C-L Peng, M-L Chen*, S-D Shyu and A-P Wei

When is money likely to be smart? Evidence from mutual fund investors in Taiwan

ABSTRACT

Past behavioural research has provided evidence that fund investors have the ability to predict fund performance; this is called the smart money effect. In this study we examine whether the smart money effect exists in the Taiwanese mutual fund market. Specifically, we investigate whether the smart money effect appears across UP and DOWN markets and whether this effect persists over time. Consistent with the literature, we find that the smart money effect exists over our sample period. Moreover, after categorizing the market states as either UP or DOWN markets, our evidence shows a significant smart money effect only following DOWN markets but not following UP markets. According to behavioural theories, bad market states evoke negative affective states in investors, so negatively affected investors may rely less on the use of heuristics and become more careful and logical in their investment decisions. This paper infers that the existence of a smart money effect after DOWN markets occurs because investors in negative emotional states are likely to use more detailed information processing in their decision making.

1. INTRODUCTION*

Can mutual fund investors pick superior mutual funds? Many studies find that funds which receive net cash inflows subsequently outperform funds with net cash outflows in developed markets (Gruber, 1996; Zheng, 1999; Gharghori, Mudumba and Veeraraghavan, 2007; Keswani and Stolin, 2008) and emerging markets (Vicente, Ortiz and Andreu, 2008). This phenomenon implies that investors have selection ability, referred to as the "*smart money*" effect (Zheng, 1999). However, contrary evidence comes from Sapp and Tiwari (2004), who show that the smart money effect does not hold in the U.S. after controlling for the stock return momentum, indicating that investors are instead naively chasing recently high-performing funds and only incidentally benefiting from mutual funds' momentum strategy.[1]

Recently, Keswani and Stolin (2008) re-examine Sapp and Tiwari's research with U.K. and U.S. data, finding that the smart money effect is robust after controlling for the stock return momentum. What gives rise to the conflicting evidence from the U.S.? A possible explanation for the different results of the U.S. smart money effect between Sapp and Tiwari (2004) and Keswani and Stolin (2008) is the use of different sample periods and sample frequency. Sapp and Tiwari use quarterly fund flows data from 1970 to 2000, while Keswani and Stolin's monthly data are taken from 1992 to 2000. The sample period of the former is longer and includes significant market movements while the latter is in an up-trend market. Their different findings seem to demonstrate that the existence of smart money effect may depend on market states. However, there is little empirical research on the smart money effect by considering different states of the stock market. Therefore, the main objective of this paper is to investigate whether changes in market state affect the smart money effect in mutual funds.

How to measure the smart money effect in mutual fund markets? Past studies (Sapp and Tiwari, 2004; Gharghori *et al.*, 2007; Keswani and Stolin, 2008) investigate whether the smart money effect exists by examining the difference between the Carhart's (1997) four-factor alphas of the positive and the negative cash flow fund portfolios. What is the implication of Carhart's four-factor alpha? Carhart (1997, p. 61) notes: "*The four-factor model is consistent with a model of equilibrium with four risk factors. Alternately, it may be interpreted as a performance attribution model, where the coefficients and premia on the factor-mimicking portfolios indicate the proportion of mean return attributable to four elementary strategies: high versus low beta stocks, large versus small market capitalization stocks, value versus growth stocks, and momentum versus contrarian stocks. I employ the model to explain returns, and leave risk interpretations to the reader.*" Carhart's argument seems to contend that the realized fund returns must come from either those four elementary strategies returns (market tracking, size, value/growth and momentum investing strategies) or the value added by fund managers. That is, his performance attribution model could decompose a fund's excess return into five attributions, an alpha and four elementary strategies returns. Thus, alpha, a measure of the risk-adjusted return, is generally used to represent fund managers' stock selection ability in many studies (Carhart, 1997; Pástor and Stambaugh, 2002; Keswani and Stolin, 2008; Duan, Hu and McLean, 2009). The evidence that investors have the ability to invest in funds whose subsequent risk-

*Corresponding author, Miao-Ling Chen, Department of Finance, National Sun Yat-sen University, 70 Lienhai road, Kaohsiung 804, Taiwan.
Email: miaoling@mail.nsysu.edu.tw

[1]Sapp and Tiwari (2004) argue that fund managers are able to hold high concentrations of recent winner stocks (using momentum strategy), and so investors unwittingly benefit from the momentum effect in the short term. Chen, Jegadeesh and Wermers (2000) find that stocks bought by funds outperform those sold by funds. Gharghori *et al.* (2008) find that the smart money effect does not hold for Australian superannuation funds.

adjusted return is higher than those they divest implies that smart investors may know their investments' risk exposures and sources of return attributions, then allocate their money smartly.

However, it has recently been shown that the profits from common investment strategies, such as market tracking, size, value/growth, and momentum investing strategies, change with time. In other words, the attributions of fund performance vary over time. For example, Kim and Burnie (2002) document that small firms tend to perform well in a bull market but poorly in a bear market, indicating that the return of size investing strategy depends on economic conditions. Hahn, O'Neill and Swisher (2007) show that the performance of value and growth investing strategies depend on monetary policy stances, and find that value portfolios earn positive returns, whereas growth portfolios earn negative returns during expansive monetary policy regimes.[2] Carhart (1997) finds that the performance of funds is not robust for the momentum strategy. Moreover Cooper, Gutierrez and Hameed. (2004) show that momentum profits derive from the market states, suggesting that asset pricing models should be concerned with market changes because the behaviour of investors differs in UP and DOWN markets. In contrast, Griffin and Martin (2003) find that momentum profits tend to be stronger during periods of market decrease.[3] Further, Kaminsky, Lyons and Schmukler (2004) show evidence that mutual fund managers like to employ a momentum strategy during a crisis. Combined these previous studies, if investors can detect a fund manager's performance attributions, we infer that investors can make smart choices in selecting funds over time.

Studies in psychology suggest that the quality of decision-making is affected by emotional states (Finucane, Alhakami and Slovic, 2000; Dreman, Johnson, MacGregor and Slovic, 2001). Several behavioural theories in finance document that investors' investment decisions are influenced by market states (Lee, Jiang and Indro, 2002; Durand, Simon and Szimayer, 2009; Shrider, 2009; Chen *et al.*, 2010), showing that investors are optimistic (positive affective states) during a bull market but pessimistic (negative affective states) during a bear market (Tetlock, 2007). For retail investors, Daniel, Hirshleifer and Subrahmanyam (1998) find that aggregate overconfidence should be greater following market increases. Du (2002) shows that investors are hesitant to make investment decisions during bear markets due to the losses they face (loss aversion). Similarly, Durand *et al.* (2009) indicate that investors in negative affective states attempt to escape from the undesirable situation into a safe one by making logical, consistent and unbiased decisions. These studies raise the following significant research question: if investors' decision making is associated with their emotional states, then do investors still make smart choices in both UP and DOWN markets? Based on the discussion above, this paper develops our hypothesis that investors are smarter following DOWN markets than following UP markets because of their decision making process is more detailed.

