POSITIVE TRADING EFFECTS AND HERDING BEHAVIOR IN ASIAN MARKETS: EVIDENCE FROM MUTUAL FUNDS

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ABSTRACT

Many studies on mutual funds have demonstrated the existence of herding behavior and positive feedback trading. However, most research has not examined the characteristics of herding behavior, but simply attempted to determine if herding behavior exists. These studies fail to probe into the actual causes behind herding behavior. The current study fills this gap in the literature. The study is based on the herding definition of Bikhchndani and Sarma (2001) and examines Asian country mutual funds with a six-year sample period. We examine if there are "Buy high, sell low", "Buy previous winners, sell previous losers", "positive feedback trading," and "herding behavior" in global mutual funds. We also explore the possible factors behind these phenomena.

JEL: C30；G01；G15

KEY WORDS: Mutual fund, positive feedback effect, herding, financial crisis, behavioral finance

INTRODUCTION

Under the backdrop of freer international financial markets and more liquid global cash flows, mutual fund behavior has a significant impact on a country's economy. On the positive side, mutual funds have the potential to spur a country to better economic growth and capital acquisition. They can helping the country boost financial liberalization and globalization. However, the liquid and fast-moving nature of mutual funds can also cause financial problems if herding effects exist. For example, the 1994's Mexican financial crisis and 1997 Asian financial crisis were directly or indirectly linked to the behavioral patterns of mutual funds. Therefore, study of the liquidity and fund movement of mutual funds should be paramount in financial research.

Some scholars argue there is a difference between positive feedback trading and herding behavior. For example, Bikhchndani and Sarma (2001), and Kim and Wei (2002), both define the momentum effect as a combination of positive feedback trading and negative feedback trading. Positive feedback trading refers to "Buy high, sell low" trading strategies that emphasize buying previous winners and selling previous losers. Negative feedback trading refer to the "Buy low, sell high" investment strategy that focuses on buying previous losers and selling previous winners. Kim and Wei (2002) provided an explanation of herding behavior similar to that given by Bikhchndani and Sarma (2001). As there is information asymmetry in the market, different investing entities are impacted differently by mutual fund herding behavior. Most scholars who have studied mutual funds separate the momentum effect from herding behavior when investigating mutual-fund behaviors.

Most previous empirical analyses on herding behavior focuses on the rate of returns from stock markets and foreign exchange markets when explaining mutual fund herding behavior. For example, Kuo and Chi (2000) collected data on the 30 Taiwan companies with the most institutional holdings and examined them in pre-crisis, crisis, and post-crisis periods. Froot, O'Connell and Seasholes (2001) divided mutual funds into five geographical areas: developing countries, Latin America, East Asia, Europe, and other

emerging markets. Using this data they analyze the impacts of fund flows and returns in each area. Kim and Wei (2002) collected data on stock markets and mutual funds in Korea in order to analyze the country's offshore, domestic, individual, and institutional investors.

This paper is based on Bikhchndani and Sarma's (2001) definition of herding behavior. It is aimed at describing two different models and determining if there are positive feedback trading and herding behaviors among global mutual funds. A preliminary analysis of mutual fund trends in Asia's emerging markets is also presented. This paper not only examines whether there is positive feedback trading or herding behavior in mutual funds, but also probes into the real causes of herding behavior. The results of the present study provide investors with information on stock returns and foreign-exchange fluctuation associated with mutual-fund behavior. This information will help them determine their own optimal portfolios and investment patterns. The paper consists of a literature review in section 2, data description and analysis in section 3, an empirical research in section 4, and a conclusion in section 5.

LITERATURE REVIEW

Studies on mutual-fund herding behavior have focused on stock returns. However, while identifying the presence of positive feedback trading effects on mutual funds, these studies have largely failed to explain the causes leading to herding behavior. To explore factors that trigger herding behavior, we examine both theoretical and empirical papers.

Devenow and Welchh (1996) indicated that in addition to financial data, agency policies and information learning provide insights into mutual fund behavior. They argue that rational herding behaviors in financial markets include information acquirement, investment decisions, banking management, information level, herding behavior, market-efficiency hypotheses, and non-rational herding behavior. They consider how to theoretically analyze rational herding information that could swiftly affect market prices. Although mutual-fund herding behavior is identified in Borensztein and Gelos (2003), not all mutual funds have apparent herding effects. For example, open-ended mutual funds show more obvious herding behavior than do their close-ended counterparts. The authors of the present study, adopt the momentum strategy, also called "Buy high, sell low" to measuring herding behavior.

