

**THE IMPACT OF ECB AND FOMC MONETARY POLICY
ANNOUNCEMENT ON ASIAN INDEXES**



**A THEMATIC PAPER SUBMITTED IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR
THE DEGREE OF MASTER OF MANAGEMENT
COLLEGE OF MANAGEMENT
MAHIDOL UNIVERSITY
2014**

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Thematic paper
Entitled
**THE IMPACT OF ECB AND FOMC MONETARY ANNOUNCEMENT
ON ASIAN INDEXES**

was submitted to the College of Management, Mahidol University
for the degree of Master of Management

on
April 23, 2014



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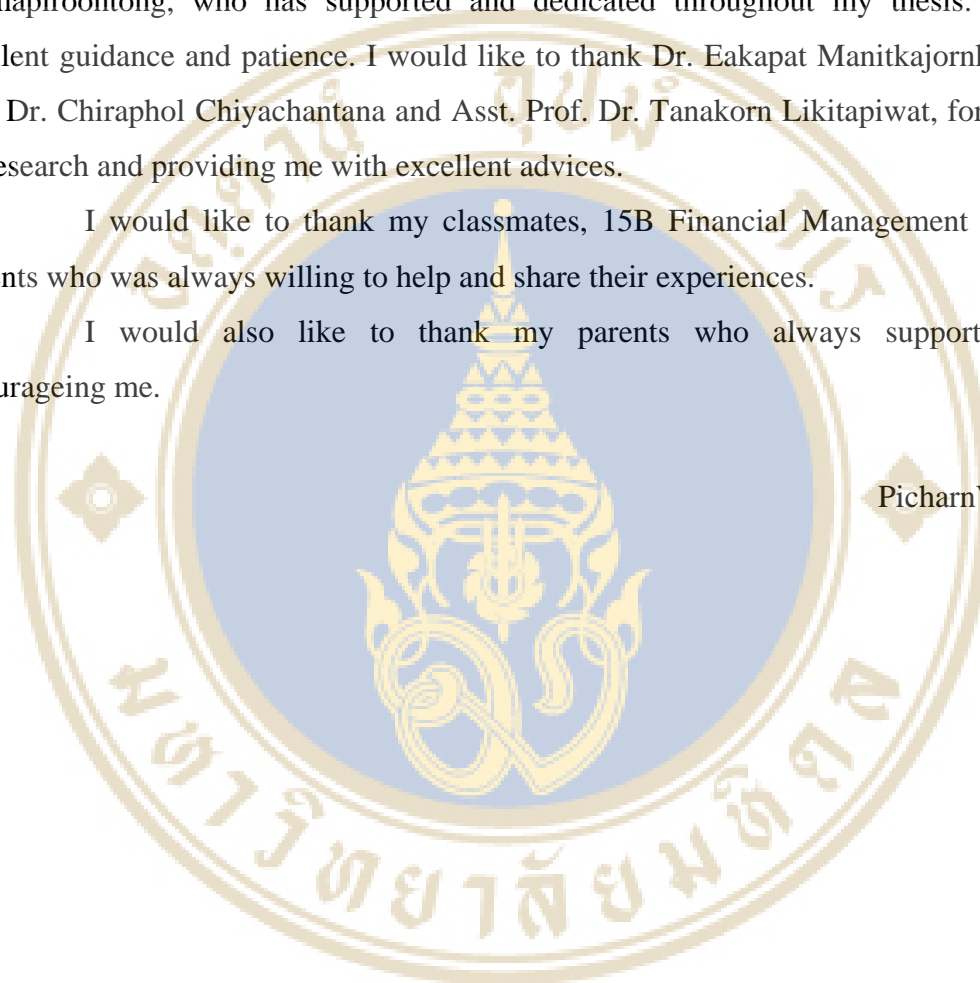
ACKNOWLEDGEMENTS

First I would like to offer my sincere gratitude to my advisor, Dr. Nareerat Taechapiroontong, who has supported and dedicated throughout my thesis. For her excellent guidance and patience. I would like to thank Dr. Eakapat Manitkajornkit, Asst. Prof. Dr. Chiraphol Chiyachantana and Asst. Prof. Dr. Tanakorn Likitapiwat, for guiding my research and providing me with excellent advices.

I would like to thank my classmates, 15B Financial Management Program students who was always willing to help and share their experiences.

I would also like to thank my parents who always supporting and encourageing me.

Picharn Vichakul



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ABSTRACT

This paper studied the impact of the monetary policy announcements from ECB and FOMC on Asian indices return. Recently equity markets in Asia have experienced large fluctuation according to monetary policy announcements, which are referred as event day in this paper. As most of Asian equity markets are closed before the announcement had been made; therefore, this paper is focus on the markets activities on 2 trading days before announcement, 1 trading day before announcement, which in this paper refer to ECB or/and FOMC announcement day, and 1 trading day after announcement, Major finding of this paper are that Although US market capital is bigger than ECB market capital, however, impact of ECB announcements tends to have more affect over some Asian indices more than FOMC announcements. Finally, The impact of FOMC and ECB announcements tend to more affect on indices that their market capital are lower than \$1,000,000M and most of these indices are classify by market classification as emerging markets and, especially, frontier market

KEY WORDS: Impact of ECB and FOMC announcements on Asia equity markets

27 pages

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CHAPTER I

INTRODUCTION

This paper studied the impact of the monetary policy announcements from ECB and FOMC on Asian indices return. Recently equity markets in Asia have experienced large fluctuation according to monetary policy announcements, which are referred as event day in this paper. As most of Asian equity markets are closed before the announcement had been made; therefore, this paper is focus on the markets activities on 2 trading days before announcement, 1 trading day before announcement, which in this paper refer to ECB or/and FOMC announcement day, and 1 trading day after announcement, which are referred as -1 event day, 0 event day, and +1 event day respectively.

Founded in 1999 ECB, European Central Bank, is the central bank, and administers the monetary policy of the European Union, which comprises of 18 European Union countries. The ECB's main responsibility is to maintain the euro's purchasing power and thus price stability in the euro area¹. The event days of ECB's announcements in this paper are referred to the monetary policy decisions made by the members of ECB Governing Council² that are announced in a press release³ issued at 1.45 p.m. C.E.T. on the day of the Governing Council's first meeting of the month.

The United States of America's FOMC, Federal Open Market Committee, is responsible for open market operations by using the three tools from tools from the Federal Reserve which are open market operations, the discount rate, and reserve

¹<http://www.ecb.europa.eu/ecb/html/index.en.html>

² The Governing Council is the main decision-making body of the ECB. It consists of the six members of the Executive Board and the governors, respectively presidents of all national central banks (NCBs) of the euro area.

The Governing Council usually meets twice a month. At the first meeting it assesses the latest monetary and economic developments and it takes the monthly monetary policy decisions, which means setting the key interest rates for the euro area. At its second meeting, the Governing Council mainly takes decisions related to the other tasks of the ECB.

³ The ECB press release date can be found at <http://www.ecb.europa.eu/press/pressconf/2014/html/index.en.html>

requirements to influences the demand for, and supply of, balances that depository institutions hold at Federal Reserve Banks and in this way alters the federal funds rate⁴. The event days of FOMC announcements in this paper are referred to the Minutes of the Federal Open Market Committee which are regularly announced approximately 2:15 pm Eastern time, eight times per year⁵.

Decisions made and announced by the ECB or FOMC create the chain of event that affect other short-term interest rates, foreign exchange rates, long-term interest rates, the creditability, and a range of economic variables⁶; therefore, the announcements may result in significant changes in market expectations of the path of monetary policy.

This paper studied the impact of monetary policy announcements from ECB and FOMC to most of Asian equity markets compose of 17 indices partially from Eastern Asia, Southern Asia, Southeastern Asia, and others. The period of study start from the year 2002 to 2013, which consist of 143 of ECB event days, and 89 FOMC event days.

Finally, the main result is the main summary statistics table consist of mean return from 17 indices, and in addition to the main results, there are four tables classify rage, consist of market capital, markets classification (developed, emerging, and frontier markets), period of economics events, regions, and one regression table.

