which is important to the fund companies, in the bull market the fund investors buy more individually advertised funds but also sell them more (D_{inad} in Models 5 and 8 of Panel A), resulting in the insignificantly positive influence of individual fund advertisement on the fund net flow rate (Models 9-12 in Panel A of Table 12). In the bear market, fund investors do not redeem the individually advertised funds actively (D_{inad} in Models 5-8 of Panel B), resulting in the significantly positive influence of individual fund advertisement (D_{inad}) on the fund net flow rate (Models 9, 11, and 12). Regarding the familiarly advertised funds (D_{faad}), fund investors purchase and redeem them actively both in the bull and bear markets. Moreover, in the bull market, the family advertisement shows remarkable influence on the net flow rate of the familiarly advertised funds. In general, the individual fund advertisement is more effective in the bear market. The reason may be due to the fact that fund investors purchase individually advertised funds actively in the bear market, while they redeem them inactively. This is probably because there is no other better investment opportunity in the bear market. Meanwhile, the family advertisement is more effective in the bull market.¹⁶

In Table 13, we divide the sample period into bull and bear periods to investigate the influence of individual fund advertisements and family advertisements on the fund families. The result of Table 13 shows that adopting the family advertisement can help the fund family get more net flows than a non-advertised family either in the bull or bear market.

5.2 The Spillover Effect of Individual Fund Advertisements and Star Funds in the Bull and Bear Markets

In unreported tables, we test the spillover effect of individual fund advertisements and star funds in the bull and bear markets. The robustness tests have two consistent results: (1) There is no spillover effect of the individual fund advertisement. (2) The star funds have the

trend turns up (down) from a trough (peak) for over three months.

16 Following the reviewer's suggestion, the robustness test further deletes year 1997 from the sample period. Moreover, we redefine the star funds as the funds with performance in the top 10% of the equity funds. The results (not reported) remain qualitatively unchanged.

Table 12 Robustness Test – the Effect of Individual Fund and Family Advertisements in the Bull and Bear Markets – from the Viewpoint of Individual Funds