Most studies on the herding phenomenon focus on the correlation of returns in an investment portfolio. This approach however, only addresses the "Buy high, sell low" phenomenon in mutual funds. However, more can be said about herding behavior. Bikhchndani and Sarma (2001) developed a theory regarding the financial herding behavior in mutual funds. They theorize that the herding phenomenon stems from the behavior of an investor who watches others' behaviors and follow suit. However, if an investor makes a change in his or her portfolio simply because of a sudden rise in interest rates or a sudden drop in share prices, such behavior should be deemed a "Buy high, sell low" or "Buy low, sell high" phenomenon, rather than herding behavior. Kim and Wei (2002)'s distinction between momentum effects and herding behavior also suggests that the difference exists. The so-called momentum effect refers to positive feedback trading and negative feedback trading, i.e., the variance in stock returns, which would cause investors to buy high, sell low, or buy low, sell high. However, this cannot be explained as herding behavior. This conclusion is the same as the one made by Bikhchndani and Sarma (2001). However, these authors' analysis of the existence of herding behavior was based on the stock variations in a single country and thus is not convincing in a global context.

Several empirical studies regarding mutual-fund, such as Froot, O'Connell and Seasholes (2001), suggest that a stable fund flow does not guarantee a continuous return. Factors that affect fund flow are based on previous returns. The price sensitivity of regional stocks has a positive and large impact on overseas fund inflow. Noteworthy here is the fact that price is consistent with the persistence of a fund flows and the interruption in fund flows could have an impact future returns.

Kim and Wei (2002) adopted the dynamic-trading model, the performance model, and the LSV-stock-return model incorporating four investor types and three periods relative to the Asian financial crises. They used Korean stock and mutual fund data to examine the dynamic-effect and herding models. The results show both dynamic effects and herding behavior exist. Moreover, herding behavior in overseas markets is more apparent than that in domestic markets. While Kim and Wei examine only the Korean market, richer results can be obtained by examining a cross section of countries. Borensztien and Gelos (2003) find that herding behavior is more prevalent among open than closed-end mutual funds They also find more herding behavior exists in larger emerging markets. Overall the evidence indicates that mutual-fund herding behavior is more prevalent in emerging markets than in other markets.

Aitken (1998) examined 16 stocks in 16 countries in emerging markets in 16-week-long holding periods. The results show that the general return in emerging stock markets was auto-correlated. Ming-Hua Kuo and Chun-Chung Chi (2002) focused on the 30 Taiwan stocks with the most institutional holdings. They examine the stocks during three time periods: pre, post, and crisis groups. They examined systematic risk patterns and stock turnover rates to determine if returns on mutual funds were better than Taiwan market averages.

A number of researchers have examined fund inflows during the Asian financial crisis (see Chang and Velasco, 1998; Radelet and Sachs, 1998; the World Bank, 1998; and Corsetti, Pesenti and Roubini (1999a, 1999b). These studies suggest that the 1997 Asian financial crisis originated from Thailand. The crises unfolded when the Thai government switched its foreign exchange policy from a composite currency regime to a floating currency regime. This move impacted Philippines's peso, the Malaysian dollar and Indonesian guilder. Mutual funds responded by moving funds into Latin America. However, after the Asian financial crisis eased, the funds reinvested in Asian emerging markets particularly China, Vietnam, India, and Thailand. The economic environment in these countries suggested future growth potential.

DATA DESCRIPTION AND ANALYSIS

Data on global fund flows and destinations were obtained from Emerging Portfolio.com Fund Research (EPFR). The database includes 10,000 global investment companies form emerging markets and American funds. Total assets under management for these firms totaled 5 trillion US dollars. Our data covers mutual funds in thirteen Asian emerging markets. Japan was not included in the Asian emerging markets and Vietnam does not provide stock market information in the above database. The data contains global mutual funds, which represent over 50% of total fund assets in emerging markets.

The data covers the time period from January 1996 to October 2004. The data spans a period of seven years and eleven months. As noted earlier this represents a time period longer than covered in previous studes. Froot, O'Connell and Seasholes (2001) examine data from 1994 1998. The research data of Borensztein and Gelos (2003) covered a four-year period from January 1996 to December 2000.

Data were collected on stock markets and foreign exchange markets for each country from the InfoWinner databasefrom Infotimes; Taiwan Economic Journal and Data Stream; IFS; and IMF database. We also collected data on foreign exchange markets from IMF databases. The data covers member nations under IMF, macroeconomic indicators, and international economic statistic data. While the IMF database is not generally available for academic research, the authors were granted access to the data. Daily data were collected however monthly average data were calculated for use in this study.

The data include changes in the outflow of mutual funds in each country, monthly moving average share prices and foreign exchange rates. We calculate the percentage change in monthly average investments outstanding and mutual fund flow amounts in each market. We also determine the fund destination, calculate the fund inflows from each country and analyze the investment behavior of each country.

In addition to analyzing the full sample, we segregate the sample based on how the country was impacted by the Asian Financial Crises. Countries classified as severely affected are the Philippines, Thailand, Indonesia, Korea, and Malaysia. The remaining countries were classified as not seriously affected. We examine data for the pre financial period from January 1996 to June 1997; during the financial crisis extends from July 1997 to December 1998; and the post-financial crisis period runs from January 1999 to November 2004.