⁴<http://www.federalreserve.gov/monetarypolicy/fomc.htm>

⁵The FOMC press release date can be found at

<http://www.federalreserve.gov/newsevents/press/monetary/2014monetary.htm>

⁶<http://www.federalreserve.gov/monetarypolicy/fomc.htm>

CHAPTER II

LITERATURE REVIEWS

The Pre-FOMC Announcement Drift by David O. Lucca and Emanuel Moench, July, 2013, Journal of Finance. This paper studied the relationship between average excess return on U.S. equities along with other major indices in anticipation of monetary policy decision made at scheduled meeting of the Federal Open Market Committee or FOMC in the past few decades. From the pre-FOMC event, this paper reports that there are large average excess returns on U.S. equities and these returns have increased over time and account for sizable fractions of total annual realized stock returns. While others major international equity indices experiences the similar pre-FOMC returns. This paper refers to this phenomenon as the pre-FOMC announcement drift.

This paper focused on financial asset returns around scheduled FOMC meeting between January 1960 and March 2011 with emphasis on the post-1980 and post-1994 samples. Most of samples based on intraday data and focuses on the 24-hour period from 2 pm on the day before a scheduled FOMC announcement until 2 pm on the day scheduled FOMC announcement, or about fifteen minutes before the announcement release time.

The main empirical results study on excess returns on the S&P500 index in anticipation of U.S. monetary policy decision, and also reports some cross-sectional and international evidence, finally reports returns on other asset classes and of the S&P500 index before other major macroeconomic data releases.

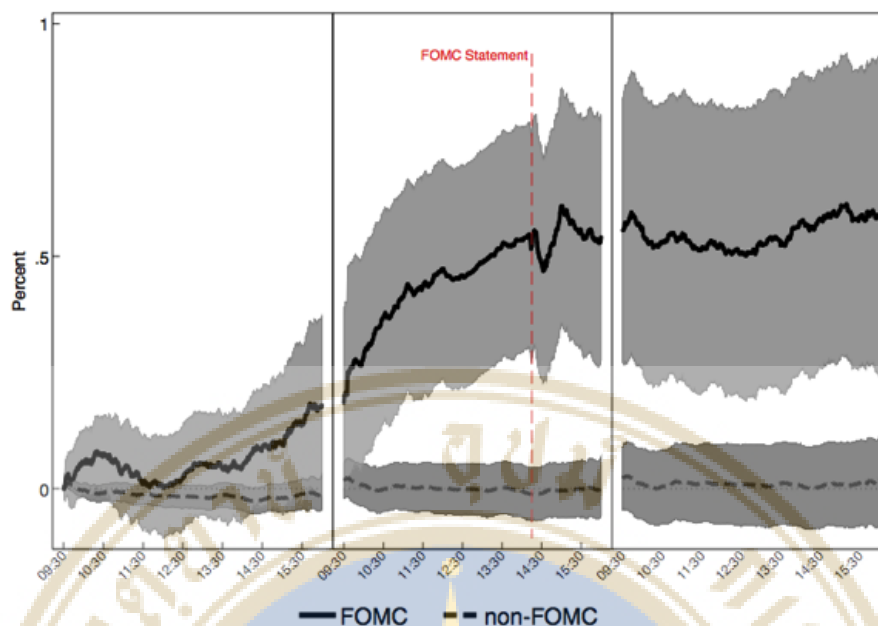


Figure 2.1 Cumulative Returns on the S&P500 index. This chart shows the average cumulative minutely return on the S&P500 index on three day windows. The solid black line is the average cumulative return on the SPX from 9:30 a.m. EST on days prior to scheduled FOMC announcements to 4:00 p.m. EST on days after scheduled FOMC announcements. The dashed black line shows average cumulative returns on the SPX on all other three day windows that do not include FOMC announcements. The gray shaded areas are point wise 95% confidence bands around the average returns. The sample period is from September 1994 through March 2011. The dashed vertical red line is set at 2:15 p.m. EST, the time when FOMC announcements were typically released in this sample period.

Finally, in addition to the main result, there is main regression result that test the effect of pre-FOMC scheduled announcement and unexpected (unscheduled) pre-FOMC announcement buy run the simple dummy-variable regression model:

$$rx_t = \beta_0 + \beta_1 \mathbf{1}_t(\text{pre-FOMC}) + \beta_x X_t + \epsilon_t,$$

Where rx_t denotes the cum-dividend log excess return on the SPX over the risk-free rate. The explanatory variable is a dummy variable, which is equal to one if the event is scheduled pre-FOMC announcement and equal to zero for other wise. While the

coefficient β_l is the mean return on pre-FOMC windows when the constant β_0 is omitted, and also include additional control variables denoted by the vector X_t .

Another related literature review is The Impact of ECB Monetary Policy Decisions And Communication On The Yield Curve by Claus Brand, Daniel Buncic, and arkko Turunen, working paper series no 657 / July 2006 of European Central Bank. This paper studied the relationship between changes in the euro area money market yield curve and the dates when ECB regularly sets and communicates decisions on policy interest rates. The results report that ECB communication during the press conference may result in significant changes in market expectations of the path of monetary policy. Furthermore, our results suggest that these changes have a significant and sizeable impact on medium to long-term interest rates. Finally, this paper use intraday changes in money market rates to construct indicators of news about monetary policy stemming from the policy decisions and official communication of the ECB and study their impact on the yield curve.

In measuring the impact of monetary policy news on longer-term yields. This paper reports two main steps. First to extract news from the money market yield curve by using this factor model from Gurkaynaketal. (2005):

$$Y = F\Omega' + \eta$$

Where Y is a $T \times N$ matrix of data, F is a $T \times k$ matrix of unobserved factors with $k < N$, Ω' is a $k \times N$ matrix of factor loadings and η is a $T \times N$ matrix of idiosyncratic disturbance terms.

Then measure impact of monetary policy news on longer-term yields by using the following regression model:

$$\Delta y_t^\tau = \beta' I_t + \varepsilon_t$$

Where Δy_t^τ is the change in the τ days ahead yield, $\tau = 60, 70, 80 \dots 3650$, viz, over the long time window, including the decision and press conference. The constant I_t consists of the changes in the news that were extracted using the previously described methods.

Finally, the paper reports results that news from the ECB's communication matter more for long-term interest rates; therefore, Consistency between central bank communication and decisions are important.



CHAPTER III

DATA AND METHODOLOGY

3.1 Data

Data collected for this study are daily close indices of 17 Asia equity markets¹. The sample size for this paper is the period of trading days start from January 1st 2002 to November 15th 2013 of 17 Asian equity indices. In addition, the observations data are daily close indices of 17 Asia equity markets when ECB or/and FOMC made a monetary policy announcement, detailed in the summary descriptive statistics as follow:

Table 3.1 Descriptive Statistics Summary

Index	Sample size	Obervation	ECB obs.	FOMC obs.
AS51	2482	226	138	88
CSEALL	2284	208	129	79
DHAKA	2142	195	120	75
HIS	2372	216	133	83
JCI	2339	213	129	84
KLCI	2142	195	116	79
KOSPI	1792	163	96	67
KSE100	2350	214	129	85
NKY	2321	211	130	81
NZSE50FG	2426	220	136	84
PCOMP	2460	224	138	86
SENSEX	1810	165	100	65
SET	2427	221	133	88
SHCOMP	2156	196	118	78
STI	2405	219	133	86
TWSE	1954	178	106	72
VNINDEX	2332	212	129	83

The samples are trading days with in the period from January 1st 2002 to November 15th 2013 from 17 Asian indices, and the observations data are announcement dates from ECB and FOMC.

¹Source of daily close Asian indices data are from www.bloomberg.com

Finally, this paper use data source from Bloomberg for daily close indices; moreover, the data are based on daily data due to the difference in operating equities market where most of Asian equity markets are closed before then announcement from both ECB and FOMC have been made to public.

3.2 Methodology

First, identify ECB and FOMC monetary policy announcement dates that fall with in the study time period. For ECB announcement dates in this paper choose the press releases from the ECB's Governing Council decisions that would be released approximately 12 times per year, which the dates are available on the ECB official website². On the others hand, for FOMC, this paper choose the press releases from the Minutes of the Federal Open Market Committee that would be released approximately 8 times per year, which the date are also available on the U.S. Federal Reserve website³.

After ECB and FOMC announcement dates were identified, for each index, calculate log return on daily close index, and then select the calculated daily close index that match with ECB and FOMC announcement dates. In addition to create event period, I set ECB and FOMC announcement dates as 0 event day which on this paper refer to pre-announcement day, and then assign the total period of 6 days event compose of -5, -4, -3, -2, -1, 0 event day, +1, +2, +3, +4, +5, where -5 day is 6 trading days before the announcement, and -1 day is 2 trading days before the announcement, and vice versa. After get event days and their daily close index return, then run the simple regression analysis on the data to find any significant evidences, finally combine mean return of -1 day, mean return of 0 day, and mean return of +1 day to create the main summary statistics tables for further analysis.

