Security Selection and Market Timing:
A Comparative Study of Investment Fund Performance in China and US

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Abstract

Using daily data from May 2000 to January 2004, this study examines the risk, return, security selection and market timing performance of China's security investment funds (SIFs), in comparison with the performance of SIFs in the U.S. Our results indicate that China investment funds show superior marketing timing performance while U.S. fund managers display stronger security selection ability. These results imply that the potential synergy for Sino-U.S. joint venture investment funds could be tremendous. Additional analysis of the trading volume of closed-end funds in China illustrates that investors' interests in SIFs are strongly and positively related to fund performance. Results also indicate that Chinese investors favor professionally managed funds more than direct investment in stocks during negative market conditions.

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1. Introductions

Securities investment fund (SIF), an investment intermediary that gathers funds from investors and collectively invests those funds in a portfolio of publicly traded stocks and bonds, is a natural byproduct of the security market development. Through the collective investments of the SIF, each investor shares in the returns from the fund's portfolio while benefiting from professional investment management, diversification and liquidity. There are two types of SIFs: closed-end funds (listed and traded on the stock exchange with fixed number of shares) and open-end funds (unlisted shares open to investors for purchase or redemption at Net Asset Value). Close-end funds are the original and dominant form of SIFs in China due to the ease of management. Closed-end funds raise the capital for securities investments through an IPO, while open-end funds are subject to redemptions from investors and must therefore pay closer attention to fund management, performance and service.

1.1 Development of the China Fund Industry

China's first closed-end fund, Wuhan Securities Investment Fund, was launched in October 1991 with only Rmb10 million. By the end of 1993, the number of closed-end funds reached 70 and the total dollar amount reached Rmb8 billion, although only 27 of those funds were listed on Shanghai Stock Exchange (SHSE) or Shenzhen Stock Exchange (SZSE) while the rest were traded over-the counter. These early funds often invested in a smaller portion in publicly traded securities and a large portion on unlisted investments, such as real estates. China's fledgling fund industry was largely unregulated with significant operational problems until the

promulgation of the Investment Fund Law in December 1997. The law stipulates that closed-end funds must have a minimum capital of Rmb200 million. They must be controlled by the shareholders themselves and cannot be owned by single individuals. No more than 10% of a fund may be invested in any one company, and no more than 10% of a company's stock may be held by the fund. Furthermore, 80% of assets held by the funds must be invested in stocks and bonds, and at least 20% must be invested in government bonds. Following the passage of the 1997 Investment Fund Law, 54 new closed-end funds were launched after March 1998.

The CSRC introduced rules for open-end funds in 2000. According to the rule, fund management firms can charge investors a front-end load up to 5% of the investment and a back-end load up to 3% of the amount withdrawn. In September 2001, Hua'an Fund Management became the first Chinese money management firm to launch an open-end fund. The fund, named as "Innovation Fund", represents a financial innovation in China. As of June 2003, China has 54 closed-end and 17 open-end funds managed by 17 fund management companies. Securities investment funds have enjoyed tremendous growth in recent years, but the asset bases of the SIF industry still remain a small part of China's financial system.

Although it has been more than seven years since the formal passage of its first Investment Fund Law, there has been no academic study examining the structure and performance of securities investment funds in China.

1.2. A Brief Overview of the China Financial Market Research

Much of the previous China financial researches have focused on understanding the stock market structure, price behavior and volatility transmissions across different share classes. In a decisive effort to lessen the dependence of State-owned Enterprises (SOEs) on the government for

financial support, to raise the badly needed long-term capital for the reformed market economy, and to develop alternative investments for China's high level of savings, China launched the Shanghai Stock Exchange in December 1990 and the Shenzhen Stock Exchange in July 1991. Chinese companies can issue two classes of publicly traded equity shares in the domestic market: A shares (95% of the market size) which can be owned and traded only by the Chinese citizens and B shares (5% of the market size) which can be owned and traded by foreigners. As of January 2003, China's equity market has more than 1,200 listed firms and a capitalization of RMB4.14 trillion (equivalent to US$500 billion), emerging as Asia's second-largest equity market (after Japan) and the world's fastest growing equity market in the past ten years.[1] The dramatic growth and rich dynamics of Chinese stock markets have attracted considerable academic interest in recent years.