THE EMPIRICAL RESULTS

The empirical analysis in this research contains an assessment of stock return fluctuations and foreign-exchange rates using the fluctuation model of global mutual fund flow. We also utilize Model 1 and Model 2 described below.

Model 1: This model describes positive feedback trading effects of stock returns and foreign exchange rate fluctuations on mutual fund flows. It uses the change in stock return and foreign exchange rate fluctuations during the $t-1$ and $t-3$ periods. This is the so-called correlation behavior of "Buy high, sell low" or "Buy low, sell high." A positive α coefficient indicates the existence of positive feedback trading effect. Defining *KI* as the variation in mutual fund flow, the model is specified as:

$$KI_{i,t} = \alpha_0 + \sum_{i=0}^{3} \beta_i StockR_{t-i} + \sum_{i=0}^{3} \gamma_i ExchR_{t-i} + \varepsilon_i \qquad (1)$$

Model 2: This model is based on the autocorrelation of mutual fund flows to identify herding effects. As noted above, the herding effect is the degree of "copycat" behavior by a person who observes others. Thus, capital inflow in the current period reflects funds flowing into the country in the $t-1$, or *t*-2 periods. A positive α coefficient indicates mutual fund inflow or outflow in the current period is a function of mutual-fund behavior in previous periods as would be expected under the herding theory. Model 2 is specified as:

$$KI_{i,t} = \alpha_0 + \sum_{i=1}^{2} \alpha_i KI_{t-i} + \sum_{i=0}^{3} \beta_i StockR_{t-i} + \sum_{i=0}^{3} \gamma_i ExchR_{t-i} + \varepsilon_i \qquad (2)$$

At issue is if mutual funds flowed into Asia's emerging markets in the wake of the 1997 Asian financial crisis. It is clear that the total volume of mutual funds into Asia is gradually increasing. This primarily a result of economic growth in the Asia's emerging countries which is relatively higher than those in the other regions. Although inflow of foreign investment could boost Asia's economy, a massive withdrawal of foreign money could result in a serious financial crisis. How to prevent such a crises is an important research question and the main purpose of the current study.

Figure 1 shows the total volume of mutual funds collected by *EPFR* continues to increase. The trend of total mutual fund volume shows significant correlation. After the Asian financial crisis, the total volume of mutual funds in Asia increased each year. Mutual fund size in Asia has significantly increased since the financial crisis and accounts for over 50% of the total fund size in the globally emerging markets. Fund size declined from 45% to 20% in Asia during the crises. Later those funds moved back into Asia's emerging markets.

Some of the global mutual funds in Asian countries came from Latin America. These emerging market funds are mostly invested in two areas (see Figures 1 and 2). The mutual funds flowed extensively into Latin America, especially during the Asian financial crisis. However, the fluctuation of mutual funds in

Europe, Africa, the Middle-East, and other emerging markets is smoother without as much variation (Figure 1). Fluctuation has been more drastic in Asia and Latin America's emerging markets. Issues about whether the inflow of mutual funds is positive for the investment market and environment in each Asian country is further explored by Model 1 and Model 2.