To study the impact of ECB and FOMC announcements individually, I classify mean returns on 0 day into positive and negative return by their daily return, and then use the simple dummy regression model:

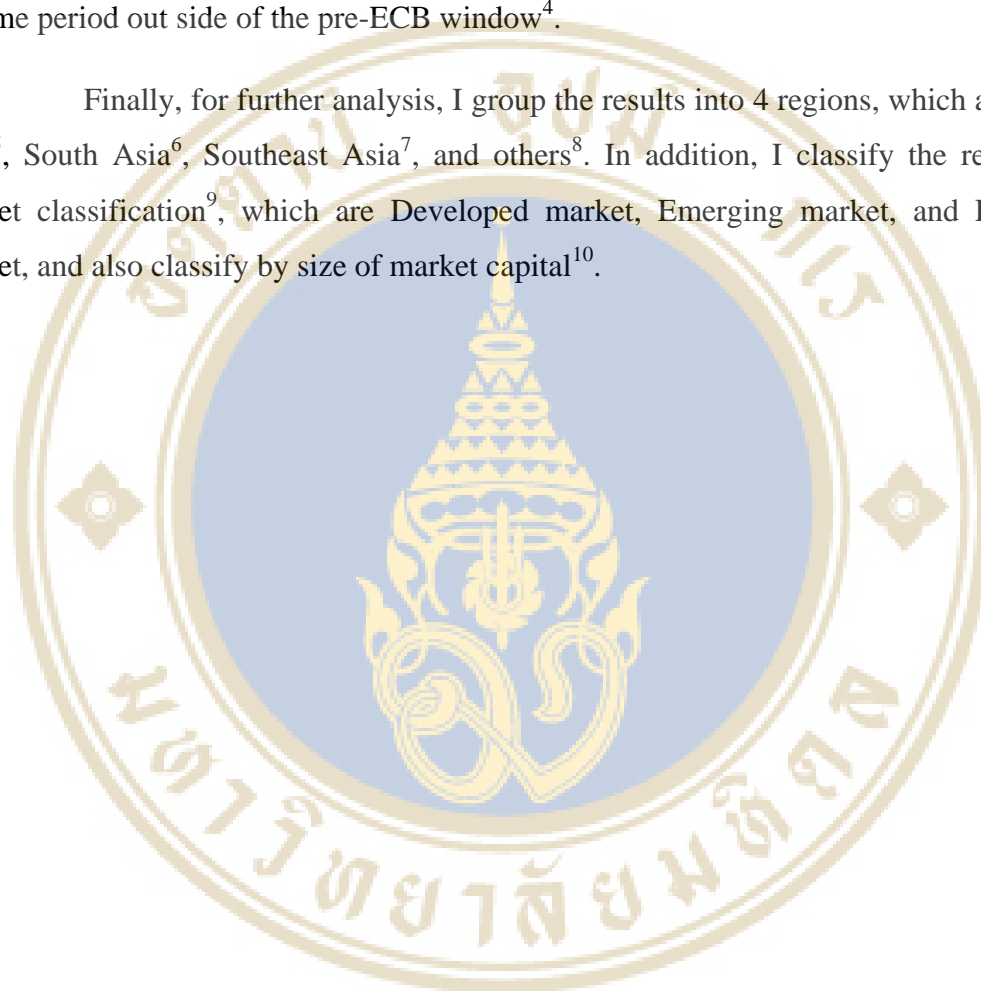
²<http://www.ecb.europa.eu/press/pressconf/2014/html/index.en.html>

³<http://www.federalreserve.gov/newsevents/press/monetary/2014monetary.htm>

$$R_i = \alpha + \beta_i(\text{pre-ECB})_i + e_i$$

Where R_i is the dependent variable, which mean returns on FOMC and ECB announcements at 0 event day for each Asian index, the coefficient β_1 is the mean return on $(\text{pre-ECB})_i$ when the constant α is omitted. The pre-ECB dummy is a variable that equal to 1 if it is ECB announcement, and zero if it is others wise (FOMC announcement). Finally the α constant measures the unconditional mean return earned on all time period out side of the pre-ECB window⁴.

Finally, for further analysis, I group the results into 4 regions, which are East Asia⁵, South Asia⁶, Southeast Asia⁷, and others⁸. In addition, I classify the result by market classification⁹, which are Developed market, Emerging market, and Frontier market, and also classify by size of market capital¹⁰.



⁴The variables explanation refer to The Pre-FOMC Announcement Drift by David O. Lucca and Emanuel Moench, July, 2013, Journal of Finance

⁵East Asia composes of Hongkong HIS, South Korea KOSPI, Japan NKY, China, China SHCOMP, and Taiwan TWSE.

⁶South Asia composes of Sri Lanka CSEALL, Bangladesh DHAKA, Pakistan KSE100, and India SENSEX

⁷Southeast Asia composes of Indonesia JCI, Malaysia KLCI, Philippines PCOMP, Thailand SET, Singapore STI, and Vietnam VNINDEX

⁸Others compose of Australia AS51, and New Zealand NZSE50FG.

⁹Market classification is according to the MSCI official website at http://www.msci.com/products/indexes/market_classification.html

¹⁰Market capitals are according to the FTSE official website at http://www.ftse.com/Indices/Country_Classification/Downloads/Asia_Pacific_March_2014.pdf

CHAPTER IV

EMPIRICAL RESULTS

In this section I present the empirical finding of this paper. First, I report the main summary statistics of the return on each 17 Asia indices, and then classify by regions, market capital, and market classification. Finally, I study the return on indices impact from ECB and FOMC individually by run the simple dummy-variables regression model.

4.1 The Daily Mean Return on FOMC and ECB Announcements

Table 4.1 reports the summary statistics on daily mean return over three days window (-1 day, 0 day, and +1 day) of Asian indexes from impact of ECB and FOMC monetary policy announcement from January 1st 2002 to November 15th 2013, compose of three panels. Panel A reports the overall impact of monetary announcements from both ECB and FOMC, while panel B and panel C report impact from FOMC and ECB announcements respectively.

Table 4.1 Main Summary Statistics

Daily Mean Return as FOMC and ECB Announcement							
Index	no. Obs	ret Mean -1 day	ret t stat	ret Mean 0 day	ret t stat	ret Mean +1 day	ret t stat
AS51	226	0.0001	0.1213	0.0000	-0.0669	0.0001	0.1421
CSEALL	208	-0.0006	-0.6315	0.0007	0.8938	0.0031***	3.6324
DHAKA	195	0.0007	0.4975	0.0036***	3.5023	0.0036***	3.5023
HIS	216	0.0010	1.0798	0.0005	0.5603	0.0008	0.8044
JCI	213	0.0016	1.4495	0.0022**	2.4369	0.0015	1.5310
KLCI	195	0.0005	0.9929	0.0009	1.6318	0.0009*	1.8051
KOSPI	163	0.0015	1.1686	-0.0002	-0.1566	0.0001	0.0632
KSE100	214	0.0017*	1.8046	0.0012	1.3173	0.0012	1.3173
NKY	211	0.0002	0.1663	0.0003	0.3297	-0.0004	-0.3146
NZSE50FG	220	0.0005	1.0555	-0.0005	-1.1855	-0.0002	-0.4996
PCOMP	224	0.0013	1.4860	0.0017**	2.0652	0.0019**	2.4996
SENSEX	165	0.0021	1.1493	0.0004	0.3283	0.0002	0.1233
SET	221	0.0013	1.3825	0.0010	1.1133	0.0012	1.2414
SHCOMP	196	0.0022*	1.7033	0.0009	0.7625	0.0001	0.0804
STI	219	0.0012	1.5544	0.0001	0.1198	0.0001	0.1129
TWSE	178	0.0003	0.2360	-0.0009	-0.8780	-0.0008	-0.6784
VNINDEX	212	0.0021**	2.0067	0.0015	1.4322	0.0005	0.5130