Models	Dependent Variables																											
	BUY _t						SELL _t						NFLOW _t															
	1	2	3	4	5	6	7	8	9	10	11	12																
	Panel A Bull Market																											
D _{inad}	0.04	0.02	0.04	0.04	0.03	0.02	0.02	0.03	0.02	0.01	0.02	0.02	0.02	0.01	0.02	0.01	0.02	0.03	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02		
	(2.47)**	(1.40)	(2.53)**	(2.38)**	(1.69)*	(1.13)	(1.63)	(1.72)*	(1.13)	(0.67)	(1.290)	(1.290)	(1.13)	(0.67)	(1.13)	(0.67)	(1.290)	(1.72)*	(1.13)	(0.67)	(1.13)	(0.67)	(1.13)	(0.67)	(1.13)	(0.81)		
D _{rad}	0.01	0.01	0.02	0.02	0.01	0.01	0.02	0.01	0.02	0.01	0.02	0.02	0.01	0.01	0.02	0.01	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
	(3.01)**	(1.80)**	(3.35)**	(2.98)**	(3.07)**	(1.68)*	(3.42)**	(2.99)**	(3.42)**	(1.64)	(2.78)**	(2.78)**	(1.64)	(2.78)**	(1.64)	(2.78)**	(1.64)	(2.99)**	(3.42)**	(1.64)	(2.78)**	(1.64)	(2.78)**	(1.64)	(2.78)**	(1.64)	(2.51)**	
D _{inad}	0.11	0.11	0.11	0.11	0.11	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	
	(2.94)**	(2.94)**	(2.94)**	(2.94)**	(2.94)**	(1.23)	(1.23)	(1.23)	(1.23)	(1.23)	(1.23)	(1.23)	(1.23)	(1.23)	(1.23)	(1.23)	(1.23)	(1.23)	(1.23)	(1.23)	(1.23)	(1.23)	(1.23)	(1.23)	(1.23)	(1.23)	(1.23)	(1.23)
D _{rad}	0.08	0.08	0.08	0.08	0.08	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
	(4.49)**	(4.49)**	(4.49)**	(4.49)**	(4.49)**	(3.88)**	(3.88)**	(3.88)**	(3.88)**	(3.88)**	(3.88)**	(3.88)**	(3.88)**	(3.88)**	(3.88)**	(3.88)**	(3.88)**	(3.88)**	(3.88)**	(3.88)**	(3.88)**	(3.88)**	(3.88)**	(3.88)**	(3.88)**	(3.88)**	(3.88)**	(3.88)**
D _{inad}				-0.02				-0.03										-0.03									0.03	
				(-0.85)				(-1.76)*										(-1.76)*									(-0.67)	
D _{rad}				0.01				0.02										0.02									-0.01	
				(0.79)				-1.81										-1.81									(-0.87)	
N	7114	7114	7116	7116	7114	7114	7116	7116	7114	7114	7116	7116	7114	7114	7116	7114	7116	7116	7116	7114	7114	7116	7116	7114	7116	7116	7116	7116
Adjusted R ²	0.419	0.422	0.396	0.396	0.234	0.235	0.209	0.209	0.235	0.234	0.209	0.209	0.235	0.234	0.209	0.235	0.209	0.209	0.235	0.234	0.209	0.209	0.235	0.234	0.209	0.209	0.265	0.265
	Panel B Bear Market																											
D _{inad}	0.08	0.01	0.08	0.07	0.02	-0.01	0.03	0.02	-0.01	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.06	
	(2.23)**	(0.96)	(2.56)**	(1.280)	(1.35)	(-0.44)	(1.34)	(0.480)	(-0.44)	(1.34)	(0.480)	(1.34)	(0.480)	(1.34)	(0.480)	(1.34)	(0.480)	(0.480)	(1.34)	(0.480)	(1.34)	(0.480)	(1.34)	(0.480)	(1.34)	(0.480)	(2.09)**	
D _{rad}	0.02	0.02	0.02	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.00	
	(2.88)**	(2.58)**	(2.67)**	(2.77)**	(3.16)**	(2.46)**	(2.46)**	(2.41)**	(2.46)**	(3.16)**	(2.46)**	(2.46)**	(2.41)**	(2.46)**	(3.16)**	(2.46)**	(2.46)**	(2.41)**	(2.46)**	(3.16)**	(2.46)**	(2.46)**	(2.46)**	(2.46)**	(2.46)**	(2.46)**	0.00	
D _{inad}	0.18	0.18	0.18	0.18	0.18	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	(0.531)	
	(3.09)**	(3.09)**	(3.09)**	(3.09)**	(3.09)**	(2.32)**	(2.32)**	(2.32)**	(2.32)**	(2.32)**	(2.32)**	(2.32)**	(2.32)**	(2.32)**	(2.32)**	(2.32)**	(2.32)**	(2.32)**	(2.32)**	(2.32)**	(2.32)**	(2.32)**	(2.32)**	(2.32)**	(2.32)**	(2.32)**	0.14	
D _{rad}	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01		
	(0.088)	(0.088)	(0.088)	(0.088)	(0.088)	(0.990)	(0.990)	(0.990)	(0.990)	(0.990)	(0.990)	(0.990)	(0.990)	(0.990)	(0.990)	(0.990)	(0.990)	(0.990)	(0.990)	(0.990)	(0.990)	(0.990)	(0.990)	(0.990)	(0.990)	(0.990)	(3.54)**	
D _{inad}				0.02				0.02										0.02									0.01	
				(-0.25)				(-0.44)										(-0.44)									(0.24)	
D _{rad}				-0.03				-0.02										-0.02									0.01	
				(-2.04)**				(-1.03)										(-1.03)									(-0.41)	
N	6840	6840	6841	6841	6840	6840	6841	6841	6840	6840	6841	6841	6840	6840	6841	6840	6841	6841	6841	6840	6840	6841	6841	6840	6841	6841	6841	
Adjusted R ²	0.262	0.264	0.256	0.256	0.114	0.114	0.089	0.089	0.114	0.114	0.089	0.089	0.114	0.114	0.089	0.089	0.089	0.089	0.114	0.114	0.089	0.089	0.114	0.114	0.089	0.114	0.116	

Notes: The sample in Table 12 is the equity funds in Taiwan. The sample period of Panel A (B) is the bull (bear) period. All regressions include the control variables mentioned in Section 3.3.1 and a constant term. The statistics in the parentheses is t value. * significant at 0.10 level, **significant at 0.05 level.