In summary, this study contributes to the literature in four respects. First, by extending prior research that examines the smart money effect, this paper investigates whether the smart money effect is persistent across UP and DOWN markets according to Cooper *et al.* (2004) criteria.[4] Their approach allows us to observe whether investor behaviour differs with market states. Second, several restrictions or shortcomings of previous studies are overcome with the sample of Taiwanese domestic open-end equity funds collected in this study. Due to data availability, past literature (Ippolito, 1992; Sirri and Tufano, 1998; Sapp and Tiwari, 2004; Gharghori *et al.,* 2007) on mutual fund investor behaviour has approximated mutual fund cash flows using fund total net asset and fund returns at the quarterly frequency, rather than the exact amount of cash inflows (cash outflows) to (from) each fund at a monthly frequency.[5] This study employs data on the exact amount of monthly purchases and redemptions of funds rather than using the approximate net fund flows or using response data from a laboratory setting. Third, a capital tax is not imposed for Taiwanese or foreigners. This means that investor decision-making behaviour is simpler and is less influenced by tax issues.[6] Fourth, we further examine how long the smart money effect persists after UP and DOWN market reversals. This study

[2] Jensen and Mercer (2002) document that monetary conditions are linked with business conditions and market participants' expectations about future market states. The Fed usually employs the changes in monetary conditions to intervene in economy, and so we infer that the performance of those strategies should be associated with market states.

[3] We use the terms "UP" (DOWN) market and market increases (decreases) interchangeably throughout this article to denote stock market states.

[4] Cooper *et al.* define two market states, an UP market that is defined as when the lagged 36-month market return is non-negative and a DOWN market that is defined as when the lagged 36-month market return is negative.

[5] To our knowledge, only Keswani and Stolin (2008), have benefited from this type of data in the smart money research.

[6] Since capital gains (losses) are taxed (used to write off taxes) on a realization basis in the US, Ivković and Weisbenner (2009) document that investors have an incentive to hold on to funds with an appreciated net asset value (NAV) since purchase and to redeem funds with depreciated NAV since purchase. In Taiwan, to enhance the incentive to invest in Taiwan's capital market, a capital tax is not imposed for Taiwanese or foreigners. Investors need not pay capital gains tax when they redeem (sell) their funds (securities), and so the resulting absence of tax overhang is less likely to deter investors. Therefore, this research is not concerned with the tax overhang issue shown by Ivković and Weisbenner (2009).

extends previous studies by tracking the fund performance over 12 months to examine whether this effect persists over time.

Our evidence shows that, before controlling for the market states, the smart money effect is apparent over a sample period in the Taiwanese mutual funds market. This is consistent with previous findings that funds with large recent cash inflows subsequently perform better than those with negative net cash flows (Gharghori *et al.,* 2007; Keswani and Stolin, 2008). Further, categorizing the market states as either UP or DOWN markets, we find that mutual fund investors are significantly smart following DOWN markets but are not significantly so after UP markets. That is, the smart money effect may depend on the market conditions. According to behavioural theories, investors are likely to be overconfident following market increases (Daniel *et al.,* 1998) but are hesitant to make investment decision when a market is falling (Du, 2002). We infer that investors in negative affective states may have greater loss aversion and become more cautious in their investment decisions. For that reason, following DOWN markets, investors may pay more attention to the relative information on funds before they make investment decisions, leading investors to make their decisions more rationally and make them look smart.

The rest of this paper is organized as follows. The next section presents the methodologies of performance assessment, defines market states, and develops the smart money measures. Section 3 details the Taiwanese managed fund market and the data. A discussion of the empirical results for the smart money effect across UP and DOWN markets and the robustness checks then follow, and our paper is ended with a conclusion.

2. METHODOLOGY

2.1 Measurement of performance

The main objective of this study is to examine whether the smart money effect exists and whether this effect is seen following both UP and DOWN markets. Thus, we need to acquire the time-series risk-adjusted returns for each fund in each month. Following Carhart (1997) and Keswani and Stolin (2008), our study first runs Carhart's (1997) four-factor models using the preceding 36 (*T*) monthly returns for each fund to obtain the estimated factor loadings.[7] The Carhart's four-factor model is structured as follows:

$$R_{i,t} - RF_t = \alpha^4_{i,T} + \beta^{RMRF}_{i,T} RMRF_t + \beta^{SMB}_{i,T} SMB_t + \beta^{HML}_{i,T} HML_t + \beta^{UMD}_{i,T} UMD_t + e_{i,t} \quad t = 1,2,...,T \qquad \ldots (1)$$

where

$R_{i,t}$ is the raw return on individual fund i during month t; $R_{i,t} = (NAV_{i,t} - NAV_{i,t-1} + d_{i,t}) / NAV_{i,t-1}$, $NAV_{i,t}$ and $NAV_{i,t-1}$ represent the total net asset values for the fund i at the end of months t and t-1, respectively; and $d_{i,t}$ denotes fund i' s dividend in month t. RF_t is the risk-free interest rate in month t. $RMRF_t$ denotes the return on the market portfolio in excess of the risk-free rate. We use the average one-month-deposit-rate of the top 10 largest Taiwanese banks as our risk-free rate. SMB_t is a size-mimicking portfolio (size factor/strategy), which is the return difference between a small-cap stock portfolio and large-cap stock portfolio in month t; HML_t denotes the book-to-market mimicking portfolio (value/growth factor/strategy), which is the return difference between a high book-to-market stock portfolio and low book-to-market stock portfolio in month t; and UMD_t is a momentum mimicking portfolio (momentum factor/strategy), which is the return difference between a common-stock portfolio with high past returns and a common-stock portfolio with low past returns in month t.

Our monthly size and book-to-market mimicking portfolios are formed according to Fama and French (1993) and our monthly momentum portfolios are constructed following Carhart (1997). Specifically, for each month we rank all firms listed on the Taiwan Stock Exchange (TWSE) according to their past 11-month returns lagged by 1 month, and we then calculate the difference between the average returns of the highest and the lowest 30% of firms.[8]

Then we obtain the risk-adjusted returns for each fund i in time T+1 by subtracting a fund's monthly returns from the product of each factor realizations and its estimated loadings. The risk-adjusted returns of fund i in time T+1 are defined as:

$$\hat{\alpha}^4_{i,T+1} \equiv r_{i,T+1} - \hat{\boldsymbol{\beta}}'_{i,T} \mathbf{X}_{T+1} \qquad \ldots (2)$$

where

$\hat{\alpha}^4_{i,T+1}$ is defined as the Carhart's (1997, p. 67) risk-adjusted return of fund i in time T+1;

$r_{i,T+1} = R_{i,T+1} - RF_{T+1}$ is the monthly excess return of fund i in time T+1;

$\mathbf{X}_{T+1}$ is a vector of factor realizations $RMRF_{T+1}$, SMB_{T+1}, HML_{T+1} and UMD_{T+1} in time T+1; and

[7] Consistent with Zheng (1999) and Keswani and Stolin (2008), we require a minimum of 30 monthly returns to estimate the regression coefficients.

