The Evaluation of Chinese Mutual Funds Performance

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요 약

본 연구는 중국 뮤추얼펀드를 대상으로 폐쇄형(48개), 개방형(17개)으로 구분하여 총 65개 펀드에 대해 성과를 측정해보고, 이를 통해 중국 뮤추얼펀드가 지수대비 어떠한 성과를 보여주고 있는지를 살펴보고자 한 연구이다. 성과 평가 실증기간은 폐쇄형 펀드가 2002년 1월 4일부터 2004년 12월 31일까지 3년으로 하며 개방형 펀드가 2003년 1월 3일부터 2004년 12월 31일까지 2년으로 하였다. 실증연구방법들은 CAPM에 기반한 트레이너 모형, 샤프 모형, 젠센 모형과 장세판단능력 측정모형인 트레이너-마주이 모형이다.

Ⅰ. Introduction

The evaluation of mutual funds performance influences the investors to allocate their money into different mutual funds. It may directly or indirectly influence the compensation of the fund managers. Apart from these two direct utilities, the evaluation of mutual funds performance also helps in finding the evidence regarding the validity of efficient-market hypothesis. This has made it a topic of long-standing interest in modern finance world. Over the period

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of last forty years a number of researchers have empirically examined the performance of mutual funds.

Friend, Brown, Herman, and Vickers (1962) offered the first empirical analysis of mutual funds performance. Treynor (1965), Sharpe (1966), and Jensen (1968) developed one-parameter measures to evaluate the performance of mutual funds. Their empirical results showed that mutual funds performed below the benchmark portfolio, or the naive portfolio strategy. Their measures have been widely used for the evaluation of mutual funds performance, because these measures not only simply utilize one number to reflect both risk and return but make it possible to rank the performance of mutual funds and compare them to a market portfolio.

Treynor and Mazuy (1966) introduced a nonlinear version of CAPM to test mutual fund manager's market timing ability. In the standard CAPM regression equation, a portfolio's return has a linear relationship with the market return. However, Treynor and Mazuy argued that a manager who could forecast market returns would hold a greater proportion of the market portfolio in stocks with a high return. Their portfolio return exhibited a convex relationship to the market return. Their study showed no statistical evidence that portfolio managers outperformed the market.

Friend, Blume, and Crocket (1970) applied a risk-class approach to overcome the bias inherent in the one-parameter measures. Their empirical results also confirmed previous findings. Friend (1970) attributed the inferior performance of mutual funds to unreasonably established benchmarks plus the effects of both mutual fund management fees and commissions. McDonald (1974), Mains (1977), and Kon and Jen (1979) used the one-parameter measure to investigate the performance of mutual funds. Although some individual funds performed in a superior manner, the mutual fund sample showed neither significantly superior nor significantly inferior performance. Kim (1977) found a negative

relationship between risk and return. The reverse fund relationship is attributed to managers who had invested too much in risky growth stocks during the bear market.

Research on mutual funds during the 1980s shifted from evaluating overall performance to understanding the details of superior performance, Jensen measure (1968) prepared the foundation for these studies. Jensen argued that if a manager successfully predicted market movements and altered portfolio compositions appropriately, the portfolio risk estimate is forced downward and the associated measure of risk-adjusted performance is forced upward.

Lehmann and Modest (1987) employed Jensen measure to determine the sensitivity about performance evaluation to the choice of benchmark. Their study did not determine whether mutual funds achieved abnormal performance. The research showed the choice of benchmark had important consequences for the performance evaluation. Grinblatt and Titman (1989) used Jensen measure to identify mutual fund managers who exhibited superior stock selection abilities. They concluded that benchmarks influenced performance evaluations. Although some fund managers turned out to be superior performance, high operating expenses offset superior performance. Their actual returns did not exhibit abnormal performance.

Lee and Rahman (1990) employed the Bhattacharya and Pfleiderer model based upon Jensen measure. They produced no evidence of overall superior micro fund manager ability, except at the individual fund level.

All of these studies focus on the U.S. market as historic data are easily available and the market is more or less in a mature phase. The Chinese market for mutual funds however lags the U.S. market when it comes to both size and market importance. Nevertheless during the last 8 years in China the market value of mutual funds has increased from approximately 3.418 billion RMB to more than 420 billion RMB, which encourages us to carry out

this study on Chinese mutual funds performance evaluation.

Therefore, the purpose of this study is to provide a comprehensive study of Chinese mutual funds performance. This study will not only help local investors understand the risk and return performance of Chinese mutual funds, but also help foreign financial groups who are interested in setting up Sino-foreign joint venture fund management companies understand the structure, operations and performance of existing Chinese mutual funds industry.

Three traditional risk-adjusted measures are employed to evaluate Chinese mutual funds performance : Treynor measure (1965), Sharpe measure (1966), and Jensen measure (1968). Furthermore, we investigate the selection and timing ability of Chinese mutual funds pursuing the quadratic regressions of Treynor and Mazuy (1966). We construct a database containing 48 closed-end mutual funds (Jan. 2002-Dec. 2004) and 17 open-end mutual funds (Jan. 2003-Dec. 2004).

This study is designed to address the following research questions :

(1) Do the Chinese mutual funds generate superior performance relative to a market portfolio?
(2) Do the managers of Chinese mutual funds have superior security selection ability relative to Chinese individual investors?
(3) Do the managers of Chinese mutual funds have superior market timing ability relative to Chinese individual investors?

This study is organized as follows. Chapter Ⅰ presents purpose of the study, research questions, and organization of the study. Chapter Ⅱ discusses the Chinese mutual funds industry. In Chapter Ⅲ the data and methodology employed in this study are described. Chapter Ⅳ reports the empirical results and analyzes the results. Finally, Chapter Ⅴ concludes by summarizing the

findings, discussing their limitations, and providing recommendations for future research.