Table 13 Robustness Test-the Effect of Individual Fund and Family Advertisements in the Bull and Bear Markets – from the Viewpoint of Fund Families

Models	Dependent Variables																	
	FBUY _t						FSELL _t						FNFLOW _t					
	1	2	3	4	5	6	7	8	9	10	11	12	7	8	9	10	11	12
	Panel A Bull Market																	
DF _{inad}	0.006 (0.45)	-0.002 (-0.14)	0.008 (0.68)	-0.003 (-0.17)	0.011 (0.98)	0.004 (0.34)	0.014 (1.26)	0.001 (0.15)	0.005 (0.53)	0.004 (0.44)	0.002 (0.19)	0.001 (0.08)	0.004 (0.44)	0.001 (0.15)	0.005 (0.53)	0.004 (0.44)	0.002 (0.19)	0.001 (0.08)
DF _{faad}	0.026 (2.20)**	0.002 (0.19)	0.026 (2*.07)*	0.026 (1.74)*	0.017 (2.47)**	0.008 (0.92)	0.017 (2.16)**	0.024 (2.46)**	0.028 (2.65)**	0.006 (0.83)	0.024 (2.43)**	0.014 (1.06)	0.006 (0.83)	0.024 (2.46)**	0.028 (2.65)**	0.006 (0.83)	0.024 (2.43)**	0.014 (1.06)
DF _{inad} *Frawstar	0.047 (1.61)					0.044 (1.09)							0.004 (0.20)					
DF _{faad} *Frawstar	0.062 (2.62)**					0.023 (1.58)							0.057 (2.52)**					
DF _{inad} * Falphastar				0.029 (1.28)				0.032 (1.28)										0.002 (0.11)
DF _{faad} * Falphastar				0.000 (-0.01)				-0.022 (-1.80)*										0.029 (1.58)
N	1631	1631	1631	1631	1631	1631	1631	1631	1631	1631	1631	1631	1631	1631	1631	1631	1631	1631
Adjusted R ²	0.436	0.441	0.404	0.426	0.218	0.190	0.188	0.188	0.256	0.259	0.267	0.267	0.259	0.267	0.256	0.259	0.267	0.267
	Panel B Bear Market																	
DF _{inad}	0.019 (1.43)	-0.004 (-0.47)	0.020 (1.54)	-0.001 (-0.14)	-0.001 (-0.08)	-0.010 (-1.19)	-0.001 (-0.09)	-0.009 (-1.14)	0.017 (1.32)	0.004 (0.26)	0.015 (1.17)	0.002 (0.15)	0.004 (0.26)	-0.009 (-1.14)	0.017 (1.32)	0.004 (0.26)	0.015 (1.17)	0.002 (0.15)
DF _{faad}	0.024 (3.48)**	0.025 (2.47)**	0.023 (3.26)**	0.022 (2.09)**	0.015 (2.07)**	0.013 (1.15)	0.015 (2.00)**	0.016 (1.23)	0.009 (1.70)*	0.009 (1.01)	0.009 (1.79)*	0.003 (0.37)	0.009 (1.01)	0.016 (1.23)	0.009 (1.70)*	0.009 (1.01)	0.009 (1.79)*	0.003 (0.37)
DF _{inad} *Frawstar	-0.001 (-0.09)					0.026 (1.19)							0.001 (0.11)					
DF _{faad} *Frawstar	0.064 (2.74)**					0.004 (0.29)							0.036 (1.75)*					
DF _{inad} * Falphastar				0.004 (0.28)				-0.002 (-0.12)										0.012 (1.23)
DF _{faad} * Falphastar				0.061 (2.40)**				0.024 (1.12)										0.037 (1.64)
N	1612	1612	1612	1612	1612	1612	1612	1612	1612	1612	1612	1612	1612	1612	1612	1612	1612	1612
Adjusted R ²	0.129	0.130	0.123	0.124	0.153	0.152	0.152	0.152	0.023	0.022	0.015	0.015	0.022	0.023	0.023	0.022	0.015	0.015

Notes: The sample period in Table 13 of Panel A (B) is the bull (bear) period. All regressions include the control variables mentioned in Section 3.2.1 and a constant term. The statistics in the parentheses is t value. * significant at 0.10 level, **significant at 0.05 level.

spillover effect. However, this study finds that the other funds are redeemed more when there is the advertisement of star funds in the family in the bear market. Investors may transfer their money within the family from other funds to the star fund which is individually advertised.