[8] Data is on Taiwan firms listed on the TWSE source from Taiwan Economic Journal database.

$\hat{\boldsymbol{\beta}}_{i,T}$ is estimated in Equation (1), as a vector of estimated loadings in calendar month T counts $\hat{\beta}_{i,T}^{RMRF}$, $\hat{\beta}_{i,T}^{SMB}$, $\hat{\beta}_{i,T}^{HML}$ and $\hat{\beta}_{i,T}^{UMD}$.

2.2 Net cash flows, smart money measure (SMM) and market states

Following Sapp and Tiwari (2004) and Gharghori *et al.* (2007), at the beginning of each month we group the funds into positive and negative net cash flow portfolios. The positive net cash flow portfolio includes all funds that realized net cash inflows ($NNCF_{i,t} > 0$) during the prior month (quarter), and the negative net cash flow portfolio contains all funds with net cash outflows ($NNCF_{i,t} < 0$) during the previous month (quarter). The net cash flows of fund *i* during month *t* is calculated as follows:

$$NNCF_{i,t} = \frac{Inflow_{i,t} - Outflow_{i,t}}{TNA_{i,t-1}} \quad \ldots (3)$$

where

$NNCF_{i,t}$ denotes the net cash flows of fund i during month t, $Inflow_{i,t}$ is the aggregate exact amount of the cash inflows of fund i during month t, $Outflow_{i,t}$ is the aggregate exact amount of the cash outflows of fund i during month t, and $TNA_{i,t-1}$ denotes the total net assets of fund i at the end of month t-1. A positive (negative) $NNCF_{i,t}$ means that the amount of purchases (redemptions) is more than that of redemptions (purchases), indicating that fund i experiences a positive (negative) net cash flows during month t.

In this paper the net cash flows measure (NNCF) is different from the measure used in the past studies (Zheng, 1999; Sapp and Tiwari, 2004 and Gharghori *et al.,* 2007), using the approximate net cash flows (implied flows) to measure a fund's net cash flows.[9] The approximate measure used in previous literature has two extreme assumptions: that existing investors reinvest their dividends, and that the new money is invested at the end of each month. However, since our monthly $Inflow_{i,t}$ and $Outflow_{i,t}$ data are the exact amount cash flows of fund i during time t, we do not need to add these assumptions on the net cash flows measure.

According to the hypothesis of the smart money effect that funds receiving positive net cash flows will outperform funds with negative net cash flows. We therefore define a smart money measure (SMM) to examine whether the smart money effect exists by analyzing the difference in Carhart's alpha between positive net cash flow portfolio and negative net cash flow portfolio. This result supports the existence of a smart money effect if the difference value (SMM) is positive and significant. Although short selling of mutual fund shares is not permitted in practice, Sapp and Tiwari (2004) indicate that it is instructive to look at both the performance of longing in the positive cash flow portfolio and shorting in the negative cash flow portfolio. These comparisons show the extent to which aggregate fund cash flows appear to be able to predict future performance. Furthermore, this study extends previous studies by tracking the fund performance over 1, 3, 6, 9 and 12-month horizons to investigate whether the smart money effect persists over time. We define the smart money measure as:

$$SMM_{t+K} \equiv \sum_{k=1}^{K} \Delta\hat{\alpha}_{p,t+k}^{4} \qquad K = 1,3,6,9,12 \quad \ldots (4)$$

The value of SMM is

$$\Delta\hat{\alpha}_{p,t+k}^{4} = \sum_{i}^{n}\left(w_{i,t}\hat{\alpha}_{i,t+k}^{4}\Big|_{NNCF_t>0}\right) - \sum_{j}^{m}\left(w_{j,t}\hat{\alpha}_{j,t+k}^{4}\Big|_{NNCF_t<0}\right),$$

which is the difference between positive net cash flow portfolio alpha ($\sum_{i}^{n}\left(w_{i,t}\hat{\alpha}_{i,t+k}^{4}\Big|_{NNCF_t>0}\right)$) and negative net cash flow portfolio alpha ($\sum_{j}^{m}\left(w_{j,t}\hat{\alpha}_{j,t+k}^{4}\Big|_{NNCF_t<0}\right)$) during time t to time t+K; where $w_{i,t}$ ($w_{j,t}$) denotes the portfolio weight of fund i (j) at time t. In this study, for example, if funds that receive positive net cash flows subsequently perform significantly better than whose with negative net cash flows during time t to time t+K, the smart money effect exists over period time t to time t+K.

In addition to concern with the possibility of investors' longer investment horizons behaviour, this study extends prior literature, further examining whether the smart money effect is conditioned on the market states. In line with Cooper *et al.* (2004), we define UP or DOWN market states as when the average lagged 36-month market return is non-negative or negative, respectively. In this case the expression for the *SMM* following τ-month UP or DOWN market becomes:

$$SMM_{t+K}\Big|_{MS_{[t-\tau,t]}} \equiv \sum_{k=1}^{K} \Delta\hat{\alpha}_{p,t+k}^{4}\Big|_{MS_{[t-\tau,t]}} \qquad K = 1,3,6,9,12 \quad \ldots (5)$$

where

[9] The approximate net cash flows are calculated as $NNCF_{i,t} = TNA_{i,t} - TNA_{i,t-1}(1+r_{i,t}) - MGTNA_{i,t}$, where $TNA_{i,t-1}$ denotes the total net asset of fund *i* at the end of month t-1, $r_{i,t}$ is the raw return rate of fund i during month t, and $MGTNA_{i,t}$ is the increase in the *TNA* due to mergers during month *t*.

$$\Delta\hat{\alpha}^4_{p,t+k}\Big|_{MS_{[t-\tau,t]}} = \sum_i^n \left(w_{i,t}\hat{\alpha}^4_{i,t+k}\Big|_{NNCF_t>0,MS_{[t-\tau,t]}} \right) - \sum_j^m \left(w_{j,t}\hat{\alpha}^4_{j,t+k}\Big|_{NNCF_t<0,MS_{[t-\tau,t]}} \right)$$

is the SMM value after 36-month UP or DOWN market states ($MS_{[t-\tau,t]}$); and τ =36. $SMM_{t+K}\big|_{MS_{[t-\tau,t]}}$ is the difference between positive net cash flow portfolio alpha $\sum_i^n \left(w_{i,t}\hat{\alpha}^4_{i,t+k}\Big|_{NNCF_t>0,MS_{[t-\tau,t]}} \right)$ and negative net cash flow portfolio alpha $\sum_j^m \left(w_{j,t}\hat{\alpha}^4_{j,t+k}\Big|_{NNCF_t<0,MS_{[t-\tau,t]}} \right)$ during time t to time t+K following τ -month UP or DOWN market states. For example, if the value of $SMM_{t+K}\big|_{MS_{[t-36,t]}\geq 0}$ is significantly positive, the smart money effect exists over *K*-month horizons after 36-month UP markets.

