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Individual Fund Manager Sentiment, Fund Performance and Performance Persistence

Ying-Fen Fu[1]
Department of Finance, Tainan University of Technology, Taiwan.
Email: r4893109@gmail.com

ABSTRACT: This study contributes to the literature by examining the relation among fund performance, performance persistence and individual fund manager sentiment, rather than the fund industry sentitment. This study employs the turnover rate as the proxy of individual fund manager sentiment. Using the one and two-way sorting methods and the panel data regression analysis, this study finds that the equity funds in Taiwan have performance persistence in the both short and long run. We find the funds with a higher turnover rate (i.e., higher fund managers' sentiment) perform better no matter they are in the winner or loser groups. This phenomenon persists both in the short- and long-terms, which implies the influence of sentiment on the performance is persistent. The investors should choose winner funds due to their persistence, and choose those whose turnover rate is in top 40% of the winners.

Keywords: fund performence; performence persistence; sentiment
JEL Classifications: G11; G19; G23

1. Introduction

A number of studies have examined the issues of fund performance (Ippolito, 1992; Sirri and Tufano, 1998; O'Neal, 2004; Frazzini and Lamont, 2008) and fund performance persistence (Carhart, 1997; Shu et al, 2002; Bollen and Busse, 2005; Jan and Hung, 2004), and the trading ability of fund managers plays an important role in both of these. In addition to the analysis carried out by the fund research team, the sentiment of fund managers may also affect fund performance and its persistence.

The past literature indicates that the investor sentiment affects their investing behaviors. Kahneman and Tversky (1979) find that the risk attitudes of investors are influenced by the profits or losses of their portfolios. Similarly, Lee et al. (2011) also claim that the relative losses or profits can cause over-confident fund managers to adjust their risk behaviors, which can then lead them to adjust their investment portfolios. Lynch and Musto (2003) find that the fund performance losers may adopt various methods to attract more investors in order to improve their subsequent performance. Yeh et al. (2000) define a 'high turnover rate and low return' as one of mutual fund managers' discretionary behaviors. It is thus clear in the literature that sentiment affects the investing behaviors of both fund investors and managers.

The turnover rate is often employed as a measure or proxy of changing decisions of investors (e.g., Lee and Swaminathan, 2000; Baker and Stein, 2004; and Baker and Wurgler, 2006; Canbas and Kandir, 2009). A high turnover rate reflects significant fluctuations in the moods of investors, leading them to engage in more rapid trading behavior. Lin and Ma (2012) note that the fund turnover rate is one of the key factors that affect fund managers' buying and selling decisions, and thus the magnitude of the fund turnover rate may further affect the persistence of fund performance. Grinblatt and Titman (1992) examine a sample of US funds and find that the good performance of past winners persists, while the bad performance of past losers does not. This implies that the sentiments and investing behaviors of the managers of winner and loser funds may differ. Although several studies focus on the issue of fund performance and its persistence, the influence of fund manager sentiment on the fund

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performance and its persistence has received little attention. In fact, fund performance affects not only the ranking of funds but also the compensation of fund managers (Khorana, 1996; Kempf and Ruenzi, 2008). Jayaraman et al. (2002) thus observe out that fund managers may attempt to raise the turnover rate to make up for their poor performance. Ippolito (1992) suggests that it seems unlikely that poorly performing funds will have performance persistence, as smart investors will keep the market efficient, and thus poorly performing funds have few opportunities to gain a significant market share. These earlier studies demonstrate that when examining their funds' performance rankings the sentiments of managers of winners and losers may differ, which will further affect the turnover rates of the funds they manage. This study thus employs the turnover rate as a proxy of fund manager sentiment to investigate the relation among fund manager sentiment, fund performance and fund performance persistence. The purpose of this study is to investigate whether the performance of fund winners and losers persists after considering the turnover rate, with a focus on one emerging markets, Taiwan. The past literature has shown that the investing behaviors of Taiwanese investors are somewhat different to those seen in developed countries. For example, Shu et al. (2005) demonstrate that a stronger disposition effect is seen among Taiwanese investors than those in the US. Moreover, the turnover rate of Taiwan's stock market is significantly higher than that seen in the developed countries[2].

In spite of the rapid growth of the mutual fund market in Taiwan, little is known about the relations among institutional investor sentiment, fund performance and performance persistence. This study aims to fill the gap in the literature by examining equity fund manager sentiment, fund performance and performance persistence. The results of this study will help clarify the role that the fund turnover rate plays in performance of fund winners and losers, and can thus be used as a reference for investors when they are choosing funds.

2. Literature Review

2.1 Fund Turnover Rate and Fund Performance

If a fund has a high turnover rate then this means that the fund manager engages in frequent trading within a limited time period. This may occur for a number of reasons, including the manager's better stock picking ability, better timing ability, and over-confidence, and may have positive or negative influences on fund performance.

Firstly, if a fund manager has better stock picking and timing abilities, then higher turnover rates will be followed by higher returns. Grinblatt and Titman (1989, 1994) find that fund performance and turnover rate are positively related after considering the expenses, a finding that is supported by Dahlquist et al. (2000). Wermers (2000) analyzing the performance of U.S. mutual funds from 1975 to 1994 finds that the returns of funds with high turnover rates remained positive on average. This may be because the higher costs resulting from more frequent trading are offset by the better stock picking abilities of the fund managers. The results in Kaushik and Barnhart (2009) show that the turnover rate is positively related to the risk adjusted returns of the winner funds, again revealing that the benefits of frequent trading exceed the costs, and that efforts at restructuring a portfolio tend to be due to obtaining new information, rather than irrational trading. Kacperczyk et al. (2005) and Wermers (2000) also find a positive relation between the turnover rate and excess returns. Wermers claims that this is because the fund managers are trading based on new information, and they have excellent stock picking abilities. Consistent with this, Chiu (2011) also finds a positive relation between the turnover rate and fund performance in Taiwan. Chiu suggests that a high turnover rate is the result of more active trading by fund managers, based on the work of the fund's research team.