Mean Return as FOMC Announcement							
Index	no. Obs	ret Mean -1 day	ret t stat	ret Mean 0 day	ret t stat	ret Mean +1 day	ret t stat
AS51	88	0.0008	0.7304	-0.0008	-0.7271	-0.0006	-0.5002
CSEALL	79	-0.0034	-1.4947	-0.0005	-0.4006	0.0042**	2.2691
DHAKA	75	-0.0011	-0.5835	-0.0035*	1.9764	0.0007	0.4733
HIS	83	0.0015	0.8701	-0.0007	0.5394	-0.0003	-0.1871
JCI	84	0.0011	0.5327	0.0028**	1.9899	0.0001	0.0468
KLCI	79	0.0004	0.4115	0.0007	0.8271	0.0009	1.0929
KOSPI	67	0.0011	0.6224	-0.0013	0.8585	0.0005	0.3003
KSE100	85	-0.0002	-0.1264	-0.0013	0.7989	0.0027*	1.9436
NKY	81	-0.0009	-0.6466	-0.0001	-0.0837	-0.0017	-0.7676
NZSE50FG	84	-0.0002	-0.2419	-0.0016**	-2.1704	-0.0002	-0.2428
PCOMP	86	0.0016	1.1473	0.0012	0.9508	0.0000	0.0345
SENSEX	65	0.0008	0.3724	0.0006	0.3680	0.0004	0.1950
SET	88	0.0006	0.3791	-0.0003	-0.2367	0.0003	0.1827
SHCOMP	78	0.0003	0.1256	0.0002	0.0746	-0.0002	-0.1021
STI	86	0.0003	0.1803	0.0005	0.4363	-0.0018	-1.3394
TWSE	72	0.0014	0.6422	0.0009	0.5953	-0.0005	-0.2675
VNINDEX	83	0.0004	0.2240	-0.0003	-0.1792	-0.0018	-1.1157

Mean Return as ECB Announcement							
Index	no. Obs	ret Mean -1 day	ret t stat	ret Mean 0 day	ret t stat	ret Mean +1 day	ret t stat
AS51	138	-0.0004	-0.4275	0.0004	0.4538	0.0005	0.6461
CSEALL	129	0.0011	1.2903	0.0014	1.4976	0.0025***	3.0700
DHAKA	120	0.0019	0.9166	0.0037***	2.9162	-0.0046*	-1.8395
HIS	133	0.0007	0.6569	0.0004	0.3128	0.0014	1.1845
JCI	129	0.0019	1.5914	0.0018	1.5332	0.0024**	2.2409
KLCI	116	0.0007	0.9626	0.0010	1.4193	0.0009	1.4427
KOSPI	96	0.0018	0.9864	-0.0012	-0.6633	-0.0002	-0.1381
KSE100	129	0.0030**	2.4992	0.0012	1.0506	0.0032***	2.8150
NKY	130	0.0008	0.6924	0.0006	0.4687	0.0005	0.3762
NZSE50FG	136	0.0009	1.4776	0.0001	0.2011	-0.0003	-0.4365
PCOMP	138	0.0011	0.9914	0.0020*	1.8618	0.0031***	3.2252
SENSEX	100	0.0028	1.1102	0.0002	0.1435	0.0000	0.0171
SET	133	0.0017	1.5984	0.0018	1.5496	0.0017*	1.6771
SHCOMP	118	0.0034**	2.0895	0.0014	1.0322	0.0003	0.1935
STI	133	0.0019**	2.1214	-0.0002	-0.1766	0.0013	1.5608
TWSE	106	-0.0005	-0.3756	-0.0022	-1.5610	-0.0009	-0.6705
VNINDEX	129	0.0032**	2.5509	0.0026**	2.0494	0.0020	1.6218

This table reports summary statistics on daily mean return of Asian indexes from impact of FOMC and ECB monetary policy announcement. The sample period is 1st Jan 2002 to 15th November 2013. Colum "ret Mean 1- day" report daily mean return of 2 trading day before announcements, columns "ret Mean 0 day" report mean return of 1 trading day before announcements, and columns "ret Mean +1 day" report mean return of 1 trading day after announcement. This report divided into 3 panels (A, and B), panel A report the impact from FOMC and ECB announcements, panel B report the impact from FOMC announcements, and panel C report the impact from ECB announcements. Finally numbers of observations report the impact events on each index. *** Significant at 1%, ** significant at 5%, and * significant at 10%.]

As seen in the tables, panel A displays significant mean returns on impact of FOMC and ECB announcements on -1 day in Pakistan's KSE100, China's SHCOMP, and Vietnam's VNINDEX indices; moreover, the table displays significant mean returns on 0 day in Bangladesh's DHAKA, Indonesia's JCI, and Philippines's PCOMP indices, finally, the table displays significant mean returns on +1 day in Sri LanKa's CSEALL, Bangladesh's DHAKA, Malaysia's KLCI, and Philippines's PCOMP indices. In addition, panel B displays significant mean returns from impact of FOMC announcements only. There is no significant evidence of mean return on -1 day, however, the table displays significant mean returns on 0 day in Bangladesh's DHAKA, Indonesia's JCI, and Pakistan's KSE100 indices, and the table displays significant mean returns on +1 day in Sri LanKa's CSEALL, and Pakistan's KSE100 indices. Finally, panel C displays significant mean returns from impact of ECB announcements only. The table displays significant mean returns from impact of ECB announcements on -1 day in Pakistan's KSE100, China's SHCOMP, Singapore's STI, and Vietnam's VNINDEX indices. And the table also displays significant mean returns on 0 day in Bangladesh's DHAKA, Philippines's PCOMP, and Vietnam's VNINDEX indices, finally the table displays significant mean returns on +1 day in Sri LanKa's CSEALL, Sri LanKa's CSEALL, Sri LanKa's CSEALL, Pakistan's KSE100, Philippines's PCOMP, and Thai' SET indices.

In conclusion, as seen in the table 4.1 from all three panels, there are significant evidences supports that there are the impacts of FOMC and ECB on Asian equity indices, while the market tend to react significantly more on +1 event day, a

trading day after an announcement day; moreover, there are significant evidences support that impact of ECB announcements are greater than impact of FOMC announcement.

4.2 The Daily Mean Return on FOMC and ECB Announcements for period of the year 2007 to 2013 (U.S. Subprime crisis, Euro crisis, QE issue)

The objective of table 4.2 is to observe the significant level on the impact of FOMC or/and ECB announcements when there are three major economics crisis which are subprime crisis in 2007, Euro crisis in 2010, and Quantitative Easing (QE) issue. The sample period is from January 1st 2007 to November 15th 2013. The paper reports the summary statistics on daily mean return over three days window (-1 day, 0 day, and +1 day), and compose of two panels, panel A reports the impact from FOMC, and panel B reports the impact on ECB.

Table 4.2 Summary Statistics from year 2007 to 2013

Mean Return as FOMC 2007-2013 (Subprime, Euro crisis, and QE)							
Index	no. Obs	ret Mean -1 day	ret t stat	ret Mean 0 day	ret t stat	ret Mean +1 day	ret t stat
AS51	53	0.0012	0.6743	-0.0022	-1.4896	-0.0013	-0.7005
CSEALL	47	-0.0034***	-2.9125	-0.0020	-1.2748	0.0018	1.2311
DHAKA	47	-0.0014	-0.6690	0.0012	0.5789	0.0014	0.6509
HIS	51	0.0032	1.2701	-0.0004	-0.2312	-0.0015	-0.6525
JCI	51	0.0006	0.1869	0.0005	0.2763	-0.0019	-0.6470
KLCI	45	0.0001	0.0799	0.0008	0.6539	-0.0005	-0.4968
KOSPI	37	0.0017	0.6831	0.0029	1.5562	-0.0011	-0.5689
KSE100	51	0.0011	0.5936	-0.0002	-0.1132	0.0009	0.4885
NKY	49	-0.0001	-0.0294	-0.0020	-0.9949	-0.0034	-1.0101
NZSE50FG	51	0.0000	0.0193	-0.0022**	-2.0416	-0.0007	-0.7701
PCOMP	51	0.0005	0.2848	-0.0018	-1.1213	-0.0002	-0.0812
SENSEX	35	0.0012	0.3130	0.0012	0.4846	-0.0033	-1.1190
SET	53	0.0009	0.3544	-0.0023	-1.2921	-0.0022	-0.8500
SHCOMP	46	0.0008	0.2694	-0.0006	-0.1787	-0.0015	-0.5828
STI	52	0.0001	0.0594	0.0001	0.0404	-0.0038*	-1.8622
TWSE	42	-0.0022	-0.7062	-0.0005	-0.2878	-0.0043*	-1.7733
VNINDEX	50	-0.0002	-0.0741	-0.0034	-1.4145	-0.0029	-1.1333