3. DATA

Table 1 presents annual summary statistics for Taiwanese managed funds over the period from January 1998 to December 2008. The Taiwanese mutual fund market developed mostly during the 1990s, and in our sample period there was an average of 37 fund corporations in each year, with a range from 28 to 40. Those corporations operated 545 mutual funds managing over NT$ 2040 billion in assets during 2007.[10] However, by the end of 2008 the scale and the number of Taiwanese mutual funds were reduced to NT$ 1571,38 billion and 520 funds, respectively, corresponding to the global financial crisis. By December 2008, there were 175 open-end equity mutual funds, managing over NT$ 238 billion. At the end of 2008, the scale of the Taiwanese domestic mutual fund market was ranked 26th globally (Investment Company Institute, 2009).

Though the market size of open-end equity mutual funds consists of only about 15% of all the funds in Taiwan, the number of investors, 898,5 thousand individual and 7,1 thousand institutional investors, comprises about 50% of all the investors in the Taiwanese mutual funds market.[11] Moreover, columns eight and ten of Table 1 show that the average annual net cash flows is about NT$ 7 billion per year (annual purchases of NT$ 227,95 billion and redemptions of NT$ 220,99 billion) for open-end equity mutual funds, indicating that the assets under management are increasing.

The mutual fund data we use are collected from the Taiwan Economic Journal (TEJ). According to earlier studies on the smart money effect, Sapp and Tiwari (2004), Gharghori *et al.* (2007) and Keswani and Stolin (2008), this study excludes the bond funds, sector funds, specialized funds, balanced funds and index funds because the characteristics of investors and their performance attributions are different from most other funds, the data therefore are all domestic open-end equity mutual funds that exist at any time between January 1998 to December 2008, we attempt to mitigate the survivorship bias from this research. The final empirical sample consists of 268 open-end equity mutual funds. Our unique data set, containing monthly data on the exact amount of money inflows (outflows) to (from) each mutual fund, allows us to perform tests that are new and insightful for investors' decisions in the Taiwanese mutual fund market. We selected the sample period from January 1998 since the TEJ provides data on the amount of purchases only from 1996 and the Carhart's four-factor loadings require three years of data.

The observations and further descriptions of our sample funds are given in Table 2. The average monthly exact amount of cash flows into funds is NT$ 106,52 million, while cash flowing out of funds is NT$ 99.77 million, indicating that the average growth on each fund's scale is NT$ 81 million each year. The average fund size is NT$ 1506,43 million. The monthly average turnover rate and expense ratio are 30,84% and 0,33%, respectively. As shown in Table 2, the average annualized raw cum-dividend returns for each fund in holding periods of 1, 3, 6, and 12 months are roughly 5,04%, 6,04%, 6,42% and 7,0%, respectively.

4. EMPIRICAL RESULTS

4.1. Are investors smart?

This paper develops the SMM_{t+K} following Sapp and Tiwari (2004) and Gharghori *et al.* (2007) to examine whether the smart money effect exists, and if so, whether it persists over time. The mean risk-adjusted returns for each series are presented in Tables 3 and 4 for the new money portfolios formed based on the sign of the *NNCF* experienced by the fund during the previous month (quarter) and hold these portfolios for 1, 3, 6, 9 and 12 months horizons.[12] The risk-adjusted returns of new money portfolios are measured using Carhart's (1997) four-factor alphas.[13]

[10] NT$ denotes "New Taiwan Dollars," and on average, $US\$1 \approx NT\$33$ during 2007 and 2008.

[11] Source: The Securities Investment and Consulting Association of Taiwan (http://www.sitca.org.tw/)

[12] The term of new money portfolio was first defined by Zheng (1999) to describe both the positive net cash flow portfolio and the negative net cash flow portfolio generally.

[13] We also use Jensen's (1967) alpha and Fama and French's (1993) three-factor alpha as measures of risk-adjusted return. However, the *SMM* results using Jensen's alpha and the three-factor alpha are not qualitatively different from those using the Carhart alpha, as reported in Tables 3, 4, 5 and 6.

Table 1: Descriptive statistics for the Taiwanese open-end mutual fund market

Year	No. of funds	No. of equity funds	No. of fund corporations	Mean TNA of funds (NT$ billion)	Mean TNA of equity funds (NT$ billion)	Mean inflow of funds (NT$ billion)	Mean inflow of equity funds (NT$ billion)	Mean outflow of funds (NT$ billion)	Mean outflow of equity funds (NT$ billion)
1998	200	124	28	745,96	236,30	2534,19	166,16	2367,48	178,07
1999	236	150	31	1059,04	294,75	3707,11	268,52	3555,68	294,31
2000	301	177	35	1096,72	191,01	4576,23	336,65	4452,94	307,26
2001	326	180	37	1777,61	250,97	5865,69	132,98	5310,57	127,39
2002	362	183	40	2181,16	222,85	7593,60	189,52	7211,76	162,58
2003	417	186	40	2666,85	256,17	7683,42	127,38	7364,16	147,87
2004	465	188	40	2481,26	246,44	7551,75	151,97	7860,44	167,19
2005	504	183	39	1963,13	252,87	5474,15	158,09	6174,06	234,56
2006	513	179	37	1976,60	255,77	4387,36	186,74	4478,27	225,64
2007	545	183	37	2040,91	437,21	4694,66	575,53	4769,15	396,54
2008	520	175	38	1571,38	238,73	4076,35	213,86	4026,72	189,53
Average	399	173	37	1778,24	262,10	5285,87	227,95	5233,75	220,99

This table reports the assets of Taiwanese managed funds. "No. of funds" and "No. of equity funds" show all eligible funds and open-end equity mutual funds, respectively. "No. of fund corporations" denotes the number of Taiwanese mutual fund corporations. "Mean TNA of funds" and "Mena TNA of equity funds" denote the average monthly total net asset (TNA) under management by all eligible funds and open-end equity mutual funds, respectively. "Mean inflow (outflow) of funds" and "Mean inflow (outflow) of equity funds" present the average monthly exact amount cash inflows (outflows) to (from) the eligible funds and open-end equity mutual funds, respectively.

