

Foreign Equity Flows and Country Fund Return: Emerging Market Evidence

Ros Zam Zam Sopian, Siti Fatin Nabila Mohd Nasir

Faculty of Economics and Management

National University of Malaysia

zamzam@ukm.edu.my, sitifatin6210@gmail.com

Abstract

The aim of this paper is to examine the relationship between foreign equity flows (institutional & retail investors) and mutual fund return of an emerging market. By using a bivariate Vector Autoregressive (VAR) model for the sample data from 1st October 2009 to 30th June 2016, we conclude that foreign retail investors pursue the negative feedback trading in relation to mutual fund return and act as contrarian investors. However, foreign institutional investors are neither momentum nor contrarian investors in relation to mutual fund return. Using the Granger causality test, this study supports neither the price pressure nor the information revelation effects for the foreign equity flows-mutual fund return relationship. Additionally, this study presents evidence that foreign investors display distinctive trading behavior in relations to domestic market return. Institutional investors are momentum traders while retail investors are contrarian traders. The findings also indicate that, retail investors trading activities will result an increase in market volatility which leads to high uncertainty and risk to the participating investors.

Keywords: Foreign equity fund flows, mutual fund return, emerging equity market, Vector autoregressive model, foreign institutional and retail investors.

JEL Classification: G11, G40

INTRODUCTION

An attraction of foreign investors, particularly on their equity capital investments is crucial to the stability and liquidity of local stock market, as well as the development and economic growth particularly for Malaysia as one of the emerging countries in the world. As a country that continues to open its financial market, Malaysia needs the investment fund from international market to support the financial deficit in domestic market. Finance literatures document limited evidence on the interrelationships between foreign equity flows and country fund return such as Froot and Ramadorai (2008) and Tsai (2009). Contrary to foreign equity flows-country fund return relationship, prior literatures provide ample evidence on the linkages between foreign equity flows and local market return such as Adaoglu and Katircioglu (2013), Phansatan et al., (2012), Jinjara, Wongswan & Zheng (2011), Samarakoon (2009). Two main findings have been documented. First, foreign equity flows and local market return is positively correlated (Bohn & Tesar, 1996; Brennan & Cao, 1997; Chandra, 2012; French, 2011; French & Li, 2012; French & Naka, 2013; Grinblatt & Keloharju, 2000; Jinjara, Wongswan & Zheng, 2011; Lin, 2006; Lin & Swanson, 2004). Second, foreign equity flows affect local market returns (Chandra, 2012; French & Li, 2012; Froot & Ramadorai (2008), Ülkü & İkizlerli, 2012).

Contrary to the above studies, this paper attempts to provide new findings on the relationship between foreign equity flows and country fund return of an emerging equity market, Malaysian equity market which is also known as Bursa Malaysia. Specifically, this study analyses the relationship between foreign equity flows and mutual fund return within two frameworks that are feedback trading and information contribution (price pressure and information revelation) effects. The empirical finance literature on the linkages between foreign equity flows and country fund return for emerging Asian markets is limited to paper such as Froot and Ramadorai (2008) and Tsai (2009), thus this paper intends to complement and strengthen the findings of earlier studies.

Basically, there are two main arrays of equity investors either in domestic or international context. The investor groups are institutional and retail investors and they are the focus of the current study. Meanwhile, mutual fund which is an open-ended fund can be defined as the investment security scheme which allows many investors to pool their money together into the same professional institutional fund managers to managed the investment and the pooled money is reinvested into stock, bond, cash or others securities (Hossain et al., 2013). An additional, mutual fund is more preferable option for investors because it is diversified of securities, cost reduction with high return, flexibility for buying and selling, manage by professional fund managers and tax exemption (Hossain et al., 2013). Better understanding on the linkage between foreign equity flows and country fund return is crucial to various parties particularly to investors and fund managers for portfolio diversification decisions and tactical trading strategies. The main concerns are (a) whether new market information built-in foreign equity flows affect country fund return and (b) whether country fund return influences foreign equity flows into the local equity market (Tsai, 2009). Moreover, during periods of turbulence and crisis, equity lows of foreign investors may behave differently. Thus, the policymakers of emerging markets should concern about the effect of foreign equity flows on their local equity markets. This is because local financial markets may destabilize following unexpected capital outflows by foreign investors.

The remainder of this paper is structured as follows. The second section provides the past literature on the issue under study. The third section describes the data and methodology used for testing the relationships. The fourth section presents the empirical findings and the interpretations of results; and the last section provides the conclusions of this study.

LITERATURE REVIEW

Prior studies on equity fund flows-market return relationship focuses on two basic research frameworks which are (a) feedback trading and (b) information contribution effect (price pressure and information revelation). In the first framework, prior studies examine the impact of market return on equity fund flows. There are two types of feedback trading (a) positive feedback or momentum trading, and (b) negative feedback or contrarian trading. Positive feedback trading exists when foreign investors buy more of local stocks than what they sell during market upward trend and they purchase past winning stocks and sell past losers. Meanwhile, negative feedback trading demonstrates opposite scenarios to occur.