Ⅱ. Mutual Fund Industry in China

Mutual fund is not a new financial instrument in China's financial market. In Oct. of 1991, the first two mutual funds, "Wuhan Securities Investment Fund" and "Nanshan Venture Investment Fund", were launched in China. By Oct. of 1997, the number of mutual funds reached 72 and the size of fund assets reached 6.6 billion RMB. All of 72 funds are closed-end type, and some of these funds are traded on the two stock exchanges of China.[1] Comparing to the new type funds launched after 1997, these old funds have a wider range of investment, such as money market(14%), stock(31%), bonds(4%), real estate(28%), and other ventures(28%).

"The Interim Regulation on Securities Investment Funds", which was enacted on Nov. 14 of 1997, is a landmark of China's mutual fund industry. The regulation definitely stipulates structure and operations of the mutual funds. The first two new type mutual funds, "Jintai Fund" and "Kaiyuan Fund" were launched in Mar. of 1998. The first open-end fund, "Huaan Innovation Fund" was launched by Huaan Fund Management Company in Sept. 2001.

The 65 mutual funds in our sample are the new type funds, which do not exist until Nov. 1997. Comparing to the old mutual funds mentioned above, the new type funds are more closely regulated and have specific investment targets. According to the 1997 Interim Regulation, these mutual funds are

1) There are two stock exchanges in China. They are Shanghai Stock Exchange and Shenzhen Stock Exchange.

only allowed to invest in the publicly traded equities and government bonds. Thus, these new funds are called the Securities Investment Funds in China. Furthermore, the new type funds are required to publish their Net Asset Value(NAV) every week,[2] and their portfolio holdings every quarter. These rules do not apply for the old funds.[3] These new funds are traded on stock exchange.

Chinese government encourages the development of mutual fund industry. The policy makers hope that the mutual funds can meet the rapidly growing investment demand of individual and institutional investors in China, and the growth of the fund industry helps to develop professional asset management service. Traditionally, the Chinese stock market has been dominated by small individual investors who behave more like day traders. Like many emerging markets, the Chinese stock market has a high volatility and a heavy inside information trading, in which many individual investors become victims. Introducing the new securities investment funds in Chinese stock market, according to the China Securities Regulatory Commission (CSRC), aims to protect small investors, develop institutional investors, and improve market efficiency.

There has been a tremendous growth in China's mutual fund industry during the last 8 years. By Jun. 30 of 2005 the number of mutual fund companies has increased to 47, altogether which manage 54 closed-end funds and 136 open-end funds. The total net assets value of mutual funds has increased from approximately 3.418 billion RMB in 1998 to more than 420 billion RMB in 2005, the outstanding shares of funds expanded to 436 billion, equity mutual fund assets as a percentage of the total A share market[4] capitalization stand at 16%.

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2) Open-end funds are required to publish their Net Asset Value (NAV) every day.
3) After November 1997, the Chinese government has forced the conversion of old funds into the new type mutual funds.
4) In China, some listed companies issue two groups of shares to investors. Stocks that issued and available for local investors are called A share stocks, and stocks

Ⅲ. Methodology

In this study, the sample consists of 65 Chinese mutual funds. The sample funds are divided into two categories : 48 closed-end funds and 17 open-end funds. For closed-end funds, an entire 3-year period of Jan. 2002 to Dec. 2004 was selected in order to examine the most current long term performance. The closed-end funds that were founded after 2001 were excluded from the sample. A total of 48 selected closed-end funds were found to have existed during the entire sample period.

On the other hand, the sample period of 17 open-end funds is entire 2-year from Jan. 2003 to Dec. 2004. There was a reason for selecting a different sample period with closed-end funds. In China only a small number of open-end funds existed before 2002. According to China Securities Regulatory Commission, only 3 open-end funds were founded before 2002. Thus, in order to allow the larger number of funds to be included in this study, we selected a different sample period.

This study is based on the weekly return data of these funds identified in sample period. A fund's weekly return is defined as the change in net asset value from $t-1$ week to t week plus all distributions paid during t week, divided by $t-1$ week's net asset value. The equation is used to calculate the weekly rate of return for each fund :

$$R_{pt} = \frac{(NAV_t - NAV_{t-1}) + D_t}{NAV_{t-1}} \quad (1)$$

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that are only available to oversea investors are B share stocks. B shares stocks are traded and settled in the Shanghai Stock Exchange by U.S. dollars and in the Shenzhen Stock Exchange by the Hong Kong dollars. Beginning early 2000, the CSRC issued new regulation and allowed local investors to trade B shares.

where R_{pt} is rate of return of fund at week t.

NAV_t is net asset value of fund at the end of week t.

D_t is income dividend disbursements at week t.

We use net asset values obtained from Tianxiang Investment Consulting Company, and dividends were available from Shanghai Fangde Information Technology Company.

In accordance with "The Interim Regulation on Securities Investment Funds", at least 20% of assets held by the Chinese funds must be invested in government bonds. Benchmark portfolio used to evaluate mutual fund performance should be related to the stock market factor, as well as to the bond market factor. Thus, a value-weighted benchmark that consists these assets may be suitable. In this study, the benchmark portfolio employed as the proxy for the Chinese market portfolio is the Tianxiang Fund Index. The Tianxiang Fund Index is a value-weighted index that includes all circulative A shares[5] and bonds. This index is computed as follows :

$$R_m = R_1 \times 80\% + R_2 \times 20\% \tag{2}$$

where R_m is rate of return of Tianxiang Fund Index.

R_1 is rate of return of Tianxiang Circulative A Shares Weighted Index.

R_2 is rate of return of Tianxiang Bond Index.

The weekly data for the Tianxiang Fund Index was provided directly by Tianxiang Investment Consulting Company. The weekend values of the index are used to arrive at the market return as follows :

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5) Because the QDII(Quanlity Domestic Institutional Investor) program has been not launched in China, mutual funds only invest on domestic A share stock markets. In addition, 60%~70% of Chinese A shares are non-circulative.

$$R_{mt} = \frac{INDEX_t - INDEX_{t-1}}{INDEX_{t-1}} \quad (3)$$

where R_{mt} is rate of return of the index at week t.

$INDEX_t$ is closing price of the index at the end of week t.