Table 2: Summary statistics of Taiwanese open-end equity mutual funds

		Mean	Stdev.	Skew.	Kurt.	75th percentile	Median	25th percentile
Inflow	(NT$, million)	106,52	276,50	9,55	159,03	95,39	27,58	7,33
Outflow	(NT$, million)	99,77	180,58	5,34	48,42	108,12	40,09	12,88
Netflow	(NT$, million)	6,75	185,74	8,90	170,43	14,37	-3,08	-30,39
TNA	(NT$, million)	1506,43	1807,54	3,67	24,76	1791,77	899,86	467,56
1-month return	(%)	5,04	8,19	0,24	4,32	62,64	4,68	-50,76
3- month return	(%)	6,04	16,43	0,67	5,19	40,96	8,64	-39,20
6- month return	(%)	6,42	22,50	0,22	3,28	36,82	7,70	-26,06
12- month return	(%)	7,00	30,59	-0,06	2,58	27,88	8,90	-12,48
Turnover ratio	(%)	30,84	25,47	2,01	10,95	42,09	24,80	12,99
Expense ratio	(%)	0,33	0,16	4,63	75,93	0,39	0,29	0,22

This table shows the summary statistics of our empirical sample that includes 268 open-end equity mutual funds from January 1998 to December 2008. "Inflow", "Outflow" and "Netflow" are the monthly exact amount of purchases, redemptions and net purchases (Inflow-Outflow) each fund. "TNA" is the average total net asset of funds under management. 1-, 3-, 6- and 12- month returns are the average annualized raw return rates for the holding periods of 1, 3, 6 and 12 months. The turnover ratio is (1/2)(buy turnover + sell turnover). The expense ratio is the management fee divided by NAV (average net asset value = per account of fund TNA). All the data in this table were collected from the Taiwan Economic Journal (TEJ) database for January 1998 to December 2008.

Panel A (B) of Table 3 shows the results for value (equal) weighted new money portfolios at monthly frequency. We find that the results in Panels A and B of Table 3 are similar, showing that alpha values for the positive and negative net cash flow portfolios are significantly positive.[14] Our results show a significantly positive net cash flow portfolio alpha of 0,36 basis points per month, indicating that new investors tend to choose funds that sequentially perform well. That is, the smart money effect may be derived from purchases. Our evidence also shows that funds which experience negative net cash flows sequentially show

[14] Shu, Yeh and Yamada (2002) indicate that the Taiwanese mutual fund market is dominated by individual investors and that individual investors prefer to invest in large funds. We may examine whether individual mutual fund investors are smart by observing the *SMM* value that is constructed by a value-weighted portfolio.

significantly positive alphas, illustrating that investors may realize their gains too soon.[15]
With respect to the smart money measure (*SMM*), we find that the difference in alphas between positive net cash flow portfolios and negative net cash flow portfolios is insignificantly negative, -0,07 (0,03) basis points for SMM_{t+1} (SMM_{t+3}), indicating that funds which experience positive net cash flows in the past month do not significantly outperform than those with negative net cash flows for one (three) month(s). In addition the SMM_{t+6}, SMM_{t+9} and SMM_{t+12} values are positive and significant, suggesting that the smart money effect lasts up to 12 months. For comparison with the results of Sapp and Tiwari (2004), Gharghori *et al.* (2007) and Keswani and Stolin (2008) in developed markets and Vicente *et al.* (2008) in the Spanish market, we also examine whether the smart money effect exists in Taiwan using quarterly net cash flows, and emphasize the findings of the equal-weighted quarterly *SMMs*. Our findings, consistent with past studies (Gharghori *et al.,* 2007), showing that there is a smart money effect in the Taiwanese mutual fund market from the beginning of 1998 to the end of 2008. Moreover, in Table 4, the last row of Panels A and B show that the smart money effect persists for 12 months.

4.2. Does the smart money effect depend on the market states?

In this section, we further examine *SMMs* after UP and DOWN markets ($SMM_{t+K}\big|_{MS_{[t-\tau,t]}}$). The mean alphas for each series are presented in Table 5 for the new cash flow portfolios formed based on the sign of the *NNCF* experienced by the fund during the previous month following 36-month UP or DOWN markets and hold these portfolios for 1, 3, 6, 9 and 12 months periods. Table 5 and Table 6 contain the results for equal-weighted new money portfolios after UP and DOWN markets.

In Panel A of Table 5, for January 1998 to December 2008, following three-year UP markets the risk-adjusted returns for the positive and negative net cash flow portfolios are mostly significantly positive (except for 1-month positive cash flow portfolio alpha), indicating that mutual funds which experienced either net purchases ($NNCF_{i,t} > 0$) or redemptions ($NNCF_{i,t} < 0$) in the previous month can earn positive and significant risk-adjusted returns over the following 1, 3, 6, 9 and 12 months. Following the procedure developed by Sapp and Tiwari (2004), we next examine the difference in 1-, 3-, 6-, 9-, and 12-month alphas ($SMM_{t+K}\big|_{MS_{[t-\tau,t]}}$) between the positive net cash flow portfolios and the negative net cash flow portfolios. In Table 5, the last row of Panel A shows that $SMM_{t+K}\big|_{MS_{[t-\tau,t]}\geq 0}$ values are insignificantly positive or negative, which does not support the existence of the smart money effect following UP markets. In contrast, after 36-month DOWN markets, the risk-adjusted returns for the positive and negative net cash flow portfolios are mostly significantly positive (except for the 1-month positive net cash flow portfolio alpha and the 1 and 3-month negative net cash flow portfolio alphas), indicating that mutual funds which experienced either net purchases or redemptions in the previous month can earn positive and significant risk-adjusted returns over 12 months. In Table 5, the last row of Panel B shows significantly positive $SMM_{t+K}\big|_{MS_{[t-\tau,t]}<0}$, supporting the existence of the smart money effect following DOWN markets.

Table 6 shows similar evidence that the smart money effect significantly exists following a DOWN market using quarterly data.[16] Our evidence finds that the smart money effect is seemingly derived from the market states. Our results lead to an interesting question: Why does the smart money effect persist following a DOWN market? This study employs behavioural theories to explain this phenomenon.