On the other hand, several studies support the argument a high turnover rate can harm fund performance, as it leads to higher trading costs (Chan et al., 1995). A higher turnover rate coupled with worse performance demonstrates the fund managers' desire to trade flexibly but their judgments are incorrect (Yeh et al., 2000). More frequent trading may also indicate the insufficient abilities of fund managers, which leads them to sell (buy) stocks right after buying (selling) them, resulting in conflicts

[2] According to the data from TWSE, the average turnover rate of Taiwanese stock market is 240% with the highest turnover rate 384% and the lowest 120% over the years from 1991 to 2005. Meanwhile, based on the data of NYSE Fact Book, the average turnover rate of American stock market is 76% with the highest turnover rate 105% and the lowest 48% over the years from 1991 to 2005. The turnover rate of Taiwan's stock market is approximately three times higher than that of America.

between fund managers and investors. Past literature has found that the fund turnover rate is negatively related to fund performance (Malkiel, 1995; Israelsen 1998). Carhart (1997) investigating the U.S. fund finds that selling stocks frequently is harmful to fund performance. Kjetsaa (2004) investigates the relation between investing style and performance, using U.S. mutual funds as a sample, and finds that the performance of actively managed funds is not necessarily better than that of S&P500 index, due to the high costs associated with more trading. Dowen and Mann (2004) report the same conclusion. For equity funds, those that trade more frequently tend to have lower returns and are more likely to be merged (Jayaraman et al., 2002; Ding, 2006). Peterson and Riepe (2007) thus suggest that investors should avoid funds with extremely high turnover rates. Chih et al. (2007) employing data for a sample of Taiwanese mutual funds, also find that those with lower turnover rates tend to perform better in the future.

2.2 Fund Turnover Rate and Performance Persistence

Fortin et al. (1999) note that performance persistence is an important factor affecting the decisions of investors when choosing funds, and many studies have examined this issue. Carhart (1997) finds the phenomenon of short- rather than long-term persistence in winner funds, and that, in addition to high expenses and commissions, a high turnover rate is one of the reasons for this. Jan and Hung (2004) analyze data on 3,316 U.S. mutual funds for the period 1961~2000, and find that the funds that exhibited short-term performance persistence also exhibited long-term performance persistence. Bollen and Busse (2005) demonstrate that fund performance is persistent in the short run, while the performance reverses in the long run. Bernhardt and Davies (2008) also report that although past winners can attract investors' attention, they cannot maintain their performance in the long term. Bilson, Frino and Heaney (2005) examine a sample of Australian mutual funds, and find that evidence of one- and three-year performance persistence. With regard to Taiwanese mutual funds, Shu, Yeh and Yamada (2002) report the existence of both short- and long-term performance persistence. Lin and Wang (2003) also find the performance persistence of the equity funds in Taiwan.

Based on these earlier studies, we can conclude that equity funds tend to have short-term performance persistence in a number of countries, while the evidence is mixed regarding long-term persistence. In addition, well-performing funds tend to be performance persistent, while the poorly-performing funds are not. Grinblatt and Titman (1992) show that well-performing funds tend to demonstrate persistent performance, with Carhart (1997) finding that the good performance of winners can persist for five years. Similarly, Shu et al. (2002), Huij and Verbeek (2007) and Bollen and Busse (2005) also report that funds with good performance exhibit short-term performance persistence. Bollen and Busse further find that this short-term persistence exceeds the effects that would be expected with momentum trading. Kang, Lee and Lee (2011) show that the performance winners of the equity funds in Korea is more persistent than that of the losers. In contrast, Chow et al. (2011) demonstrate that performance persistence does not occur for the better performers in a sample of 193 mutual funds in Taiwan. Their results show that good performance leads to the overconfidence of fund managers or stimulates the house money effect. More specifically, the better a fund's performance in the previous period, the more frequent the trading is in the next period, thus eroding performance. Hendricks et al. (1993) demonstrate that performance persistence exists for the poorly-performing funds. Kuo and Li (2006) examine equity funds in Taiwan and find that the performance is persistent for both the best- and worst-performing funds, with the latter being most persistent.

The review of the literature presented above shows that there are mixed conclusions regarding the relation between fund performance and fund performance persistence, and that the latter is likely affected by the investing behaviors of the managers of winner and loser fund. That is, a fund's previous returns may lead to changes in the turnover rate. Brown et al. (1996) propose the tournament theory, and claim that for career reasons fund managers may adopt a high-risk strategy in the period after reporting poor performance in in order to create victory out of defeat. Kempf and Ruenzi (2008) also indicate that in the middle of the year managers of loser funds are more likely to raise their risk levels when compared with the winners. Dasgupta and Prat (2003) also note that past performance indirectly affects the fund managers' compensation, and even their job security. The managers of loser funds are thus prone to trade more frequently. Similarly, Yeh et al. (2000) examine a sample of equity funds in Taiwan for the period 1996-1998, and find that the poorly performing funds in the first half of the year will increase their risk taking behavior in the second half, although the resulting higher turnover rate will not necessarily erode their performance. However, Lin (2004) reports that due to

overconfidence the managers of well-performing funds are likely to trade more frequently than those of poorly performing funds. Peterson and Riepe (2007) indicate that a high turnover rate is good for skilled managers but bad for unskilled ones. Although the above studies all note the influence that the previous fund performance has on the fund managers' investing behaviors and thus the fund turnover rate, few of them investigate the relation between the influence of turnover rate on fund performance and its persistence. This study thus focuses on the performance and performance persistence of past winners and losers under the conditions of high or low turnover rates. Previous studies have reached no consistent conclusion about the performance persistence of equity funds in Taiwan, meaning that investors have little guidance in this respect. This study thus tries to clarify the influence that fund manager sentiment has on performance persistence by employing the fund turnover rate as a proxy of the former. It is anticipated that the results can serve as a valuable reference for investors when considering which funds to buy or sell.

3. Research Method

3.1 The Data

The sample used in this study is based on Taiwanese equity funds, with the data period running from Jan. 1997 to Dec. 2012. A total of 216 funds are included in the sample. Following the past literature, the performance is defined as excess returns which are the raw returns of each fund (Gruber, 1996; Wang and Chen, 2009) minus the average returns of all the equity funds– and the risk adjusted return, using Carhart's four-factor α (Carhart, 1997). The variables used in this study, such as fund flows and net assets were collected from the database of Taiwan Economic Journal (TEJ).

3.2 Research Design

Four methods are used in the past literature to investigate fund performance persistence, which are regression analysis (e.g., Grinblatt and Titman, 1992; Hendricks et al., 1993), the Spearman rank-order correlation coefficient test (e.g., Brown and Goetzmann, 1995; Shu et al., 2002; Chih et al., 2007), momentum method (e.g., Brown and Goetzmann, 1995; Malkiel, 1995; Chih et al., 2007) and the "winner-winner, winner-loser" methodology (e.g., Goetzmann and Ibbotson, 1994; Droms and Walker, 2001; Wang and Chen, 2009). In addition to using the panel data regression analysis, this study adopts the momentum method, which divides the funds into winners and losers based on the fund performance in the formation period. This approach forms a zero-cost portfolio by buying winners and selling losers. The funds are deemed to have performance persistence if the performance of the portfolio is significantly positive in the holding period[3].