For the second framework, past studies focus on the impact of foreign equity flows on domestic market return both in short term and long term basis. If foreign equity flows affect domestic market return momentarily (permanent), then the finding is said to support price pressure (information revelation) effects. Froot and Ramadorai (2008) state that the price pressure effect is related to trading noise due to movement in equity returns following trades of foreign investors that are unrelated to underlying fundamentals. However, this transitory

effect diminishes, and the asset price reverts to fundamental values as additional liquidity arrives. Additionally, they also mention that permanent effects of foreign equity flows on domestic market return are as evidence of asymmetric information. Foreign investors are categorised as better informed investors compared to local investors.

a. Feedback trading

Past literature shows there are associations between foreign equity flows and country fund return. Using data of 25 countries on a weekly basis from 1994 to 1998, Froot and Ramadorai (2008) find that international flows display trend-following behavior in reaction to symmetric movements in price returns. On the contrary, international flows display trend-reversing behavior in reaction to asymmetric movements in price returns. Tsai (2009) employs Granger Causality test in VAR model to investigate the relationship between U.S. equity flows and country fund return in three difference markets that involve 35 country funds. His study provides evidence of strong and positive significant bidirectional relationships between foreign equity flows and closed-end fund return.

Most of past studies on the same research area are the linkages between foreign equity flows and market return such as Froot et al. (2001) who document a positive correlation between foreign fund flow and past week returns of 44 emerging countries equity market. Phansatan et al. (2012) study the behavioral trading pattern of 4 types of investors in Stock Exchange of Thailand for a sample period from January 1999 until December 2004. One of their findings shows that net foreign investors fund flows follow the movement of domestic market return. This finding shows that foreign investors follow a positive feedback and momentum investing strategies. Hong and Lee (2011) also find similar finding for their study on the Korean equity market. A study by Ülkü and İközlerli (2012) on Istanbul Stock Exchange (ISE) provides the statistical evidence that foreign investors follow a negative feedback trading strategy with the past market return of ISE. Lin and Swanson (2003) examine the linkages between foreign equity flows and returns of equity market for eight equity market of Asian countries. The findings report that feedback trading fails to support the flows/return linkages in five of eight markets under study.

Another study by Adaoglu and Katircioglu (2013) shows a negative unidirectional causality running from monthly ISE stock return to net foreign investor flow. The study reports that foreign investors follow a contrarian trading strategies during pre-EU accession negotiations period. Cai and Zheng (2004) reveal that institutional investors buy more following a rise in equity market. Using the Granger-causality approach and data from 1st January 2003 to 28th February 2011, Chandra (2012) demonstrates the existing of bidirectional causality between foreign institutional investment flows and stock market return in the Indian context. Using a SVAR model, French and Vishwakarma (2013) find that stock return granger-cause the equity purchases by U.S. investors in Filipino stock exchange. These investors are said to follow a momentum trading strategies in equity trading. A study by French and Li (2012) reveal that equity market returns play an important role in attracting foreign equity investment into Brazil. In short, prior literatures witness mix findings on the impact of market return and fund flows of equity.

b. Information contribution effects (Price pressure and information revelation)

Consistent with Froot and Ramadorai (2008), Tsai (2009) shows that cross-border equity flows reflect new market information and positively affect return of closed-end country fund, thus support the information contribution argument. The effect of cross-border equity flows on return of closed-end fund is long term. Prior studies also document significant equity fund flows-return relationship in various stock markets. Among these studies is Lin and Swanson (2008) which examine foreign equity flows of U.S. investors to several equity markets in Latin America, Asia, Europe, Canada and Japan. They find that equity fund flows have a stronger impact on return and not vice versa. Past studies on similar subject matter includes Bekaert et al. (2002) who investigate the relations between capital flows and return of 20 emerging markets. Their study shows that initially there is an increase in return following equity flows shock which is consistent with information contribution effect. The effect is weakened over time (price pressure effect), however there also appears to be a long term (information revelation) effect.

French and Li (2012) also find that international equity flows, ie. U.S. equity investments affect return of Brazilian equity market. Chandra (2012) conducts similar study in the Indian context. He reports that equity flows of foreign institutional investors cause short-term variations in stock market returns. Other studies with similar findings on the causality runs from international equity flows to market return includes Dahlquist and Robertsson (2004), Froot and Ramadorai (2008), Froot et al. (2001) and Ülkü and İkizlerli (2012). In summary, prior literatures document bidirectional relationships between foreign equity flows and domestic market return. In this study, we intend to complement the findings of past studies on the same subject matter, except that we employ mutual fund instead of equity market return in the analysis.

DATA AND METHODOLOGY

This paper employs the historical daily index closing values starting from 1st October 2009 to 30th June 2016 which comprises 1661 total numbers of observations. As stated, our main objective is to examine the relationship between foreign equity flows and mutual fund return. Thus, in this study we also employ daily foreign equity flows (FIBUY, FISELL, FRBUY, FRSELL, NFFI and NFFR) to analyze the buy and sell activities of both foreign institutional and retail investors on Bursa Malaysia. The foreign equity flows data are in terms of value of trades which is by products of trade quantity and equity price.

Table 1: Abbreviations of variables

Abbreviations	Explanations
AFR	Average mutual fund return
FIBUY	Foreign institutional buy trades
FISELL	Foreign institutional sell trades
NFFI	Net flows of foreign institutional investors
FRBUY	Foreign retail buy trades
FRSELL	Foreign retail sell trades
NFFR	Net flows of foreign retail investors
R	Market return of FBMKLCI index
VOL	Market volatility

Note: All variables are in term of value of trades except for AFR, RETURN and VOLATILITY.