4.3 The smart money effect and behavioural theory

Daniel *et al.* (1998) note that investors have a self-attribution bias, and are overconfident about their own information and overreact to it. Further, based on the argument of Daniel *et al. (1998) and* Cooper *et al.* (2004) infer that the aggregate overconfidence should be greater following market increases. Lee *et al.* (2002) indicate that investor sentiment/emotional states are affected primarily by market states, while they generally are optimistic (positive affective states) during a bull market but pessimistic (negative affective states) during a bear market (Tetlock, 2007). People in negative affective states, as opposed to people in positive affective state, rely less on the use of heuristics (Bless, Bohner, Schwarz and Strack*,* 1990).

[15] Lakonishok and Smidt (1986) show that investors may sell price-appreciated assets because they believe and expect mean reversion.

[16] Since, the results of *SMM* for the value-weighted cash flow portfolio and equal-weighted cash flow portfolio are similar, we report only on the smart money measure observed from the equal-weighted cash flow portfolio.

Table 3: Difference in alphas using monthly data

Holding period (*k*)	1	3	6	9	12
Panel A: Value weighted monthly profits					
Positive cash flow portfolio					
$\hat{\alpha}_i^4$	0,0036	0,0038	0,0041	0,0041	0,0040
(*t*-statistic)	(1,838)*	(3,691)***	(5,924)***	(6,848)***	(8,388)***
R^2	0,839	0,848	0,849	0,849	0,849
(Adj-R^2)	(0,833)	(0,842)	(0,843)	(0,843)	(0,843)
Negative cash flow portfolio					
$\hat{\alpha}_j^4$	0,0043	0,0035	0,0035	0,0033	0,0033
(*t*-statistic)	(2,082)**	(3,533)***	(4,943)***	(6,038)***	(7,350)***
R^2	0,844	0,853	0,854	0,854	0,854
(Adj-R^2)	(0,837)	(0,847)	(0,848)	(0,848)	(0,849)
Difference in risk-adjusted performance					
SMM_{t+K}	-0,0007	0,0003	0,0006	0,0008	0,0007
(*t*-statistic)	(-0,852)	(0,502)	(1,879)*	(3,070)***	(3,077)***
Panel B: Equal weighted monthly profits					
Positive cash flow portfolio					
$\hat{\alpha}_i^4$	0,0027	0,0033	0,0035	0,0034	0,0034
(*t*-statistic)	(1,393)	(3,194)***	(4,946)***	(5,695)***	(7,080)***
R^2	0,839	0,839	0,839	0,839	0,840
(Adj-R^2)	(0,832)	(0,832)	(0,833)	(0,833)	(0,833)
Negative cash flow portfolio					
$\hat{\alpha}_j^4$	0,0030	0,0028	0,0030	0,0029	0,0030
(*t*-statistic)	(1,544)	(2,826)***	(4,199)***	(5,114)***	(6,244)***
R^2	0,843	0,843	0,844	0,844	0,844
(Adj-R^2)	(0,836)	(0,836)	(0,837)	(0,837)	(0,837)
Difference in risk-adjusted performance					
SMM_{t+K}	-0,0003	0,0005	0,0005	0,0005	0,0004
(*t*-statistic)	(-0,571)	(1,284)	(1,770)*	(2,123)**	(1,948)*

For each month, we calculate a positive net cash flow portfolio alpha and negative net cash flow portfolio alpha. This table reports the average alpha value, followed by the *t*-stats for its difference from zero, where the *t*-stat is based on the time-series standard deviation. The last rows of each panel show the smart money measure (*SMM*), which is the difference between positive net cash flow portfolio alpha and negative net cash flow portfolio alpha, followed by the t-stat for the hypothesis that the difference is zero. $\sum \Delta\hat{\alpha}_{p,t+k}$ is the average *SMM* between time *t* and time t+K. Details on the coefficient estimates, including RMRF, SMB, HML and UMD, are not presented to conserve space. *Significance at 10% level. **Significance at 5% level. ***Significance at 1% level

Table 4: Difference in alphas using quarterly data

Panel A: Value weighted quarterly profits				
Holding period (*K*)	**3**	**6**	**9**	**12**
Positive cash flow portfolio				
$\hat{\alpha}_i^4$	0,0048	0,0048	0,0047	0,0047
(*t*-statistic)	(4,330)***	(6,623)***	(8,180)***	(10,569)***
R^2	0,840	0,840	0,840	0,841
(Adj-R^2)	(0,834)	(0,834)	(0,834)	(0,835)
Negative cash flow portfolio				
$\hat{\alpha}_j^4$	0,0039	0,0038	0,0036	0,0036
(*t*-statistic)	(3,665)***	(5,360)***	(6,942)***	(8,859)***
R^2	0,845	0,845	0,846	0,846
(Adj-R^2)	(0,839)	(0,839)	(0,839)	(0,840)
Difference in risk-adjusted performance				
SMM_{t+K}	0,0009	0,0010	0,0011	0,0011
(*t*-statistic)	(1,828)*	(3,229)***	(4,758)***	(4,941)***
Panel B: Equal weighted quarterly profits				
Positive cash flow portfolio				
$\hat{\alpha}_i^4$	0,0039	0,0039	0,0038	0,0037
(*t*-statistic)	(3,512)***	(5,348)***	(6,559)***	(8,351)***
R^2	0,0083	0,0083	0,0083	0,0082
(Adj-R^2)	(0,821)	(0,821)	(0,821)	(0,822)
Negative cash flow portfolio				
$\hat{\alpha}_j^4$	0,0033	0,0033	0,0032	0,0032
(*t*-statistic)	(3,077)***	(4,571)***	(5,893)***	(7,504)***
R^2	0,0083	0,0083	0,0083	0,0083
(Adj-R^2)	(0,826)	(0,826)	(0,827)	(0,827)
Difference in risk-adjusted performance				
SMM_{t+K}	0,0006	0,0006	0,0005	0,0005
(*t*-statistic)	(1,646)*	(2,299)**	(2,405)***	(2,278)**

For each quarter, we calculate a positive cash flow portfolio alpha and negative cash flow portfolio alpha. This table reports the average alpha value followed by the *t*-stats for its difference from zero, where the *t*-stat is based on the time-series standard deviation. The last rows of each panel show the smart money measure (*SMM*), which is the difference between positive net cash flow portfolio alpha and negative net cash flow portfolio alpha, followed by the t-stat for the hypothesis that the difference is zero. $\sum \Delta\hat{\alpha}_{p,t+k}$ is the average *SMM* between time *t* and time *t+K.*

Details on the coefficient estimates including *RMRF*, *SMB*, *HML* and *UMD*, are not presented to conserve space. *Significance at 10% level. **Significance at 5% level. ***Significance at 1% level

Table 5: Performance of positive vs. negative cash flow funds following 36-month UP and DOWN markets using monthly data