Mean Return as ECB Announcement							
Index	no. Obs	ret Mean -1 day	ret t stat	ret Mean 0 day	ret t stat	ret Mean +1 day	ret t stat
AS51	138	-0.0004	-0.4275	0.0004	0.4538	0.0005	0.6461
CSEALL	129	0.0011	1.2903	0.0014	1.4976	0.0025***	3.0700
DHAKA	120	0.0019	0.9166	-0.0037***	2.9162	-0.0046*	-1.8395
HIS	133	0.0007	0.6569	0.0004	0.3128	0.0014	1.1845
JCI	129	0.0019	1.5914	0.0018	1.5332	0.0024**	2.2409
KLCI	116	0.0007	0.9626	-0.0010	1.4193	0.0009	1.4427
KOSPI	96	0.0018	0.9864	-0.0012	-0.6633	-0.0002	-0.1381
KSE100	129	0.0030**	2.4992	0.0012	1.0506	0.0032***	2.8150
NKY	130	0.0008	0.6924	0.0006	0.4687	0.0005	0.3762
NZSE50FG	136	0.0009	1.4776	-0.0001	0.2011	-0.0003	-0.4365
PCOMP	138	0.0011	0.9914	0.0020*	1.8618	0.0031***	3.2252
SENSEX	100	0.0028	1.1102	0.0002	0.1435	0.0000	0.0171
SET	133	0.0017	1.5984	0.0018	1.5496	0.0017*	1.6771
SHCOMP	118	0.0034**	2.0895	0.0014	1.0322	0.0003	0.1935
STI	133	0.0019**	2.1214	-0.0002	-0.1766	0.0013	1.5608
TWSE	106	-0.0005	-0.3756	-0.0022	-1.5610	-0.0009	-0.6705
VNINDEX	129	0.0032**	2.5509	0.0026**	2.0494	0.0020	1.6218

This table reports summary statistics on daily mean return of Asian indexes from impact of FOMC and ECB monetary policy announcement. The sample period is 1st Jan 2007 to 15th November 2013 included 3 main economic events, U.S. Subprime crisis, European Union crisis, and U.S. Quantitative Easing issue. Column "ret Mean 1-day" report daily mean return of 2 trading day before announcements, columns "ret Mean 0 day" report mean return of 1 trading day before announcements, and columns "ret Mean +1 day" report mean return of 1 trading day after announcement. This report divided into 3 panels (A and B), panel A report the impact from FOMC announcements, panel B report the impact from ECB announcements. Finally numbers of observations report the impact events on each index. *** Significant at 1%, ** significant at 5%, and

* significant at 10%.

As seen in the tables, panel A displays significant mean returns on impact of FOMC announcements on -1 day only in Sri Lanka's CSEALL index, while the table displays significant mean returns on 0 day in only New Zealand's NZSE50FG index, finally the table displays significant mean returns on +1 day in Singapore's STI, and Taiwan's TWSE indices. On the other hand, panel B displays significant mean returns on impact of ECB announcements on -1 day only in Pakistan's KSE100, and China's SHCOMP indices, while the table displays significant mean returns on 0 day in only Bangladesh's DHAKA, and there is no significant mean returns on impact of ECB announcements on +1 day.

In conclusion, as seen in the table 3 from all panels, there are significant supports that impact of FOMC announcements during the period of the year 2007 to 2013 tend slightly affect Asian equity indices more than impact of ECB announcements.

4.3 The Daily Mean Return on FOMC and ECB Announcements for period of the year 2010 to 2013 (Euro crisis, and QE issue)

The objectives of table 4.3 are to observe the significant level on the impact of FOMC or/and ECB announcements when there are two major economic crisis, which are Euro crisis in 2010, and Quantitative Easing (QE) issue. The sample period is from January 1st 2010 to November 15th 2013. The paper reports the summary statistics on daily mean return over three days window (-1 day, 0 day, and +1 day), and compose of two panels, panel A reports the impact from FOMC, and panel B reports the impact on ECB.

Table 4.3 Summary Statistics from year 2010 to 2013

Mean Return as FOMC 2010-2013 (Euro crisis, and QE)							
Index	no. Obs	ret Mean -1 day	ret t stat	ret Mean 0 day	ret t stat	ret Mean +1 day	ret t stat
AS51	29	0.0013	0.7509	-0.0016	-0.8453	-0.0018	-0.8990
CSEALL	27	-0.0030*	-1.7300	-0.0009	-0.4010	0.0044**	2.1342
DHAKA	24	-0.0023	-0.6491	0.0041	1.2375	-0.0022	-0.6151
HIS	28	0.0024	1.0229	0.0003	0.1195	-0.0003	-0.1315
JCI	27	0.0012	0.5547	0.0022	0.8906	0.0005	0.2240
KLCI	21	0.0006	0.4129	0.0005	0.3045	0.0004	0.4152
KOSPI	20	-0.0023	-0.7580	0.0033	1.3732	-0.0034	-1.2055
KSE100	27	0.0023	1.2062	0.0020	0.9257	-0.0004	-0.2562
NKY	27	0.0003	0.1776	0.0022	0.8101	-0.0032	-0.9402
NZSE50FG	28	0.0015	1.5152	-0.0014	-1.0891	-0.0001	-0.0563
PCOMP	27	0.0005	0.3259	-0.0005	-0.2410	0.0035*	2.0167
SENSEX	20	0.0024	0.4228	0.0015	0.5170	-0.0074*	-1.7897
SET	29	0.0030	1.4894	0.0013	0.7622	0.0024	0.9378
SHCOMP	24	0.0016	0.7498	0.0024	1.0430	-0.0021	-0.7840
STI	28	0.0017	1.2298	-0.0001	-0.0577	-0.0009	-0.5352
TWSE	23	-0.0057	-1.2875	-0.0033	-1.3529	-0.0033	-1.3007
VNINDEX	28	0.0010	0.3148	-0.0029	-1.2378	-0.0017	-0.6009

Mean Return as ECB 2010-2013 (Euro crisis, and QE)							
Index	no. Obs	ret Mean -1 day	ret t stat	ret Mean 0 day	ret t stat	ret Mean +1 day	ret t stat
AS51	46	0.0009	0.5880	0.0018	1.3279	0.0011	0.6365
CSEALL	44	-0.0007	-0.4625	0.0003	0.2313	0.0010	0.8911
DHAKA	41	0.0041	0.7940	-0.0024	1.0474	-0.0060*	-1.7865
HIS	43	0.0005	0.2398	0.0009	0.4813	0.0020	0.8872
JCI	44	0.0025	1.2162	0.0009	0.5148	-0.0003	-0.1644
KLCI	34	0.0011	1.3831	0.0008	0.8799	0.0007	0.6768
KOSPI	35	-0.0016	-0.7603	-0.0032	-0.7637	-0.0008	-0.2153
KSE100	46	0.0007	0.5108	0.0033**	2.2499	0.0026	1.6751
NKY	43	0.0016	0.7097	0.0022	1.0956	0.0032	1.2563
NZSE50FG	46	0.0003	0.3791	0.0013*	1.7278	0.0006	0.5506
PCOMP	46	0.0000	0.0049	0.0030*	1.9267	0.0025	1.6220
SENSEX	35	0.0029	0.4535	-0.0049	-1.4755	0.0003	0.0581
SET	44	0.0029	1.5706	0.0018	0.8684	-0.0024	-1.6225
SHCOMP	40	0.0029	1.5300	-0.0024	-1.3727	0.0017	0.8687
STI	45	0.0012	0.9083	0.0008	0.5721	-0.0002	-0.1247
TWSE	36	-0.0005	-0.3649	-0.0035	-1.3650	-0.0001	-0.0276
VNINDEX	44	0.0027	1.6272	0.0025	1.5123	0.0030*	2.0089

This table reports summary statistics on daily mean return of Asian indexes from impact of FOMC and ECB monetary policy announcement. The sample period is 1st Jan 2010 to 15th November 2013 included 2 main economic events, European Union crisis, and U.S. Quantitative Easing issue. Column "ret Mean 1- day" report daily mean return of 2 trading day before announcements, columns "ret Mean 0 day" report mean return of 1 trading day before announcements, and columns "ret Mean +1 day" report mean return of 1 trading day after announcement. This report has 2 panels (A, and B), panel A report the impact from FOMC announcements, panel B report the impact from ECB announcements. Finally numbers of observations report the impact events on each

index. *** Significant at 1%, ** significant at 5%, and * significant at 10%.

