

Window Dressing of Chinese Securities Investment Funds

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ABSTRACT

This paper studies the presence of window dressing of Chinese securities investment funds (SIFs) and explores the causes leading to Chinese fund managers' window dressing. From our empirical study, we do not find significant window dressing behaviour manipulated by Chinese fund managers as a whole around either fiscal year-ends or quarter-ends. However, top-ranked funds, including closed-end funds and open-end funds, report an abnormal return at some year-ends. They manipulate the price of their stockholdings upwards with relatively small capital and obtain a higher pre-return at the end of year. We further analyze the empirical results by relating them to the unusual environment of Chinese stock market. Then we find that the underdevelopment of Chinese securities market; fund companies' compensation scheme and lack of related regulation are main reasons for Chinese fund managers' window dressing.

Keywords: Window dressing, Fund manager, Securities investment fund

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1. Introduction

Window dressing behaviour of fund manager is a kind of investment practice by which managers buy or sell portfolio securities at the end of a reporting period for the purpose of misleading investors as to the securities held by the fund, and the strategies engaged in by fund managers near the year- or quarter-end to improve the appearance of the fund performance before presenting it to clients or shareholders. Fund investors, especially the large sponsors typically evaluate fund managers once a quarter because performance reports and a list of the holdings in a fund are usually publicly disclosed every quarter, and the main evaluation is made at the end of a year. Based on these evaluations, assets are reallocated across fund managers. Window dressing is presumably a responsible response to these evaluations (Lakonishok, Shleifer, Thaler and Vishny (1991)). The practice of deleting duds from portfolios purchase high flying stocks at year-end is an example of 'window dressing'. These stocks are then reported as part of the fund's holdings. Another variation of window dressing is investing in stocks that don't meet the style of the mutual fund. Window dressing may make a fund appear more attractive, but it can't hide poor performance for long.

The study of fund managers' window dressing behaviour started with the appearance of behavioural finance. Window dressing behaviour was not first found in making up stocks' prices rather in accounting report decoration. Fund managers' window dressing is very similar to that happens in accounting reports in which managers make up company's accounting profit at the end of reporting period. After people found some puzzles in stock market such as January effect, many researches

consider that fund managers' window dressing behaviour is the cause January effect.

Although traditional finance theory is mainly based on EMH (Efficient Markets Hypothesis) and investor's rational decision making process, many puzzles against EMH and investor's rational decision are observed in securities market, such as stock size, momentum and January effects, behavioural finance become an alternative way to explain them. Window dressing used to be thought of as an important reason for January effect in equity markets (uncovered by Rozeff and Kinney (1976), Keim (1983)). The connection between portfolio disclosures and price shifts was proposed by Haugen and Lakonishok (1998) as an explanation of the equity-market January effect. But Sias and Starks (1997) find empirically that the January effect exhibited by previous losers is mainly concentrated in stocks with greater individual rather than institutional ownership. This finding casts some doubt on institutional portfolio window dressing as a cause of the January effect. Lee, Porter and Weaver (1998) produce similar conclusions about the viability of window dressing as a cause of the January effect in equity markets. Several studies about fund managers' window dressing behaviour find fund managers represent the adoration at year-ends (Carhart, Kaniel and Musto (2002)).

Prior research has not examined variation in calendar quarter and year performance of fund manager in emerging market. Chinese securities market is still on its early stage of development, so that lack of regulation, opaque information disclosure and irregular fund company institution are contributed to Chinese fund managers' window dressing behaviour. We will test Chinese fund managers' window

dressing behaviour and document the reasons.

The rest of the paper is organized in five sections. Section 2 reviews the related literature and introduces the background of Chinese securities market and securities fund management industry. Section 3 carries out our empirical study of Chinese securities funds' window dressing, analysing the empirical results and finding causes that lead to fund managers' window dressing. We include in section 4.

2. Literature Review

2.1. Theoretic Literature Review

The theoretic studies put more attention on the cause of window dressing. Our study considers that fund managers' window dressing behaviour is brought from agency problem, including information-motivated year-end trading and rank objective-based risk taking.

Information-motivated window dressing

In the relationship between mutual fund managers and shareholders, as in all agency relationships, problems arise due to the presence of moral hazard and the absence of costless, complete information. The investor cannot costlessly observe the resources that the manager expends in managing the portfolio. Meanwhile, investor cannot distinguish the effect of the manager's action from the observed outcome or the effect of the randomly determined state of nature. Similarly, the investor cannot costlessly observe the manager's choice of risk level. Thus, the question arises as to whether the manager's choice is optimal from the investor's perspective, and then the

potential for divergent behaviour on the part of the manager arises. That is, the manager may choose a risk level that is not compatible with the investor's wishes. So that asymmetric information between fund manager and investor make fund manager have chance to adorn their year-end holding to mislead investor.