The implicit yield on 91 day treasury bills has been used as a proxy for risk-free rate of return in most of the US empirical studies. Due to the lack of short-term treasury bill in China, the 1-year fixed deposit rate is assumed to be riskless and is used to compute excess returns in this study. We converted the 1-year fixed deposit rate reported in annualized form into weekly form as follows :

$$R_f = \frac{R_{a,f}}{52} \quad (4)$$

where $R_{a,f}$ is the annualized yield of 1-year fixed deposit rate.

In order to answer the first question mentioned in Introduction, the three traditional risk-adjusted measures are adopted. These measures are introduced and tested by Treynor (1965), Sharpe (1966), Jenson (1968). Basically, these measures are developed on the assumptions of the CAPM. Because these measures are not only simpler than a combination of return and risk measures but also allow portfolios with different returns and risks to be compared directly by one-parameter measures, many studies have already used such measures to see the fund performance.

Security selection ability involve the forecasting of price movements of individual common stocks. According to the security market line (SML) in the CAPM, the market has underpriced a security lying above the SML. For its level of risk, it has an expected return greater than that suggested by the SML as an “equilibrium” value. Similarly, the market has overvalued a security located below the SML. For its level of risk, it has a lower expected

return than the corresponding CAPM "equilibrium" value. Therefore, a portfolio manager with superior forecasting ability who tends to select securities located above the SML will earn more than the "normal" residual premium for the portfolio's level of risk.

Market timing is often referred to as macro forecasting as opposed to micro forecasting or security analysis. Market timing involves forecasting both general stock market price movements and interest rates. In other words, timing involves shifting funds between a market index portfolio and a safe asset. The alternative chosen will depend on whether the forecaster expects the market as a whole to outperform the safe asset. Additionally, it requires a decision to vary the total systematic risk of the portfolio in response to expectations concerning the size and direction of market price movements.

A number of alternative methods have been suggested in the literature to test the selection and timing ability of mutual fund managers, and in this paper we will apply TM model to validate the robustness of the results on Chinese mutual funds performance.

This specific test of the timing skill of mutual funds was developed by Treynor and Mazuy (1966), who pioneered the development of the curved characteristic line by adding a squared term to the usual linear index model. They argued that if the mutual fund manager can time the market, he will hold a greater proportion of the market portfolio, when he expects the return on the market will be high and vice versa. The quadratic regression form of this model may be represented as :

$$R_{pt} - R_{ft} = \alpha_p + \beta_1 (R_{mt} - R_{ft}) + \beta_2 (R_{mt} - R_{ft})^2 + \epsilon_{pt} \quad (5)$$

where $R_{pt} - R_{ft}$ is excess return on a portfolio at time t.

$R_{mt} - R_{ft}$ is excess return on the market.

Compared to the Jensen model, this equation includes a new term, which

is the excess market return squared. From estimates of the parameters in equation, we are able to distinguish between selection and timing abilities. If α_p is positive and significantly different from zero, we identify selection ability, as in the Jensen model, and if a mutual fund manager increases (decreases) the portfolio's market exposure prior to a market increase (decrease) then the portfolio's return will be a convex function of the market's return, and β_2 is positive and significant, the mutual fund manager possesses timing ability.

Ⅳ. Results and Analysis

As mentioned earlier, the sample of this study is comprised of 48 closed-end funds for the period of Jan. 2002 to Dec. 2004, and 17 open-end funds for the period of Jan. 2003 to Dec. 2004.

To evaluate the performance of Chinese mutual funds, the risk adjusted performance measures of Sharpe, Treynor, and Jensen were employed. The performance of closed-end funds measured by these methods is presented in <Table 1>, and empirical results of open-end funds examined by risk adjusted measures are reported in <Table 2>.

The Sharpe, Treynor, and Jensen performance figures reported in <Table 1> provide essentially the same results regarding closed-end funds performance relative to the benchmark. Of 48 closed-end funds, only the Puhua Fund(20) under performed the Tianxiang Fund Index on the basis of three measures.

In terms of Treynor ratio, 47 of the 48 sample funds outperformed the Tianxiang Funds Index during the entire 3-years period from Jan. 2002 to Dec. 2004 as shown in <Table 1>. The best performance was registered by the Kehui Fund(21) with a Treynor ratio of 0.33%, followed by the Kexiang

〈Table 1〉 Performance of closed-end funds (Jan. 2002~Dec. 2004)

#	Trading code	Fund name	Type	Treynor	Sharpe	Jensen
1	184688	Kaiyuan Fund	Growth	0.07	2.30	0.20
2	184689	Huipu Fund	Growth	-0.09	-3.07	0.08
3	184690	Tongyi Fund	Growth	-0.07	-2.24	0.11
4	184691	Jinghong Fund	Growth	0.00	0.00	0.17
5	184692	Yulong Fund	Growth	-0.04	-1.35	0.14
6	184693	Pufeng Fund	Index	-0.13	-4.90	0.07
7	184695	Jingbo Fund	Growth	-0.11	-3.88	0.08
8	184696	Yuhua Fund	Growth	0.05	1.48	0.18
9	184698	Tianyuan Fund	Growth	0.07	2.20	0.19
10	184699	Tongsheng Fund	Balance	-0.12	-4.41	0.08
11	184700	Hongfei Fund	Growth	-0.03	-1.03	0.13
12	184701	Jingfu Fund	Index	-0.04	-1.54	0.14
13	184702	Tongyi Fund	Growth	0.06	1.95	0.20
14	184703	Jinsheng Fund	Growth	0.19	6.27	0.28
15	184705	Yuze Fund	Growth	0.22	7.53	0.33
16	184706	Tianhua Fund	Growth	-0.14	-4.61	0.05
17	184708	Xingke Fund	Growth	0.06	1.90	0.19
18	184709	Anjiu Fund	Growth	0.27	5.97	0.33
19	184710	Longyuan Fund	Balance	0.01	0.30	0.18
20	184711	Puhua Fund	Growth	-0.27	-9.27	-0.03
21	184712	Kehui Fund	Growth	0.33	10.82	0.39
22	184713	Kexiang Fund	Growth	0.27	8.93	0.36
23	184718	Xing'an Fund	Growth	0.05	1.69	0.21
24	184728	Hongyang Fund	Balance	-0.06	-1.81	0.11
25	184738	Tongbao Fund	Growth	-0.06	-1.90	0.12
26	500001	Jintai Fund	Balance	0.02	0.64	0.18
27	500002	Taihe Fund	Balance	0.03	1.07	0.19
28	500003	Anxin Fund	Growth	0.03	0.92	0.16
29	500005	Hansheng Fund	Growth	-0.02	-0.80	0.14
30	500006	Yuyang Fund	Balance	0.06	2.10	0.20
31	500007	Jingyang Fund	Growth	-0.04	-1.28	0.14
32	500008	Xinghua Fund	Growth	0.21	7.02	0.30
33	500009	Anshun Fund	Balance	0.01	0.46	0.15
34	500010	Jinyuan Fund	Growth	0.07	2.57	0.22
35	500011	Jinxin Fund	Growth	-0.01	-0.26	0.17
36	500013	Anrui Fund	Growth	-0.17	-5.80	0.04
37	500015	Hanxing Fund	Balance	-0.07	-2.49	0.11
38	500016	Yuyuan Fund	Growth	0.11	3.69	0.25
39	500017	Jingye Fund	Growth	0.17	5.24	0.28
40	500018	Xinghe Fund	Index	0.02	0.77	0.20
41	500019	Purun Fund	Growth	-0.14	-4.74	0.05
42	500021	Jinding Fund	Growth	0.01	0.35	0.18
43	500025	Handing Fund	Growth	-0.01	-0.36	0.15
44	500028	Xingye Fund	Growth	-0.01	-0.26	0.17
45	500029	Kexun Fund	Growth	0.14	4.65	0.27
46	500035	Hanbo Fund	Growth	-0.07	-2.15	0.10
47	500038	Tongqian Fund	Balance	0.04	1.27	0.18
48	500039	Tongde Fund	Growth	0.07	2.56	0.20
		Average		0.02	0.55	0.17
		Tianxiang Fund Index		-0.23	-9.95	0