Both the daily index closing values and equity flows are obtained from Bursa Malaysia, the official stock exchange of Malaysia. We also utilize average mutual fund return of 348 Malaysian mutual funds in the analysis. The daily mutual fund price is obtained from Perbadanan Nasional Berhad (PNB), one of the largest fund management companies in Malaysia. Table 1 provides the detail descriptions of all the variables use in this study.

Furthermore, the net flows of foreign institutional (NFFI) and net flows of foreign retail (NFFR) investors can be expressed as in Equation (1), which is consistent with Hong and Lee (2011) and Phansatan et al. (2012).

$$NF_{Jt} = (BUY_{Jt} - SELL_{Jt}) / (BUY_{Jt} + SELL_{Jt}) \quad (1)$$

Where, NF_{Jt} is foreign equity net flows on day t by investor type J (institutional and retail investor). BUY_{Jt} is cumulative purchase in the form of value of trade on day t by investor type J . Meanwhile, $SELL_{Jt}$ is cumulative sell in the form of value of trade on day t by investor type J .

This study also employs two other variables, market index return (R) and Volatility (VOL) as controlled variables in the analysis. The market index return is calculated as Equation (2) while the volatility which is the return squared is calculated as Equation (3).

$$R = (Index_t - Index_{t-1}) / Index_{t-1} \quad (2)$$

$$VOL = [(Index_t - Index_{t-1}) / Index_{t-1}]^2 \quad (3)$$

where, R is the market index return of FTSE Bursa Malaysia Kuala Lumpur Composite Index (FBMKLCI), VOL is volatility measure, $Index_t$ is the index closing value on day t , and $Index_{t-1}$ is the index closing value one day before.

This study employs VAR Granger causality test in order to explore the causality relation between foreign equity flows and mutual fund return. But, before we proceed with all tests, we need to examine the stationarity of the data using the Augmented Dickey Fuller (ADF) test which is proposed by Dickey and Fuller (1979, 1981). Stationarity of the data is crucial to avoid spurious regression results. In addition, this study employs the Akaike information criterion (AIC) to determine the appropriate number of lag length.

To determine the direction (sign) of predictability between foreign equity flows of institutional and retail investors; and mutual fund return, we employ bivariate vector autoregressive (VAR) model which is consistent with previous studies, such as Boyer and Zheng (2009), Samarakoon (2009), Adaoglu and Katircioglu (2013), and Ahmed (2014). The advantage of using the VAR model is that all variables are treated as endogenous variables and each variable in the system being treated symmetrically.

EMPIRICAL RESULTS AND DISCUSSIONS

a. Descriptive Statistics

The summary statistics for all variables are presented in Table 2. The mean values for the buy trades, sell trades and net flows of foreign institutional are 456.389 million, 451.901 million and 0.007 respectively. The positive mean value for net equity flows of foreign institutional investors demonstrates that on average foreign institutional investors buy more than sell during the sample period. Meanwhile, the mean values for the buy trades, sell trades and net flows of foreign retail investors are 6.988 million, 8.034 million and -0.063 respectively. The negative mean value for net equity flows of foreign retail investors signifies that on average foreign retail investors sell more than buy during the same study period. The results in Table 2 also report that foreign institutional investors are active traders as compared to foreign retail investors on Bursa Malaysia.

Table 2: Descriptive Statistics

	Average fund return	Equity flows of foreign institutional investors (in value of trades)			Equity flows of foreign retail investors (in value of trades)			Market return	VOL
		Buy	Sell	Net flows	Buy	Sell	Net Flows		
Mean	0.000	456.389	451.901	0.007	6.988	8.034	-0.063	0.000	0.000
Min	-0.027	66.650	39.680	-0.537	1.550	1.570	-0.594	-0.027	0.000
Max	0.018	4218.530	4818.860	0.550	26.960	39.980	0.551	0.034	0.001
S.D	0.004	249.572	245.427	0.171	2.835	3.551	0.183	0.006	0.000
ADF	-35.405*	-21.184*	-11.663*	-7.942*	-10.525*	-14.457*	-22.395*	-6.147*	-21.397*
J-Bera	683.42*	255018*	404611*	5.1***	2463.1*	9876.31*	10.375*	425.8*	194205*

Note: The symbol * and *** denotes the statistics are significant at 1 and 10 percent level.

The first step in regression is to diagnose the stationarity of the time series data by performing the unit root test using the Augmented Dickey Fuller (ADF) method. The results in Table 2 report that all the data series in this study are stationary at level.

b. Correlation coefficients

To get the preliminary idea on the relationship between foreign equity flows and mutual fund return, we test for the correlation coefficient between the individual variables using Spearman's rho correlation test. This study uses Spearman's rho correlation test due the non-normality of the data series. The results in Table 3 report that foreign institutional buy trade, sell trades of foreign retail investors and net flows of foreign institutional investors are positively correlated with average mutual fund returns. Meanwhile, foreign institutions sell trades, foreign retail buy trades and net flows of foreign retail are negatively correlated with average fund returns.