Window dressing caused by rank objectives

Recently related theoretical papers studying relative performance evaluation in financial markets are those of Huddart (1990), Hvide (1999), and Palomino (1999) who considers a game played by several fund managers. Hvide (1999) and Palomino (1999) study the consequences of relative performance objective in the context of a single investment decision. Hvide shows that in a situation with moral hazard on both effort and risk, standard tournament rewards induce excessive risk and lack of effort. Palomino (1999) assumes that managers with different levels of information compete in oligopolistic markets and aim at maximizing their relative performance against the average performance in their category. He shows that despite the objective function being linear in performances, managers have incentives to choose overly risky strategies. Huddart (1999) considers a two-period model in which interim performances are observable. He shows that asset-based compensation schemes generated incentives for managers to invest in overly risky portfolio in the first period, and that performance fees align managers' incentives with those of investors. Das and Sundaram (1998) study another aspect of the competition in the mutual fund industry: the fee structure. They consider a model in which fund managers use fee structures to signal their higher ability. They provide conditions under which investors are better

off under an incentive fee regime than under a “fulcrum” fee regime. Gorjaev, Palomino (2000) analyzes the game played by two risk-neutral fund managers with rank objectives. They provide evidence that funds have risk incentives generated by rank objectives; risk incentives generated by rank objectives are stronger for funds ranked in the top deciles after first part of the year.

2.2. Empirical Studies Review

There is now extensive empirical evidence showing that fund managers have relative performance objectives and adapt their investment strategy in the last part of the calendar year to their performance in the early part of the year. Brown, Harlow and Starks (1996), Chevalier and Ellison (1997) and Kosky and Pontiff (1999) provide evidence that the mutual fund tournament generates incentives for managers not to act in the interest of investors. These studies assume that changes in risk in the last part of the year depend on the difference between the realized return and a benchmark return over the first part of the year.

Lakonishok, Schleifer, Thaler and Vishny (1991) examine the trading activity of pension fund managers. They find weak evidence that managers sell relatively more losers in fourth quarter than at other times of the year. But this relative selling of losers is not accompanied by increased purchases of winners that would be consistent with theorized window dressing behaviour. Since pension funds are monitored by sponsors with more sophistication than average retail investors, window dressing may be less advantageous for pension fund managers than mutual fund managers.

Musto (1997) examines yield patterns in the money markets at the turn of the year

and finds evidence consistent with window dressing by money market managers. He finds that commercial paper that matures shortly after calendar year-end exhibits higher yields than otherwise similar issues maturing shortly before the year-end. He attributes this difference in yields to the disutility money fund managers face by holding higher-risk securities through year-end disclosure periods. Musto (1999) examine a weekly database of money market fund portfolio holdings. He finds that retail money market funds tilt their allocation away from corporate securities and toward government securities around portfolio disclosures.

Sias and Starks (1997) relate common stock returns over a 15-year period to their institutional ownership. They find that the January effect found in previous losing stocks is driven primarily by the stocks with greater individual rather than institutional ownership.

Carhart, Kaniel, Musto, and Reed (2001) examine whether mutual fund managers attempt equity trades at the close of calendar quarters to temporarily inflate NAV and calendar quarter returns. They find that fund returns at calendar year-ends especially and calendar quarter ends to a lesser extent exhibit behaviour consistent with portfolio pumping. Funds significantly outperform the S&P 500 on the last day of the year (quarter) and significantly underperform on the next day.

Motivation of our work is that examine Chinese investment fund managers' window dressing behaviour and find causes that lead to their engaging in window dressing based on Chinese unusual securities market environment.

2.3. Background of Chinese Securities Market and Chinese Securities

Investment Fund

2.3.1. Development of Chinese securities market

Chinese securities market is still on its early development stage, and the related regulations, rules and laws have not been fully established yet. As a post-communist country, China has been working hard on reforming the state-owned economy into shareholding companies with more diversified ownership. However, Chinese SOEs initially only sell about one third of their equity to public investors, and allowing the state to remain control. The controlling shareholders of the listed firms keep 45.7% of the total shares on average. Unlike developed markets, where institutional investors hold about 50% of the equities, Chinese market only sees a very small amount of institutional shareholdings (around 5%). So, the interest of institutional investors, together with other minority investors, is on the verge of danger, because controlling shareholders may expropriate wealth from minority shareholders.

Chinese institutional investors probably have difficulties in performing the duties in securities market, for example, market stabiliser and corporate governance mechanism, due to the small shareholdings. If the shareholdings are low, institutional investors have lower incentives to get involved in the decision-making process and typically stay with the companies for shorter periods (Maug (1998)). So, the trading strategies of institutional investors are more like speculating in listed stocks than investing in them. At the same time fund investors also cannot supervise fund managers timely, which lead to fund managers window dress their holding portfolio to mislead investors.