Note) The performances are measured in percentage per week.

Fund(22) and Anjiu Fund(18) with a same Treynor's ratio of 0.27%. The worst performance was shown by the Puhua Fund(20) with a Treynor's ratio of -0.27%. The average Treynor's ratio for the closed-end funds is 0.02%, which is higher than the Treynor's ratio of -0.23% for the Tianxiang Funds Index.

When Sharpe's peformance measure was employed, the Kehui Fund(21) continued to generated the best performance, its Sharpe's ratio is 10.82%. The Puhua Fund(20) was the worst performer also when the Treynor's ratio was used as a measure of performance. The mean Sharpe's ratio for the closed-end funds is 0.55%, which is higher than the Sharpe's ratio of -9.95% for the Tianxiang Fund Index.

The results obtained using Jensen's performance measure are identical to those using Treynor's measure and Sharpe's measure. Only one fund have not been able to overperform benchmark during the test period by showing negative Jensen's alpha value. The Kehui Fund(21) was ranked as the best performing fund with a Jensen's value of 0.39% ; and The Puhua Fund(20) was ranked as the worst performing fund with a Jensen's value of -0.03%. The mean value of the Jensen's measure for the sample funds is 0.17%, indicating their mean performance is better than the performance of the Tianxiang Fund Index. The superior performance of the closed-end funds was confirmed on the basis of all three performance measures of Treynor, Sharpe, and Jensen.

Again, the three risk-adjusted measures were employed to determine whether the Chinese open-end funds overperform their benchmark. From <Table 2>, the performance of open-end funds in this period seem to be different from those in the previous tests for the closed-end mutual funds. Of the 48 closed-end funds, the Treynor's ratio and Sharpe's ratio of 22 funds are negative, the percentage of funds which have negative value are nearly a half of all sample funds. However, in the test of open-end funds only one fund indicated negative value.

〈Table 2〉 Performance of open-end funds (Jan. 2003~Dec. 2004)

#	Trading Code	Fund Name	Type	Treynor	Sharpe	Jensen
1	40001	Huaan Innovation	Growth	0.20	7.84	0.27
2	202001	Southern Steady	Balance	0.35	13.36	0.37
3	1	ChinaAMC Growth	Growth	0.20	8.01	0.29
4	20001	Jinying Growth	Growth	0.30	11.10	0.33
5	206001	Penghua Growth	Balance	0.06	2.26	0.17
6	100016	Fullgoal Dynamic	Hybrid	0.25	9.54	0.26
7	110001	E Fund Growth	Hybrid	0.38	14.36	0.38
8	161601	New Bluechip	Balance	0.21	7.92	0.27
9	202101	Southern Baoyuan	Bond	0.17	6.03	0.10
10	80001	Changsheng Growth	Balance	0.21	8.12	0.28
11	5001	Boshi Value	Hybrid	0.25	9.42	0.39
12	2130012	Baoying Hongli	Value	0.09	3.45	0.20
13	1001	ChinaAMC Bond	Bond	-0.28	-6.42	-0.01
14	90001	Dacheng Value	Value	0.23	8.18	0.28
15	70001	Jiashi Growth	Balance	0.30	11.08	0.34
16	180001	Yinhua Advantage	Hybrid	0.18	5.88	0.25
17	40002	Huaan 180	Index	0.01	0.30	0.16
		Average		0.18	7.08	0.26
		Tianxiang Fund Index		-0.04	-0.08	0.00

Note) The performances are measured in percentage per week.

Based on the Treynor's measure, all of the 17 open-end funds outperformed the Tianxiang Fund Index during the period from Jan. 2003 to Dec. 2004. The Treynor's measure ranges from -0.28% performed by the ChinaAMC Bond (13) to 0.38% performed by the E Fund Growth(7). The average Treynor's ratio of the sample funds is 0.18%, which is higher than Tianxiang Fund Index's ratio of -0.04%. It is obvious from these figures that the open-end funds over performed the benchmark.

When Sharpe's ratio was used again as a performance measure for open-end funds, the results is the same as that of the Treynor measure. All of the 17 open-end funds outperformed the Tianxiang Fund Index. The best and the worst performances were obtained by the E Fund Growth(7) and the ChinaAMC Bond(13) with Sharpe's ratios of 14.36% and -6.42% respectively.