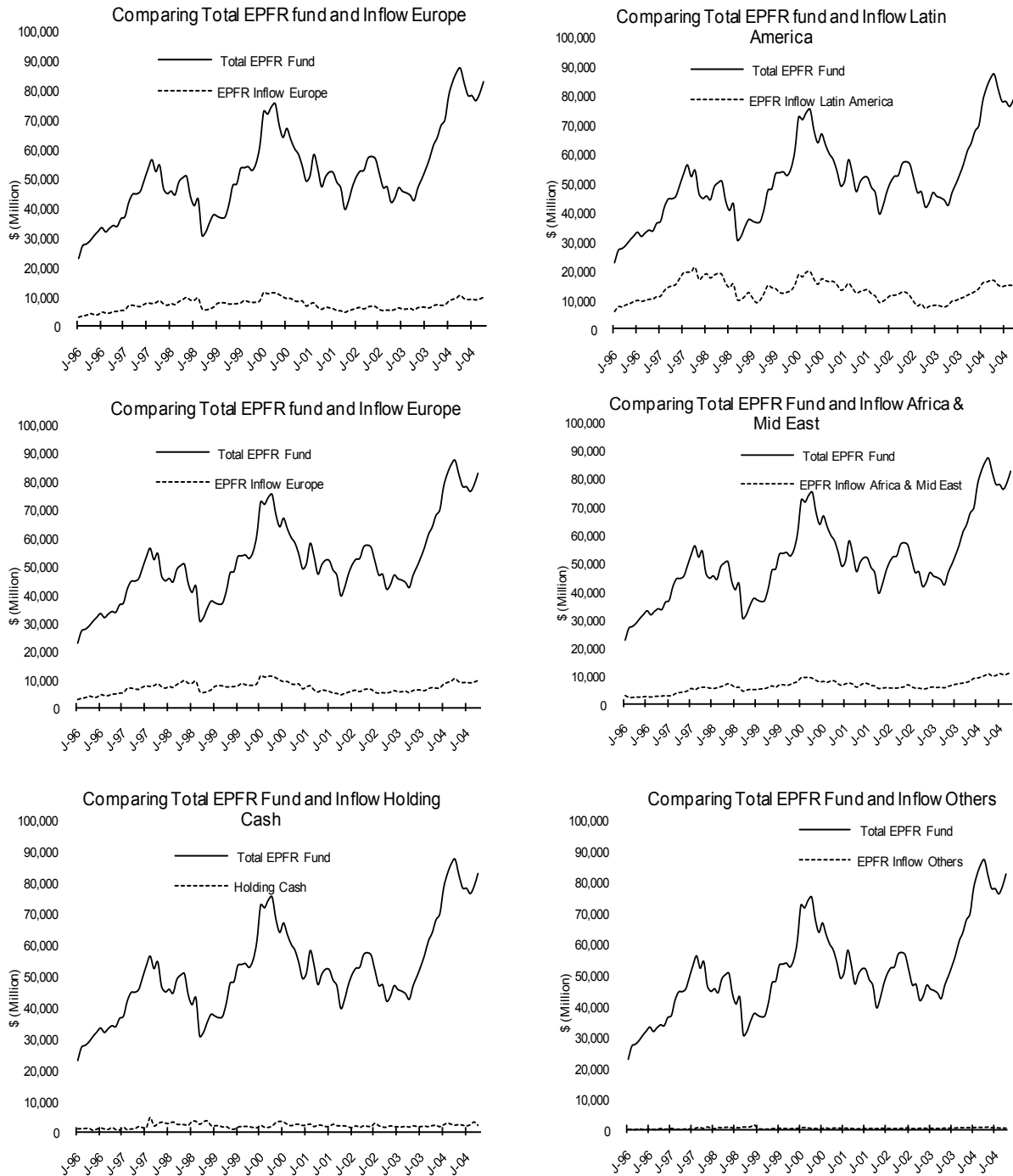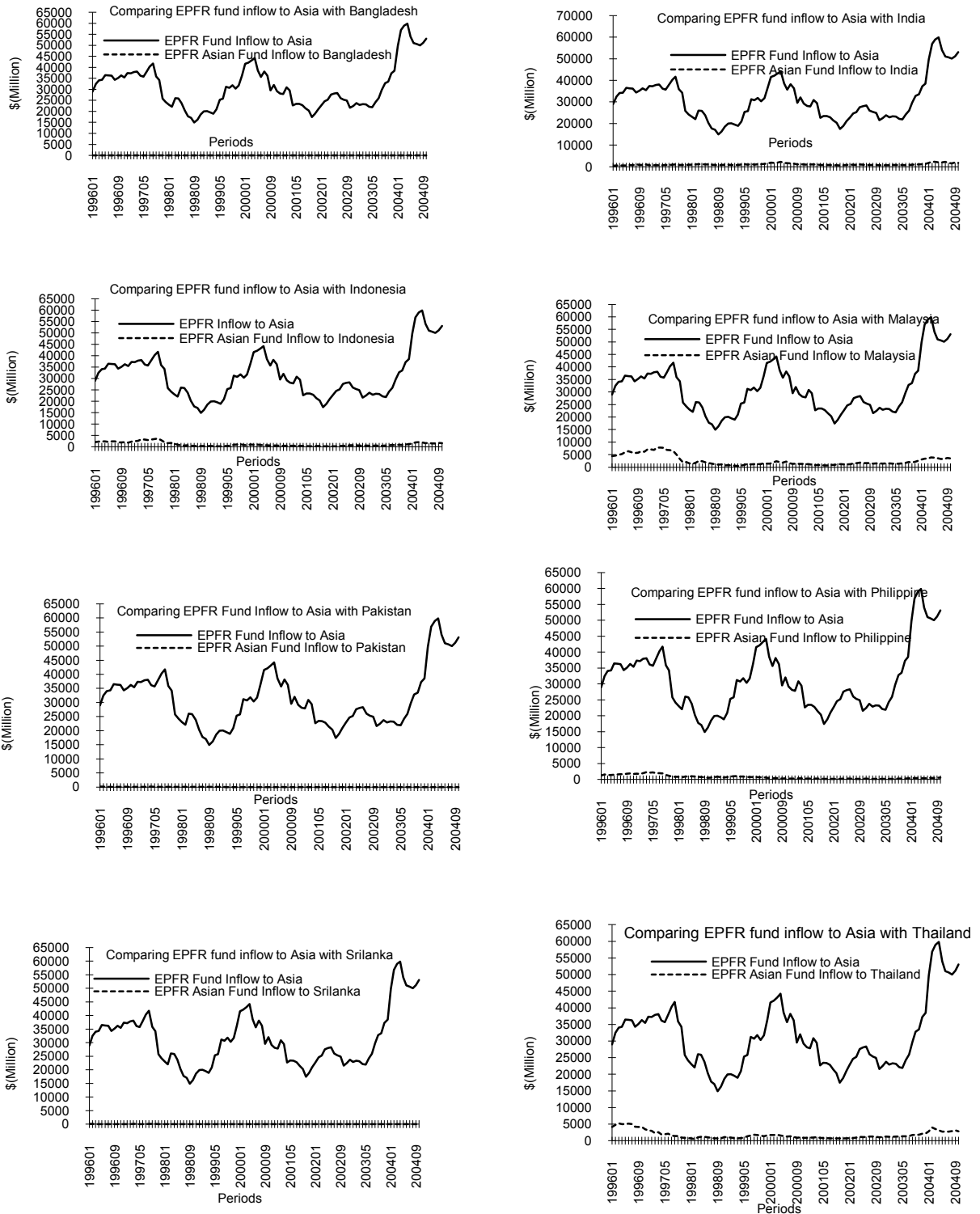Figure 1: Comparison of EPFR Mutual Fund Inflow to Five Major Areas