The momentum method used in this study is based on both one- and two-way sorting (Lee et al., 2011). When observing the performance persistence of winners, we adopt the buy winners and sell all of the equity funds method, while when observing the performance persistence of losers, we apply the buy losers and sell all of the equity funds approach. The one- and two-way sorting methods are described in more detail, as follows:

(1) One-way sorting:

Firstly, we divide the funds into five groups based on their excess returns and four-factor α, and construct five portfolios which can be used as the control groups for the two-way sorting groups. The number of funds in each group is almost the same.

(2) Two-way sorting

Firstly, we divide the funds into five groups based on the funds' past performance. Each performance group has the same number of funds. Then, we independently divide the funds into five groups based on the funds' past turnover rate. Each turnover rate group has almost the same number of funds. Finally, twenty-five performance-turnover portfolios are constructed and each portfolio has almost the same number of funds.

Table I shows the descriptive statistics of the sample funds, which are divided into five groups based on the turnover rate in each month. Table I lists the average raw return, average net assets, average net flow rate, average investing weight and average expense rate of each turnover group.

[3] The winner-winner, winner-loser" method divides the funds into winners and losers based on their performance in advance. Then, this method produces a contingency table for four groups (WW, WL, LW, and LL) based on the previous- and next- period winners and losers. The last step is to calculate Odds Ratio ((WW*LL)/(WL*LW)) to measure the performance persistence of funds.

Group 5 (1) has the highest (lowest) average turnover rate. The statistics in Table I shows that there is about a 10% difference between each adjacent group from turnover groups 1 to 4, which then rises to 28% from group 4 to group 5, showing that the turnover rate of the latter is unusually high. Regarding the raw returns, groups 5 and 1 perform worse than the other three groups, while group 4 has the highest average raw return. The statistics of the other variables show that expense rate and net flow rate are positively correlated with the turnover rate, while net assets and investing weights are negatively correlated with the turnover rate. That is, the group with highest turnover rate (group 5) has the smallest net asset and investing weight, the highest expense rate and net flow rate, while the group with lowest turnover rate (group 1) has the largest net asset and investing weight, the lowest expense rate and net flow rate. Group 5 is significantly different from group 1 with regard to the turnover rate, net assets, expense rate, investing weight and net flow rate.

Table I. Descriptive Statistics

	1	2	3	4	5	high(5)-low(1)
turnover rate	8.26%	18.18%	27.71%	40.37%	68.66%	60.39%
t value	**(29.47*)**	**(37.19*)**	**(40.72*)**	**(44.05*)**	**(48.84*)**	**(51.30*)**
raw return	0.59%	0.75%	0.78%	0.78%	0.54%	-0.05%
t value	**(1.06)**	**(1.29)**	**(1.32)**	**(1.32)**	**(0.91)**	**(-0.43)**
net assets (millions,USD)	99.69	78.11	62.85	50.44	35.37	-1.87
t value	**(38.15*)**	**(33.89*)**	**(34.18*)**	**(35.05*)**	**(34.85*)**	**(-28.67*)**
expense rate	0.0020	0.0024	0.0029	0.0035	0.0048	0.0029
t value	**(91.75*)**	**(80.95*)**	**(64.03*)**	**(59.40*)**	**(58.66*)**	**(41.62*)**
investing weight	86.06%	85.92%	85.44%	85.01%	84.74%	-1.32%
t value	**(316.76*)**	**(332.18*)**	**(332.57*)**	**(307.78*)**	**(296.11*)**	**(-7.12*)**
net flow rate	-0.00035	-0.00023	-0.00019	-0.00011	0.00003	0.0004
t value	**(-9.16*)**	**(-7.84*)**	**(-7.07*)**	**(-3.92*)**	**(0.74)**	**(7.40*)**

Note: The net flow rate represents the ratio the net flow value of the funds in month t to the net asset value of the funds in month t-1. The investing weight is the ratio the amount of stock investing to the net asset value of the funds.

Generally, the turnover rate represents the trading flexibility and change in investing sentiment of the fund manager. The expense rate denotes the cost of managing a fund. Although a high turnover rate may represent the trading skills of fund managers, this also leads to greater costs, as seen in Table I. Comparing group 4 with group 5, we find the increase in the turnover rate from the former to the latter is extremely high, as is the increase in the expense rate. Moreover, the statistics in Table I shows that group 5 has the highest turnover rate, but the lowest raw return and smallest assets. Usually, medium-sized or large funds are usually managed by senior or winner managers, while small funds are usually managed by more junior managers. The managers of small funds may try to increase returns by raising the trading frequency, but this will increase the managing costs. On the other hand, group 1 has the largest scale and the lowest expense rate due to economies of scale. However, the funds in group 1 do not have very good performance, and this may be due to the use of an inflexible trading strategy. Generally, the funds with an extremely high or low turnover rate performed worse than the other funds.

4. Empirical Results

4.1 Fund Performance Persistence

This study first uses the momentum method to investigate whether Taiwanese equity funds exhibit the phenomenon of performance persistence. The results shown in Table II are those of adopting a momentum strategy. Panel A of Table II shows that, except for the cells when the formation period is sixty months, almost all the cells reveal the existence of a significant momentum effect. This means that the past winners perform better than the past losers in the following periods. The results in Table I shows that although the funds in the group with the highest turnover rate perform the worst, they obtain the largest inflows. Investors obviously adopt the reversal strategy because they believe the

performance of fund losers will improve, but the results in Table II show this is not a good decision. The Taiwanese fund market has the phenomenon of momentum even the formation period is only one month.