6. Conclusions

When the claim that fund flows increasing with the advertisement of mutual funds is confirmed in the previous literature (e.g., Jain and Wu, 2000; Gallaher et al., 2008), there is little literature considering how the different advertisement type (individual fund advertisements and family advertisements) may have different advertisement effects on the individual funds and their families. This study therefore fills the gap of the literature by focusing on examining the advertisement effect of individual fund advertisements and family advertisements from the viewpoint of individual funds and fund families. This issue is meaningful in that the effect of these two kinds of fund advertisements may be different on the individual funds and the fund family. From the viewpoint of individual funds, the individual fund advertisement may result in conflict among the funds within the same family. The individual fund advertisement of other funds within the same family may not only consume the resources of the family but also crowd out the purchase rate of non-advertised funds in the family. From the viewpoint of the fund family, the purpose of the advertisement should be to not only raise the flow of individual funds, but also ideally increase the flow of the whole family at the same time. This study also contributes to the literature by investigating the ad strategy of fund companies regarding the performance and flow stars.

Using advertisement data in the newspaper of Taiwan from 1997 to 2007, this study finds that both individual fund and family advertisements indeed affect the fund flows, making the trading volume of the advertised funds increase. However, unless they are also star funds, the individually advertised funds only receive increased flows by themselves and do not have a spillover effect on the other funds in the same family. In addition to adopting the individual fund advertisement of raw star funds, family advertisement is a good choice for both individual funds and their families. The result demonstrates that star funds, and especially the raw return star funds, play an important role in the family. The appearance of raw return star funds either in the individual fund advertisement or the family advertisement can bring significantly positive net flow rates both for the individual funds and their families, which thus brings the star funds higher probability of being individually advertised.

However, the spillover effect of the dog funds is not significant. Thus, the dog funds in the family do not significantly affect the advertisement decision-making of fund companies.

Generally, as long as the funds are performance star (winner) funds of the equity funds or only the family star (winner) funds, their advertised probability is raised. The (family) flow star and winner funds also have the same benefit of being individually advertised. The above conclusion is consistent with the argument that if the funds confirm the benefit of the family, the family may decide to distribute the limited resources to these funds disproportionately (Chevalier and Ellison, 1997; Sirri and Tufano, 1998; Guedj and Papastaikoudi, 2004). Guedj and Papastaikoudi (2004) posit that fund managers may transmit the distorted information to the leader of the fund organization when they compete with each other to strive for the resources. For the fund industry, this will result in investing in the assets with higher volatility. Chevalier and Ellison (1997) have proven that it is due to the professional considerations of fund managers. This study demonstrates that star funds in Taiwan have a higher probability of taking up more marketing resources of their family. This may result in fund managers chasing high-risk assets to make the fund which they manage a star, implying that there exists an agency problem between fund managers and fund investors.

The result of this study has implications. Firstly, both the individually and familiarly advertised funds are worthy of investing in. The future raw return of the individually advertised funds is higher than the market return, and their risk-adjusted return is higher than the average of the equity funds. Moreover, the post abnormal returns of the familiarly advertised funds are significantly positive. This result implies that the fund advertisement is informative. Secondly, based on the viewpoint of the interests of the family, unless the individually advertised fund is a star fund, adopting the family advertisement is a win-win choice for both individual funds and the family. Finally, fund managers should devote themselves to improving the performance of the funds which they manage, because the star and winner funds have higher probability of being individually advertised. The individually advertised funds account for much more of the marketing resources than other funds within the family. Moreover, the individual funds advertised receive more flows than other funds. Thus, it is worthwhile for fund managers to try hard to have their funds be the star funds because of the higher probability of star funds receiving disproportionate marketing resources.

