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## Mutual Fund's Trading and Chinese Mergers and Acquisitions

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### Abstract

In developing capital markets dominated by individual investors, there is a potential for greater disparity in the interests of institutional investors and controlling shareholders and this has implications for the trading and monitoring activities of institutional investors in these markets, particularly around high impact corporate decisions. We examine the trading activities of mutual funds (as the largest institutional investor in this market) in corporate acquisition activities where there is potential for a wide disparity of interest between institutional investors and controlling shareholders. We find that Top Mutual Fund Management Company (TFC) have strong incentives to trade and realize profits over the event months for fear of price drop due to the mean reversion and herding effect in Chinese capital market.

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**Key words:** merger; acquisition; institutional investors; mutual funds

### 1. Introduction

Prior studies have documented the key role of institutional investors and their influence on corporate activities, such as antitakeover amendments, investment decisions, management compensation and M&A announcements (Brickley et al., 1990; Agrawal & Mandelker, 1990; Bushee, 1998; Hartzell & Starks, 2003; Borokhovich et al., 2006; Chen et al., 2007). In these studies, the underlying mechanism through which institutional ownership is assumed to impact corporate decisions is through trading based on the information advantage and monitoring. In this setting, institutional monitoring consists of both information gathering and

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efforts to influence management of the companies (Chen, Harford and Li, 2007) in which these institutions invest.

This paper explores the issue of institutional trading in the Chinese market, where unlike in the US or other developed markets, institutional investors in China own a lower proportion of the equity market. In particular we study this issue in the context of mergers and acquisitions in Chinese market where there is a potential of severe interest conflict between institutions and controlling shareholders. This paper follows Brickley, Lease and Smith Jr. (1988) classification, and focus on mutual funds, who have less business ties with their firms underlying their investments and thus are more likely to trade based on the information collected on certain corporate event, such as Merger & Acquisitions.

We contribute to the literature on institutional monitoring by examining institutional investors' trading activities in an emerging capital market where institutional investors control far less portion of the equity market, and there is potentially more behavioral biases in the market due to dominant shareholding position of the individual investor. Our results show that Top (largest) Mutual Fund Management Company (hereafter TFC) who collectively hold the largest portion of tradable shares in acquiring firms, significantly increase their holdings in acquiring firms in the pre-event period, but as the active traders in this market, they tend to decrease their holdings over the event announcement quarter in order to realize the profits. The aggregate buying decision and selling decision of all mutual funds, however, is not related with "deal quality. There is however, some evidence that TFC (as the largest shareholders in acquiring firms among all mutual funds) tend to increase holdings in good quality M&A deals, under the assumption that institutional investors have the potential to gather information and monitor the companies in which they invest.

## **2. Hypotheses development**

Bushee (1998) and Bushee (2001) suggest that mutual funds may engage in pre-event information gathering and short term post event trading activities for myopic behavioral reasons. Also the size of the mutual funds and fund managers' bonus are linked with the ranking and profits of the fund management company. In a market where mutual funds have a less dominant position, a better strategy to secure a higher return for them is to spend time on event specific information gathering and use this information to monitor if necessary. Once the M&A event has materialized, mutual funds sell part of their holdings to realize the profits in order to reduce the risk of share price drop (the share price drop may come from other investor's sell-off activities once the formal information has been released).

H1: The overall trading behavior of mutual funds is not related to "deal quality".

H2: TFC increase their holdings in the pre-event in better deals, but reduce their holdings over the event announcement quarter regardless of the quality of the deal, in order to realize profits.

## **3. Data and Sample Description**

Our Mergers & Acquisitions data and mutual fund holding data are from the GTA database. The sample covers the period from 2004 to 2008, as for the Chinese market reliable mutual fund holding data are only available from 2003. The 3 year post-event operating and share return data (data until 2011) are collected from CSMAR database (one subsection of GTA database).