Table II. The Performance Persistence of Winners and Losers

		holding period						
		1	3	6	12	24	36	60
		Panel A momentum strategy (buying winners and selling losers)						
formation period	1	0.38% **(1.91*)**	1.13% **(3.25*)**	2.06% **(4.05*)**	2.70% **(3.84*)**	3.92% **(4.24*)**	4.36% **(3.25*)**	4.68% **(3.27*)**
	3	0.54% **(3.04*)**	1.71% **(5.13*)**	2.34% **(5.32*)**	2.57% **(3.69*)**	4.93% **(5.16*)**	4.70% **(3.39*)**	5.94% **(4.17*)**
	6	0.67% **(4.02*)**	1.56% **(5.37*)**	2.53% **(6.24*)**	2.76% **(4.78*)**	5.09% **(5.49*)**	3.91% **(3.55*)**	5.70% **(4.37*)**
	12	0.52% **(4.25*)**	1.03% **(4.86*)**	1.76% **(5.50*)**	2.24% **(5.50*)**	3.47% **(4.58*)**	2.99% **(3.64*)**	4.45% **(3.97*)**
	24	0.36% **(2.95*)**	0.92% **(4.32*)**	1.42% **(4.29*)**	2.25% **(4.91*)**	2.21% **(3.51*)**	2.24% **(2.96*)**	3.05% **(2.76*)**
	36	0.18% **(1.79*)**	0.52% **(2.77*)**	0.72% **(2.58*)**	0.68% **(1.92*)**	-0.28% **(-0.55)**	-1.27% **(-1.60)**	-1.37% **(-1.70*)**
	60	0.09% **(1.10)**	0.23% **(1.41)**	0.28% **(1.21)**	-0.04% **(-0.12)**	-1.55% **(-2.82*)**	-2.08% **(-3.33*)**	2.86% **(1.70*)**
		Panel B The excess return of buying winners strategy(buying winners and selling the whole equity funds)						
formation period	1	0.19% **(1.85*)**	0.52% **(2.92*)**	0.97% **(3.70*)**	1.15% **(3.20*)**	2.31% **(4.92*)**	3.12% **(4.61*)**	5.82% **(7.41*)**
	3	0.27% **(2.83*)**	0.80% **(4.51*)**	1.13% **(4.71*)**	1.15% **(3.15*)**	2.67% **(5.27*)**	3.31% **(4.65*)**	6.15% **(7.47*)**
	6	0.33% **(3.82*)**	0.70% **(4.60*)**	1.03% **(4.99*)**	0.98% **(3.23*)**	2.69% **(5.82*)**	2.82% **(4.94*)**	5.57% **(7.48*)**
	12	0.22% **(3.18*)**	0.31% **(2.45*)**	0.51% **(2.73*)**	0.76% **(3.02*)**	1.76% **(4.65*)**	2.38% **(4.78*)**	4.82% **(7.25*)**
	24	0.12% **(1.78*)**	0.24% **(1.91*)**	0.24% **(1.24)**	0.60% **(2.41*)**	1.58% **(4.45*)**	2.80% **(6.09*)**	4.71% **(7.25*)**
	36	0.07% **(1.29)**	0.18% **(1.67*)**	0.30% **(1.88*)**	0.49% **(2.48*)**	1.02% **(3.09*)**	1.44% **(2.44*)**	2.62% **(4.18*)**
	60	0.05% **(1.00)**	0.17% **(1.84*)**	0.27% **(1.96*)**	0.26% **(1.20)**	0.09% **(0.24)**	0.27% **(0.61)**	2.42% **(3.35*)**
		Panel C The excess return of buying losers strategy(buying losers and selling the whole equity funds)						
formation period	1	-0.19% **(-1.80*)**	-0.60% **(-3.24*)**	-1.09% **(-3.99*)**	-1.55% **(-3.96*)**	-1.61% **(-3.02*)**	-1.24% **(-1.64)**	1.14% **(1.39)**
	3	-0.27% **(-2.90*)**	-0.91% **(-5.17*)**	-1.21% **(-5.24*)**	-1.43% **(-3.87*)**	-2.26% **(-4.41*)**	-1.39% **(-1.89*)**	0.21% **(0.29)**
	6	-0.35% **(-3.74*)**	-0.86% **(-5.52*)**	-1.50% **(-6.71*)**	-1.78% **(-5.63*)**	-2.39% **(-4.62*)**	-1.10% **(-1.73*)**	-0.13% **(-0.17)**
	12	-0.30% **(-4.40*)**	-0.72% **(-6.07*)**	-1.25% **(-6.90*)**	-1.48% **(-6.36*)**	-1.71% **(-3.52*)**	-0.61% **(-1.32)**	0.36% **(0.57)**
	24	-0.24% **(-3.41*)**	-0.68% **(-6.21*)**	-1.18% **(-6.98*)**	-1.64% **(-5.77*)**	-0.62% **(-1.63)**	0.56% **(1.15)**	1.66% **(2.36*)**
	36	-0.11% **(-1.70*)**	-0.34% **(-3.08*)**	-0.42% **(-2.61*)**	-0.20% **(-0.89)**	1.30% **(3.81*)**	2.70% **(5.95*)**	3.99% **(5.65*)**
	60	-0.04% **(-0.80)**	-0.06% **(-0.55)**	-0.02% **(-0.11)**	0.29% **(1.41)**	1.63% **(4.69*)**	2.35% **(4.56*)**	-0.44% **(-0.38)**

Note：*represents 5% significance level

Panels B and C of Table II further analyze performance persistence of winners and losers. Because the winner (loser) group performs better (worse) than the average of the whole equity funds in the formation period, we can investigate the performance persistence by buying winners (losers) and selling all of the equity funds. If the following performance (the performance in the holding period) of winners (losers) is better (worse) than that of the average of the equity funds, the performance persists. The results in Panel B (Panel C) of Table II show the performance of buying winners (losers) and selling all of the equity funds, which represents the subsequent excess return of the winners (losers). The results in Panel B show that the performance of buying winners within the following 60 months is significantly better than the average of the equity funds in every formation period. That is, winner funds exhibit performance persistence both in the short and long terms. These findings are not consistent with the results of Chow, Lin, Lin and Weng (2011), which shows that well-performing funds in Taiwan do not have persistent performance. However, our results are consistent with Shu, Yeh and Yamada (2002), which finds that funds in Taiwan are performance persistent in the short and long run. The statistics in Panel C show that the excess returns of losers are mostly significantly negative, except for some cells when the formation and holding periods are longer than 24 months. That is, in the short and middle run the losers' performance is persistent, while in the long run the performance reverses. Generally, except for the losers in the long run, the fund performance is persistent for both winners and losers, with the winners (losers) continuing to perform better (worse) than the average of all the equity funds. We further investigate the performance persistence by adopting the risk adjusted returns (Carhart's four factor α) of winners and losers as the performance proxy in Table III. In line with the findings in Table II, the results in Table III reveal the persistence of fund performance especially for losers.