This study focuses on the effect of individual fund and family advertisements, the performance of individually and familiarly advertised funds after the advertisement release

and the relation between star funds and individual fund advertisements. The most noteworthy implication of this study is that the investigation of advertisement types cannot be neglected. Moreover, we find that the individually advertised probability is higher for either the star funds of all equity funds or of a particular family. This result may result in fund managers within a family competing with each other, which may further result in the high risk-chasing investing strategy of fund managers. Whether this causes the agency problems between the fund managers and investors is an issue which needs further investigation.

References

- Aaker, D. A., and Keller, K. L. 1990. Consumer evaluations of brand extensions. *Journal of Marketing*, 54 (1): 27-41.
- Baker, M., and Stein, J. C. 2004. Market liquidity as a sentiment indicator. *Journal of Financial Markets*, 7 (3): 271-299.
- Baker, M., and Wurgler, J. 2006. Investor sentiment and the cross-section of stock returns. *The Journal of Finance*, 61 (4): 1645-1680.
- Balachander, S., and Ghose, S. 2003. Reciprocal spillover effects: A strategic benefit of brand extension. *Journal of Marketing*, 67 (1): 4-13.
- Barber, B. M., Odean, T., and Zheng, L. 2005. Out of sight, out of mind: The effects of expenses on mutual fund flows. *The Journal of Business*, 78 (6): 2095-2119.
- Barberis, N., Shleifer, A., and Vishny, R. 1998. A model of investor sentiment. *Journal of Financial Economics*, 49 (3): 307-343.
- Capon, N., Fitzsimons, G. J., and Prince, R. A. 1996. An individual level analysis of the mutual fund investment decision. *Journal of Financial Services Research*, 10 (1): 59-82.
- Chang, E. C., Cheng, J. W., and Khorana, A. 2000. An examination of herding behavior in equity markets: An international perspective. *Journal of Banking and Finance*, 24 (10): 1651-1679.
- Chevalier, J., and Ellison, G. 1997. Risk taking by mutual funds as a response to incentives. *Journal of Political Economy*, 105 (6): 1167-1200.
- Daniel, K., Hirshleifer, D., and Subrahmanyam, A. 1998. Investor psychology and security market under- and overreaction. *The Journal of Finance*, 53 (6): 1839-1885.
- Devenow, A., and Welch, I. 1996. Rational herding in financial economics. *European Economic Review*, 40 (3-5): 603-615.
- Elton, E. J., Gruber, M. J., and Green, T. C. 2007. The impact of mutual fund family membership on investor risk. *Journal of Financial and Quantitative Analysis*, 42 (2): 257-277.
- Fabozzi, F. J., and Francis, J. C. 1979. Mutual fund systematic risk for bull and bear markets: An empirical examination. *The Journal of Finance*, 34 (5): 1243-1250.
- Fama, E. F., and French, K. R. 1993. Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics*, 33 (1): 3-56.
- Farnsworth, H., and Taylor, J. 2006. Evidence on the compensation of portfolio managers. *Journal of Finance Research*, 29 (3): 305-324.