Panel A: Average monthly profits following 36-month UP market ($\tau = 36$)					
Holding period (*K*)	**1**	**3**	**6**	**9**	**12**
Positive cash flow portfolio					
$\hat{\alpha}_i^4$	0,0030	0,0039	0,0041	0,0039	0,0037
(*t*-statistic)	(1,255)	(2,981)***	(4,723)***	(5,398)***	(6,253)***
Negative cash flow portfolio					
$\hat{\alpha}_j^4$	0,0046	0,0043	0,0040	0,0035	0,0034
(*t*-statistic)	(1,781)*	(3,402)***	(4,541)***	(5,314)***	(6,016)***
Difference in risk-adjusted performance					
$SMM_{t+K}\big\vert_{MS_{[t-\tau,t]\geq 0}}$	-0,0016	-0,0005	-0,0001	0,0004	0,0003
(*t*-statistic)	(-1,578)	(-0,764)	(-0,147)	(1,119)	(0,943)
Panel B: Average monthly profits following 36-month DOWN market					
Positive cash flow portfolio					
$\hat{\alpha}_i^4$	0,0030	0,0037	0,0042	0,0045	0,0048
(*t*-statistic)	(1,000)	(2,155)**	(3,540)***	(4,180)***	(5,633)***
Negative cash flow portfolio					
$\hat{\alpha}_j^4$	0,0021	0,0020	0,0023	0,0029	0,0033
(*t*-statistic)	(0,706)	(1,251)	(2,075)**	(2,980)***	(4,176)***
Difference in risk-adjusted performance					
$SMM_{t+K}\big\vert_{MS_{[t-\tau,t]<0}}$	0,0009	0,0017	0,0019	0,0016	0,0015
(*t*-statistic)	(0,696)	(2,473)***	(4,241)***	(4,414)***	(4,645)***

We run a Carhart (1997) time-series regression for the preceding 36 months of excess fund returns on the excess market return (*RMRF*), the growth factor (*SMB*), the value factor (*HML*) and the momentum factor (*UMD*) for the Taiwan stock market. And we obtain the risk-adjusted returns series via Equation (2). For the sake of parsimony, we report only the difference in Carhart alphas between the positive net cash flow portfolio and the negative net cash flow portfolio. Details on the coefficient estimates are withheld to conserve space. *Significance at 10% level. **Significance at 5% level. ***Significance at 1% level

Sinclair and Mark (1995) find that negative (positive) affective states lead to systematic (nonsystematic) and more (less) detailed information processing. Isen (1987) and Durand *et al.* (2009) argue that negative affective states urge people to transform the bad situation into a good one by making logical, consistent and unbiased decisions. Thus, we infer that investors may become less confident and do not overreact to their private opinions when they face a bad economic environment. Investors in a negative affective state will tend to hesitate (Du, 2002) and loss-averse (Shrider, 2009), and make their investment decisions more logically following DOWN markets than UP markets. They thus pay more attention to the information related to funds before making investment decisions, enabling them to acquire more knowledge to detect fund managers' investment strategies following DOWN markets than UP markets. Therefore, investors in managed funds should be more rational and logical, and make effective decisions following a DOWN market. That makes them look smart.

Table 6: Performance of positive vs. negative cash flow funds following 36-month UP and DOWN markets using quarterly data

Panel A: Average quarterly profits following 36-month UP market ($\tau = 36$)				
Holding period (*K*)	**3**	**6**	**9**	**12**
Positive cash flow portfolio				
$\hat{\alpha}_i^4$	0,0045	0,0039	0,0034	0,0033
(*t*-statistic)	(3,345)***	(4,346)***	(5,516)***	(6,992)***
Negative cash flow portfolio				
$\hat{\alpha}_j^4$	0,0042	0,0037	0,0033	0,0032
(*t*-statistic)	(3,193)***	(4,313)***	(5,465)***	(6,313)***
Difference in risk-adjusted performance				
$SMM_{t+K}\big\vert_{MS_{[t-\tau,t]}\geq 0}$	0,0003	0,0002	0,0001	0,0001
(*t*-statistic)	(0,780)	(0,305)	(0,424)	(0,478)
Panel B: Average quarterly profits following 36-month DOWN market				
Positive cash flow portfolio				
$\hat{\alpha}_i^4$	0,0026	0,0040	0,0045	0,0046
(*t*-statistic)	(1,383)	(3,083)***	(3,755)***	(4,958)***
Negative cash flow portfolio				
$\hat{\alpha}_j^4$	0,0017	0,0024	0,0031	0,0034
(*t*-statistic)	(0,882)	(1,861)*	(2,800)***	(4,165)***
Difference in risk-adjusted performance				
$SMM_{t+K}\big\vert_{MS_{[t-\tau,t]}<0}$	0,0011	0,0017	0,0014	0,0012
(*t*-statistic)	(1,952)*	(4,986)***	(4,358)***	(3,279)***

We run a Carhart (1997) time-series regression over the preceding 36 months of excess fund returns on the excess market return (*RMRF*), the growth factor (*SMB*), the value factor (*HML*) and the momentum factor (*UMD*) for the Taiwan stock market. And we obtain the risk-adjusted returns series via Equation (2). For the sake of parsimony, we report only the difference in Carhart alphas between the positive net cash flow portfolio and the negative net cash flow portfolio. Details on the coefficient estimates are withheld to conserve space. *Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

4.4 Robustness

Generally, as mentioned above, mutual fund performances are generated from either Carhart's four elementary strategies returns or managers' stock-picking skill. The smart money effect indicates that investors have the ability to indentify better performing funds, that is, they can pick fund managers with good stock selection skill (Carhart's alpha). According to Fama and French (1993) and Carhart (1997), the size (SMB) and value/growth (HML) factors are formed annually at the end of every June and the momentum factor (UMD) is a one-year momentum in stock returns.[17] This study examines these variables monthly at the end of each event month, because the mean monthly turnover rate of each fund is 30,81% over our sample period (see Table 2). Therefore, those factors we used that explicitly following Fama and French (1993) in every respect may not be appropriate for measuring the mutual fund's risk-adjusted returns in Taiwan. Moreover, we also examine whether the smart money effect is clear following 12-month and 24-month UP and DOWN markets. Except for the results following 12-month UP and DOWN markets, we find that the results (not reported) are not significantly different from those reported in Tables 3, 4, 5 and 6.[18]

5. CONCLUSIONS AND IMPLICATIONS

This paper examines whether investors have the ability to identify and invest in better performing funds in the

[17] The Kenneth French Data Library provides a detailed description of the Fama-French and Carhart's four-factor model. http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/index.html

[18] Full results are available upon request.

Taiwanese mutual fund market. Moreover, we further extend previous studies to investigate the smart money effect across UP and DOWN markets and examine whether this effect persists over time.