4.2 The Turnover Rate and the Funds' Performance Persistence

The results in Tables 2 and 3 show that the performance persistence exists among Taiwanese equity funds. Table IV will further investigate whether this persistence is related with the sentiment of fund managers[4]. In line with past literature (Lee and Swaminathan, 2000; Baker and Stein, 2004; Baker and Wurgler, 2006; Canbas and Kandir, 2009), this study adopts the turnover rate as the sentiment proxy of fund managers to investigate whether the extent of performance persistence differs along with the variations in sentiment (i.e., turnover rate) of fund managers. In Table IV, we separate the funds into five groups according to their turnover rates to observe the excess return of the turnover winner (group 5), turnover loser (group 1), and other turnover groups. The excess return in the next month (t_1) shows the trend of a higher turnover rate accompanied by better performance. However, the excess return drops in group 5 (the one with the highest turnover rate). That is, the performance rank of group 4 is number 1 and that of group 5 is number 2. The group with the lowest turnover rate has the worst performance. This remains in the next 60 months, which implies that the turnover rate affects the fund performance and the influence is persistent. Regarding the accumulated performance difference between groups 5 and 1, the statistics are significantly positive in the next 1, 3, 6, 12, 24, 36, and 60 months. This result demonstrates that the fund managers' sentiment (turnover rate) is markedly related to fund performance persistence. Peterson and Riepe (2007) indicate that investors should avoid funds with extremely high turnover rates. The result of Table IV shows that choosing the group funds with second highest turnover rate (group 4) is the best decision. Table V adopts the Carhart's

[4] Tsai, Wang and Chang (2009) suggest that some sentiment indicators that past literature has adopted are suitable for investigating the relation between the changes in sentiment and the stock market in Taiwan. They include the market turnover rate, IPO returns, number of IPOs, new share ratio, the number of listed companies with an increasing stock price divided by the number of listed companies with a decreasing stock price, ARMS indicators, the number of listed companies with a new high stock price divided by the number of listed companies with a breaking new low stock price, the change ratio of trading on margins, the change ratio of margin lending on securities, and short selling ratios. Li and Ley (2008) adopt the ratio of the net buy and sell amount over the trading amount of three institutional investors in Taiwan to measure the optimistic and pessimistic sentiment of institutional investors. The above indicators are macro indicators. For example, the ratio of the net buy and sell amount over the trading amount of three institutional investors is used to measure the optimism and pessimism of all fund companies. However, this indicator cannot measure the sentiment of individual fund managers. This study thus only employs the average of the buying and selling turnover rates as the proxy of the sentiment of individual fund managers.

four factor α to measure the accumulated performance. The results in Table V are consistent with those of Table IV, which are also generally consistent with Rouwenhorst (1998), which indicates that the turnover rate of performance winners is higher than that of losers in most emerging markets. The results are also in line with the findings of Glaser and Weber (2007), which show that German winners, funds with a higher turnover rate produces higher returns than those with a low turnover rate.

Table III. The Momentum Strategy on Winners and Losers (risk adjusted return – four factor α)

		holding period				
		12	24	36	48	60
Panel A momentum strategy (buying winners and selling losers)						
formation period	12	0.33% **(8.72*)**	0.19% **(8.05*)**	0.14% **(7.01*)**	0.10% **(6.00*)**	0.09% **(5.88*)**
	24	0.19% **(6.32*)**	0.13% **(7.52*)**	0.08% **(5.25*)**	0.06% **(4.24*)**	0.06% **(6.36*)**
	36	0.17% **(6.07*)**	0.06% **(3.16*)**	0.05% **(3.66*)**	0.05% **(4.44*)**	0.05% **(6.15*)**
	48	0.09% **(3.17*)**	0.05% **(3.50*)**	0.03% **(2.65*)**	0.04% **(3.36*)**	0.05% **(5.29*)**
	60	0.12% **(5.02*)**	0.05% **(3.77*)**	0.03% **(3.18*)**	0.02% **(2.88*)**	0.02% **(2.77*)**
Panel B The excess adjusted return of buying winners strategy(buying winners and selling the whole equity funds)						
formation period	12	0.13% **(5.44*)**	0.05% **(3.86*)**	0.04% **(3.60*)**	0.02% **(1.91*)**	0.02% **(2.99*)**
	24	0.03% **(1.36)**	0.03% **(2.38*)**	0.01% **(1.59)**	0.00% **(0.48)**	0.02% **(2.85*)**
	36	0.04% **(2.65*)**	-0.01% **(-0.65)**	-0.01% **(-0.93)**	0.00% **(-0.62)**	0.01% **(1.54)**
	48	0.00% **(0.23)**	0.00% **(0.46)**	0.00% **(-0.37)**	0.00% **(0.61)**	0.01% **(2.08*)**
	60	-0.02% **(-1.12)**	0.00% **(-0.39)**	0.00% **(-0.59)**	0.00% **(-0.16)**	0.00% **(-0.53)**
Panel C The excess adjusted return of buying losers strategy(buying losers and selling the whole equity funds)						
formation period	12	-0.20% **(-8.29*)**	-0.14% **(-8.84*)**	-0.11% **(-7.84*)**	-0.08% **(-7.72*)**	-0.06% **(-7.03*)**
	24	-0.16% **(-7.46*)**	-0.10% **(-8.10*)**	-0.06% **(-6.25*)**	-0.05% **(-5.77*)**	-0.05% **(-6.78*)**
	36	-0.13% **(-6.16*)**	-0.06% **(-4.64*)**	-0.06% **(-5.43*)**	-0.05% **(-6.02*)**	-0.04% **(-6.39*)**
	48	-0.09% **(-3.62*)**	-0.05% **(-3.45*)**	-0.04% **(-2.96*)**	-0.04% **(-3.53*)**	-0.04% **(-4.66*)**
	60	-0.13% **(-5.25*)**	-0.05% **(-3.30*)**	-0.03% **(-2.93*)**	-0.03% **(-2.88*)**	-0.02% **(-3.11*)**

Note：*represents 5% significance level

The results in Tables 4 and 5 show that for the whole sample of equity funds those with a lower turnover rate perform worse. Whether this is also found when the groups are further divided by past performance requires further investigation. This study then applies two-way sorting to the funds' past excess returns and turnover rates in Tables 6, 7, and 8 to observe the subsequent excess returns of the past performance-turnover winners and losers. In Table VI, we construct 25 groups by first dividing the funds based on their excess returns (the fund return minus the average return of all the equity funds) and then based on their turnover rates. The subsequent average excess returns are then calculated. The statistics in Table VI show that no matter in which performance group, the following excess returns of high-turnover groups (groups 4 and 5) are greater than those of the low- turnover groups (groups 1 and 2). This study further compares the subsequent performance of groups with the highest (group 5) and lowest (group 1) turnover rates. The results in Panels A, B, and C reveal that the funds with the highest

turnover rate (group 5) perform significantly better than those with the lowest turnover rate (group 1). The statistics in the far right column of Table VI also shows the same results as Table II. That is, the performance of funds persists and the subsequent returns of performance winners are better than those of performance losers.