The average Sharpe's ratio for the sample funds is 7.08%. This figure is much higher than the Sharpe's ratio of -0.08% for the Tianxiang Fund Index. The results for the sample funds compared to the benchmark on the basis of Sharpe's ratios seem to confirm those based on Treynor's ratios.

The results of relative performance obtained using Jensen's measure are almost identical to those obtained using above two measures. Of the 17 sample funds, only one funds underperformed the Tianxiang Fund Index. The Boshi Value(7) was ranked as the best performing fund with a Jensen's alpha value of 0.39% ; and the ChinaAMC Bond(13) was ranked as the worst performing fund with a unique negative Jensen's alpha value of -0.01%. The mean Jensen's alpha value of the sample funds is 0.26%, indicating that the open-end funds as a group over performed the Tianxiang Fund Index.

One of the advantages of the Jensen's alpha measure is that it can be used to conduct a statistical test for the performance of each individual fund. Each closed-end funds from Jan. 2002 to Dec. 2004 was tested individually using the t-statistic to determine if the Jensen's alpha values of the funds are significantly different from 0. The results of the t-tests are presented in <Table 3>. Of the 48 funds, 15 were found to have Jensen's measures that are significant at the 5% level, and 27 funds at the 10% level. It can be inferred from the results of the t-tests that the closed-end funds generally achieved superior performance from a statistical perspective.

The t-test was conducted for each open-end fund to determine if Jensen's peformance measure is significantly different from zero. <Table 4> shows the results of the t-tests for each fund. We found that 11 funds have a significantly Jensen measure at the 5% level, and 14 funds at the 10% level. Among the funds with significant Jensen's alpha, no fund has a negative value. The results of the tests indicated that the majority of open-end funds had significantly superior performances.

〈Table 3〉 T-tests for individual closed-end funds (Jan. 2002~Dec. 2004)

#	Trading Code	Fund(Total 48)	Jensen Alpha	t Stat	P-value
1	184688	Kaiyuan Fund	0.2025	2.150	0.332**
2	184689	Huipu Fund	0.0849	0.850	0.3967
3	184690	Tongyi Fund	0.1097	1.040	0.3001
4	184691	Jinghong Fund	0.1734	1.681	0.0950*
5	184692	Yulong Fund	0.1376	1.421	0.1576
6	184693	Pufeng Fund	0.0691	0.854	0.3945
7	184695	Jingbo Fund	0.0811	0.817	0.4152
8	184696	Yuhua Fund	0.1771	1.681	0.0950*
9	184698	Tianyuan Fund	0.1939	1.921	0.0567*
10	184699	Tongsheng Fund	0.0758	0.854	0.3944
11	184700	Hongfei Fund	0.1278	1.087	0.2789
12	184701	Jingfu Fund	0.1435	1.470	0.1438
13	184702	Tongyi Fund	0.1961	1.846	0.0669*
14	184703	Jinsheng Fund	0.2843	2.772	0.0063**
15	184705	Yuze Fund	0.3277	2.981	0.0034**
16	184706	Tianhua Fund	0.0538	0.541	0.5896
17	184708	Xingke Fund	0.1938	1.841	0.0676*
18	184709	Anjiu Fund	0.3338	1.577	0.1170
19	184710	Longyuan Fund	0.1784	1.774	0.0781*
20	184711	Puhua Fund	-0.0257	-0.259	0.7960
21	184712	Kehui Fund	0.3912	3.386	0.0009**
22	184713	Kexiang Fund	0.3557	3.162	0.0019**
23	184718	Xing'an Fund	0.2069	1.934	0.0550*
24	184728	Hongyang Fund	0.1083	0.883	0.3789
25	184738	Tongbao Fund	0.1246	1.121	0.2640
26	500001	Jintai Fund	0.1764	1.978	0.0498**
27	500002	Taihe Fund	0.1927	2.085	0.0388**
28	500003	Anxin Fund	0.1624	1.860	0.0648*
29	500005	Hansheng Fund	0.1408	1.379	0.1700
30	500006	Yuyang Fund	0.1989	2.431	0.0162**
31	500007	Jingyang Fund	0.1381	1.538	0.1263
32	500008	Xinghua Fund	0.2951	2.787	0.0060**
33	500009	Anshun Fund	0.1463	1.771	0.0786*
34	500010	Jinyuan Fund	0.2215	2.142	0.0339**
35	500011	Jinxin Fund	0.1690	2.088	0.0386**
36	500013	Anrui Fund	0.0375	0.400	0.6897
37	500015	Hanxing Fund	0.1065	1.080	0.2818
38	500016	Yuyuan Fund	0.2470	2.430	0.0163**
39	500017	Jingye Fund	0.2795	2.106	0.0369**
40	500018	Xinghe Fund	0.1990	1.779	0.0773*
41	500019	Purun Fund	0.0531	0.544	0.5876
42	500021	Jinding Fund	0.1790	1.903	0.0590*
43	500025	Handing Fund	0.1537	1.495	0.1370
44	500028	Xingye Fund	0.1669	1.653	0.1004
45	500029	Kexun Fund	0.2687	2.426	0.0165**
46	500035	Hanbo Fund	0.0987	1.005	0.3164
47	500038	Tongqian Fund	0.1804	1.903	0.0590*
48	500039	Tongde Fund	0.1960	2.091	0.0382**

*Significance at the 10 percent significance level. **Significance at the 5 percent significance level.