Table 3: Correlation Coefficients

Spearman's rho	FIBuy	FISell	FRBuy	FRSell	NFFI	NFFR	AFR	R	VOL
FIBuy	1.000	0.589*	0.161*	0.288*	0.386*	-0.136*	0.173*	0.230*	0.124*
FISell		1.000	0.244*	0.159*	-0.456*	0.084*	-0.103*	-0.131*	0.204*
FRBuy			1.000	0.504*	-0.099*	0.422*	-0.088*	-0.100*	0.132*
FRSell				1.000	0.157*	-0.510*	0.141*	0.177*	0.076*
NFFI					1.000	-0.275*	0.319*	0.418*	-0.093*
NFFR						1.000	-0.239*	-0.285*	0.043
AFR							1.000	0.729*	0.020
R								1.000	0.063*
VOL									1.000

Note: The symbol * denotes the statistic is significant at the 1 percent level.

c. VAR Granger Causality

Table 4 reports the results of VAR Granger causality for all of the variables employ in this study. Even though the focus of the discussion is on the direction of causality between foreign equity flows and mutual fund return, this paper also reports other important relationships.

i. Foreign equity flows and mutual fund return relationship

We continue our analysis with VAR Granger causality test to examine the causal directions between foreign equity flows and mutual fund return; and Table 4 present the findings. The finding shows that there is causality relationship runs from mutual fund return to the buy trades of foreign retail investors, and it is significant at 5 percent level. Table 4 also documents a causality relationship runs from mutual fund return to net flows of foreign retail, however the relationship is only significant at 10 percent level. The results in Panel A report that none of foreign equity flow granger-cause mutual fund return. Using a weekly data of closed-end funds, Froot and Ramadorai (2008) demonstrate that cross-border equity flows are trend-following in response to absolute return shocks of emerging markets. Another study, Tsai (2009) reports that U.S. equity fund flows affect closed-end fund return of emerging market including Malaysia.

ii. Foreign equity flows and market return relationship

The findings in Table 4 provide evidence of granger causality runs from market return to net flows of foreign institutional investors. The results also document similar findings for the linkages between equity market return and net flows of foreign retail investors. The impact of market return on net flows of foreign retail investors is greater than the impact on net flows of foreign institutional investors. The significant relationship between market return and net flows of foreign institutional investors is only at 5 percent level. Meanwhile, the significant relationship between market return and net flows of foreign retail investors is at 1 percent level. Prior literatures that support the direction of causality runs from stock return to foreign equity

Table 4: VAR Granger causality test

Panel A: Dependent variable : AFR			Panel E: Dependent variable : FRSELL		
Excluded	Chi-square	Probability	Excluded	Chi-square	Probability
FIBUY	0.440	0.802	AFR	1.802	0.406
FISELL	0.348	0.840	FIBUY	2.362	0.307
FRBUY	1.077	0.584	FISELL	3.565	0.168
FRSELL	3.725	0.155	FRBUY	6.317	0.043**
NFFI	0.060	0.971	NFFI	4.426	0.109
NFFR	4.285	0.117	NFFR	8.386	0.015**
RETURN	3.117	0.211	RETURN	3.675	0.159
VOL	20.112	0.000*	VOL	10.162	0.006*
All	33.110	0.007***	All	65.411	0.000*
Panel B: Dependent variable : FIBUY			Panel F: Dependent variable : NFFI		
Excluded	Chi-square	Probability	Excluded	Chi-square	Probability
AFR	0.215	0.898	AFR	1.857	0.395
FISELL	3.776	0.151	FIBUY	4.919	0.086**
FRBUY	2.233	0.327	FISELL	7.588	0.022**
FRSELL	2.110	0.348	FRBUY	2.530	0.282
NFFI	1.077	0.584	FRSELL	3.304	0.192
NFFR	3.154	0.207	NFFR	2.945	0.229
RETURN	1.983	0.371	RETURN	6.474	0.039**
VOL	5.889	0.053***	VOL	5.547	0.062***
All	28.695	0.026**	All	44.117	0.000*
Panel C: Dependent variable : FISELL			Panel G: Dependent variable : NFFR		
Excluded	Chi-square	Probability	Excluded	Chi-square	Probability
AFR	1.638	0.441	AFR	5.816	0.055***
FIBUY	0.654	0.721	FIBUY	1.153	0.562
FRBUY	0.083	0.960	FISELL	2.300	0.317
FRSELL	1.544	0.462	FRBUY	0.350	0.840
NFFI	9.734	0.008*	FRSELL	0.709	0.701
NFFR	0.641	0.726	NFFI	1.278	0.528
RETURN	0.209	0.901	RETURN	11.973	0.003*
VOL	1.976	0.372	VOL	0.196	0.907
All	61.627	0.000*	All	38.0304	0.002*
Panel D: Dependent variable : FRBUY			Panel H: Dependent variable : RETURN		
Excluded	Chi-square	Probability	Excluded	Chi-square	Probability
AFR	7.239	0.027**	AFR	12.354	0.002*
FIBUY	0.056	0.972	FIBUY	5.776	0.056***
FISELL	0.066	0.968	FISELL	4.861	0.088***
FRSELL	36.182	0.000*	FRBUY	0.652	0.722
NFFI	1.359	0.507	FRSELL	0.012	0.994
NFFR	6.583	0.037**	NFFI	2.965	0.227
RETURN	3.517	0.172	NFFR	0.189	0.910
VOL	10.906	0.004*	VOL	16.221	0.000*
All	110.195	0.000*	All	38.030	0.002*
Panel I: Dependent variable : VOL					
Excluded	Chi-square	Probability			
AFR	11.410	0.003*			
FIBUY	2.9034	0.234			
FISELL	3.382	0.184			
FRBUY	8.732	0.013**			
FRSELL	13.637	0.001*			
NFFI	1.1940	0.551			
NFFR	7.239	0.027**			
RETURN	3.339	0.188			
All	69.061	0.000*			