2.3.2. Development of Chinese Securities Investment Funds

At the beginning of Chinese market-oriented economic reform in the 1990's, China established its domestic stock exchanges (Shanghai Stock Exchange and Shenzhen Stock Exchange), and encourages Chinese State-owned Enterprises (SOEs) to go public and raise funds from the market. Chinese stock market has been growing rapidly since then. Up to 2003, China's stock market has been developed into Asia's third biggest market with more than 1,300 listed companies, 4 trillion Yuan of market capitalisation and more than 70 million domestic investors. (CSRC, 2004)

With the promulgation of the *Tentative Rules of Securities Investment Funds* in 1997, China's securities investment fund industry entered a rapid growing period. At the same year, the first three securities investment funds issued new shares publicly to raise funds from the market, marking a milestone in the China's fund industry. In 2001, open-end funds were introduced upon the issuance of the related rules in October 2000. Since then, open-end funds become a more attractive choice over closed-end funds. On 28 October 2003, the PRC *Securities Investment Fund Law* was promulgated; this will be effective on 1 June 2004. The Law lays down the regulatory principles and operational framework for securities investment funds, providing a legal environment for the future development of China's fund industry.

Securities investment fund management industry becomes more and more important in Chinese securities market. The number of Chinese securities investment fund companies rise from 5 in 1998 to 49 in 2003. At the end of 2003, there are 32 securities investment fund companies and 54 closed-end securities investment funds,

58 open-end securities investment funds. The market value of funds has achieved 17820 million RMB, and more than 6 percent of A-share market value.

2.4. Hypothesis Setting

Chinese securities fund managers are required by the China Securities Regulatory Commission (CSRC) to reveal their top-10 portfolio holdings every quarter in formal reports to their unit holders. Like foreign mutual fund manager, Chinese fund managers also have intention to consider cosmetic changes in portfolio composition around year- and quarter-ends to mislead investors about the stocks that have resided in the portfolio over the reporting period.

Chinese securities market is in an underdevelopment situation. Comprehensive rules and regulation to supervise fund managers' investment behaviour have not been built up yet, so that it provide fund managers with opportunity to make up stocks' prices, so much as fund manager combines other institutional investors to control stocks' prices at period-end. Then we set our first hypothesis as follow:

H1: The performance of fund manager stockholdings in earnings announcement seasons is greater than the performance in normal months.

Chinese securities investment fund companies' compensation system is heavily based on funds' yearly performance rank, that is, the rank of funds' growth rate of accumulated NAV in a year. So we suppose that top-ranked fund managers have made more decoration of their holding portfolio at reporting period-end, and our second hypothesis is:

H2: Funds ranked in the top deciles have more window dressing behaviours than

other fund managers.

3. Empirical Study

3.1. Research Design

Recent empirical literature on equity-fund-return seasonality is related to regularities in mutual fund returns. In this paper, we carry out the empirical study of Chinese securities investment fund by two ways, testing for funds' NAV inflation at period-ends and presenting evidence from the price patterns in winning funds' stocks.

1. Funds' NAV inflation at period-ends: evidence from Chinese closed-end funds and open-end funds

We first design two indexes to represent funds' return: funds' return index and funds' excess return index (because we are not sure which return shift at period-end will present more significant inflation), then run an OLS indicator-variable regression to find the evidence of funds' window dressing.

2. Price patterns in winning funds' top-10 stocks

The evidence on equity prices inflation at a period-end strongly suggests that equities' prices are marked up. We can not easily observe a fund's portfolio but we can observe its semi-annual or quarterly public disclosures in the database of Tianxiang and Sinofin. We first calculate the inflation of top-fund stocks at year-end, relative to other stocks with matching capitalization and recent performance. And secondly use a statistic generated by Carhart (2002) to test whether there is a price inflation of winning fund's top-10 stock at the end of a year.

3.2. Funds' NAV Inflation at Period-ends

3.2.1. Securities investment funds indices

We produce two securities investment funds return indices for closed-end fund and open-end fund, that is, fund return index and fund excess return index.

3.2.1.1. Closed-end fund excess return index

This index is made up of the NAV return of all funds except bond funds and index funds. Because window dressing behaviour always appears when fund managers can trade equities independently and they have no limitation of stock trading volume.

Because the closed-end fund's NAV is disclosed weekly, closed-end fund's excess return index is calculated from its weekly NAV and market index. New funds are not considered of the month, but included in the first week of next month. The formula of closed-end excess return index is:

$$R_{f,t} = \frac{NAV_{f,t} - NAV_{f,t-1}}{NAV_{f,t-1}} - \frac{I_{m,t} - I_{m,t-1}}{I_{m,t-1}}$$

$R_{f,t}$: represents excess return at time t ,

$NAV_{f,t}$: represents Fund f 's NAV at time t

$I_{m,t}$: represents market index at time t (Shanghai Stock Index), t stands for the trading week

Therefore,

$$r_{f,t} = \frac{NAV_{f,t} - NAV_{f,t-1}}{NAV_{f,t-1}} : \text{represents fund } f\text{'s return at time } t,$$

$$r_{m,t} = \frac{I_{m,t} - I_{m,t-1}}{I_{m,t-1}} : \text{represents market index's return at time } t$$

We calculate this index from the next month when the first closed-end fund was initial public offered on the market through to 6th Feb. 2004. Funds have an equal weight in the index calculation. The trend of this index is shown in Figure 1.