As seen in the tables, panel A displays significant mean returns on impact of FOMC announcements on -1 day only in only Sri Lanka's CSEALL index, while there is no significant evidence to support the impact on 0 day, and the table displays significant mean returns on +1 day in Sri Lanka's CSEALL, Philippines's PCOMP, and India's SENSEX indices. On the other hand, panel B displays none significant mean returns on impact of ECB announcements on -1 day in, while the table displays significant mean returns on 0 day in New Zealand's NZSE50FG, and Philippines's PCOMP indices, finally the table displays significant mean returns on +1 day in Bangladesh's DHAKA, and Vietnam's VNINDEX indices.

In conclusion, as seen in the table 4.3 from all panels, there are significant supports that impact of FOMC and ECB announcements during the period of the year 2010 to 2013 tend to have equal affect on Asian equity indices.

4.4 The Daily Mean Return on FOMC and ECB Announcements Classify by Regions

The objectives of table 4.4 are to observe the impacts of FOMC and ECB on Asia equity markets across regions. The table over three days window (-1 day, 0 day, and +1 day) of Asian indexes from impact of ECB and FOMC monetary policy announcement from January 1st 2002 to November 15th 2013, compose of four panels classify and group the data in to regions. East Asia are compose of Indices from Hongkong's HIS, South Korea's KOSPI, Japan's NKY, China's SHCOMP, and Taiwan's TWSE. Moreover, South Asia are compose of indices from Sri Lanka's CSEALL, Bangladesh's DHAKA, Pakistan's KSE100, and India's SENSEX. In addition, Southeast Asia compose of indices from Indonesia's JCI, Malaysia KLCI, Philippines's PCOMP, Thailand's SET, Singapore's STI, and Vietnam's VNINDEX. Finally, other Asia indices are compose of Australia's AS51, and New Zealand's NZSE50FG.

Table 4.4 The Daily Mean Return on FOMC and ECB Announcements Classify by Regions

-Southern Aisa- DailyMean Return as FOMC and ECB Announcement										
Southern Aisa	Country	Index	no. Obs	ret Mean -1 day	ret t stat	ret Mean 0 day	ret t stat	ret Mean +1 day	ret t stat	
	Sri Lan Ka	CSEALL	208	-0.0006	-0.6315	0.0007	0.8938	0.0031***	3.6324	
	Bangladesh	DHAKA	195	0.0007	0.4975	0.0036***	3.5023	0.0036***	3.5023	
	Pakistan	KSE100	214	0.0017*	1.8046	0.0012	1.3173	0.0012	1.3173	
	India	SENSEX	165	0.0021	1.1493	0.0004	0.3283	0.0002	0.1233	
-Southern Aisa- Mean Return as FOMC Announcement										
Country	Index	no. Obs	ret Mean -1 day	ret t stat	ret Mean 0 day	ret t stat	ret Mean +1 day	ret t stat		
Sri Lan Ka	CSEALL	79	-0.0034	-1.4947	-0.0005	-0.4006	0.0042**	2.2691		
Bangladesh	DHAKA	75	-0.0011	-0.5835	0.0035*	1.9764	0.0007	0.4733		
Pakistan	KSE100	85	-0.0002	-0.1264	0.0013	0.7989	0.0027*	1.9436		
India	SENSEX	65	0.0008	0.3724	0.0006	0.3680	0.0004	0.1950		
-Southern Aisa- Mean Return as ECB Announcement										
Country	Index	no. Obs	ret Mean -1 day	ret t stat	ret Mean 0 day	ret t stat	ret Mean +1 day	ret t stat		
Sri Lan Ka	CSEALL	129	0.0011	1.2903	0.0014	1.4976	0.0025***	3.0700		
Bangladesh	DHAKA	120	0.0019	0.9166	0.0037***	2.9162	-0.0046*	-1.8395		
Pakistan	KSE100	129	0.0030**	2.4992	0.0012	1.0506	0.0032***	2.8150		
India	SENSEX	100	0.0028	1.1102	0.0002	0.1435	0.0000	0.0171		
-Southeastern Aisa- DailyMean Return as FOMC and ECB Announcement										
South East Asia	Country	Index	no. Obs	ret Mean -1 day	ret t stat	ret Mean 0 day	ret t stat	ret Mean +1 day	ret t stat	
	Indonesia	JCI	213	0.0016	1.4495	0.0022**	2.4369	0.0015	1.5310	
	Malaysia	KLCI	195	0.0005	0.9929	0.0009	1.6318	0.0009*	1.8051	
	Philippines	PCOMP	224	0.0013	1.4860	0.0017**	2.0652	0.0019**	2.4996	
	Thailand	SET	221	0.0013	1.3825	0.0010	1.1133	0.0012	1.2414	
	Singapore	STI	219	0.0012	1.5544	0.0001	0.1198	0.0001	0.1129	
	Vietnam	VNINDEX	212	0.0021**	2.0067	0.0015	1.4322	0.0005	0.5130	
	-Southeastern Aisa- Mean Return as FOMC Announcement									
	Country	Index	no. Obs	ret Mean -1 day	ret t stat	ret Mean 0 day	ret t stat	ret Mean +1 day	ret t stat	
	Indonesia	JCI	84	0.0011	0.5327	0.0028**	1.9899	0.0001	0.0468	
Malaysia	KLCI	79	0.0004	0.4115	0.0007	0.8271	0.0009	1.0929		
Philippines	PCOMP	86	0.0016	1.1473	0.0012	0.9508	0.0000	0.0345		
Thailand	SET	88	0.0006	0.3791	-0.0003	-0.2367	0.0003	0.1827		
Singapore	STI	86	0.0003	0.1803	0.0005	0.4363	-0.0018	-1.3394		
Vietnam	VNINDEX	83	0.0004	0.2240	-0.0003	-0.1792	-0.0018	-1.1157		
-Southeastern Aisa- Mean Return as ECB Announcement										
Country	Index	no. Obs	ret Mean -1 day	ret t stat	ret Mean 0 day	ret t stat	ret Mean +1 day	ret t stat		
Indonesia	JCI	129	0.0019	1.5914	0.0018	1.5332	0.0024**	2.2409		
Malaysia	KLCI	116	0.0007	0.9626	0.0010	1.4193	0.0009	1.4427		
Philippines	PCOMP	138	0.0011	0.9914	0.0020*	1.8618	0.0031***	3.2252		
Thailand	SET	133	0.0017	1.5984	0.0018	1.5496	0.0017*	1.6771		
Singapore	STI	133	0.0019**	2.1214	-0.0002	-0.1766	0.0013	1.5608		
Vietnam	VNINDEX	129	0.0032**	2.5509	0.0026**	2.0494	0.0020	1.6218		

-Eastern Aisa- DailyMean Return as FOMC and ECB Announcement									
Country	Index	no. Obs	ret Mean -1 day	ret t stat	ret Mean 0 day	ret t stat	ret Mean +1 day	ret t stat	
Hongkong	HIS	216	0.0010	1.0798	0.0005	0.5603	0.0008	0.8044	
S.Korea	KOSPI	163	0.0015	1.1686	-0.0002	-0.1566	0.0001	0.0632	
Japan	NKY	211	0.0002	0.1663	0.0003	0.3297	-0.0004	-0.3146	
China	SHCOMP	196	0.0022*	1.7033	0.0009	0.7625	0.0001	0.0804	
Taiwan	TWSE	178	0.0003	0.2360	-0.0009	-0.8780	-0.0008	-0.6784	
-Eastern Aisa- Mean Return as FOMC Announcement									
Country	Index	no. Obs	ret Mean -1 day	ret t stat	ret Mean 0 day	ret t stat	ret Mean +1 day	ret t stat	
Hongkong	HIS	83	0.0015	0.8701	0.0007	0.5394	-0.0003	-0.1871	
S.Korea	KOSPI	67	0.0011	0.6224	0.0013	0.8585	0.0005	0.3003	
Japan	NKY	81	-0.0009	-0.6466	-0.0001	-0.0837	-0.0017	-0.7676	
China	SHCOMP	78	0.0003	0.1256	0.0002	0.0746	-0.0002	-0.1021	
Taiwan	TWSE	72	0.0014	0.6422	0.0009	0.5953	-0.0005	-0.2675	
-Eastern Asia- Mean Return as ECB Announcement									
Country	Index	no. Obs	ret Mean -1 day	ret t stat	ret Mean 0 day	ret t stat	ret Mean +1 day	ret t stat	
Hongkong	HIS	133	0.0007	0.6569	0.0004	0.3128	0.0014	1.1845	
S.Korea	KOSPI	96	0.0018	0.9864	-0.0012	-0.6633	-0.0002	-0.1381	
Japan	NKY	130	0.0008	0.6924	0.0006	0.4687	0.0005	0.3762	
China	SHCOMP	118	0.0034**	2.0895	0.0014	1.0322	0.0003	0.1935	
Taiwan	TWSE	106	-0.0005	-0.3756	-0.0022	-1.5610	-0.0009	-0.6705	