Previous research in China financial markets have focused on (a) the examination of information transmissions across various equity share classes (A and B shares traded on SHSE and SZSE, H shares and red chips on HKSE, and N shares on NYSE) [see Fung, Lee and Leung (2000), Poon and Fung (2000), and Xu and Fung (2003)]; (b) the behavior of B-share price discount and related hypotheses proposed to justify such puzzling phenomenon [see Su and Fleisher (1998), Su (1999), Sun and Tong (2000), Fung, Lee and Leung (2000), Chen, Lee and Rui (2001), Xu and Liu (2001), and Fernald and Rogers (2002)]; and (c) the impact of the well-developed U.S. financial markets on the emerging China financial markets [see Lawrence, Cai and Qian (1997), Xu and Fung (2002), and Fung, Leung and Xu (2003)]. [2]

[1] Besides A and B shares, the Hong Kong Stock Exchange has long listed shares in a range of mainland China-incorporated companies (called H shares) as well stocks in local China-affiliated companies (called "red chips"). In addition, a number of China companies are also dual-listed on New York Stock Exchange in the form of American Depository Receipts (called N shares).

1.3. Motivation

An in-depth study of China's SIFs is critically important for several reasons. *First*, the securities investment funds in China reflect many intriguing characteristics of an emerging financial market, which differs from a well-developed financial market such as the U.S. This study will shed light on the fund performance in emerging markets.

Second, international money management firms in the U.S. and Europe have long been waiting for opportunities to gain access to some of the US$500 billion currently invested in the Chinese stock markets and the US$492 billion in savings deposits in China. Foreign fund managers rushed to form joint ventures in China starting late 2002 after the release of China Securities Regulatory Commission (CSRC) rules in July 2002. This CSRC rule allows foreign companies to take stakes of up to 33% in forming Sino-foreign investment fund joint ventures with a paid-up capital of at least Rmb300 million. The ceiling will be raised to 49% in 2005. In late 2002 and early 2003, the CSRC approved investment fund joint ventures involving Allianz of Germany, ING of the Netherlands, Société Générale of France, JP Morgan Fleming Asset Management of the U.S. and the Belgian-Dutch Fortis Bank. The growing inflow of foreign companies reflects liberalization mandated in China's WTO agreements.

Third, in China, SIF assets currently only account for 1% of its GDP and 3% of its equity market capitalization, but they account for 67% of the GDP and 58% of the equity market capitalization in the U.S. However, China's gross domestic savings is 41% of its GDP, much higher than the 17% for US. The SIFs represent attractive alternative investments for China's high level of savings.[3] As China's financial markets grow and the legal and regulatory structure

[2] See Chan, Fung, and Thapa (2003) for a thorough literature review of the China financial markets.
[3] See Table 1 for twelve years of comparative economic and financial statistics between China and the U.S.

becomes more supportive, transparent and market-driven, China's SIF industry is likely to expand even more rapidly in the future.

The objective of this study is to examine the risk, return, security selection and market timing performance of China's security investment funds, and to compare the performance of China Securities Investment Funds with the performance of SIFs in the well-developed U.S. markets during the same period. This study will not only help local investors understand the risk and return performance of China investment funds, but also help foreign fund managers who are interested in developing Sino-foreign joint venture investment funds understand the structure, operations and performance of the existing SIF industry in China.