3.2.1.2. Open-end fund excess return index

Similarly, open-end fund excess return index doesn't include bond funds or index funds. Since the open-end fund's NAV is disclosed at every trading day, we calculate this index based on every trading day's funds' public NAV and market index. New funds are not included in this index in the new entering month, and then included in the first trading day of next month. The formula is the same as the calculation of closed-end fund excess return index. The calculation of this index begins from the day when the first open-end fund came onto the market through to 6th Feb. 2004. Every fund has the same weight in the index. The trend of this index is shown in Figure 2.

3.2.1.3. Fund return index

The formula of fund return index is:

$$r_{f,t} = \frac{NAV_{f,t} - NAV_{f,t-1}}{NAV_{f,t-1}}$$

Actually, $r_{f,t}$ is fund f 's NAV growth rate at time t . We produce the fund return indices for closed-end fund and open-end fund. Every fund has the same weight in the index. Closed-end funds index is calculated in every trading week, and open-end funds index is calculated in every trading day. The trends of these indices are shown in Figure 3 and Figure 4.

3.2.2. Model 1 and testing results

If funds' NAV are inflated at quarter- and year-ends, we should observe abnormally high returns on the last day of each quarter and year, and abnormally low returns on the first day of next quarter or year. R_t denotes the daily or weekly return of fund return or excess return index on trading day or trading week t from 1998 through to 2004, and run the following OLS indicator-variable regression model 1:

$$R_t = b_0 + b_1 YEND_t + b_2 YBEG_t + \\ b_3 QEND_t + b_4 QBEG_t + \\ b_5 MEND_t + b_6 MBEG_t + \mu_t$$

H_0 : Funds' NAV are not inflated at month-, quarter- or year-ends.

In Chinese securities market, closed-end funds are evaluated based on funds' yearly accumulated growth rate of NAV. Closed-end funds are evaluated from the first trading week of a year up to the last trading week and open-end funds are evaluated from the first trading day of a year up to the last trading day.

In the regression of model 1, YEND (last trading day or week of the year), YBEG (first trading day or week of the year), QEND (last trading day or week of a calendar quarter other than the fourth), QBEG (first trading day or week of a calendar quarter other than the first quarter), MEND (last trading day or week of a month but not the last of a quarter) and MBEG (first of a month but not the first of a quarter) are all indicator variables. $YEND_t$ is 1 if t is the last trading day of December; $YBEG_t$ is 1 if $YEND_{t-1}$ is 1. $QEND_t$ is 1 if t is the last trading day of March, June, or September; $QBEG_t$ is 1 if $QEND_{t-1}$ is 1. $MEND_t$ is 1 if t is the last day of January, February, April, May, July, August, October, or November. $MBEG_t$ is 1 if $MEND_{t-1}$ is 1. If there appears the inflation of funds' NAV, we should observe abnormally high returns on

last trading day of each month, quarter or year, and abnormally low returns on the first trading day. That is, the regression coefficients b_1 、 b_3 and b_5 will be significantly positive, while b_2 、 b_4 and b_6 will be significantly negative. Independent variables and their expectant regression signs are shown Table 1.

We have made the regression of formula 1, and t represents the first trading day for open-end funds or trading week for closed-end funds. But the T-test value and $AdjR^2$ are relatively small. From the results of regression between fund excess return index and indicator variables, we cannot conclude that fund excess return have a significant inflation in the last trading day or trading week of a period.

Then we extend closed-end funds' last and first trading day to last or first trading week for they disclose their NAV weekly. Meanwhile, we extend open-end funds' last or first trading day to last or first trading week for they disclose their NAV every trading day. The results of regression of closed-end and open-end funds return index are presented in Table 2, and the results of regression of closed-end and open-end funds excess return index are shown in Table 3.

Although we extend the observing period to a longer time, the fund return or excess return indices do not show us a significant inflation at the end of the period. In other words, we cannot gain the expectant signs of regression coefficients. While in the study of Carhart, Kaniel, Musto and Reen (2002), they classified fund into several groups according to funds' size, investment style. After they test month-end mutual fund prices shifts in every group, they found that a strong evidence that equity funds are significantly overvalued at the ends of quarters, especially the fourth quarter,

compared to just before and after. At the same time, the inflation is strongest in funds with a small-cap or growth orientation. So one of the possible reasons why we do not find the period-end inflation of Chinese securities investment funds is that we do not sort funds into different groups based on their capital size and investment styles.

3.2.3. Model 2 and testing results

We use model 2 generated by Carhart (2002) to test whether funds' return reversal pattern is significantly more intense at quarter-ends than at other month-ends. We make a regression between fund return index and regrouped indicator variables. So in model 2, the second and third coefficients denote the marginal effect of being a quarter-end in addition to being a month-end. Model 2 is:

$$R_t = b_0 + b_1(YEND_t + QEND_t) + b_2(YBEG_t + QBEG_t) + b_3(YEND_t + QEND_t + MEND_t) + b_4(YBEG_t + QBEG_t + MBEG_t) + \mu_t$$

H₀: There are no month-end fund price shifts.