Notes: The Statistics with *, ** and *** symbols are significant at 1, 5, 10 per cent level respectively.

flows include Bekaert, Harvey and Lumsdaine (2002), Bohn and Tesar (1996), Brennan and Cao (1997), French and Li (2012), French and Vishwakarma, (2013), Ülkü and İkizlerli (2012), and Samarakoon, 2009. Moreover, Panel H of Table 4 demonstrates that both the buy and sell trades of foreign institutional investors affect the return of Malaysian equity market. However, it is weak relationship which is only significant at 10 percent level. Using similar data for a period from October 2009 to February 2013, Sapian and Auzairy (2015) find that there is no causality runs from foreign equity flows to local market returns at either 1 or 5 percent significant level.

iii. Foreign equity flows and volatility relationship

The result of Panel B in Table 4 shows that market volatility influences the buy trades of foreign institutional investors. However, relationship is weak which is only significant at 10 percent level. Moreover, Panel D reports the existence of granger-causality runs from market volatility to the buy trades of foreign retail investors. Panel E also reports similar direction of causality for the relation between market volatility and foreign retail sell trades. Both relationships are strong and significant. Panel F also reports that there is weak causality runs from market volatility to net flows of foreign institutional investors. Prior literature that shows the significant relations between market volatility and fund flows of equity either positive or negative includes Bhargava and Konku (2004) and Luo (2003).

Panel I of Table 4 shows that the buy and sell trades; as well as the net flows of foreign retail investors influence the level of market volatility of Malaysian equity market. The impact of foreign retail investor sell trades is stronger on market volatility as compared to the buy trades. Prior studies that report the causality runs from fund flows of equity to market volatility includes Luo (2003), Bhargava and Konku (2004), Ahmed (2016), Thenmozhi and Kumar (2009), Umutlu, Akdeniz et al. (2013) and Cao, Chang et al. (2008). Moreover, the findings in Table 4 provide evidence of bidirectional causality between foreign retail investor trades (buy and sell) and market volatility.

iv. Other findings

Panel A of Table 4 reports that only market volatility granger-cause mutual fund return. The relationship is strong and significant at 1 percent level. Meanwhile, Panel H and I report that mutual fund return granger-causes market return and market volatility. The impacts of mutual fund return on market return and market volatility are significant at 1 percent level. The findings demonstrate that there are bidirectional granger causalities between mutual funds return and market volatility.

d. Vector autoregressive estimates

i. Foreign equity flows and mutual fund return relationship

The findings in Table 5 demonstrate that mutual fund return affects the net flows of foreign retail investors negatively, however the relationship is weak which is at 10 percent significant level. This result reconfirms the correlation between average fund returns and net flows of foreign retail as reported in Table 3. This finding signifies that foreign retail investors sell more than buy in rising market, and they follow contrarian investment strategies. The finding also shows that mutual fund return influence the buy trades of foreign retail investors negatively and the result is significant at 1 percent level. Other findings show that there is weak causality

Table 5: Vector Autoregressive Estimates

	AFR	FIBUY	FISELL	FRBUY	FRSELL	NFFI	NFFR	RETURN	VOL
AFR									
AFR(-1)	0.213*	-869.657	-1352.716	-2.234	39.969	-0.190	-3.291***	0.202*	-0.001
AFR(-2)	0.006	816.717	2753.781	-62.654*	-12.893	-1.733	-2.298	0.030	-0.002*
FIBUY									
FIBUY(-1)	-0.000	0.379*	0.069	0.0001	0.002	0.0001	-0.000	-0.000	-0.000
FIBUY(-2)	-0.000	0.095	-0.031	-0.0002	-0.001	0.0001	0.0001	-0.000	-0.000
FISELL									
FISELL(-1)	0.000	-0.181***	0.142	-0.0002	-0.002***	-0.0001***	0.0001	0.000	0.000
FISELL(-2)	0.000	0.038	0.177**	0.0001	0.0013	-0.0001	-0.0001	0.000	0.000
FRBUY									
FRBUY(-1)	0.0001	-6.312	0.633	0.152**	-0.057	-0.003	0.001	-0.0001	-0.000*
FRBUY(-2)	0.0002	7.782	-1.640	0.212*	0.192**	0.005	0.002	0.000	0.000
FRSELL									
FRSELL(-1)	-0.000***	6.670	2.788	0.296*	0.538*	0.001	0.002	-0.000	0.000*
FRSELL(-2)	-0.000	-5.1295	4.691	0.003	0.022	-0.005***	-0.003	-0.000	-0.000*
NFFI									
NFFI(-1)	0.000	-94.847	-252.332*	-1.012	-2.159***	0.397*	0.016	0.003	0.000
NFFI(-2)	0.0003	53.606	-38.313	0.646	1.844	0.166*	-0.077	0.002	0.000
NFFR									
NFFR(-1)	-0.003***	126.337	38.511	2.224**	3.039*	0.034	0.169*	0.0002	0.0001**
NFFR(-2)	-0.001	-116.582	47.871	-0.351	-1.632	-0.080***	0.053	-0.0001	-0.000
R									
R (-1)	-0.047***	2329.859	-142.550	-29.798***	40.980***	2.331**	-4.307*	0.025	-0.001***
R (-2)	0.010	-729.157	-689.941	10.610	-1.172	-0.336	0.059	0.038	0.0003
VOL									
VOL(-1)	6.146*	212992.5**	112746.5	-1156.120	-1161.685	70.274	16.785	8.850*	0.138*
VOL(-2)	0.137	-87984.79	10012.32	-2257.852*	-2977.538*	-101.587**	18.710	-1.869	0.191*
C	0.0001	278.130*	240.880*	2.410*	2.894*	0.040*	-0.058*	0.001	0.000*