2. Data and Methodology

2.1 Data

Our sample period covers three and half years of daily data from May 2000 to January 2004. Daily values of the Shanghai fund index, Shenzhen fund index, and SHSE and SZSE composite indices during the same sample period were obtained from Reuters BridgeStation. The original Shenzhen fund index was introduced in March 1996 to track the performance of closed-end funds listed on SZSE, while the revised Shenzhen fund index and the Shanghai fund index were introduced in May 2000 to reflect the performance of regulated closed-end funds listed on SZSE and SHSE. However, given the unregulated nature of the SIF industry in the early years, we rely on the fund index data beginning May 2000 since they include only the regulated securities investment funds according to the Investment Company Law of 1997.

Daily values of the U.S. Lipper fund index and Wilshire 5000 Index were also obtained from Reuters BridgeStation for the purpose of comparing the security investment fund

performance between China (emerging market) and the U.S. (established market). Since the U.S. SIF industry is primarily open-ended, the Lipper fund index reflects the performance of open-end funds in the U.S. Wilshire 5000 Index is used as the U.S. total market benchmark.

Table 2 reports the descriptive statistics for the price, excess return and volume of the Shanghai fund index, Shenzhen fund index and their corresponding market benchmark indices. The excess return is calculated as raw return minus the risk free rate on Treasury securities. The Shanghai and Shenzhen funds indices appear to have higher average excess return and lower standard deviation than their corresponding market benchmark indices. The U.S. Lipper fund index, however, has lower average excess return and higher standard deviation that the Wilshire 5000. On a total risk-adjusted basis, the Sharpe ratios (reward to variability ratios) of Shanghai and Shenzhen fund indices appear to be higher than those of their market benchmarks and that of the U.S. Lipper fund Index.

2.2 Methodology

Empirical analysis of the market risk-adjusted performance of SIFs in China will use the following four models for comparison.

$$\text{Model 1: } R_{jt} = a_{1j} + \rho R_{j,t-1} + \delta_{jt} \quad (1)$$

$$\text{Model 2: } R_{jt} = \alpha_{1j} + \beta_j R_{mt} + \varepsilon_{jt} \quad (2)$$

$$\text{Model 3: } R_{jt} = \alpha_{2j} + \beta_{1j} R_{mt} + \beta_{2j}(R_{mt} \times D_t) + e_{jt} \quad (3)$$

$$\text{Model 4: } R_{jt} = \alpha'_{2j} + \theta R_{j,t-1} + \beta'_{1j} R_{mt} + \beta'_{2j}(R_{mt} \times D_t) + e'_{jt} \quad (4)$$

where R_{jt} is the excess return on fund index j on day t and R_m is the excess return on the corresponding market benchmark index. D is a dummy variable that equals -1 during the declining markets (i.e., $R_m < 0$) and 0 otherwise. Model 1 is a pure autoregressive (AR) model, while Model 2 is the traditional Capital Asset Pricing Model (CAPM). Model 3 is the market-

timing model developed by Henriksson and Merton (1981) and Merton (1981), to separate fund managers' broad market macro-forecasting (market-timing) ability from their micro-forecasting (security selection) ability. Model 3 is widely used in researches on the mutual fund and hedge fund performance [Henriksson (1984) and Fung, Xu and Yau (2002)]. Model 4 is the marketing-timing model with an added AR term to control for the autocorrelation of fund index excess return.

In model 2, α_1 is Jensen's (1968) alpha performance index, under the assumption of stationary systematic risk over up- and down-markets. β is the market beta with respect to the fund's market benchmark index. In models 3 and 4, β_1 is the up-market beta; β_2 equals the up-market beta minus the down-market beta and measures the manager's market-timing ability; and α_2 measures the fund's security selection ability (i.e., the market timing-filtered performance index). The market risk-adjusted return, security selection and market timing performance of China Securities Investment Funds will then be compared with performance of SIFs in the United States during the same period.