The sign of coefficients b_1 and b_2 will indicate fund return inflation at year-ends. If b_1 is significantly positive while b_2 is significantly negative, funds return appears reversal at year-ends and quarter-ends. Independent variable and expectant regression sign are represented in Table 4.

The regression results of model 2 are represented in Table 5 and Table 6. But the results of regression of model 2 cannot tell us that fund return or excess return have a strong effect of period-ends reversal. Carhart, Kaniel, Musto and Reen (2002) found b_1 is significantly positive while b_2 is significantly negative in every different group.

And the funds' return reversal is higher at quarter- and year-ends than month-end.

3.3. Price Patterns in Winning Funds' Stocks

According to our preceding study, as a whole Chinese securities investment funds, both closed-end funds and open-end funds, do not represent a significant return reversal at period-ends. In fact, not all the funds have the strong purpose to make up their stock prices and rather those winning funds have stronger intension to window dress. For fund managers, their performance rank affects their reputation and compensation very much. For fund management companies, higher rank will bring better distribution of their forthcoming new funds and higher management fees. Our empirical study will find out whether winning funds make up to improve a good performance. We will measure the relative inflation of the equities held by the year's top-performing funds, top 10 funds respectively in closed-end funds and open-end funds, and we call them winning funds. Then we observe and analyse the top 10 stocks which these top funds hold at the end of every quarter.

3.3.1. Empirical Study Design

We can observe funds' quarterly public disclosures in Tianxiang or Sinofin Database which have those data from 1998 to 2003. As Carhart (2002) did, we also first sort funds by their performance, and then select the top-ranked funds' top-10 stocks. Then we calculate the inflation of winning funds' top-10 stocks at year-end. In order to compare these stocks inflation at period-end, we match these stocks with other stocks in the same group of capitalization and recent market performance, and then use a test statistic by relating this inflation to its distribution under the null.

We control for these top-10 stocks' capitalization and recent return to classify them in to different groups. That is, for each year y from 1998 to 2003, we sort all stocks by their capitalization at the end of the year into size quintiles and by their recent three months' return into performance quintiles, and there will be 25 sizes and performance controlled groups of stocks.

We calculate the inflation of each group. The groups return on the last day of year y minus its return on the first day of year $y+1$. Let $INFL_Last_{i,j,y}$ denote the inflation of the size-quintile i , performance-quintile j portfolio in year y . That is let $INFL_Last_{i,j,y}$ measure top-stocks' price inflation at year-end. The top-10 stocks' inflation at the end of year y is calculated by the following formula:

$$INFL_Last_{i,j,y} = \text{Stock Return}_{\text{last day of year } y} - \text{Stock Return}_{\text{first day of year } y+1}$$

$$INFL_{i,j,y} = \text{Stock Return}_{\text{the } t^{\text{th}} \text{ trading day in year } y} - \text{Stock Return}_{(t-1)^{\text{th}} \text{ trading day in year } y}$$

t is the odd number trading day in year y . Let every t and $t-1$ on above formula be non-overlapping two trading days.

A stock's inflation at the end of year y is equal to return on the last day of y minus its return on the next day, that is, the first day of year $y+1$. So it is twice the average price inflation.

Because INFL is constructed to represent the relative inflation of top-fund stocks, controlling for size and performance, INFL is significantly positive if winning funds wind dress their top stocks at the end of year.

Then we calculate $INFL_Last$ for each i , j and y , and $INFL_{i,j,y}$ which is the

inflation of all the other non-overlapping two trading days in year y . Under the null hypothesis, $INFL_Last$ and $INFL_{i,j,y}$ come from the same distribution. $INFL_Last$ minus the mean of these rest two non-overlapping days inflation and divided by their standard deviation has a standard normal distribution. We denote statistic $STDinfl_Last_{i,j,y}$ as following:

$$STDinfl_Last_{i,j,y} = \frac{INFL_Last_{i,j,y} - \overline{INFL_{i,j,y}}}{std(INFL_{i,j,y})} \sim N(0,1)$$

We first test for each i and j whether the top-fund stocks in size-quintile i and performance-quintile j are relatively more inflated by compare $STDinfl_Last_{i,j,y}$ with standard normal distribution $N(0,1)$. Then we test whether the top-fund stocks in size-quintile i are relatively more inflated by summing over both j and y and whether the top-fund stocks in performance quintile j are relatively more inflated by summing over i and y . Finally we test whether top-fund stocks in general are relatively more inflated by summing over i , j , and y .

3.3.2. Empirical Result

In Table 7, we represent the $INFL_Last$, Std_INFL , $INFL$ and p-val of winning funds' top stocks. We find that in 2000 and 2001 $INFL_Last$ is significantly positive, which indicate that top-stocks of winning funds were inflated in these two years.

And table 8 reports, for each test, the average of $INFL$, and sum of Std_INFL , and p-value for this quantity from the standard normal distribution.

The overall test statistic in the bottom right of Table 8 indicates that top-fund stocks are significantly more inflated with smaller size. The last three lines of Table 8 present that top-fund stocks with better recent return are significantly more inflated.