Table IV. The Excess Return of Turnover Groups

	turnover groups	1	2	3	4	5	group5-group1
t_1	excess return	-0.20%	0.00%	0.03%	0.11%	0.06%	0.3%
	t value	(-2.53*)	(0.03)	(0.68)	(2.26*)	(0.82)	(1.89*)
t_{1-3}	excess return	-0.55%	-0.01%	0.11%	0.33%	0.21%	0.8%
	t value	(-3.97*)	(-0.16)	(1.51)	(3.73*)	(1.58)	(3.08*)
t_{1-6}	excess return	-0.85%	-0.12%	0.29%	0.67%	0.40%	1.2%
	t value	(-4.94*)	(-0.91)	(2.63*)	(4.58*)	(2.03*)	(3.85*)
t_{1-12}	excess return	-1.40%	0.02%	0.56%	1.30%	0.84%	2.2%
	t value	(-5.39*)	(0.11)	(3.13*)	(6.09*)	(3.00*)	(4.68*)
t_{1-24}	excess return	-2.31%	0.02%	1.40%	2.47%	1.65%	4.0%
	t value	(-5.84*)	(0.06)	(5.65*)	(7.88*)	(4.23*)	(5.73*)
t_{1-36}	excess return	-2.32%	0.76%	2.30%	3.88%	2.93%	5.3%
	t value	(-4.30*)	(1.79*)	(6.45*)	(7.68*)	(4.66*)	(5.23*)
t_{1-60}	excess return	-1.88%	2.04%	4.74%	6.35%	6.11%	8.0%
	t value	(-3.13*)	(2.90*)	(8.09*)	(9.15*)	(7.38*)	(6.63*)

Note: The statistics in Table IV is the excess return which is the raw return minus the average of the equity funds. The value t_1(t_{1-3}) denotes the following (three) month(s) after the dividing based on the turnover rate of previous month. Group 5 (1) is the fund group with the highest (lowest) average turnover rate.

Table V. The Risk Adjusted Returns (four factor α) of Turnover Groups

	turnover groups	1	2	3	4	5	group 5-group1
t_{1-12}	average α	0.18%	0.24%	0.26%	0.28%	0.21%	0.02%
	t value	(4.12*)	(4.74*)	(4.96*)	(5.00*)	(3.34*)	(0.57)
t_{1-24}	average α	0.24%	0.30%	0.35%	0.37%	0.34%	0.11%
	t value	(8.29*)	(11.50*)	(11.96*)	(12.14*)	(11.31*)	(4.81*)
t_{1-36}	average α	0.26%	0.31%	0.35%	0.37%	0.35%	0.09%
	t value	(13.15*)	(16.02*)	(15.93*)	(15.97*)	(14.74*)	(5.44*)
t_{1-60}	average α	0.26%	0.30%	0.34%	0.36%	0.36%	0.10%
	t value	(16.72*)	(17.44*)	(18.05*)	(18.17*)	(16.44*)	(8.10*)

Note: t_{1-12} denotes the subsequent 12 months after the grouping based on the turnover rate and so on. * 5% significance level.

Table VI presents the results of the two-way sorting method, which first divide funds based on their performance then based on their turnover rates. This method aims to examine the influence of turnover rate on the subsequent performance in the different performance groups. In Table VII, we observe the subsequent average excess returns of 25 groups by first dividing the funds into five groups based on their turnover rates and then based on their excess returns. The results show that the funds with better performance (groups 4 and 5) perform better than those with worse performance (groups 1 and 2), no matter whether their turnover rate is high or not.

This study further compares the subsequent performance of the performance winners (group 5) and losers (group 1) in each turnover rate group. The results in Panels A, B, and C of Table VII reveal that the subsequent performance of performance winners is mostly better than that of performance

losers. Moreover, the statistics in the far right column in Table VII also show similar results to those in Table IV. That is, the subsequent performance of funds in the high turnover group is better than that of those in the low turnover group[5]. Generally, the funds with a higher turnover rate (i.e., higher fund managers' sentiment) perform better no matter they are in the winner or loser groups. This phenomenon persists both in the short- and long-terms, which implies the influence of sentiment on the performance is persistent.

Table VI. The Fund Accumulated Excess Returns based on the Two-way Sorting on Excess Return and Turnover Rate

		excess return group					
		1	2	3	4	5	group5-group1
		Panel A (the subsequent month)					
turnover rate group	1	-0.49% (-2.64*)	-0.19% (-1.58)	-0.13% (-1.24)	-0.16% (-1.50)	-0.01% (-0.08)	0.48% (1.73*)
	2	-0.20% (-1.23)	-0.12% (-1.18)	0.01% (0.14)	-0.07% (-0.75)	0.07% (0.57)	0.27% (1.12)
	3	-0.01% (-0.07)	0.000% (0.00)	-0.05% (-0.57)	0.02% (0.23)	0.17% (1.19)	0.18% (0.77)
	4	-0.02% (-0.17)	-0.001% (-0.01)	0.02% (0.23)	0.12% (1.21)	0.45% (3.53*)	0.47% (2.20*)
	5	-0.23% (-2.04*)	-0.002% (-0.02)	0.16% (1.55)	0.18% (1.62)	0.24% (1.69*)	0.46% (2.41*)
	group5-group1	10.00% (1.32)	0.18% (1.14)	0.29% (1.71*)	0.34% (2.17*)	0.25% (1.47)	
		Panel B (the subsequent 12 months)					
turnover rate group	1	-2.95% (-4.42*)	-1.79% (-4.32*)	-0.97% (-2.18*)	-0.66% (-1.49)	-0.04% (-0.07)	2.91% (2.93*)
	2	-1.07% (-1.88*)	-0.94% (-2.20*)	0.15% (0.39)	-0.02% (-0.05)	0.70% (1.39)	1.77% (1.94*)
	3	-1.10% (-1.97*)	0.44% (1.01)	0.76% (1.88*)	1.57% (3.50*)	1.09% (2.21*)	2.19% (2.53*)
	4	-0.79% (-1.40)	0.65% (1.59)	0.76% (1.81*)	0.92% (2.31*)	1.59% (3.13*)	2.38% (2.68*)
	5	-1.64% (-3.34*)	0.81% (1.74*)	2.23% (4.72*)	2.74% (5.59*)	2.49% (4.34*)	4.13% (4.99*)
	group5 - group1	1.30% (1.69*)	2.59% (3.92*)	3.20% (4.36*)	3.40% (5.40*)	2.53% (3.19*)	
		Panel C(the subsequent 60 months)					
turnover rate group	1	-4.81% (-3.28*)	-2.64% (-1.92*)	-1.31% (-0.99)	-2.04% (-1.65)	2.86% (1.87*)	7.66% (3.34*)
	2	2.12% (1.44)	-1.26% (-0.97)	0.87% (0.73)	1.27% (0.90)	4.57% (3.02*)	2.45% (1.03)
	3	1.78% (1.32)	2.93% (2.10*)	4.55% (3.30*)	6.72% (4.82*)	5.94% (4.64*)	4.15% (2.11*)
	4	3.38% (2.76*)	4.22% (3.20*)	5.03% (3.72*)	6.13% (4.99*)	8.24% (5.42*)	4.85% (2.47*)
	5	2.87% (1.86*)	3.89% (2.60*)	9.31% (6.34*)	9.63% (6.69*)	7.25% (5.20*)	4.38% (2.14*)
	group5-group1	7.68% (4.04*)	6.54% (3.29*)	10.62% (4.89*)	11.67% (5.63*)	4.40% (2.02*)	