Figure 2: Comparison of Total Volume of EPFR Mutual Fund into Asia and into Stable Asian Countries

In the Figure 3, besides obtaining a preliminary understanding of certain degrees of mutual-fund herding behavior in each country, we find that during the Asian financial crisis, some mutual funds left Asia while

others accumulated cash positions. This implies that some mutual funds secure their funds temporarily rather than make a longer-term shift.

Figure 3: Comparison of Total Volume of EPFR Mutual Fund into Asia and into Fluctuating Asian Countries
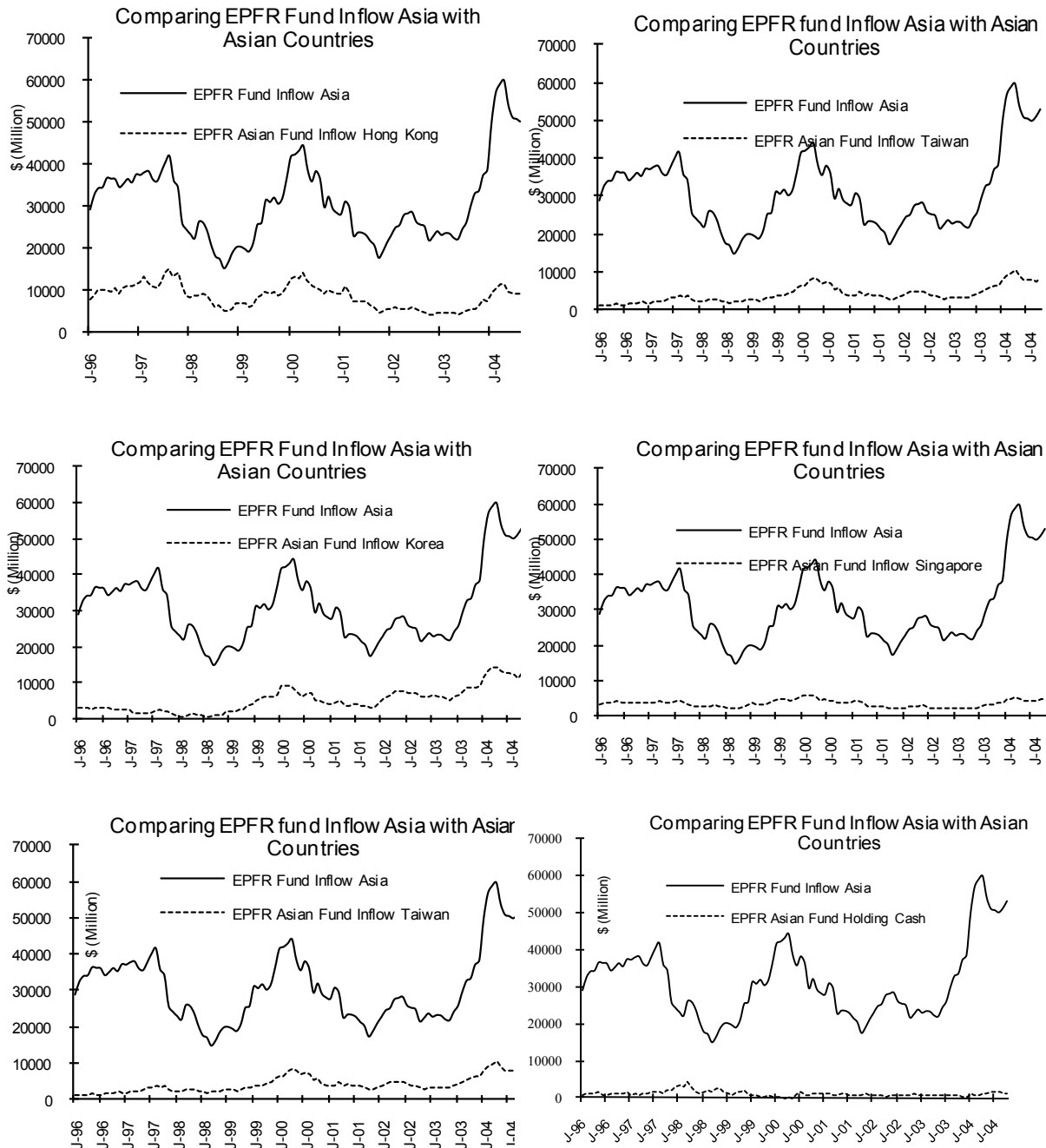
Next, we use Models 1 and 2 to examine mutual-fund herding behavior within each state and country, as well as stock returns and foreign exchange fluctuations. Model 1 is a restricted model. In model 2, the unrestricted model autocorrelation coefficients of mutual fund inflows and outflows are incorporated, to identify herding behavior. The regression results are reported in Table 1. The analysis show that 55%