The possible reason is that fund managers always pay attention on the stocks with better market performance and let fund investor think them realise the trend of current market. And it is easier for fund managers who can make a big trade to control small size stocks.

4. Conclusion

4.1. Main Findings

Although in the early stage of Chinese securities market either fund managers or fund management companies have incentives to make up their portfolio at the end of a reporting period, our study does not find significant window dressing by fund managers as a whole. In the meanwhile, for top-ranking fund managers, the prices of their stocks were inflated in 2000 and 2001.

One of the most potential reasons why Chinese securities investment funds as a whole do not present behaviour of window dressing is that the regulators in Chinese securities market carried out a relatively rigid supervision after the “fund inside story of a plot” published in a magazine in 2000.

But we still observe the top-ranking funds inflate their stocks in 2000 and 2001, and the possibility of inflation is related to the size of stockholdings by the funds and the recent market performance of the stocks. The reason is that the assessment of fund’s performance is made at the end of fiscal year, so the last several trading days are the most precious time when fund managers choose to perform window dressing. It is easier to control those stocks with smaller size and better current market

performance. Moreover, individual investors may follow the strategy carried out by fund manager so that individual investors will make contribution to the inflated price at the end of a year.

The detrimental effects of window dressing are two-fold. Most obviously, investors are misled about the 'real' fund performance. Taken to the extreme, this deception could conceal investing behaviour inconsistent with the fund prospectus. This implicit cost of cosmetic rebalancing is accompanied by a second detrimental effect of window dressing: additional explicit transactions costs borne to build and unwind cosmetic positions.

4.2. Implications

These findings have important implications for investors attempting to take advantages of the anomalies in fund returns by timing their entry and exit points from active equity funds. Individual investors may like to postpone the purchase of a certain stock held by funds at the end of reporting period, because they may buy the stock at a lower price at the beginning of next period.

More frequent portfolio disclosure would likely reduce incentives to window dress; in the limit continual disclosure would render window dressing ineffective. However, fund managers generally maintain that more frequent disclosure could limit their ability to profit on research analysis as the market is more quickly appraised of securities the manager feels are undervalued. Such costs to shareholders might outweigh the benefits of increased disclosure.

References

- Brown, K. C., W. V. Harlow, and L. T. Starks, 1996, Of Tournaments and Temptation: An Analysis of Managerial Incentives in the Mutual Fund Industry, *Journal of Finance* 51, 85-110.
- Brown, S. J., and W. N. Goetzmann, 1995, Performance Persistence, *Journal of Finance* 50, 679-698.
- Carhart, M., 1997, On Persistence in Mutual Fund Performance, *Journal of Finance* 52, 83-110.
- Carhart, M., Kaniel, Musto and Reen, 2002, Learning for the Tape: Evidence of Gaming Behaviour in Equity Mutual Funds, *Journal of Finance* Vol. LVII. No. 2. April, 661-692.
- Chevalier, J., and G. Ellison, 1997, Risk taking by mutual funds as a response to incentives, *Journal of Political Economy* 105, 1167-1200.
- De Bondt, Werner and R. Thaler, 1987, Further Evidence on Investor Overreaction and Stock Market Seasonality, *Journal of Finance* 42,557-580.
- Degeorge, F., J. Patel, and R. Zeckhauser, 1999, Earnings Management to Exceed Thresholds, *Journal of Business* 72, 1-33.
- Harrison, L., 1989, A Day-end Transaction Price Anomaly, *Journal of Financial and Quantitative Analysis* 24, 29-45.
- Haugen, R., and J. Lakonishok, 1988, The Incredible January Effect: The Stock Market's Unsolved Mystery (Dow-Jones-Irwin, Homewood, IL)
- Hendricks, D., J. Patel, and R. Zeckhauser, 1993, Hot Hands in Mutual Funds:

- Short-run Persistence of Performance, 1974-88, *Journal of Finance* 48, 93-130.
- Judith, C., G. Ellison, 1998, Career Concerns of Mutual Fund Managers, Nber working papers 6394.
- Lakonishok, J., and S. Smidt, 1988, Are Seasonal Anomalies Real? A Ninety-Year Perspective, *The Review of Financial Studies* Vol. 1, No. 4. (Winter, 1988), 403-425.
- Lakonishok, J., A. Shleifer, and R. Vishny, 1992, The Impact of Institutional Trading on Stock Prices, *Journal of Financial Economics* 32, 23-44.
- Lakonishok, J., A. Shleifer, R. Thaler, and R. Visny, 1991, Window Dressing by Pension Fund Managers, *American Economic Review* 81, 227-231.
- Lynch, A. W., and R. R. Mendenhall, 1997, New Evidence on Stock Price Effects Associated with Changes in the S&P 500 index, *Journal of Business* 70, 351-384.
- Musto, D., 1997, Portfolio Disclosures and Year-end Price Shifts, *Journal of Finance* 52, 1563-1588.
- Musto, D., 1999, Investment Decisions Depend on Portfolio Disclosures, *Journal of Finance* 54, 935-952.
- Rabin, M., 1998, Psychology and Economics, *Journal of Economics Literature* 36, 11-46.
- Ritter, Jay, 1988, The Buying and Selling Behaviour of Individual Investors at the Turn of the Year, *Journal of Finance* 43, 701-717.
- Shleifer, A, 2000, Inefficient Markets: An Introduction to Behavioural Finance,

Oxford: Oxford University Press, Ch. 2.