〈Table 4〉 T-Tests for Open-end Funds (Jan. 2003~Dec. 2004)

#	Trading Code	Fund(Total : 17)	Jensen alpha	t Stat	P-value
1	40001	Huaan Innovation	0.0027	2.509	0.0138**
2	202001	Southern Steady	0.0037	3.389	0.0010**
3	1	ChinaAMC Growth	0.0029	2.865	0.0051**
4	20001	Jinying Growth	0.0033	2.800	0.0062**
5	206001	Penghua Growth	0.0017	1.491	0.1392
6	100016	Fullgoal Dynamic	0.0026	2.854	0.0053**
7	110001	E Fund Growth	0.0038	3.500	0.0007**
8	161601	New Bluechip	0.0027	2.463	0.0155**
9	202101	Southern Baoyuan	0.0010	1.951	0.0539*
10	80001	Changsheng Growth	0.0028	2.486	0.0146**
11	5001	Boshi Value	0.0039	2.757	0.0070**
12	2130012	Baoying Hongli	0.0020	1.770	0.0798*
13	1001	ChinaAMC Bond	-0.0001	-0.256	0.7985
14	90001	Dacheng Value	0.0028	2.234	0.0278**
15	70001	Jiashi Growth	0.0034	2.888	0.0048**
16	180001	Yinhua Advantage	0.0025	1.586	0.1160
17	40002	Huaan 180	0.0016	1.951	0.0539*

Note) The performances are measured in percentage per week.
*Significance at the 10 percent significance level. **Significance at the 5 percent significance level.

Now we can answer the first research question as mentioned in Chapter I . Do the Chinese mutual funds generate superior performance relative to a market portfolio? The answer is “Yes”. Our empirical findings show that the Chinese mutual funds, on average, performed better than the Tianxiang Fund Index over test periods in the terms of all three performance measures of Sharpe, Treynor, and Jensen. Apart from the results of mean performance of the funds, the examination of each individual fund using Jensen’s alpha value also shows that there are a large number of Chinese mutual funds that peformed better than the Tianxiang Fund Index. We found the strong evidence that Chinese mutual funds performed higher than market portfolio, which is otherwise consistent with the most Chinese previous researchers.

Three explanations are possible :

(1) Unreasonably Constructed Benchmark

In previous studies most of benchmarks are constructed using SHSE and SZSE composite indices. These indices are based on all listed shares, and 60%~70% of listed shares are non-circulative, and therefore it resulted in a bias of previous studies. Since Sept. 23 of 2002, the initially listed stock is included in indices on the first trading day after the issuing date, and it magnified indices (See Huang, 2004). On other words, the previous studies using these indices underestimated the performance of Chinese mutual funds relative to a market portfolio.

(2) Influence of Sample Period

Most Chinese previous studies examined the performance of Chinese mutual funds over a period from 1998 to 2001, which is just about the initial phase of Chinese mutual fund industry. China's fledgling mutual fund industry was largely unregulated with significant operational problems. It may influence on the performance of mutual funds. As China's financial markets grow and the legal and regulatory structure becomes more supportive, transparent and market-driven, Chinese mutual funds industry has been growing.

(3) Problem Associated with IPOs

One of the original goals for the Chinese government to introduce mutual funds is to provide small investors an opportunity for professional money management and improve their social welfare. Guided by this goal, the fund companies are required have been given priorities and favored policies in obtaining profitable IPOs in the primary market.[6] The previous researchers have tried to deduct the large gain of IPOs priority from the return of mutual funds, but their calculating measures are not quite suitable, and underestimated the true performance of mutual funds.

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6) IPOs priority of mutual funds was abolished on May 28 of 2000.

〈Table 5〉 Tests of closed-end funds : T-M model (Jan. 2002~Dec. 2004)

#	Trading Code	Fund Name	α	t Stat	P-value	β_2	t Stat	P-value
1	184688	Kaiyuan Fund	0.0015	1.421	0.1575	0.8952	0.998	0.3198
2	184689	Huipu Fund	0.0020	1.764	0.0799	-1.9966	-2.124	0.0353
3	184690	Tongyi Fund	0.0013	1.087	0.2789	-0.3696	-0.367	0.7143
4	184691	Jinghong Fund	0.0017	1.425	0.1562	0.1032	0.105	0.9168
5	184692	Yulong Fund	0.0016	1.443	0.1512	-0.3817	-0.413	0.6805
6	184693	Pufeng Fund	0.0015	1.634	0.1043	-1.4137	-1.849	0.0664
7	184695	Jingbo Fund	0.0012	1.098	0.2739	-0.7581	-0.801	0.4244
8	184696	Yuhua Fund	0.0013	1.071	0.2858	0.8639	0.860	0.3913
9	184698	Tianyuan Fund	0.0020	1.726	0.0864	-0.0820	-0.085	0.9324
10	184699	Tongsheng Fund	0.0010	0.954	0.3418	-0.3644	-0.430	0.6679
11	184700	Hongfei Fund	0.0014	1.068	0.2873	-0.2700	-0.240	0.8104
12	184701	Jingfu Fund	0.0015	1.328	0.1862	-0.0754	-0.081	0.9357
13	184702	Tongyi Fund	0.0020	1.693	0.0925	-0.1560	-0.154	0.8781
14	184703	Jinsheng Fund	0.0038	3.258	0.0014	-1.6423	-1.692	0.0928
15	184705	Yuze Fund	0.0031	2.444	0.0157	0.3852	0.367	0.7143
16	184706	Tianhua Fund	0.0004	0.374	0.7089	0.2018	0.212	0.8322
17	184708	Xingke Fund	0.0021	1.715	0.0884	-0.2101	-0.209	0.8348
18	184709	Anjiu Fund	0.0047	1.952	0.0528	-2.3870	-1.186	0.2376
19	184710	Longyuan Fund	0.0026	2.244	0.0264	-1.3615	-1.426	0.1559
20	184711	Puhua Fund	0.0006	0.494	0.6222	-1.4328	-1.526	0.1291
21	184712	Kehui Fund	0.0043	3.241	0.0015	-0.6192	-0.561	0.5753
22	184713	Kexiang Fund	0.0036	2.847	0.0051	-0.1623	-0.151	0.8802
23	184718	Xing'an Fund	0.0020	1.610	0.1096	0.1903	0.186	0.8525
24	184728	Hongyang Fund	0.0012	0.886	0.3769	-0.2759	-0.235	0.8142
25	184738	Tongbao Fund	0.0013	1.026	0.3068	-0.0930	-0.088	0.9303
26	500001	Jintai Fund	0.0022	2.155	0.0328	-0.7426	-0.874	0.3836
27	500002	Taihe Fund	0.0021	2.023	0.0449	-0.3575	-0.405	0.6860
28	500003	Anxin Fund	0.0020	1.973	0.0503	-0.5935	-0.713	0.4771
29	500005	Hansheng Fund	0.0024	2.125	0.0352	-1.8310	-1.900	0.0594
30	500006	Yuyang Fund	0.0019	2.032	0.0440	0.1697	0.217	0.8284
31	500007	Jingyang Fund	0.0016	1.576	0.1173	-0.4070	-0.475	0.6358
32	500008	Xinghua Fund	0.0032	2.685	0.0081	-0.5055	-0.500	0.6177
33	500009	Anshun Fund	0.0021	2.258	0.0254	-1.1452	-1.462	0.1459
34	500010	Jinyuan Fund	0.0020	1.737	0.0845	0.2987	0.302	0.7628
35	500011	Jinxin Fund	0.0019	2.025	0.0446	-0.3134	-0.405	0.6857
36	500013	Anrui Fund	0.0007	0.697	0.4871	-0.6517	-0.728	0.4676
37	500015	Hanxing Fund	0.0021	1.890	0.0608	-1.8247	-1.962	0.0517
38	500016	Yuyuan Fund	0.0027	2.346	0.0203	-0.4346	-0.448	0.6550
39	500017	Jingye Fund	0.0034	2.288	0.0236	-1.1571	-0.915	0.3616
40	500018	Xinghe Fund	0.0024	1.885	0.0614	-0.7250	-0.679	0.4981
41	500019	Purun Fund	0.0012	1.079	0.2824	-1.1740	-1.265	0.2079
42	500021	Jinding Fund	0.0026	2.426	0.0165	-1.3962	-1.566	0.1195
43	500025	Handing Fund	0.0018	1.546	0.1242	-0.4823	-0.491	0.6240
44	500028	Xingye Fund	0.0017	1.467	0.1445	-0.0331	-0.034	0.9727
45	500029	Kexun Fund	0.0030	2.409	0.0172	-0.6185	-0.585	0.5593
46	500035	Hanbo Fund	0.0023	2.070	0.0403	-2.2682	-2.468	0.0148
47	500038	Tongqian Fund	0.0021	1.984	0.0491	-0.5948	-0.658	0.5118
48	500039	Tongde Fund	0.0023	2.164	0.0321	-0.6151	-0.688	0.4926