-AUS and NZ- DailyMean Return as FOMC and ECB Announcement									
Country	Index	no. Obs	ret Mean -1 day	ret t stat	ret Mean 0 day	ret t stat	ret Mean +1 day	ret t stat	
Australia	AS51	226	0.0001	0.1213	0.0000	-0.0669	0.0001	0.1421	
New Zealand	NZSE50FG	220	0.0005	1.0555	-0.0005	-1.1855	-0.0002	-0.4996	
-AUS and NZ- Mean Return as FOMC Announcement									
Country	Index	no. Obs	ret Mean -1 day	ret t stat	ret Mean 0 day	ret t stat	ret Mean +1 day	ret t stat	
Australia	AS51	88	0.0008	0.7304	-0.0008	-0.7271	-0.0006	-0.5002	
New Zealand	NZSE50FG	84	-0.0002	-0.2419	-0.0016**	-2.1704	-0.0002	-0.2428	
-AUS and NZ- Mean Return as ECB Announcement									
Country	Index	no. Obs	ret Mean -1 day	ret t stat	ret Mean 0 day	ret t stat	ret Mean +1 day	ret t stat	
Australia	AS51	138	-0.0004	-0.4275	0.0004	0.4538	0.0005	0.6461	
New Zealand	NZSE50FG	136	0.0009	1.4776	0.0001	0.2011	-0.0003	-0.4365	

The table over three days window (-1 day, 0 day, and +1 day) of Asian indexes from impact of ECB and FOMC monetary policy announcement from January 1st 2002 to November 15th 2013, compose of four panels classify and group the data in to regions. *** Significant at 1%, ** significant at 5%, and * significant at 10%.

As seen in the table, in conclusion, there are significant evidences supports that South Asia, and Southeast Asia indices tend to response the impact of FOMC and ECB announcements than others two regions. Moreover, The impact of ECB announcements tends to have impact to return of South Asia, and Southeast Asia equity indices more than FOMC announcements.

4.5 The Daily Mean Return on FOMC and ECB Announcements Classify by Market Capital, and Market Classification

The objectives of table 4.5 are to observe the impacts of FOMC and ECB on Asia equity markets by classify indices by their market capital and market classifications. The tables report over three days window (-1 day, 0 day, and +1 day) of Asian indexes from impact of ECB and FOMC monetary policy announcement from January 1st 2002 to November 15th 2013, and divide into two panels. Panel A classify data by market capital divide indices into two groups, first, indices that have market capital more than \$1,000,000M, compose of Japan's NKY, China's SHCOMP, Hong Kong's HIS, India's SENSEX, Australia's AS51, and South Korea's KOSPI indices. The second group are indices that have market capital lower than \$1,000,000M compose of Taiwan's TWSE, Singapore's STI, Malaysia's KLCI, SET's Thailand, Indonesia's JCI, Philippines's PCOMP, New Zealand's NZSE50FG, Pakistan's KSE100, Vietnam's VNINDEX, Bangladesh's DHAKA, and Sri Lanka's CSEALL indices. On the other hand, Panel B classify indices by market classification; there are three classifications, Developed markets which compose of Japan's NKY, Hong Kong's HIS, Australia's AS51, Singapore's STI, and New Zealand's NZSE50FG indices. Emerging market classification compose of China's SHCOMP, India's SENSEX, South Korea's KOSPI, Taiwan's TWSE, Malaysia's KLCI, Thailand's SET, Indonesia's JCI, and Philippines's PCOMP indices. Finally last market classification, which is frontier markets compose of Pakistan's KSE100, Vietnam's VNINDEX, Bangladesh's DHAKA, and Sri Lanka's CSEALL indices.

Table 4.5 The Daily Mean Return on FOMC and ECB Announcements Classify by market capital and market classification

	Daily Mean Return as FOMC and ECB Announcement				Mean Return as FOMC Announcement				Mean Return as ECB Announcement				Mkt cap \$M.	Cl	
	Index	Obs	ret Mean -1 day	ret Mean 0 day	ret Mean +1 day	Obs	ret Mean -1 day	ret Mean 0 day	ret Mean +1 day	Obs	ret Mean -1 day	ret Mean 0 day			ret Mean +1 day
Developed Market	NKY	211	0.0002	0.0003	-0.0004	81	-0.0009	-0.0001	-0.0017	130	0.0008	0.0006	0.0005	4,543,169	
	HIS	216	0.0010	0.0005	0.0008	83	0.0015	0.0007	-0.0003	133	0.0007	0.0004	0.0014	3,100,797	
	ASS1	226	0.0001	0.0000	0.0001	88	0.0008	-0.0008	-0.0006	138	-0.0004	0.0004	0.0005	1,366,012	
	STI	219	0.0012	0.0001	0.0001	86	0.0003	0.0005	-0.0018	133	0.0019**	-0.0002	0.0013	744,413	
	NZSE50FG	220	0.0005	-0.0005	-0.0002	84	-0.0002	-0.0016**	-0.0002	136	0.0009	0.0001	-0.0003	65,962	
Emerging Market	SHCOMP	196	0.0022*	0.0009	0.0001	78	0.0003	0.0002	-0.0002	118	0.0034**	0.0014	0.0003	3,949,143	
	SENSEX	165	0.0021	0.0004	0.0002	65	0.0008	0.0006	0.0004	100	0.0028	0.0002	0.0000	2,251,786	
	KOSPI	163	0.0015	-0.0002	0.0001	67	0.0011	0.0013	0.0005	96	0.0018	-0.0012	-0.0002	1,234,549	
	TWSE	178	0.0003	-0.0009	-0.0008	72	0.0014	0.0009	-0.0005	106	-0.0005	-0.0022	-0.0009	822,707	
	KLCI	195	0.0005	0.0009	0.0009*	79	0.0004	0.0007	0.0009	116	0.0007	0.0010	0.0009	500,387	
	SET	221	0.0013	0.0010	0.0012	88	0.0006	-0.0003	0.0003	133	0.0017	0.0018	0.0017*	354,340	
	JCI	213	0.0016	0.0022**	0.0015	84	0.0011	0.0028**	0.0001	129	0.0019	0.0018	0.0024**	346,674	
PCOMP	224	0.0013	0.0017**	0.0019**	86	0.0016	0.0012	0.0000	138	0.0011	0.0020*	0.0031***	217,320		
Frontier Market	KSE100	214	0.0017*	0.0012	0.0012	85	-0.0002	0.0013	0.0027*	129	0.0030**	0.0012	0.0032***	59,943	
	VNINDEX	212	0.0021**	0.0015	0.0005	83	0.0004	-0.0003	-0.0018	129	0.0032**	0.0026**	0.0020	44,985	
	DHAKA	195	0.0007	0.0036***	0.0036***	75	-0.0011	0.0035*	0.0007	120	0.0019	0.0037***	-0.0046*	26,290	
	CSEALL	208	-0.0006	0.0007	0.0031***	79	-0.0034	-0.0005	0.0042**	129	0.0011	0.0014	0.0025***	18,807	