Sias, R. W., and L. T. Starks, 1997, Institutions and Individuals at the Turn-of-the-year, *Journal of Finance* 52, 1543-1562.

Thaler, R. H., 1987, Seasonal Movements in Security Prices □, Weekend, holiday, Turn of the Month and Intraday Effects, *Journal of Economic Perspectives* 1(1), 169-177.

Thaler, R. H., 1987, The January Effect, *Journal of Economic Perspectives* 1(1), 197-201.

Wermers, R., 1999, Mutual Fund Herding and the Impact on Stock Prices, *Journal of Finance* 54,581-622.

Zweig, J., 1997, Watch out for the Year-end Fund Flimflam, *Money Magazine* November, 130-133.

Table 1: Independent variable and expectant regression sign

Independent variable	Meaning which independent variable stands for	Expectant Sign
YEND _t	Last trading day of the year	+
YBEG _t	First trading day of the year	-
QEND _t	Last of a calendar quarter other than the fourth	+
QBEG _t	First of a calendar quarter other than the first	-
MEND _t	Last of a month but not the last of a quarter	+
MBEG _t	First of a month but not the first of a quarter	-

Table 2: Period-end fund NAV price shifts based on fund return index

The dependent variable in the regression is fund return index. Independent variables are indicator variables $YEND_t$, $YBEG_t$, $QEND_t$, $QBEG_t$, $MEND_t$, and $MBEG_t$. For closed-end fund, $YEND_t$ is 1 if t is the last five trading days of December; $YBEG_t$ is 1 if $YEND_{t-1}$ is 1; $QEND_t$ is 1 if t is the last five trading days of March, June, or September; $QBEG_t$ is 1 if $QEND_{t-1}$ is 1; $MEND_t$ is 1 if t is the last five trading days of January, February, April, May, July, August, October, or November; $MBEG_t$ is 1 if $MEND_{t-1}$ is 1. This table lists the regression results of the value of coefficients and T-test value and $AdjR^2$.

R_t	Closed-end fund	t	R^2	Open-end fund	t	R^2
b_0	1637.75	50.73		1025.71	370.57	
b_1	-36.16	-0.55		0.71	0.06	
b_2	-30.51	-0.45		8.69	0.71	
b_3	37.22	0.59	0.0055	-1.99	-0.22	0.0053
b_4	16.15	0.26		0.18	0.02	
b_5	14.23	0.26		2.42	0.44	
b_6	34.63	0.62		8.37	1.53	

Table 3: Month-end fund NAV price shifts based on fund excess return index

The dependent variable in the regression is fund excess return index. Independent variables are indicator variables $YEND_t$, $YBEG_t$, $QEND_t$, $QBEG_t$, $MEND_t$, and $MBEG_t$. For closed-end fund, $YEND_t$ is 1 if t is the last five trading days of December; $YBEG_t$ is 1 if $YEND_{t-1}$ is 1; $QEND_t$ is 1 if t is the last five trading days of March, June, or September; $QBEG_t$ is 1 if $QEND_{t-1}$ is 1; $MEND_t$ is 1 if t is the last five trading days of January, February, April, May, July, August, October, or November; $MBEG_t$ is 1 if $MEND_{t-1}$ is 1. This table lists the regression results of the value of coefficients and T-test value and $AdjR^2$. This table represents the results of regression of model 1, coefficients, T-test value and $AdjR^2$.

R_t	Closed-end fund	t	R^2	Open-end fund	t	R^2
b_0	1224.21	106.92		1090.58	285.07	
b_1	23.95	0.96		23.95	1.41	
b_2	44.38	1.68		37.02	2.19	
b_3	-6.66	-0.29	0.0194	-17.36	-1.41	0.0194
b_4	-14.06	-0.63		-11.21	-0.91	
b_5	5.10	0.25		6.09	0.80	
b_6	7.84	0.39		0.57	0.08	

Table 4 : Independent variable and expectant regression sign

Independent variable	Meaning which independent variable stands for	Expectant regression sign
$YEND_t+QEND_t$	Last trading day of a year or quarter	+
$YBEG_t+QBEG_t$	First trading day of a year or quarter	-
$YEND_t+QEND_t+MEND_t$	Last trading day of a year, quarter or a month	+/-
$YBEG_t+QBEG_t+MBEG_t$	First trading day of a year, quarter or a month	+/-

Table 5 : Month-end fund NAV price shifts based on fund return index

This table represents the coefficients, T-test value and AdjR² of regression model 2 based on fund return index.