We will test the selection and timing ability of Chinese mutual funds pursuing the Treynor-Mazuy quadratic regression approach. This model is able to provide us with estimates of the selection and timing ability of the Chinese mutual funds analysed. We believe that this model is able to explore important potential differences in the behaviour of Chinese mutual funds concerning selection and timing ability.

Firstly, we report the results of the 48 closed-end funds, where the t-statistics are obtained from each sample fund. The estimation results are presented in <Table 5>. Since we focus on selection and timing ability, we only present the estimates of α and β_2. All of the 48 funds have positive α values. When the t-test was conducted to test if these positive α values are significant, 19 out of 49 closed-end funds were found to have positive α values that are significant at the 5% significance level, and 28 out of 49 closed-end funds have a significantly positive α values at the 10% significance level. These results lead to the conclusion that some closed-end funds have superior selection ability.

<Table 5> also shows that most of the timing coefficients are negative, 40 out of the 48 sample funds have negative β_2 values, and the other 8 have positive β_2 values. Therefore we can conclude that the Chinese closed-end mutual funds did not possess market timing ability.

As shown in <Table 6>, all of the 17 open-end funds have positive α values. 11 open-end funds have positive α values significantly at the 5% significance level, and 14 funds at the 10% significance level. The majority of the sample funds exhibited positive selection ability parameter significantly different from 0. These results confirm the existence of significant selection ability for the open-end funds sample.

Concerning timing ablity we also find almost identical results for open-end funds sample. As noted in <Table 8>, 8 out of the 48 sample funds have

negative β_2 values, and the other 9 have positive β_2 values. However, we cannot conclude that Chinese open-end mutual funds in general are able to time the market, since these funds show an insignificant positive timing ability parameter.

〈Table 6〉 Tests of open-end funds : T-M model (Jan. 2003~Dec. 2004)

#	Trading Code	Fund Name	α	t-stat	p-value	β_2	t-stat	p-value
1	40001	Huaan Innovation	0.0027	2.159	0.0333	0.0212	0.016	0.9876
2	202001	Southern Steady	0.0041	3.254	0.0016	-0.8794	-0.645	0.5204
3	1	China AMC Growth	0.0024	2.019	0.0463	1.1902	0.939	0.3500
4	20001	Jinying Growth	0.0030	2.178	0.0318	0.7138	0.489	0.6262
5	206001	Penghua Growth	0.0016	1.188	0.2377	0.2900	0.201	0.8412
6	100016	Fullgoal Dynamic	0.0026	2.437	0.0166	0.0638	0.056	0.9555
7	110001	E Fund Growth	0.0039	3.138	0.0023	-0.3099	-0.231	0.8176
8	161601	New Bluechip	0.0024	1.892	0.0614	0.6556	0.478	0.6340
9	202101	Southern Baoyuan	0.0011	1.934	0.0560	-0.3041	-0.497	0.6200
10	80001	Changsheng Growth	0.0023	1.767	0.0803	1.0668	0.779	0.4381
11	5001	Boshi Value	0.0041	2.508	0.0138	-0.4476	-0.253	0.8005
12	2130012	Baoying Hongli	0.0016	1.223	0.2245	0.8530	0.622	0.5352
13	1001	China AMC Bond	0.0001	0.372	0.7104	-0.5148	-1.199	0.2336
14	90001	Dacheng Value	0.0030	2.094	0.0389	-0.5049	-0.330	0.7421
15	70001	Jiashi Growth	0.0032	2.327	0.0221	0.4932	0.340	0.7349
16	180001	Yinhua Advantage	0.0031	1.680	0.0961	-1.2210	-0.620	0.5366
17	40002	Huaan 180	0.0020	2.137	0.0351	-0.9101	-0.896	0.3723

We firstly make an attempt to answer the second research question : Do the managers of Chinese mutual funds have superior security selection ability relative to Chinese individual investors? The empirical results imply that the managers of Chinese mutual funds have superior security selection ability. It indicates that Chinese mutual funds are successful in selecting stock. The superior security selection ability not only help mutual funds re-

duce the individual risk of themselves but also partly offset the systemic risk of market.