Note: * 5% significance level.

[5] The result of unlisted table is similar to that of Tables VI and VII if we employ the four-factor alpha as the performance proxy.

Table VII. The Fund Accumulated Excess Returns based on the Two-way Sorting on Turnover Rate and Excess Return

		turnover rate group					
		1	2	3	4	5	group5-group1
		Panel A (the subsequent month)					
excess return group	1	-0.39% **(-2.02*)**	-0.23% **(-1.38)**	0.05% **(0.46)**	-0.19% **(-1.41)**	-0.18% **(-1.45)**	0.21% **(0.99)**
	2	-0.12% **(-0.86)**	-0.01% **(-0.13)**	-0.04% **(-0.41)**	0.00% **(-0.05)**	-0.06% **(-0.50)**	0.06% **(0.30)**
	3	-0.34% **(-3.10*)**	-0.06% **(-0.77)**	0.02% **(0.18)**	0.04% **(0.38)**	-0.01% **(-0.11)**	0.33% **(1.97*)**
	4	-0.07% **(-0.67)**	0.10% **(1.11)**	-0.09% **(-0.98)**	0.21% **(2.04*)**	0.25% **(1.98*)**	0.32% **(1.96*)**
	5	-0.11% **(-0.80)**	0.12% **(1.03)**	0.16% **(1.32)**	0.47% **(3.55*)**	0.19% **(1.49)**	0.30% **(1.74*)**
	group5-group1	0.28% **(1.05)**	0.35% **(1.44)**	0.10% **(0.56)**	0.66% **(3.15*)**	0.38% **(2.03*)**	
		Panel B (the subsequent 12 months)					
excess return group	1	-1.98% **(-3.08*)**	-1.77% **(-3.12*)**	-0.43% **(-0.81)**	-0.36% **(-0.60)**	-1.50% **(-2.43*)**	0.48% **(0.56)**
	2	-2.53% **(-4.26*)**	-0.42% **(-1.03)**	0.33% **(0.65)**	0.68% **(1.43)**	-0.17% **(-0.34)**	2.36% **(2.93*)**
	3	-1.80% **(-4.58*)**	0.33% **(0.89)**	-0.15% **(-0.43)**	1.54% **(3.40*)**	1.25% **(2.37*)**	3.04% **(4.27*)**
	4	-0.81% **(-2.01*)**	1.05% **(2.39*)**	0.68% **(1.69*)**	2.50% **(5.42*)**	1.77% **(3.58*)**	2.58% **(3.68*)**
	5	-0.38% **(-0.78)**	0.47% **(0.90)**	1.85% **(3.74*)**	2.01% **(4.21*)**	2.43% **(4.06*)**	2.81% **(3.80*)**
	goup 5 - group 1	1.59% **(1.83*)**	2.25% **(2.64*)**	2.29% **(2.68*)**	2.36% **(2.92*)**	3.93% **(4.22*)**	
		Panel C(the subsequent 60 months)					
excess return group	1	-3.20% **(-2.25*)**	0.19% **(0.13)**	1.82% **(1.27)**	3.56% **(2.50*)**	2.38% **(1.50)**	5.58% **(2.66*)**
	2	-3.15% **(-2.17*)**	0.89% **(0.78)**	5.67% **(4.04*)**	4.28% **(2.97*)**	3.73% **(2.48*)**	6.88% **(3.21*)**
	3	-2.92% **(-2.25*)**	0.93% **(0.72)**	2.75% **(2.09*)**	7.47% **(5.23*)**	6.02% **(3.72*)**	8.95% **(4.20*)**
	4	-1.03% **(-0.84)**	3.06% **(2.18*)**	6.00% **(3.78*)**	8.61% **(5.66*)**	7.72% **(5.43*)**	8.76% **(4.27*)**
	5	-0.10% **(-0.07)**	4.27% **(3.16*)**	6.49% **(5.17*)**	7.81% **(5.94*)**	9.22% **(6.24*)**	9.32% **(4.29*)**
	group 5- group 1	3.10% **(1.60)**	4.08% **(2.02*)**	4.67% **(2.35*)**	4.24% **(2.09*)**	6.84% **(3.17*)**	

Note: * 5% significance level.

Table VIII further investigates the relation among the fund managers' sentiment (fund turnover rate), fund performance and its persistence by adopting panel data regression analysis. In Table VIII, we also employ other variables which affect fund performance as the control variables, and these are fund net flows (Gruber, 1996; Frazzini and Lamont, 2008), fund risk (Treynor, 1965; Sharpe, 1966), fund size (Gharghori et al., 2007; Petajisto, 2013), expense rate (Jan and Hung, 2003; Prather et al., 2004), and previous performance (Carhart, 1997; Shu et al., 2002). The explained variables are the current raw return of funds (Rawret) in Models 1, 2, and 3 and the Carhart's four factor α (Alpha4t) in Models 4, 5, and 6.