of total mutual fund volume into the stock markets and foreign exchange markets create an impact. In Model 1, we examine the "Buy high, sell low" positive feedback trading effect in the mutual funds from the current period to the return period $(t+1)$ or $(t+3)$. The correlation is significant. On the contrary, the positive feedback trading effect shows no significance in foreign exchange rate fluctuation indicating mutual funds primarily focus on stock returns supporting the positive feedback trading effect.

Table 1: The regression Analysis of EPFR and 13 Asia's Emerging Countries

Model 1: "Positive Feedback Trading"		Model2: "Herding Behavior"	
Constant	14.4657 (1.497)	Constant	13.0268 (1.350)
STOCK	0.2397*** (6.789)	KI_{t-1}	0.0579** (2.088)
$STOCK_{\{t-1\}}$	0.5207*** (14.326)	KI_{t-2}	0.0507* (1.870)
$STOCK_{t-2}$	0.2844*** (7.830)	STOCK	0.2374*** (6.739)
$STOCK_{t-3}$	0.0086 (0.246)	$STOCK_{t-1}$	0.5080*** (13.787)
EXCH	-0.0197 (-0.456)	$STOCK_{t-2}$	0.2441*** (6.227)
$EXCH_{t-1}$	-0.0633 (-1.458)	$STOCK_{t-3}$	-0.0385 (-0.985)
$EXCH_{t-2}$	-0.0472 (-1.088)	EXCH	-0.0164 (-0.380)
$EXCH_{t-3}$	0.0011 (0.021)	$EXCH_{t-1}$	-0.0630 (-1.456)
		$EXCH_{t-2}$	-0.0425 (-0.981)
		$EXCH_{t-3}$	0.0085 (0.197)
obs	1326		1326
R^2	0.2676		0.2739

*The dependent variable is the variation of mutual fund flow; figures in parentheses represent t values; *, **, *** represent 10%, 5%, and 1% significant level respectively. A negative EXCH value represents the appreciation of the currency exchange rate.*

Next, we use Model 2 to test if there is behavior is different for those countries more or less affected by the Asian financial crises. In Table 2, the data covering the full sample period are examined. The autocorrelation tests show that behavior has an impact on other investors and precipitates "copycat" behavior in either period $(t+1)$ or period $(t+2)$. This suggests the existence of herding behavior, with a high degree of significance. We find a positive feedback trading phenomenon in stock returns in both groups of countries.

In Tables 3 and 4, the three data subperiods: pre, post and during the crisis, are examined. Table 3 shows the results for the unrestricted model and Table 4 shows the results for the restricted model. The results in Tables 3 and 4, are markedly different from those in Table 2. In those countries not involved in the financial crisis, Bangladesh, India, Hong Kong, China, Taiwan, Singapore, Sri Lanka, and Pakistan stock returns are highly significant. We also found that most investors were primarily concerned with returns and were less concerned with the changes in currency exchange rate. The results show no herding behavior in those countries not involved in the financial crisis. These results hold both before and after the crisis.

The most striking difference appears in the variation of countries involved in the financial crisis during the crisis period, as demonstrated by the empirical results in Table 4. The stock return still has significant correlation with the positive feedback trading effect but currency exchange rate is not significant. This

finding suggests that the herding behavior is triggered by low information transparency. Moreover, the occurrence of herding behavior would not necessarily come with positive feedback trading effects.