We also investigate the trading volume of SIFs in China, in relation to the benchmark market trading volume, and the underlying excess returns of the fund index and the market benchmark. When the funds are performing well, investors are enthusiastic about investing in funds, therefore we expect the trading volume of closed-end funds to be positively related to the excess returns on the funds. In addition, when the market in doing well, investors tend to prefer direct investment in stocks; when the market is going down, investors tend to prefer indirect investment in funds through professional money managers. After controlling for fund return, we expect the fund trading volume to be negatively related to the benchmark market return. Finally,

we expect the fund trading volume to be positively affected by the benchmark stock market trading volume.

3. Empirical Results

Table 3 reports the regression results for Model 1 (AR1), Model 2 (CAPM) and Model 3 (market-timing model) and Model 4 (market-timing model with AR1). The Shanghai and Shenzhen fund indices do not show significant autocorrelation as evident by the insignificant AR1 coefficient in Model 1. The U.S. Lipper fund index, however, shows a negative and significant order 1 autocorrelation in Model 1. Table 4 summarizes the fund performance measures derived from the estimates of models 2 through 4.

In model 2, the Jensen's alphas for the Shanghai fund index and Shenzhen fund index are 0.018% and 0.022% on a daily basis (equivalent to 4.5% and 5.5% on an annual basis). The Jensen's alpha for the U.S. Lipper fund index is -0.023% on a daily basis (equivalent to -5.75% on an annual basis). All three market risk-adjusted excess returns (i.e., Jensen's alphas), however, are statistically insignificant. The β for Shanghai and Shenzhen fund index is about 0.60 with respect to Shanghai and Shenzhen composite indices, which is substantially lower than the beta of the U.S. Lipper fund index (about 1.01). This suggests that the U.S. funds are more focused in the equity market than the China funds, which often invest in bonds and real estates as well.[4]

In models 3 and 4, the selectivity performance measure, α_2, is negative for the Shanghai and Shenzhen fund indices and positive for the U.S. Lipper fund index. All selectivity performance indices are significant at 10% after adjusting for the lag fund excess return. The marketing timing

[4] Starting January 2003, the Shanghai Treasury bond index has been published to reflect the bond market returns. When I added the China Treasury bond excess return variable to the CAPM model (equation 2) as an additional systematic factor, I found no evidence of a significant bond beta. The results are not reported since the multifactor case is based on only one year of data.

measure, β'_2, is significantly positive (0.138 for Shanghai fund index and 0.141 for Shenzhen fund index), resulted from a lower down market beta and higher up market beta. However, the U.S. Lipper fund index carries a negative (-0.3470) and highly significant market timing measure. Overall, empirical results indicate that China funds have superior marketing timing ability and negative security selection ability. U.S. funds, in contrast, have superior security selection ability and negative market timing ability.

Table 5 presents the empirical results for the volume regressions. Results from Model 5 indicate that both Shanghai and Shenzhen fund volumes have positive relationship with fund excess returns, indicating that SIFs attract stronger interests from investors when they deliver superior performance. After controlling for AR1 and fund excess returns, results from Model 6 show that fund volumes are negatively related to the benchmark market excess returns, indicating investors' stronger interests in professionally managed funds during down markets and weaker interests during up markets. In Model 7, an additional variable, benchmark market trading volume was added and empirical results show that fund volume is closely tied to the benchmark market trading volume while the effect of fund excess returns and benchmark market returns on fund volume remain robust.

4. **Summary**

We use the daily data on Shanghai and Shenzhen fund indices and corresponding market benchmark indices from May 2000 to January 2003 to investigate the performance of securities investment funds in China. Our results indicate that China investment funds show superior marketing timing performance and negative security selection ability. U.S. funds, on the other hand, fail to time the market but display strong security selection ability.