Note: The symbols *, ** and *** denote the coefficients are significant at 1, 5 and 10 percent level respectively.

runs from mutual fund return and foreign institutional buy and sell trades, foreign retail sell trades, and foreign institutions net flows. The results in Table 5 also demonstrate that the sell trades of foreign retail investors and net flows of foreign retail investors affect mutual fund return negatively. This finding is contrary to Froot and Ramadorai's (2008) study which shows that foreign equity flows affect country fund returns positively. This study also documents bilateral relationships between mutual fund return and net flows of foreign retail investors.

ii. Foreign equity flows and market return relationship

The findings in Table 5 reveal that previous day market return affects the buy and sell trades of foreign retail investors at 10 percent significant level while with net flows of foreign retail investors at 1 percent significant level. The relationships between market return and foreign retail buy trades, foreign retail sell trades and net flows of foreign retail are negative, positive and negative respectively. These findings signify that foreign retail investors sell more and buy less during rising equity market. They are categorized as contrarian traders and consistent to the findings of Ülkü and İkizlerli (2012) and Sopian and Auzairy (2015).

The findings also show that past market returns have an effect on the net flows of foreign institutional investors and the relationship is positive and significant at 5 percent level. Contrary to foreign retail investors, foreign institutional investors are considered as 'return chasers' and follow momentum investment trading strategies. They buy more of local stocks compared to sell during rising equity market. This finding support the positive association between market return and equity fund flows and consistent with prior studies such as Bekaert et al. (2002), Ben-Rephael, Kandel et al. (2011), Brennan and Cao (1997); Beaumont et al. (2008), Caporale, Philippas et al. (2004), Cha and Kim (2010), French (2011), French and Vishwakarma (2013), Froot et al. (2001), Jinjark et al. (2011), Lin and Swanson (2004), Mishra (2011), Samarakoon (2009), Sopian and Auzairy (2015), and Thenmozhi and Kumar (2009). Contrary to Chandra (2012) and Lin and Swanson (2008), this study demonstrates that none of the foreign equity flows affect domestic equity market return, thus does not support either the price pressure or information revelation effects.

In short, the findings of this study demonstrate that lagged market return has valuable information in predicting future equity flows of foreign investors. Moreover, foreign institutional and retail investors behave differently in relation to past movements of local market return and is consistent with findings of Hong and Lee (2011), Barber, Odean and Zhu (2009), Bae, Yamada and Ita (2008), and Grinblatt and Keloharju (2000). These scenarios reflect that foreign institutional and retail investors interpret differently on information contained in stock price past movements.

iii. Foreign equity flows and volatility relationship

The results in Table 5 also report that market volatility affects the buy trades of foreign institutional investors in the same direction and it is significant at 5 percent level. Foreign institutional investors increase their buy trades when there is an increase in market volatility of domestic equity market. This finding is consistent with Bhargava and Konku (2004) who report positive association between market volatility and equity fund flows. Meanwhile, market volatility also has a significant impact at 1 percent level on both foreign retail buy and sell trades. But, the relationships are in an opposite direction as compared to the buy trades of foreign institutional investors. The buy and sell trades of foreign retail investors' decrease when there is an increase in market volatility. An additional finding shows that market volatility has

a significant negative relationship with net flows of foreign institutional investors. The negative association between market volatility and fund flows of equity is similar to the finding of Luo (2003).

The results in Table 5 also document that the sell trades and net flows of foreign retail investors significantly affect market volatility positively. Market volatility increases following an increase in the sell trades of foreign retail investors. Luo (2003), Bhargava and Konku (2004), Ahmed (2016), Thenmozhi and Kumar (2009) and Umutlu, Akdeniz et al. (2013) also report similar findings such that there is a positive relationship between fund flows of equity and market volatility. On the contrary, there is a negative and significant relationship between foreign retail investors buy trades and market volatility. Market volatility decreases when there is an increase in the buy trades of foreign retail investors. A study by Cao, Chang et al. (2008) report that mutual fund flows shock and market volatility is negatively related which is contrary to the above findings.

iv. Other findings

Table 5 also reports a negative relationship between market return and mutual fund return. However, the relationship is significant at only 10 percent level. Likewise, market volatility also has an influence on mutual fund return and it is significant at 1 percent level. The relationship is positive, meaning that mutual fund return will increase when there is an increase in market volatility. Other findings include foreign institutional investors influence the decision to trades of foreign retail investors. Also, previous day trades influence the current buy and sell trades of both foreign institutional and retail investors on Malaysian equity market.