Table 2: Regression Analysis of EPFR Mutual Funds and Countries Involved and Not Involved in the Asian Financial Crisis

Model 1: "Positive Feedback Trading Effect"				Model 2: "Herding Behavior"			
Countries Not Involved in Financial Crisis		Countries Involved in Financial Crisis		Countries Not Involved in Financial Crisis		Countries Involved in Financial Crisis	
Constant	22.8883 (1.585)	CONSTANT	16.4155 (1.086)	Constant	27.0305 (1.873)	CONSTANT	10.9717 (0.772)
STOCK	0.2154*** (5.620)	STOCK	0.5884*** (4.006)	KI_{t-1}	-0.0850** (-2.261)	KI_{t-1}	0.3214*** (7.130)
$STOCK_{t-1}$	0.5210*** (13.134)	$STOCK_{t-1}$	0.7526*** (5.129)	KI_{t-2}	0.0264 (0.725)	KI_{t-2}	0.0009 (0.981)
$STOCK_{t-2}$	0.2460*** (6.201)	$STOCK_{t-2}$	0.8766*** (6.028)	STOCK	0.1967*** (5.1736)	STOCK	0.5307*** (3.899)
$STOCK_{t-3}$	-0.0077 (-0.202)	$STOCK_{t-3}$	0.1450 (0.315)	$STOCK_{t-1}$	0.5419*** (13.527)	$STOCK_{t-1}$	0.5598*** (4.088)
EXCH	-22.939 (-0.643)	EXCH	-0.0077 (-0.184)	$STOCK_{t-2}$	0.2855*** (6.374)	$STOCK_{t-2}$	0.6132*** (4.403)
$EXCH_{t-1}$	-24.9097 (-0.656)	$EXCH_{t-1}$	-0.0576 (-1.366)	$STOCK_{t-3}$	0.0080 (0.1777)	$STOCK_{t-3}$	-0.1380 (-0.976)
$EXCH_{t-2}$	4.0691 (0.110)	$EXCH_{t-2}$	-0.0438 (-1.037)	EXCH	-11.4375 (-0.332)	EXCH	-0.0094 (-0.238)
$EXCH_{t-3}$	-18.4820 (-0.534)	$EXCH_{t-3}$	-0.0015 (-0.037)	$EXCH_{t-1}$	-33.1825 (-0.912)	$EXCH_{t-1}$	-0.0549 (-1.394)
				$EXCH_{t-2}$	13.1015 (0.356)	$EXCH_{t-2}$	--0.0242 (-0.614)
				TEX_{t-3}	-27.794 (-0.793)	$EXCH_{t-3}$	0.0117 (0.296)
obs	510		816		510		816
R^2	0.1532		0.3541		0.2126		0.3606

*The dependent variable is the fluctuation in the mutual-fund flow; figures in parenthesis represent t values. *, **, *** represent 10%, 5%, and 1% significant level respectively. Countries not involved in the financial crisis include Bangladesh, India, Hong Kong, China, Taiwan, Singapore, Sri Lanka, and Pakistan; the ones involved in the crisis include Indonesia, Korea, Malaysia, the Philippines and Thailand. A negative EXCH value represents the appreciation of a currency exchange rate*

CONCLUSION

This paper discusses whether mutual funds have positive feedback effects as well as herding behavior in Asian emerging markets. The paper examines monthly data for stocks, exchange rates, and EPFR mutual fund flow data from thirteen Asian emerging markets. The time period for this study is longer than used by other authors allowing for additional understanding of herding effects. The paper also uses a novel empirical approach that allows additional insights.

The results show that mutual funds display positive feedback effects and herding phenomenon exists. The positive feedback and herding effects endure for two months. It shows the development potential of Asian emerging countries is highly attractive to investors. Five countries involved in the financial crisis suffered economic impact more serious than others. Both positive feedback effects and herding phenomenon present are significant in countries more affected by the financial crisis. This suggests that mutual fund behavior may have contributed to the financial crisis. The research for financial crisis and

non-financial crisis countries at pre, during, and post-crisis periods indicates that financial crisis countries have great sensitivity to capital flows. The herding phenomenon is more significant during and post-crisis. This implies that mutual funds' behavior tends to uniformity during economic fluctuations.

Table 3: Regression Analysis of EPFR Mutual Funds and Countries not Involved in the Financial Crisis before, during, and after the Crisis