These results are consistent with Fung, Xu and Yau (2002), who find that funds targeting established markets tend to do better in security selection than those targeting the emerging markets, while timing the broad market movement in established markets in much harder than that in emerging markets. China is a perfect example of emerging market: stock prices are highly driven by government interventions and policy changes, and institutional investors such as SIFs are usually more "informed" about these critical events and factors, and therefore, better at timing the market. On the other hand, U.S. is a perfect case of established market where market timing is almost impossible. However, fund managers in the U.S., supported by well trained and highly professional security analysts, tend to outperform the market in their security selection performance. These results imply the potential synergy for Sino-U.S. joint venture investment funds could be tremendous, given the market timing ability of China's local fund managers and the superior security selection performance of U.S. fund managers. With the opening of China's fund industry following its entry to WTO, we expect such synergy to be realized and the China funds to be even more competitive.

In terms of overall market risk-adjusted performance, it is inconclusive since both China and U.S. fund indices do not have significant Jensen's alpha during the sample period. Other measures, such as the Shape ratio and Treynor's measure, point to a better performance of China's SIFs relative to the U.S. funds. We believe that these results need to be interpreted with caution since the U.S. benchmark market performance was worse that that of Shanghai or Shenzhen during the same period.

Additional analysis of the trading volume of closed-end funds in China illustrates that investors' interests in SIFs are strongly and positively related to fund performance. Results also

indicate that Chinese investors favor professionally managed funds more than direct investment in stocks during negative market conditions.

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Table 1 A Comparison between China and the United States: GDP, Savings, Interest Rates and Stock Markets: 1991-2002

Country	Description	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Mean
China	GDP (constant 1995 U.S. bil $)	434	496	563	634	700	768	835	900	964	1040	1120	1210	805
U.S.	GDP (constant 1995 U.S. bil $)	6490	6690	6870	7150	7340	7600	7940	8290	8630	8990	9010	9220	7852
China	GDP (current U.S. bil $)	377	418	432	543	700	816	898	946	991	1080	1160	1240	800
U.S.	GDP (current U.S. bil $)	5930	6260	6580	6990	7340	7750	8260	8720	9210	9810	10100	10400	8113
China	GDP real growth (annual %)	9.20	14.20	13.50	12.60	10.50	9.60	8.80	7.80	7.10	8.00	7.30	8.00	9.72
U.S.	GDP real growth (annual %)	-0.50	3.06	2.67	4.08	2.70	3.61	4.47	4.32	4.11	4.18	0.30	2.30	2.94
China	Gross domestic savings (% of GDP)	38.11	37.72	41.78	43.06	43.13	41.73	42.98	42.34	40.50	38.73	40.34	39.75	40.85
U.S.	Gross domestic savings (% of GDP)	15.81	16.00	16.13	16.92	16.98	17.42	18.40	18.54	17.81	17.02	..	..	17.10
China	Gross domestic savings (current U.S. bil $)	144	158	180	234	302	341	386	401	402	419	468	492	327
U.S.	Gross domestic savings (current U.S. bil $)	938	1000	1060	1180	1250	1350	1520	1620	1640	1670	..	..	1323
China	Inflation, consumer prices (annual %)	3.54	6.34	14.58	24.24	16.90	8.32	2.81	-0.84	-1.41	0.26	0.46	..	6.84
U.S.	Inflation, consumer prices (annual %)	4.23	3.03	2.95	2.61	2.81	2.93	2.34	1.55	2.19	3.38	2.83	1.59	2.70
China	Lending interest rate (%)	8.64	8.64	10.98	10.98	12.06	10.08	8.64	6.39	5.85	5.85	5.85	5.31	8.27
U.S.	Lending interest rate (%)	8.46	6.25	6.00	7.14	8.83	8.27	8.44	8.35	7.99	9.23	6.92	4.68	7.55
China	Real interest rate (%)	1.79	0.68	-3.12	-7.44	-0.99	3.93	7.76	9.00	8.22	4.89	5.89	6.55	3.10
U.S.	Real interest rate (%)	4.65	3.72	3.52	4.96	6.51	6.20	6.36	7.02	6.49	6.80	4.52	3.47	5.35
China	Listed domestic companies, total	14	52	183	291	323	540	743	853	950	1086	1154	1235	619
U.S.	Listed domestic companies, total	6742	6699	7246	7692	7671	8479	8851	8450	7651	7524	6355	..	7578
China	Market cap of listed firms (% of GDP)	0.54	4.37	9.40	8.02	6.01	13.93	22.97	24.44	33.36	53.77	45.21	37.43	21.62
U.S.	Market cap of listed firms (% of GDP)	68.92	71.63	78.02	72.46	93.45	109.46	136.97	154.26	180.68	153.96	137.21	..	114.27
China	Market cap of listed firms (current U.S. bil $)	2.03	18.30	40.60	43.50	42.10	114.00	206.00	231.00	331.00	581.00	524.00	463.00	216.38
U.S.	Market cap of listed firms (current U.S. bil $)	4090	4490	5140	5070	6860	8480	11300	13500	16600	15100	13800	..	9494
China	Stocks traded, total value (% of GDP)	0.22	4.00	10.05	17.98	7.11	31.35	41.14	30.09	38.04	66.78	38.73	26.95	26.04
U.S.	Stocks traded, total value (% of GDP)	36.82	33.24	50.96	50.97	69.61	91.88	123.73	150.78	201.74	324.79	288.52	..	119.96
China	Stocks traded, turnover ratio (%)	..	158.90	164.03	235.18	115.86	329.03	244.17	130.12	134.18	158.29	81.30	85.68	166.98
U.S.	Stocks traded, turnover ratio (%)	..	..	..	..	85.70	92.80	103.20	106.20	123.50	200.80	201.30	210.28	140.47
China	S&P/IFC investable index (annual % change)	..	..	..	..	..	36.30	-25.00	-52.65	102.20	-9.80	-19.48	-14.51	2.44
U.S.	S&P/IFC investable index (annual % change)	..	..	..	..	..	20.30	20.30	26.70	19.50	-10.10	-13.04	-23.37	5.76