This research shows that the smart money effect generally existed in Taiwan over the period from January 1998 to December 2008. After categorizing the market states as either UP or DOWN markets, we find that mutual fund investors are significantly smart following DOWN markets but not significantly so following UP markets. Behavioural finance theories indicate that investors in negative affective states may become more cautious in their investment decisions. In this sense, following DOWN markets investors may pay more attention to information related to funds, and become more careful and logical in making investment decisions. That may give investors better opportunities to understand their investments' risk exposures and sources of returns, so that after DOWN markets they can detect fund managers' investment strategies.

Our evidence shows that following DOWN markets mutual fund performance is predictable. We infer that investors have better selection ability following DOWN markets because investors may base their investment decisions on fund specific information. For unsophisticated investors, they may earn significantly positive investment returns by observing individual fund's cash flows following DOWN markets.

REFERENCES

Bless H. Bohner G. Schwarz N. and Strack F. 1990. Mood and persuasion: A cognitive response analysis. *Personality and Social Psychology Bulletin*, 16(2): 331-345.

Carhart MM. 1997. On persistence in mutual fund performance. *Journal of Finance*, 52(1): 57-82.

Chen HL. Jegadeesh N. and Wermers R. 2000. The value of active mutual fund management: An examination of the stockholdings and trades of fund managers. *Journal of Financial and Quantitative Analysis*, 35(3): 343-368.

Chen MC. Peng CL. Shyu SD. and Zeng JH. 2010. Market states and the effect on equity REIT returns due to changes in monetary policy stance. *Journal of Real Estate Finance and Economics*, Forthcoming.

Cooper MJ. Gutierrez RC. and Hameed A. 2004. Market states and momentum. *Journal of Finance*, 59(3): 1345-1365.

Daniel K. Hirshleifer D. and Subrahmanyam A. 1998. Investor psychology and security market under- and over-reactions. *Journal of Finance*, 53(6): 1839-1885.

Dreman D. Johnson S. MacGregor D. and Slovic P. 2001. A report on the March 2001 investor sentiment survey. *Journal of Psychology and Financial Markets*, 2(3): 126-134.

Du J. 2002. Heterogeneity in investor confidence and asset market under- and over-reaction. Working paper, *Chinese University of Hong Kong*.

Duan Y. Hu G. and McLean RD. 2009. When is stock-picking likely to be successful? Evidence from mutual funds. *Financial Analysts Journal*, 65(2): 55-66.

Durand RB. Simon M. and Szimayer A. 2009. Anger, sadness and bear markets. *Applied Financial Economics*, 19(5): 357-369.

Fama EF. and French KR. 1993. Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics*, 33(1): 3-56.

Finucane ML. Alhakami A. Slovic P. and Johnson SM. 2000. The affect heuristic in judgments of risks and benefits. *Journal of Behavioral Decision Making*, 13(1): 1-17.

Gharghori P. Mudumba S. and Veeraraghavan M. 2007. How smart is money? An investigation into investor behaviour in the Australian managed fund industry. *Pacific-Basin Finance Journal*, 15(5): 494-513.

Gharghori P. Sujoto C. and Veeraraghavan M. 2008. Are Australian investors smart? *Australian Journal of Management*, 32(3): 525-544.

Griffin JM. Ji X. and Martin JS. 2003. Momentum investing and business cycle risk: Evidence from pole to pole. *Journal of Finance*, 58(6): 2515-2547.

Gruber MJ. 1996. Another puzzle: The growth in actively managed mutual funds. *Journal of Finance*, 51(3): 783-810.

Hahn T. O'Neill M. and Swisher J. 2007. Risk-adjusted performance of value and growth strategies: The effect of monetary policy. *Journal of Investing*, 16(3): 71-82.

Investment Company Institute. 2009. Investment Company Fact Book. Available at www.ici.org

Ippolito RA. 1992. Consumer reaction to measures of poor quality: Evidence from the mutual fund industry. *Journal of Law and Economics*, 35(1): 45-70.

Isen AM. 1987. Positive affect, cognitive processes and social behavior, in *Advances in Experimental Social Psychology*, 10 (Ed.) L Berkowitz, Academic Press, New York, 203-253.

Ivković Z. and Weisbenner S. 2009. Individual investor mutual fund flows. *Journal of Financial Economics*, 92(2): 223-237.

Jensen GR. and Mercer JM. 2002. Monetary policy and the cross-section of expected stock returns. *Journal of Financial Research*, 25(1): 125-139.

Jensen MC. 1967. The performance of mutual funds in the period 1945-1964. *Journal of Finance*, 23(2): 389-416.

Kaminsky G. Lyons RK. and Schmukler SL. 2004. Managers, investors, and crises: Mutual fund strategies in emerging markets. *Journal of International Economics*, 64(1): 113-134.

Keswani A. and Stolin D. 2008. Which money is smart? Mutual fund buys and sells of individual and institutional investors. *Journal of Finance*, 63(1): 85-118.

Kim MK. and Burnie DA. 2002. The firm size effect and the economic cycle. *Journal of Financial Research*, 25(1): 111-124.

Lakonishok J. and Smidt S. 1986. Volume for winners and losers: Taxation and other motives for stock trading. *Journal of Finance*, 41(4): 951-974.

Lee WY. Jiang CX. and Indro DC. 2002. Stock market volatility, excess returns, and the role of investor sentiment. *Journal of Banking and Finance*, 26(12): 2277-2299.

Pástor L. and Stambaugh RF. 2002. Investing in equity mutual funds. *Journal of Financial Economics*, 63(3): 351-380.

Sapp T. and Tiwari A. 2004. Does stock return momentum explain the "smart money" effect? *Journal of Finance*, 59(6): 2605-2622.

Shrider DG. 2009. Running from a bear: How poor stock market performance affects the determinants of mutual fund flows. *Journal of Business Finance and Accounting*, 36(7-8): 987-1006.

Shu PG. Yeh YH. and Yamada T. 2002. The behavior of Taiwan mutual fund investors-performance and fund flows. *Pacific-Basin Finance Journal*, 10(5): 583-600.

Sinclair RC. and Mark MM. 1995. The effects of mood state on judgemental accuracy: Processing strategy as a mechanism. *Cognition and Emotion*, 9(5): 417-438.

Sirri ER. and Tufano P. 1998. Costly search and mutual fund flows. *Journal of Finance*, 53(5): 1589-1622.

Tetlock PC. 2007. Giving content to investor sentiment: The role of media in the stock market. *Journal of Finance*, 62(3): 1139-1168.

Vicente L. Ortiz C. and Andreu L. 2008. A further look at investors' abilities: "Smart money" or "smart investors". Working paper, University of Zaragoza.

Zheng L. 1999. Is money smart? A study of mutual fund investors' fund selection ability. *Journal of Finance*, 54(3): 901-933.