CONCLUSIONS

This study investigates the presence of relationships between the equity fund flows of both foreign institutional and retail investors; and mutual fund return of Malaysian equity market. Throughout the analyses, the main findings of this study are (i) lag mutual fund return affects the buy trades and net flows of foreign retail investors. The relationships are negative and significant, which indicate that foreign retail investors act as contrarian traders and follow negative feedback trading strategies in their investment decisions. However, there is no associations between mutual fund return and equity fund flows of foreign institutional investors both buy and sell trades, (ii) domestic market return affects the net flows of both foreign institutional and retail investors. The behavioral patterns of both foreign institutional and retail investors contradict each other with regards to the performance of local equity market. Foreign institutional investors are momentum traders while foreign retail investors are contrarian traders, (iii) The findings of this study do not support either the price pressure or information revelation effects, (iv) There are bilateral relationships between market volatility and foreign retail buy and sell trades, (v) market volatility has stronger influence on mutual fund return than market return, (v) there are bilateral relationship between mutual fund return and market volatility, but unilateral relationship with market return.

REFERENCES

- Adaoglu, C., & Katircioglu, S.T. (2013). Foreign investor flows and 'blue chip' stock returns. *International Journal of Emerging Markets*, 8(2), 170–181.
- Ahmed, W. (2014). The trading patterns and performance of individual vis-a`-vis institutional investors in the Qatar Exchange. *Review of Accounting and Finance* 13(1): 24-42.
- Bae, K., Yamada, T. & Ito, K. (2008). Interaction of investor trades and market volatility: Evidence from the Tokyo Stock Exchange. *Pacific-Basin Finance Journal* 16: 370-388.
- Barber, B.M., Odean, T., & Zhu, N. (2009). Do retail trades move markets? *The Review of Financial Studies*, 22(1), 151–186.
- Beaumont, R., Daele, M., Frijns, B., Lehnert, T. and Muller, A. (2008). Investor sentiment, mutual fund flows and its impact on returns and volatility, *Managerial Finance*, 34(11), 772-785.
- Bekaert, G., Harvey, C.R., & Lumsdaine, R.L. (2002). The dynamics of emerging market equity flows. *Journal of International Money and Finance*, 21, 295–350.
- Ben-Rephael, A., S. Kandel, and A. Wohl .(2012). Measuring investor sentiment with mutual fund flows, *Journal of Financial Economics*, 104, 363–382.
- Bhargava, V. and Konku, D.K. (2004). Equity mutual funds flow and stock price changes, *The International Journal of Finance*, 16(3), 3142-3153.
- Bohn, H. & Tesar, L.L. (1996). U.S. equity investment in foreign markets: Portfolio rebalancing or return chasing? *AEA Papers and Proceedings* 86(2): 77-81.
- Boyer, B. & Zheng, L. (2009). Investor flows and stock market returns. *Journal of Empirical Finance* 16: 87-100.
- Brennan, M.J., Cao, H. (1997). International portfolio flows. *Journal of Finance*, 52, 1851–1880.
- Cai, F., & Zheng, L., (2004). Institutional trading and stock returns. *Finance Research Letters*, 1, 178–189.
- Cao, C., Chang, E.C. and Wang, Y. (2008). “An empirical analysis of the dynamic relationship between mutual fund flow and market return volatility”, *Journal of Banking and Finance*, 32, 2111-2123.
- Cha, H.J. and Kim, J. (2010). Stock returns and aggregate mutual fund flows: a system approach, *Applied Financial Economics*, 20, 1493-1498.
- Caporale, G.M., Philippas, N. and Pittis, N. (2004). Feedbacks between mutual fund flows and security returns: evidence from the Greek capital market,” *Applied Financial Economics*, 14, 981-989.
- Choe, H., Kho, B.C., Stulz, R.M. (1999). Do foreign investors destabilize stock markets? The Korean experience in 1997. *Journal of Financial Economics*, 54, 227–264.
- Chandra, A. (2012). Cause and effect between FII trading behaviour and stock market returns: The Indian experience. *Journal of Indian Business Research*, 4(4), 286–300.
- Chiang, S.J., Tsai, L.J., Shu, P.G., & Chen, S.L. (2012). The trading behavior of foreign, domestic institutional, and domestic individual investors: Evidence from the Taiwan stock market. *Pacific-Basin Finance Journal*, 20, 745–754.

- Dickey, D.A., & Fuller, W.A. (1979). Distribution of the estimators for autoregressive time series with a unit root. *Journal of the American Statistical Association*, 74(366), 427–431.
- Dickey, D.A., & Fuller, W.A. (1981). Likelihood ratio statistics for autoregressive time series with a unit root. *Econometrica*, 49(4), 1057–1072.
- Dahlquist, M., Robertsson, G., (2004). A note on foreigners' trading and price effects across firms. *Journal of Banking and Finance*, 28, 615–632.
- Ederington, L. H., and Golubeva, E. V. (2011). The impact of stock market volatility expectations on investor behavior: Evidence from aggregate mutual fund flows, *Working paper*.
- French, J.J. (2011). The Dynamic interaction between foreign equity flows and returns: Evidence from the Johannesburg Stock Exchange. *The International Journal of Business and Finance Research* 5(4): 45-56.
- French, J.J. & Li, W.-X. (2012). A note on US institutional equity flows to Brazil. *Review of Accounting and Finance* 11(3): 298-314.
- French, J.J., & Naka, A. (2013). Dynamic relationships among equity flows, equity returns and dividends: Behavior of U.S. investors in China and India. *Global Finance Journal*, 24, 13–29.
- French, J.J., & Vishwakarma, V.K. (2013). Volatility and foreign equity flows: Evidence from the Philippines. *Studies in Economics and Finance*, 30(1), 4–21.
- Froot, K.A. & Ramadorai, T. (2008). Institutional portfolio flows and international investments. *The Review of Financial Studies* 21(2): 937-971.
- Froot, K.A., O'Connell, P.G.J., Seasholes, M. (2001). The portfolio flows of international investors. *Journal of Financial Economics* 59, 195–220.
- Froot, K.A., O'Connell, P.G.J., & Seasholes, M.S. (2001). The portfolio flows of international investors. *Journal of Financial Economics*, 59, 151–193.
- Gebka, B., Henke, H., & Bohl, M., T. (2006). Institutional trading and stock return autocorrelation: Empirical evidence on Polish pension fund investors' behaviour. *Global Finance Journal*, 16, 233– 244.
- Griffin, J.M., Nardari, F., Stulz, R.M. (2004). Are daily cross-border equity flows pushed or pulled? *The Review of Economics and Statistics*, 86 (3), 641–657.
- Grinblatt, M. & Keloharju, M. (2000). The investment behavior and performance of various investor types: A study of Finland's unique data set. *Journal of Financial Economics* 55: 43-67.
- Ha, Y., Lee, B., S., Paek, M., & Ko. (2015). Structural VAR Approach to Mutual Fund Cash Flows: Net Flows, Inflows, and Outflows. *Asia-Pacific Journal of Financial Studies*. 44, 59-87.
- Hau, H., Rey, H. (2004). Can portfolio rebalancing explain the dynamics of equity returns, equity flows and exchange rates? *American Economic Review*, 94 (2), 126–133.
- Hong, G., & Lee, B.S. (2011). The trading behavior and price impact of foreign, institutional, individual investors and government: Evidence from Korean equity market. *Japan and the World Economy*, 23, 273–287.