Source: EIU (Economist Intelligence Unit) Country Data; DRI (Global Insights) Database.

Table 2 Descriptive Statistics of Daily China and U.S. Fund Indices and Corresponding Market Benchmarks: May 2000 – Jan 2004

Variables	Mean	Std Dev	Minimum	Maximum
Panel A. Shanghai Stock Exchange (China)				
SHSE Composite Index | Closing	1718.450	259.154	1316.560	2242.420
SHSE Composite Index | Excess Return (%)	-0.008	1.334	-6.334	9.857
SHSE Composite Index | Volume (Shares)	90080707	55886234	2623792	485180620
SHSE Fund Index | Price	1083.120	115.073	892.305	1365.590
SHSE Fund Index | Excess Return (%)	0.009	1.002	-3.936	10.008
SHSE Fund Index | Volume (Shares)	3027803	3130930	417927	36533962
Panel B. Shenzhen Stock Exchange (China)				
SZSE Composite Index | Closing	502.036	94.469	350.738	664.853
SZSE Composite Index | Excess Return (%)	-0.030	1.387	-6.590	9.684
SZSE Composite Index | Volume (Shares)	56477151	35863071	14540447	333673720
SZSE Fund Index | Closing	1048.230	135.731	830.956	1362.840
SZSE Fund Index | Excess Return (%)	-0.002	1.062	-4.919	10.014
SZSE Fund Index | Volume (Shares)	22029326	27060025	2429036	397719184
Panel C. U.S. Market				
Wilshire 5000 Composite Index | Closing	10504.280	1702.640	7342.860	14329.940
Wilshire 5000 Composite Index | Return (%)	-0.012	1.387	-5.084	5.370
Lipper Fund Index | Closing	2736.180	797.976	1687.150	4736.070
Lipper Fund Index | Excess Return (%)	-0.030	2.179	-19.935	31.241