The initial sample of M&A events recorded in GTA database consist of 7552 deals (deal type includes Mergers, Acquisitions and Acquire major assets). To arrive at our final sample we require that (1) all M&A samples are domestic M&A (both acquirer and target are Chinese mainland company), (2) acquirers are listed in Chinese A share market, (3) financial sectors and related transaction are excluded. These conditions result in a final sample of 729 deals. Table 1 reports the industry distribution of these 729 deals. We see that our sample covers all 21 major industries as classified by CSRC (Chinese Security Regulatory Commission), except for financial sector. There are more acquisition deals in machinery, real estate and petrochemicals industries than any other industries, while the lowest number of deals is in communication and cultural industry, accounting for only 0.27% of the total sample.

**Table 1: Acquirer CSRC Industry Distribution**

Table 1A reports the distribution of M&A announcements across Industries. The industry classifications are based on the China Securities Regulation Committee (CSRC) industry classification. The sample is after the following conditions are met: (1) The M&A firms are domestic firms (both acquirer and target are Chinese mainland companies) ; (2) The acquirers are listed on the Chinese A share market and (3) does not include firms in the financial sectors or related transactions.

CSRC Industry Classification	No. of Deals	%
Machinery	84	11.52%
Real estate	73	10.01%
Petrochemicals	64	8.78%
Comprehensive	61	8.37%
Metals & Non -metals	55	7.54%
Wholesale and retail trade	53	7.27%
Pharmaceuticals	48	6.58%
Transportation	44	6.04%
Utilities	36	4.94%
Social Services	29	3.98%
IT	27	3.70%
Food & Beverage	26	3.57%
Textiles & Apparel	23	3.16%
Agriculture, forestry, livestock farming, fishery	22	3.02%
Construction	22	3.02%
Mining	16	2.19%
Paper & Printing	12	1.65%
Electronics	12	1.65%
Other manufacturing	11	1.51%
Timber & Furnishings	9	1.23%
Communication and Cultural Industry	2	0.27%
Total	729	100.00%

#### 4. Mutual fund trading activities around M&A event

This section presents the results of the analysis of mutual fund's holding around M&A events, and examines the factors that affect their trading activities. The Table 2A shows the summary statistics for mutual fund holdings around M&A events, the collective holdings by TFC in 2 quarters before the event date are on average (max) 0.1028% (7.33%) of tradable shares in their invested company, and this holding has gradually increased to 0.9937% (max value: 9.33%) at the quarter end just before event announcement date. After event announcement quarter, the holding has decreased to 0.32% and 0.22% respectively in the one and two quarters after events. On the other hand, holdings by all mutual funds is about 0.597% in 2 quarters before event date, further increased to about 2.76% just before the event announcement quarter, again this number has decreased to 1.36% two quarters after event announcement. Further analysis by calculating the change of holding over different quarters around corporate M&A event (results shown in Table 2B) suggest that TFC increase their holding about 0.66% to 0.89% over the 1 to 2 quarters before the event time, but reduce their holdings over the event announcement quarter (on average about 0.668%, test significant at 1% level), further sell another 0.11% in the quarter after that. Similarly, holdings by all mutual funds are also increased by around 0.28% to 2.16% before events, but on average sells about 0.95% in the event quarter, again the change of holding by all mutual funds are test significant.

**Table 2: Holdings and Change in Holdings of TFC and All Mutual Funds**

Table 3 reports the average percentage holding by Top Holding Fund Company (TFC) and all mutual funds in acquiring firms (Panel A) and the results of the test of significance of the average percentage change in holding of Top Holding Fund Company (TFC) and all mutual funds in acquiring firms over various quarters (Panel B). In Panel A, DataAnn-2Q: 2 quarters prior to M&A announcement; DataAnn-1Q: 1 quarter prior to M&A announcement; Date Ann Qtr: quarter-end just prior to M&A announcement; DataAnn+1Q: 1 quarter after M&A event announcement; DataAnn+2Q: 2 quarters after M&A event announcement. In Panel B, (-2Q to 0Q): over 2-quarter period until the end of quarter just before M&A announcement. (-1Q to 0Q): over 1-quarter period until the end of quarter just before M&A announcement. Event Qtr: event announcement quarter; (Q0 to Q1): over 1-quarter period following the M&A announcement quarter; (Q0 to Q2): over 2-quarter period following the M&A announcement quarter. \*\*\*, \*\*, \* shows significance at 1%, 5%, 10% level respectively. No of observations is 729.