The broad consensus appears to be that US mutual funds fail to time the market, do the managers of Chinese mutual funds have superior market timing ability relative to Chinese individual investors? The answer of the third research question is “No”. The empirical results using Treynor and Mazuy Model have been reported in the previous section. Overall evidence suggests that the managers of Chinese mutual funds do not exhibit superior market timing ability. These findings support previous Chinese research, as well as US experience.

There are three reasons as to why the managers of Chinese mutual funds don’t have superior market timing ability.

(1) Particular market condition

The fund managers’ inability to time the market, may be interpreted in the light of certain aspects which could have possibly hampered market timing by the fund managers. China is a perfect example of emerging market : stock prices are highly driven by government interventions and policy changes, and these critical events and factors are usually uncertain. Thus, timing market is difficult in China.

(2) The close relation between security companies and fund companies

Since China’s security companies are always happen to be the biggest shareholder of fund companies, Chinese fund managers are almost from trading department of security companies, “stock selection” concept is stronger than “value investment” concept. It leads that fund managers think security selection and ignore the market forecasting. Furthermore, because of existence of the close relation between security companies and fund companies the transparency and fairness of the fund company management have often be

threatened. Suspicious asset transfer frequently takes place between the security companies and fund companies. The practice of inside trading deeply damage investor's profit, and mutual funds do not play a role of professional investment management.

(3) Herding behavior

Fund managers may ignore private information to follow those managers who performed well in the past. When active fund managers intentionally imitate or mimic the actions of competitors with higher past performance, "Herding" occurs. Lakonishok, Shleifer and Vishny (1992) deeply analyzed "Herding behavior" of fund managers, they argued that fund managers incentives, and the need to protected reputational capital, are important motivations behind herding activity. Some Chinese scholars found that Chinese mutual fund managers herding is more prevalent. If all funds buy the same stock, changing portfolio certainly will be difficult in a downturn phase, thus it is not occasional that fund managers didn't display superior timing ability.

Ⅵ. Conclusions

Although Chinese mutual funds industry have grown dramatically during the last 8 years, there has only been few analysis of Chinese mutual funds performance. This paper provide a comprehensive study of Chinese mutual funds. We employed the well-known traditional measures of Sharpe, Treynor, and Jensen to examine the performance of Chinese mutual funds. Further the quadratic Treynor-Mazuy Model was applied to analyse the selectivity and timing abilities of Chinese mutual funds.

In our peformance tests we observe the following empirical findings :

(1) The Chinese closed-end mutual funds, on average, performed better than the Tianxiang Fund Index over the 3-year test period of 2002 to 2004 in the terms of all three performance measures of Sharpe, Treynor, and Jensen. In the period of 2003 to 2004, the superior performance of the Chinese open-end mutual funds was also confirmed on the basis of all three performance measures. Apart from the results of mean performance of the funds, the examination of each individual fund using Jensen's alpha shows that there are a large number of Chinese mutual funds that performed better than the Tianxiang Fund Index.

(2) The superior performance of Chinese mutual funds relative to a market portfolio cannot be used to infer superior performance incurred by fund managers. Therefore, the Treynor-Mazuy model was used in this study to measure the performance of fund managers. We found that the some sample funds exhibited positive selection ability parameter significantly different from 0. Most of the sample funds have negative timing coefficients while the others have insignificant positive timing coefficients. Based on these results, we confirmed some managers of Chinese mutual funds have superior micro forecasting ability, but can't find evidence in favour of significant timing. It means the managers of Chinese mutual funds can't tilt his portfolio to a greater portion of the market portfolio when market return is higher and vice versa.

(3) A separate examination of each category provides a little different results. Of the 48 closed-end mutual funds, the Treynor's ratio and Sharpe's ratio of 22 funds are negative, the percentage of funds which have negative value are 46% of all sample funds. However, in the test of open-end funds only one fund indicated negative value. This interesting phenomenon may be interpreted in the difference of operation mode. In closed-end funds, the number of units is fixed, transparency is poor at best and allegations

of price-manipulation and insider trading are commonplace. On the other hand, open-end funds are required to redeem(or buy back) outstanding shares at any time upon a shareholder's request, at a price based on the current value of the fund's net assets. Open-end fund with redeemable unit enhanced market transparency.

Summing up the empirical results, several conclusions are drawn from this paper. First, Chinese mutual funds performed better than the market portfolio and provided a valuable investment opportunities for domestic investor. Second, although some Chinese mutual funds have possessed superior selection ability, they performed with no particular timing ability is robust. Third, open-end mutual funds generated more superior performance compared to closed-end mutual funds. In China, open-end mutual funds have grown to become dominant vehicles for investment.

In this paper net returns(net of expenses) was used. Thus, the performance evaluation of Chinese mutual funds relative to the market portfolio indicates whether or not the mutual funds generate sufficiently greater returns than the market portfolio to cover the resources devoted to its activities. In this case, the power of fund performance test increases from an investor's point of view by examining net returns realized by investors, but gross performance of funds is not provided. The results of evaluation may be different if tests are conducted on a gross return basis by including all expenses in fund returns.

In the future research, mutual funds performance persistence should be examined, as the process of selecting fund managers and allocating assets can be more systematic if do this. The persistence performance implies that past performance is a good indicator of future performance. If there is no consistency, however, the importance of measuring a mutual fund's performance is greatly reduced.

The performance evalation of mutual funds based on the arbitrage pricing theory (APT) would be another prospective topic of future research. The validity of mutual fund performance based on the CAPM has been criticized in several aspects. As a result, an alternative measure based on the APT was suggested as a meaningful gauge of performance. There are many Western researchers who have used the APT to evaluate the performance of mutual funds. However, no study has been conducted on the performance evaluation of Chinese mutual funds using the APT. Since the APT offers several advantages as an alternative model to the CAPM, the performance evaluation on the basis of the APT may reveal a more general conclusion and may contribute to better understanding of Chinese mutual funds

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