Table 3 Relationship between Fund Excess Return and Market Excess Return

$$\text{Model 1: } R_{jt} = a_{1j} + \rho R_{j,t-1} + \delta_{jt} \quad (1)$$

$$\text{Model 2: } R_{jt} = \alpha_{1j} + \beta_j R_{mt} + \varepsilon_{jt} \quad (2)$$

$$\text{Model 3: } R_{jt} = \alpha_{2j} + \beta_{1j} R_{mt} + \beta_{2j}(R_{mt} \times D_t) + e_{jt} \quad (3)$$

$$\text{Model 4: } R_{jt} = \alpha'_{2j} + \theta R_{j,t-1} + \beta'_{1j} R_{mt} + \beta'_{2j}(R_{mt} \times D_t) + e'_{jt} \quad (4)$$

where R_{jt} is the excess return on fund index j (Shanghai fund index, Shenzhen fund index or U.S. Lipper fund index) on day t and R_m is the excess return on the market benchmark index (Shanghai composite index, Shenzhen composite index or Wilshire 5000 Index). D is a dummy variable that equals -1 during the declining markets (i.e., $R_m < 0$) and 0 otherwise.

Panel A: Dependent Variable: China Shanghai Fund Index Excess Return ($R_{SHFD,t}$)

	Constant	$R_{SHFD,t-1}$	R_{mt}	R_{mt^*} D	F test	Adjusted R^2
Model 1	0.009	-0.036			1.07	0.00%
	(0.25)	(-1.02)				
Model 2	0.018		0.625**		1727.98**	67.75%
	(0.92)		(41.57)			
Model 3	-0.050*		0.693**	0.145**	898.43**	68.61%
	(-1.84)		(29.18)	(3.58)		
Model 4	-0.046*	-0.053	0.691**	0.138**	606.12**	68.86%
	(-1.70)	(-2.72)	(29.17)	(3.40)		

Panel B: Dependent Variable: China Shenzhen Fund Index Excess Return ($R_{SZFD,t}$)

	Constant	$R_{SZFD,t-1}$	R_{mt}	R_{mt^*} D	F test	Adjusted R^2
Model 1	-0.004	-0.037			1.30	0.02%
	(-0.12)	(-1.07)				
Model 2	0.022		0.616**		1546.76	65.28%
	(1.00)		(39.33)			
Model 3	-0.052*		0.691**	0.147**	819.11**	66.59%
	(-1.76)		(27.10)	(3.52)		
Model 4	-0.048*	-0.060**	0.690**	0.141**	554.37**	66.91%
	(-1.67)	(-3.00)	(27.17)	(3.38)		

Table 3 (Continued)

Panel C: Dependent Variable: U.S. Lipper Fund Index Excess Return ($R_{LIPPER,,t}$)

	Constant	$R_{LIPPER,t-1}$	R_{mt}	R_{mt^*} D	F test	Adjusted R^2
Model 1	-0.045	-0.130**			14.1	1.57%
	(-0.59)	(-3.76)				
Model 2	-0.023		1.014**		583.02	41.45%
	(-0.40)		(24.15)			
Model 3	0.120		0.880**	-0.277**	295.18	41.72%
	(1.37)		(11.77)	(-2.17)		
Model 4	0.151*	-0.141**	0.847**	-0.347**		
	(1.75)	(-5.36)	(11.49)	(-2.75)	213.05	43.63%

Note: The t-statistics in parentheses are computed using White's heteroskedasticity-consistent variance-covariance estimator.