Model 1: "Positive Feedback Trading Effect "				Model 2: "Herding Behavior"			
	Pre-financial Crisis	During Financial	Post-financial Crisis		Pre-f	During Financial	Post-financial Crisis
Constant	5.5373	1.8418	37.5521	Constant	7.0053	-7.3949	37.0864
	(0.128)	(0.0471)	(2.134)		(0.178)	(-0.193)	(2.089)
STOCK	0.0392	0.0919	0.2315***	KI_{t-1}	-0.3693***	-0.2303*	-0.0330
	(0.316)	(1.356)	(4.259)		(-3.444)	(-2.580)	(-0.711)
$STOCK_{t-1}$	04901***	0.4965***	0.5761***	KI_{t-2}	-01760	0.0638	0.0479
	(3.934)	(7.353)	(10.710)		(-1.617)	(0.732)	(1.043)
$STOCK_{t-2}$	-0.0252	0.4099***	0.1934***	STOCK	0.0111	0.0807	0.2276***
	(-0.174)	(6.064)	(3.641)		(0.087)	(1.083)	(4.177)
$STOCK_{t-3}$	0.0755	-0.0807	0.0620	$STOCK_{t-1}$	0.5170***	0.5690***	0.5852***
	(0.520)	(-1.161)	(1.229)		(4.294)	(8.264)	(10.667)
EXCH	-8.7336	-33.7160	-29.8895	$STOCK_{t-2}$	0.0877	0.4809***	0.2033***
	(-0.060)	(0.550)	(-0.667)		(0.617)	(5.924)	(3.401)
$EXCH_{t-1}$	29.7106	-20.0237	-12.2236	$STOCK_{t-3}$	0.1972	-0.0449	0.0391
	(0.189)	(-0.310)	(-0.5256)		(1.339)	(-0.476)	(0.663)
$EXCH_{t-2}$	-4.5701	54.6275	-17.2518	EXCH	7.5085	-29.5672	-30.3970
	(-0.040)	(0.856)	(-0.361)		(0.055)	(-0.499)	(-0.678)
$EXCH_{t-3}$	-25.4645	-7.9372	-12.8582	$EXCH_{t-1}$	29.3649	-19.5003	-11.4910
	(-0.261)	(-0.122)	(-0.286)		(0197)	(-0.314)	(-0.240)
				$EXCH_{t-2}$	-4.9147	42.5893	-16.4524
					(-0.046)	(0.693)	(-0.344)
				$EXCH_{t-3}$	-28.2040	15.9603	-12.3658
					(-0.303)	(0.253)	(-0.275)
Obs	112	120	536		112	120	536
R2	0.1700	0.6029	0.3405		0.2818	0.6416	0.3482

The dependent variable is the fluctuation in the mutual fund flow; figures in parenthesis represent t values. *, **, *** represent 10%, 5%, and 1% significant level respectively. Pre-financial-crisis refers to the period from January 1996 to June 1997; during-financial-crisis refers to the period from July 1997 to December1998; post-financial-crisis refers to the period from January 1999 to November 2004.

Table 4: Regression Analysis of Mutual Funds and Countries Involved in the Financial Crisis before, during, and after the Financial Crisis

	Model 1: "Positive Feedback Trading Effect "				Model 2: "Herding Behavior"		
	Pre-financial Crisis	During Financial Crisis	Post-financial Crisis		Pre-financial Crisis	During Financial Crisis	Post-financial Crisis
Constant	56.3742	-39.7160	34.8233	Constant	67.1276	-21.1388	26.4607
	(1.414)	(-0.876)	(1.775)		(1.599)	(-0.554)	(1.385)
STOCK	0.4360*	0.3467	0.7802***	KI_{t-1}	-0.0517	0.5998***	0.2727***
	(1.739)	(0.992)	(3.354)		(-0.384)	(5.456)	(4.744)
$STOCK_{t-1}$	0.3856	0.5900*	0.9975***	KI_{t-2}	-0.1171	-0.1211	-0.0079
	(1.492)	(1.693)	(4.296)		(-0.918)	(-1.157)	(-0.140)
$STOCK_{t-2}$	0.9272**	0.9214**	0.8479***	STOCK	0.3976	0.1576	0.7364***
	(3.687)	(2.582)	(3.649)		(1.527)	(0.535)	(3.270)
$STOCK_{t-3}$	0.1240	0.0867	02389	$STOCK_{t-1}$	0.4188	0.3577	0.7957***
	(0.518)	(0.245)	(1.065)		(1.555)	(1.228)	(3.4856)
EXCH	-2.6628	-0.0079	0.0270	$STOCK_{t-2}$	0.9798***	0.5038	0.5842**
	(-0.505)	(0.171)	(O.254)		(3.732)	(1.656)	(2.514)
$EXCH_{t-1}$	-5.6961	-0.0551	-0.0036	$STOCK_{t-3}$	0.1742	-0.4355	0.0380
	(-0.958)	(-1.175)	(-0.034)		(0.670)	(-1.386)	(0.318)
$EXCH_{t-2}$	2.0226	-0.0352	-0.0608	EXCH	-2.4399	-0.0251	0.0327
	(0.341)	(-0.749)	(-0.566)		(0.458)	(-0.642)	(-0.318)
$EXCH_{t-3}$	-6.0473	0.0037	0.0219	$EXCH_{t-1}$	-5.8324	-0.0418	-0.0119
	(-1.123)	(0.074)	(0.215)		(-0.970)	(-1.072)	(-0.115)
				$EXCH_{t-2}$	1.2601	-0.0051	0.0403
					(0.208)	(-0.130)	(0.409)
				$EXCH_{t-3}$	-6.6102	0.0080	0.0304
					(-1.211)	(0.188)	(0.253)
Obs	70	75	335		70	75	335
R2	0.2108	0.2135	0.1326		0.2400	0.436151	0.1851

The dependent variable is the fluctuation in the mutual fund flow: the figure in parentheses represent t values. *, **, *** represent 10%, 5%, and 1% significant level respectively, Pre-financial-crisis refers to the period from January 1996 to June 1997; during- financial-crisis refers to the period from July 1997 to December 1998; post-financial crisis refers to the period from January 1999 to November 2004.

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