- Gallaher, S., Kaniel, R., and Starks, L. T. 2005. *Madison avenue meets wall street: Mutual fund families, competition and advertising*. Working paper, University of Texas at Austin, Austin, U.S.A.
- _____. 2008. *Advertising and mutual funds: From families to individual funds*. Working paper, Southern New Hampshire University, Hooksett, U.S.A.
- Gaspar, J. M., Massa, M., and Matos, P. 2006. Favoritism in mutual fund families? Evidence on strategic cross-fund subsidization. *The Journal of Finance*, 61 (1): 73-104.
- Goetzmann, W., and Peles, N. 1997. Cognitive dissonance and mutual fund investing. *Journal of Financial Research*, 20 (2): 145-158.
- Guedj, I., and Papastaikoudi, J. 2004. *Can mutual fund families affect the performance of their funds?* Paper presented at the annual meeting of the European Financial Management Association, Basel.
- Harless, D. W., and Peterson, S. P. 1998. Investor behavior and the persistence of poorly-performing mutual funds. *Journal of Economic Behavior and Organization*, 37 (3): 257-276.
- Hong, H., and Stein, J. C. 1999. A unified theory of underreaction, momentum trading, and overreaction in asset markets. *The Journal of Finance*, 54 (6): 2143-2184.
- Huij, J., and Verbeek, M. 2007. *Spillover effect of marketing in mutual fund families*. Paper presented at the annual meeting of the European Finance Association, Ljubljana.
- Ippolito, R. A. 1992. Consumer reaction to measures of poor quality: Evidence from the mutual fund industry. *Journal of Law and Economics*, 35 (1): 45-70.
- Jain, P. C., and Wu, J. S. 2000. Truth in mutual fund advertising: Evidence on future performance and fund flows. *The Journal of Finance*, 55 (2): 937-958.
- Kempf, A., and Ruenzi, S. 2008a. Family matters: Ranking within fund families and fund inflows. *Journal of Business Finance and Accounting*, 35 (1-2): 177-199.
- _____. 2008b. Tournaments in mutual-fund families. *Review of Financial Studies*, 21 (2): 1013-1036.
- Khorana, A., and Servaes, H. 2004. *Conflicts of interest and competition in the mutual funds industry*. Working paper, London Business School, London, UK.
- Kirmani, A. 1997. Advertising repetition as a signal of quality: If it's advertised so much, something must be wrong. *Journal of Advertising*, 26 (3): 77-86.
- Kirmani, A., and Wright, P. 1989. Money talks: Perceived advertising expense and expected product quality. *Journal of Consumer Research*, 16 (3): 344-353.
- Korkeamaki, T., Puttonen, V., and Symthe, T. 2007. Advertising and mutual fund asset flows.

International Journal of Bank Marketing, 25 (7): 434-451.

- Löffler, G. 2003. *Anatomy of a performance race*. Working paper, University of Ulm, Ulm, Germany.
- Marquardt, D., and Snee, R. 1975. Ridge regression in practice. *The American Statistician*, 29 (1): 3-20.
- Massa, M. 2003. How do family strategies affect fund performance? When performance-maximization is not the only game in town. *Journal of Financial Economics*, 67 (2): 249-304.
- Nanda, V., Wang, Z. J., and Zheng, L. 2004. Family values and the star phenomenon: Strategies of mutual fund families. *The Review of Financial Studies*, 17 (3): 667-698.
- O'Neal, E. S. 2004. Purchase and redemption patterns of US equity mutual funds. *Financial Management*, 33 (1): 63-90.
- Patel, J., Zeckhauser, R., and Hendricks, D. 1991. The rationality struggle: Illustrations from financial markets. *American Economic Review*, 81 (2): 232-236.
- Reuter, J. 2005. Are IPO allocations for sale? Evidence from mutual funds. *The Journal of Finance*, 61 (5): 2289-2324.
- Shu, P. G., Yeh, Y. H., and Yamada, T. 2002. The behavior of Taiwan mutual fund investors-performance and fund flows. *Pacific-Basin Finance Journal*, 10 (5): 583-600.
- Sirri, E. R., and Tufano, P. 1993. Competition and change in the mutual fund industry. In Hayes, S. L. (Ed.), *Financial Services: Perspectives and Challenges*: 181-214. Boston, MA: Harvard Business Press.
- _____. 1998. Costly search and mutual fund flows. *The Journal of Finance*, 53 (5): 1589-1622.
- Tellis, G. J., Chandy, R. K., and Thaivanich, P. 2000. Which ad works, when, where, why and how often? Modeling the effects of direct television advertising. *Journal of Marketing Research*, 37 (2): 32-46.
- Wilcox, R. T. 2003. Bargain hunting or star gazing? Investors' preference for stock mutual funds. *Journal of Business*, 76 (4): 645-664.
- Woerheide, W. 1982. Investors' response to suggested criteria for the selection of mutual funds. *Journal of Financial and Quantitative Analysis*, 17 (1): 129-137.
- Yankow, J. J., Smythe, T. I., Jones, M. A., and Lesseig, V. P. 2006. *The impact of advertising on fund flows in alternative distribution channels*. Working paper, Furman University, Greenville, U.S.A.

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