- Hossain, M., S., Rahman, A., B., M., M., & Rajib, M., S., U. (2013). Dynamics of Mutual Funds in Relation to Stock Market: A Vector Autoregressive Causality Analysis. *International Journal of Economics and Financial Issues*, 3(1), 191- 201.
- Jinjarak, Y., Wongswan, J., & Zheng, H. (2011). International fund investment and local market returns. *Journal of Banking & Finance*, 35, 572–587.
- Kim, W., & Wei, S.J. (2002). Foreign portfolio investors before and during a crisis. *Journal of International Economics*, 56, 77–96.
- Lakonishok, J., Shleifer, A., & Vishny, R. (1992). The impact of institutional trading on stock prices. *Journal of Financial Economics*. 32, 23–43.
- Lin, A.Y. (2006). Has the Asian crisis changed the role of foreign investors in emerging equity markets: Taiwan’s experience, *International Review of Economics and Finance*, 15, 364-382.
- Lin, A.Y., & Swanson, P.E. (2004). International equity flows and developing markets: The Asian financial market crisis revisited. *Journal of International Financial Markets, Institutions and Money*, 14, 55–73.
- Li, W., & Wang, S., S. (2010). Daily institutional trades and stock price volatility in a retail investor dominated emerging market. *Journal of Financial Markets*, 13, 448–474.
- Luo, D. (2003). Market volatility and mutual fund cash flows,” *Yale ICF Working Paper, No. 03-21*, 1-33.
- Mishra, P.K. (2011). Dynamics of the relationship between mutual funds investment flow and stock market returns in India,” *Vision* 15(1), 31-40.
- Ng, L., & Wu, F. (2007). The trading behavior of institutions and individuals in Chinese equity markets. *Journal of Banking & Finance*, 31, 2695- 2710.
- Phansatan, S., Powell, J.G., Tanthanongsakkun, S., & Treepongkaruna, S. (2012). Investor type trading behavior and trade performance: Evidence from the Thai Stock Market. *Pacific-Basin Finance Journal*, 20, 1–23.
- Richards, A. (2005). Big fish in small ponds: the trading behavior and price impact of foreign investors in Asian emerging equity market. *Journal of Financial and Quantitative Analysis*, 40, 1–27.
- Samarakoon, L., P. (2009). The relation between trades of domestic and foreign investors and stock returns in Sri Lanka. *Journal of International Financial Markets, Institutions & Money*, 19, 850–861.
- Sapian & Auzairy, N., A. (2015). Foreign Equity Flows and Market Return Linkages: Evidence of Malaysian Stock Market. *Global Business Review*, 16(5S), 1S-14S.
- Swanson, P.E., & Lin, A.Y. (2003). The role of US investors in international equity market inflows, outflows and net flows for selected emerging Asian markets. *Journal of Economics and Finance*, 27 (3), 300–319.
- Thenmozhi, M. and Kumar M. (2009), Dynamic interaction among mutual fund flows, stock market return and volatility, *NSE Working Papers*, 50, 1-30.
- Tsai, P., J. (2009). International equity flows and country funds. *Journal of International Financial Markets, Institutions & Money*, 19, 862-894.

Umutla, M., & Shackleton, M., B. (2015). Stock-return volatility and daily equity trading by investor groups in Korea. *Pacific-Basin Finance Journal*, 34, 43–70.

Ülkü, N., & İkizlerli, D. (2012). The interaction between foreigners' trading and emerging stock returns: Evidence from Turkey. *Emerging Markets Review*, 13, 381–409.

Wang, J. (2007). Foreign equity trading and emerging market volatility: Evidence from Indonesia and Thailand. *Journal of Development Economics*, 84, 798-811.

ACKNOWLEDGEMENT

The authors would like to thank Yayasan Tun Ismail Research Grant # EP-2017-011 and National University of Malaysia for the financial support to conduct this research activity.