Table VIII. The Fund Turnover rate and the Fund Performance Persistence

	Y：$Rawre_t$			Y：$Alpha4_t$		
Models	1.	2.	3.	4.	5.	6.
intercept	1.52	1.45	1.51	-0.03	-0.003	-0.003
	(4.33)***	(4.09)***	(4.26)***	(-4.02)***	(-4.05)***	(-4.18)***
$Netflow_{t-1}$	-0.13	0.22	0.29	-0.0005	-0.0001	-0.0001
	(-0.44)	(0.54)	(0.70)	(-1.26)	(-0.13)	(-0.18)
Std_{t-1}	-0.10	-0.09	-0.10			
	(-6.20)***	(-6.06)***	(-6.53)***			
$Lnass_{t-1}$	-0.01	-0.01	-0.01	0.0002	0.0002	0.0002
	(-0.34)	(-0.45)	(-0.53)	(5.60)***	(5.46)***	(5.61)***
$Turn_{t-1}$		-0.005	-0.01		-0.00001	-0.00001
		(0.20)	(-1.83)*		(-1.49)	(-1.98)**
Exp_{t-1}	-0.76	-0.02	0.22	-0.001	-0.0002	0.0001
	(-3.48)***	(0.97)	(0.35)	(-3.41)***	(-0.29)	(0.14)
$Rawre_{t-1}$	0.14	0.14	0.11			
	(22.30)***	(22.16)***	(11.18)***			
$TurnRaw_{t-1}$			0.08			
			(3.88)***			
$Alpha4_{t-1}$				0.809	0.81	0.78
				(210.64)***	(210.93)***	(156.95)***
$TurnAlpha_{t-1}$						0.11
						(10.86)***
N	22869	22869	22869	22869	22869	22869
Ajusted R^2	0.009	0.009	0.009	0.649	0.648	0.650

Note: The regression models in Table VIII aim to examine the influence of fund previous performance and previous turnover rate on the current fund performance. The explained variable is the current raw return of funds ($Rawre_t$) in Models 1, 2, and 3 and is the four factor α ($Alpha4_t$) in Models 4, 5, and 6. The definition of the explainable variables is as follows: $Netflow_{t-1}$ represents the previous net flow rate. Std_{t-1} is the standard deviation of the raw return of the funds, which is the proxy of fund risk. $Lnass_{t-1}$ is the nature log of net assets of funds in the previous period. $Turn_{t-1}$ is the previous turnover rate which represents the sentiment of fund managers' sentiment. Exp_{t-1} denotes the previous expense rate and $Rawre_{t-1}$ is the previous raw return of funds. $TurnRaw_{t-1}$ is the interaction of previous turnover rate and the raw return of funds. $Alpha4_{t-1}$ is the four factor α. $TurnAlpha_{t-1}$ is the interaction of previous turnover rate and four factor α.

The results for Model 1 show that the coefficient of the previous funds' raw return (Rawret-1) is significantly positive, which proves the performance persistence of Taiwanese equity funds. We further add the previous turnover rate (Turnt-1) into Model 2. The coefficient of Rawret-1 remains significantly positive, while the coefficient of Turnt-1 is insignificant in Model 2. The intersection of the fund turnover rate and the previous raw return is added into Model 3, with the aim of observing whether the interaction between previous performance and fund managers' sentiment affects the subsequent performance of funds. The coefficient of $TurnRaw_{t-1}$ in Model 3 is significantly positive, which represents the significantly positive influence of winner funds with a high turnover rate on the subsequent performance of funds. This result is consistent with that in Tables 4~7. The results for Models 4, 5, and 6 show that the previous risk adjusted return ($Alpha4_{t-1}$) has a noticeable influence on the current risk adjusted return. However, the turnover rate does not have a positive influence on Carhart's four factor α, and the coefficient of $Turn_{t-1}$ even becomes significantly negative in model 6. The results for Model 6 are consistent with Fisher and Statman (2000) and Chou, Chang and Lin (2007). Fisher and Statman note that the sentiment of institutional investors is significantly and negatively related with the subsequent stock returns. Chou, Chang and Lin employ the market turnover rate to predict the subsequent market return. Their results show that the high sentiment of investors (high market turnover rate) has a remarkably negative influence on the market return in the next period. From the viewpoint of individual fund managers and their performances, this study further finds that when the high turnover rate interact with the high previous risk adjusted return, the current performance of the funds is significantly and positively influenced by this. Jayaraman, Khorana and Nelling (2002) indicate that fund managers may attempt to raise the turnover rate to make up for their

poor performance. However, our result shows that the strategy of raising turnover rate is effective only in the case of good performance. The result of Table VIII proves that a high turnover rate is good for skilled managers, which is consistent with Peterson and Riepe (2007).

5. Conclusions and Suggestions

Several studies have investigated the relation between investor sentiment and the stock prices (e.g., Fisher and Statman, 2000; Baker and Wurgler, 2006; Antoniou et al., 2009). Although the sentiment of institutional investors has also attracted attention (Brown and Cliff, 2004), most studies investigating this examine institutional investors as organizations (Fisher and Statman, 2000; Li and Ley, 2008), rather than as individual fund managers. One contribution of this study is that it addresses this gap in the literature by examining the sentiment of individual fund managers. This study thus adopts the fund turnover rate as the proxy of the fund managers' sentiment to investigate the relation among the individual fund managers' sentiment, fund performance and fund performance persistence.

Using the equity funds in Taiwan from 1997 to 2012, this study finds the phenomenon of performance persistence in the both short and long run. If we divide the funds into performance winners and losers, we find both show performance persistence in the short and medium terms. However, the performance of losers reverses in the long run. If we divide the funds into five groups according to the turnover rate, we find the excess return gets higher along with the turnover rate. The difference in accumulated returns between funds in the groups with the highest and lowest turnover rates is significantly positive in the following 1~3, 1~6, 1~12, 1~24, 1~36 and 1~60 months. The results of two-way sorting indicate that the group with the highest turnover rate performs well, although its performance is worse than that of the group with the second highest turnover. This may be because more frequent trading results in the higher costs, which erode the fund performance. The two-way sorting methodology and the multiple regression analysis both lead to the same conclusions. That is, the performance–turnover winners have better subsequent performance.

This study contributes to the literature by helping fund investors to clarify the role that fund manager sentiment (fund turnover rate) plays in fund performance and performance persistence. The results of this study have two implications. Firstly, for fund investors, the winner funds are performance persistent, and thus they should examine these first, and choose those whose turnover rate is in top 40% of the winners. Secondly, for fund managers, although those with a high sentiment (turnover rate) may make good investing decisions and thus have good subsequent performance, funds with the second highest turnover rate actually have the best subsequent performance. This may be because the returns are partly offset by the high costs resulting from more frequent trading. One suggestion for fund managers is thus to try and avoid overconfidence and overinvesting, even when they are running very well performing funds.

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