R_t	Closed-end fund	t	R²	Open-end fund	t	R²
b ₀	1641.63	51.29		1025.71	371.11	
b ₁	-6.14	-0.10		-3.51	-0.42	
b ₂	-32.28	-0.52	0.0011	-5.35	-0.64	0.0046
b ₃	6.98	0.13		2.42	0.44	
b ₄	25.33	0.46		8.37	1.53	

Table 6 : Month-end fund NAV price shifts based on fund excess return index

This table represents the coefficients, T-test value and AdjR² of regression model 2 based on fund excess return index.

R_t	Closed-end fund	t	R²	Open-end fund	t	R²
b ₀	1221.94	106.75		1090.58	283.07	
b ₁	-2.43	-0.11		-9.69	-0.83	
b ₂	-1.77	-0.08	0.0025	4.29	0.37	0.0019
b ₃	10.69	0.53		6.09	0.80	
b ₄	12.01	0.60		0.57	0.08	

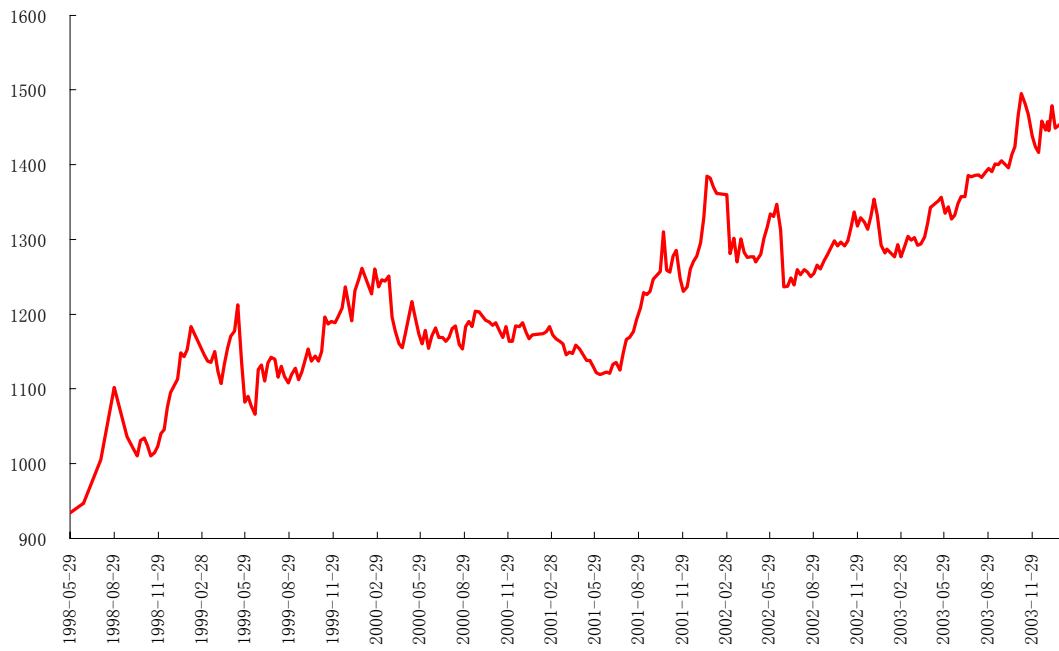
Table 7 : Yearly INFL of Winning funds' top stocks

INFL\Year	1999	2000	2001	2002	2003
INFL_Last	-0.0358	0.0109	0.0259	0.0453	-0.0279
Std_INFL	0.0285	0.0381	0.0284	0.0272	0.0266
INFL	-0.0022	0.0010	0.0001	-0.0003	0.0006
p-val	0.000	0.023	0.000	0.051	0.006

Table 8 : Year-end Overvaluation

Capitalization	Return				All
	1 (low)	2	3	4 (high)	
1 (low)	4.2468	2.2410	-1.373	0.193	4.4296
Stdinfl_Last	0.0317	0.0297	0.0305	0.0285	0.0298
p-val	0.977	0.022	0.346	0.180	0.156
2	-2.9505	-2.6636	-4.870	6.4456	9.2649
Stdinfl_Last	0.0278	0.0280	0.0274	0.0273	0.0276
p-val	0.784	0.998	0.658	0.548	0.985
3	1.0664	2.4725	-2.062	1.0575	0.0067
Stdinfl_Last	0.0287	0.0281	0.0302	0.0291	0.0291
p-val	0.444	0.271	0.138	0.435	0.369
4 (high)	0.0036	7.2173	-1.5152	-0.038	0.009
Stdinfl_Last	0.0318	0.0300	0.0261	0.0271	0.0292
p-val	0.761	0.363	0.368	0.290	0.372
All	0.0103	0.0131	0.0064	0.0250	1.0395
Stdinfl_Last	0.0301	0.0290	0.0286	0.0281	0.0290
p-val	0.185	0.008	0.192	0.424	0.202

Figure1 : Closed-end funds excess return index



Source: Sinofin and Tianxiang Database 1998-2003.

Figure 2: Open-end fund excess return index



Source: Sinofin and Tianxiang Database 1998-2003.

Figure 3 : Closed-end fund return index



Source: Sinofin and Tianxiang Database 1998-2003.

Figure 4 : Open-end fund return index



Source: Sinofin and Tianxiang Database 1998-2003.