	Daily Mean Return as FOMC and ECB Announcement				Mean Return as FOMC Announcement				Mean Return as ECB Announcement				Mkt cap \$M.	Cl	
	Index	Obs	ret Mean -1 day	ret Mean 0 day	ret Mean +1 day	Obs	ret Mean -1 day	ret Mean 0 day	ret Mean +1 day	Obs	ret Mean -1 day	ret Mean 0 day			ret Mean +1 day
Market Cap More than \$1,000,000M	NKY	211	0.0002	0.0003	-0.0004	81	-0.0009	-0.0001	-0.0017	130	0.0008	0.0006	0.0005	4,543,169	D
	SHCOMP	196	0.0022*	0.0009	0.0001	78	0.0003	0.0002	-0.0002	118	0.0034**	0.0014	0.0003	3,949,143	E
	HIS	216	0.0010	0.0005	0.0008	83	0.0015	0.0007	-0.0003	133	0.0007	0.0004	0.0014	3,100,797	D
	SENSEX	165	0.0021	0.0004	0.0002	65	0.0008	0.0006	0.0004	100	0.0028	0.0002	0.0000	2,251,786	E
	ASS1	226	0.0001	0.0000	0.0001	88	0.0008	-0.0008	-0.0006	138	-0.0004	0.0004	0.0005	1,366,012	D
Market Cap Less than \$1,000,000M	KOSPI	163	0.0015	-0.0002	0.0001	67	0.0011	0.0013	0.0005	96	0.0018	-0.0012	-0.0002	1,234,549	E
	TWSE	178	0.0003	-0.0009	-0.0008	72	0.0014	0.0009	-0.0005	106	-0.0005	-0.0022	-0.0009	822,707	E
	STI	219	0.0012	0.0001	0.0001	86	0.0003	0.0005	-0.0018	133	0.0019**	-0.0002	0.0013	744,413	D
	KLCI	195	0.0005	0.0009	0.0009*	79	0.0004	0.0007	0.0009	116	0.0007	0.0010	0.0009	500,387	E
	SET	221	0.0013	0.0010	0.0012	88	0.0006	-0.0003	0.0003	133	0.0017	0.0018	0.0017*	354,340	E
	JCI	213	0.0016	0.0022**	0.0015	84	0.0011	0.0028**	0.0001	129	0.0019	0.0018	0.0024**	346,674	E
	PCOMP	224	0.0013	0.0017**	0.0019**	86	0.0016	0.0012	0.0000	138	0.0011	0.0020*	0.0031***	217,320	E
	NZSE50FG	220	0.0005	-0.0005	-0.0002	84	-0.0002	-0.0016**	-0.0002	136	0.0009	0.0001	-0.0003	65,962	D
	KSE100	214	0.0017*	0.0012	0.0012	85	-0.0002	0.0013	0.0027*	129	0.0030**	0.0012	0.0032***	59,943	I
	VNINDEX	212	0.0021**	0.0015	0.0005	83	0.0004	-0.0003	-0.0018	129	0.0032**	0.0026**	0.0020	44,985	I
DHAKA	195	0.0007	0.0036***	0.0036***	75	-0.0011	0.0035*	0.0007	120	0.0019	0.0037***	-0.0046*	26,290	I	
CSEALL	208	-0.0006	0.0007	0.0031***	79	-0.0034	-0.0005	0.0042**	129	0.0011	0.0014	0.0025***	18,807	I	

The table over three days window (-1 day, 0 day, and +1 day) of Asian indexes from impact of ECB and FOMC monetary policy announcement from January 1st 2002 to November 15th 2013, compose of four panels classify and group the data in to regions. Divide into two panels. Panel A classify data by market capital divide indices into two groups, first, indices that have market capital more than \$1,000,000M, and The second.

As seen in the table, in conclusion, there are significant evidences supports that impact of FOMC and ECB announcements affect more in indices with market capital lower than \$1,000,000M; moreover, the results also compile with another classification, which indices in emerging markets, and especially frontier markets have response to the FOMC and ECB announcement more than indices in developed market.

4.6 Simple Dummy-Regression of the Daily Mean Return on FOMC and ECB

The objectives of table 4.6 are to observe the impact of ECB and FOMC announcements individually on the daily returns of each 17 observed Asian indices. This table shows results for the pre-ECB dummy variable regression based on daily mean return on each Asian indexes computed over positive mean returns, and negative mean returns. In addition, I observe mean returns on FOMC and ECB announcements at 0 event day for each Asian index. The pre-ECB dummy is a variable that equal to 1 if it is ECB announcement, and zero if it is others wise (FOMC announcement). The sample period is from 1st Jan 2002 to 15th November 2013.



Table 4.6 Regression Table: Daily mean return of Asian indexes at FOMC and ECB pre-monetary policy announcements (1 day before announcement day)

Main Regression Table
Dependent Variable: Mean Return on FOMC and ECB announcement at day 0 (pre-announcement)

Index	Positive mean return of pre-announcement				Negative mean return of pre-announcement				Obs
	Pre-ECB dummy	Const.	Adj R-sq	F test	Pre-ECB dummy	Const.	Adj R-sq	F test	
HIS	0.00137	0.00877 ***	-0.0041	0.4684	0.00252	-0.01141 ***	0.0027	0.2616	216
SHCOMP	-0.00098264	0.01238 ***	-0.0082	0.6849	0.45% *	-0.01408 ***	0.0198	0.0955	196
NKY	0.00126	0.01089 ***	-0.0058	0.5213	0.00069298	-0.01089 ***	-0.0084	0.742	211
TWSE	0.00052223	0.00935 ***	-0.116	0.8093	-0.00165	-0.00903 ***	-0.004	0.4313	178
KOSPI	0.00238	0.00918 ***	0.0039	0.2526	-0.00088563	-0.01117 ***	-0.0122	0.7857	163
AS51	0.0002193	0.00713 ***	-0.0084	0.8581	0.00063404	-0.00834 ***	-0.008	0.7004	226
SENSEX	0.28% *	0.0193 ***	0.0193	0.0997	-0.00024606	-0.01222 ***	-0.0138	0.9262	165
SET	0.30% *	0.00792	0.0184	0.073	0.00259	-0.01143 ***	0.0097	0.1657	221
KLCI	-0.00011787	0.00573 ***	-0.0092	0.9109	-0.0002169	-0.00507 ***	-0.0114	0.8406	195
JCI	-0.00086784	0.01124 ***	-0.0062	0.6067	-0.00095338	-0.00836 ***	-0.0085	0.6298	213
PCOMP	0.00030376	0.01025 ***	-0.0081	0.8484	-0.00128	-0.0078 ***	-0.003	0.4053	224
NZSE50FG	-0.00026788	0.00501 ***	-0.0083	0.7094	-0.00013247	-0.00545 ***	-0.0087	0.8875	220
STI	0.00037486	0.00816 ***	-0.0085	0.8115	0.00004512	-0.00113 ***	-0.0096	0.975	219
VNINDEX	-0.000782	0.01195 ***	-0.0076	0.7118	0.00225	-0.01171 ***	0.0033	0.2543	212
CSEALL	0.00068228	0.00135 ***	-0.0068	0.6146	0.00106	-0.00878 ***	-0.0059	0.5117	208
DHAKA	-0.0019	0.01221 ***	-0.0047	0.4906	0.42% **	-0.01037 ***	0.072	0.0147	195
KSE100	0.00114	0.00874 ***	-0.004	0.4736	0.55% **	-0.01358 ***	0.0358	0.0418	214

This table shows results for the (pre-) ECB dummy variable regression based on daily mean return on each Asian indexes computed over positive mean returns, and negative mean returns. The dependent variable is mean returns on FOMC and ECB announcements at day 0 for each Asian indexes. "Pre-ECB dummy" is a variable that equal to 1 if it is ECB announcement, and zero if it is others wise (FOMC announcement). The sample period is from 1st Jan 2002 to 15th November 2013. *** Significant at 1%, ** significant at 5%, and * significant at 10%.

As seen in the table, in conclusion, there are significant evidences supports that impact on ECB announcements has more affect to some of Asian indices more than announcements from FOMC. In addition, for positive daily mean returns there are significant evidences supports that ECB affect more than FOMC by 0.28% for India's SENSEX, and 0.30% for Thailand's SET. On the other hands, in negative daily mean returns there are significant evidences supports that ECB affect more than FOMC by 0.45% for China's SHCOMP, 0.42% for Bangladesh's DHAKA, and 0.55% for Pakistan's KSE100.



CHAPTER V

POTENTIAL EXPLANATIONS

5.1 Impact of ECB and FOMC announcements

Although US market capital is bigger than ECB market capital¹, however, impact of ECB announcements tends to have more effect over some Asian indices more than FOMC announcements. The best explanation is that ECB announcements occur more than FOMC announcements by approximately 3 times per year, and in this paper number of average ECB to FOMC announcements from 17 indices are 124 to 80 observations. Another potential explanation is that ECB are newly formed and compose of different 18 governments for each countries member; moreover, when there are any crisis or issue happen the magnitude of problems would be greater and impact the creditability of entire union; therefore, investors may tend to made decision compile with the ECB announcements and expectation.

¹As of the year 2012, U.S. market capital is \$18,668,333,210,000, and Eurozone market capital is \$7,491,013,958,757. The source of information is at <http://data.worldbank.org/indicator/CM.MKT.LCAP.CD>

5.2 Market capital and Market classification

The impact of FOMC and ECB announcements tend to more affect on indices that their market capital are lower than \$1,000,000M and most of these indices are classify by market classification as emerging markets and, especially, frontier market. The best explanation is that the market with lower market capital would have more significant impact of foreign funds flow in and out of the indices in response to FOMC and ECB announcements for their best expectation on returns.



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