** Significant at 5%; * Significant at 10%

Table 4 Performance Evaluation Measures of China and U.S. Securities Fund

$$\text{Model 2: } R_{jt} = \alpha_{1j} + \beta_j R_{mt} + \varepsilon_{jt} \quad (2)$$

$$\text{Model 3: } R_{jt} = \alpha_{2j} + \beta_{1j} R_{mt} + \beta_{2j}(R_{mt} \times D_t) + e_{jt} \quad (3)$$

$$\text{Model 4: } R_{jt} = \alpha'_{2j} + \theta R_{j,t-1} + \beta'_{1j} R_{mt} + \beta'_{2j}(R_{mt} \times D_t) + e'_{jt} \quad (4)$$

In model 2, α_1 is Jensen's (1968) alpha performance index, under the assumption of stationary systematic risk over up- and down-markets. β is the market beta with respect to the fund's market benchmark index. In models 3 and 4, β_1 (or β'_1) is the up-market beta, β_2 (or β'_2) equals the up-market beta minus the down-market beta and measures the manager's market-timing ability, and α_2 (or α'_2) measures the hedge fund manager's selection ability (i.e., the market timing-filtered performance index).

	China SHSE Fund Index	China SZSE Fund Index	US Lipper Fund Index
Mean Excess Return (%)	0.009	-0.002	-0.03
Std Dev of Excess Return (%)	1.002	1.062	2.179
Sharpe Ratio	0.009	-0.0019	-0.0138
Model #2 (Traditional CAPM)			
Jensen's Alpha (α_1) (%)	0.018	0.022	-0.023
Beta (β)	0.625	0.616	1.014
Treynor's Measure	0.0144	-0.0032	-0.0296
Model #3 (Marketing Timing Model)			
Selectivity Index (α_2) (%)	-0.05	-0.052	0.12
Up-market Beta (β_1)	0.693	0.691	0.88
Down-market Beta (β_1-β_2)	0.548	0.544	1.157
Market Timing Index (β_2)	0.145	0.147	-0.277
Model #4 (Marketing Timing Model with AR1)			
Selectivity Index (α'_2) (%)	-0.046	-0.048	-0.045
Up-market Beta (β'_1)	0.691	0.690	0.847
Down-market Beta (β'_1-β'_2)	0.553	0.549	1.194
Market Timing Index (β'_2)	0.138	0.141	-0.347

Table 5 Volume Regressions for China Fund Indices

SHFD_V: Volume on Shanghai fund index; SHCI_V: Volume on Shanghai composite index; SHFD_R: Excess Return on Shanghai fund index; SHCI_R: Excess Return on Shanghai composite index; SZFD_V: Volume on Shenzhen fund index; SZCI_V: Volume on Shenzhen composite index; SZFD_R: Excess return on Shenzhen fund index; SZCI_R: Excess return on Shenzhen composite index.

Panel A: Dependent Variable: China Shanghai Fund Index Volume (SHFD_V)

	Intercept	Lag 1 SHFD_V	SHCI_V	SHFD_R	SHCI_R	F test	Adjusted R^2
Model 5	1039797**	0.532**		1116697**		225.41**	46.91%
	(9.95)	(16.41)		(14.78)			
Model 6	994399**	0.558**		1673321**	-476674**	162.28**	48.78%
	(9.64)	(17.23)		(11.45)	(-4.42)		
Model 7	266599**	0.407**	0.011**	1488352**	-516515**	158.42**	55.35%
	(2.09)	(11.65)	(8.67)	(10.77)	(-5.12)		

Panel B: Dependent Variable: China Shenzhen Fund Index Volume (SZFD_V)

	Intercept	Lag 1 SZFD_V	SZCI_V	SZFD_R	SZCI_R	F test	Adjusted R^2
Model 5	9430197**	0.585**		11458874**		270.00**	51.43%
	(8.74)	(18.88)		(14.56)			
Model 6	9103555**	0.601**		16133677**	-4099555**	189.56**	52.69%
	(8.52)	(19.47)		(11.07)	(-3.79)		
Model 7	-2415600*	0.378**	0.289**	13840181**	-4733030**	200.63**	61.12%
	(-1.65)	(10.78)	(10.51)	(10.34)	(-4.82)		

Note: The t-statistics in parentheses are computed using White's heteroskedasticity-consistent variance-covariance estimator.

** Significant at 5%; * Significant at 10%