<i>Panel A: Percentage Holding at Quarter End</i>				
<b>Period</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>MAX</b>
<i>TFC (%)</i>				
Date Ann -2Q	0.103	0.570	0	7.337
Date Ann -1Q	0.334	1.183	0	9.225
Date Ann Qtr	0.994	1.846	0	9.338
Date Ann +1Q	0.325	1.176	0	9.996
Date Ann +2Q	0.223	0.958	0	7.624
<i>All Mutual Funds (%)</i>				
Date Ann -2Q	0.597	2.712	0	36.287
Date Ann -1Q	2.470	6.526	0	52.157
Date Ann Qtr	2.759	6.806	0	52.157
Date Ann +1Q	1.804	5.694	0	44.829
Date Ann +2Q	1.364	5.405	0	53.562
<b>Period</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>MAX</b>

<i>TFC</i>				
(-2Q to 0Q)	0.891***	1.729	-1.073	9.338
(-1Q to 0Q)	0.660***	1.718	-3.619	9.338
Event Qtr	-0.668***	1.573	-9.338	5.273
(Q0 to Q1)	-0.102**	1.090	-7.289	7.131
(Q0 to Q2)	0.006	1.282	-7.289	9.299
<i>All Mutual Funds</i>				
(-2Q to 0Q)	2.162***	6.071	-8.359	52.157
(-1Q to 0Q)	0.289	8.488	-48.860	52.157
Event Qtr	-0.955***	6.292	-48.860	38.418
(Q0 to Q1)	-1.394***	6.586	-52.157	23.688
(Q0 to Q2)	0.994**	10.405	-52.157	60.784

We then try to explain whether the change of mutual fund holding before and during the event quarters can be explained by perceived quality of the deals. We follow the regression analysis by Chen et al. (2007):

$$\text{Change in Holdings}_{it} = \alpha_0 + \beta_1 \text{Perceived Deal Quality}_{it} + \sum_{i=2}^n \beta_i \text{Control Variable}_{it} + \varepsilon_i$$

The intuition of this equation is that if the fund management team has superior ability to predict the quality of the deal, or the mutual fund has general knowledge regarding the event firms' management team on their ability to make good decision and produce good quality deal, we should observe the coefficient on observed deal quality significantly related to the change of the holding before the event quarters. Control variables are used to explain the normal change of mutual fund holding.

We use three proxies as measures of deal quality: (1) one-year post-event buy and hold abnormal return (bhary1), where the benchmark are the 10 size deciles reference portfolios following methods by Lyon et al. (1999); (2) the post-event 12-month abnormal operating performance - industry median adjusted Return on Asset (roam12), and (3) industry median adjusted Return on Equity (roem12), where we use CSRC industry classification to calculate industry median ROA and ROE.

The control variables follows Gompers & Metrick (2001) and Parrino et al. (2003) studies of the determinants of change of institutional holdings. The control variables include both short term and long term momentum variables: cumulative abnormal return over -10 days to -1 days before event time (car101) and pre event one year buy and hold abnormal return (bharpre12m), adjusted for size reference portfolio as described above. Acquiring firm size (log of acquirer market capitalization - lnsiz) and acquiring firm book to market ratio (acqbtmv) at the end of year before event announcement date, turnover for the event announcement quarter (turn0), and 2 quarters (turn6m) in advance, turnover are calculated by the period specific trading volume divided by the outstanding number of shares, eoydum represents the end of year dummy.

We first examine all mutual funds trading activities and its relation with observed deal quality. Regression 4-6 (panel A of Table 3) shows that none of the three observed deal quality measures are related to the change of total mutual fund holdings in announcement quarter (Q0), suggesting that mutual funds generally sell their shares regardless the quality of the deal in the event quarter. Regression 1 to 3 shows that the change of holding in the 2 quarters before the deal announcement also does not relate with deal quality, suggesting that the total holding by all mutual funds is not a good indicator of good M&A deals, this supports our Hypothesis 1.

We then turn to the trading activities of TFC in Panel B., different from the results of the regressions 1-3 of Panel A, regressions 2 and 3 in Panel B shows that the coefficients of two of the observed deal quality are significant, suggesting that TFC increases their holding in their “perceived good quality” acquiring firms around 6 months before event period. Their ability to forecast good quality deal may come from their strong research team, private information through large holdings or their monitoring and influencing ability to the management team, in order to produce good quality deals.

While, regression 4 to 6 of Panel B shows the trading activities by TFC in the event announcement quarter, where trading activities by TFC are not related with deal quality and this suggests that TFC’s trading decision is not linked with deal quality, we also see the statistics from Table 2B that on average TFC sell about 0.668% shares of M&A event firms in the announcement quarters, both the regression results and change of holding from Table 2 suggests that TFC may simply choose to sell shares and realize profits over the event quarters regardless the quality of the deal, again above results support our hypothesis 2.

This section examines the mutual funds’ ability to gather and process the information, and make their trading decision based on this information. In summary, we find that the level of holding by all mutual funds is not a spurious indicator of “deal quality”, and their trading decisions are also not related with the perceived deal quality. There is some evidence that TFC increase their holding in “good quality” deals before formal announcement, but sell their holdings over the event quarter regardless of the quality of the deal, in order to realize the profits.

**Table 3: Mutual Funds trading activities and deal quality**

Table 4 reports the results of testing the impact of perceived deal quality on the trading activities of mutual funds’ around M&A announcement quarters. p-values in parentheses. \*\*\*, \*\*, \* shows significance at 1%, 5%, 10% level respectively.

	1	2	3	4	5	6
	DV: Change of holding over 2 Quarters Prior to M&A announcement quarter			DV: change of holding over M&A Announcement quarter		
<b>Panel A: All Mutual Fund Trading Activities</b>						
<b>Perceived Deal Quality</b>						
roam12	-7.339			4.99		
	-0.149			-0.393		
roem12		-0.063			0.665	
		-0.975			-0.776	
bhary1			0.0617			-0.34
			-0.849			-0.359
Intercept	-21.154***	-21.287***	-20.366***	14.817**	13.770**	13.990**
	0	0	0	-0.021	-0.034	-0.029
N	652	647	662	659	654	669
adj. R-sq	0.232	0.229	0.226	0.03	0.032	0.027

Control Variable	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Ind Dummy	Yes	Yes	Yes	Yes	Yes	Yes
<b>Panel B: TFC Trading Activities</b>						
roam12	2.13			0.164		
	-0.13			-0.904		
roem12		1.247**			-0.573	
		-0.025			-0.292	
bhary1			0.184**			-0.141
			-0.042			-0.112
Intercept	-2.590**	-1.786	-2.701**	0.9	0.33	0.745
	-0.02	-0.138	-0.016	-0.549	-0.826	-0.625
N	652	647	662	659	654	669
adj. R-sq	0.246	0.256	0.235	0.121	0.137	0.114
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Ind Dummy	Yes	Yes	Yes	Yes	Yes	Yes

## 5 Conclusions:

This paper examines the trading activities of mutual funds in Chinese corporate acquisition activities where there is the potential for a wide disparity between institutional investors and controlling shareholders' interests. We contribute to the existing literature by examining the role of a "transient investors" who operate in a developing capital market with lower institutional investor holding and more investor behavioral biases. Our results show that mutual funds, as a professional investor with information advantage, spend time on gathering M&A event-specific information and trade on that information. Especially TFC have strong incentives to trade and realize profits over the event months for fear of price drop due to the mean reversion and herding effect in Chinese capital market.

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