LONG TERM BEHAVIOR OF STOCK RETURN AND THE U.S. QUANTITATIVE ANNOUNCEMENT: EVIDENCE IN THAILAND

Yaowaluk Techarongrojwong
Martin de Tours School of Management, Assumption University

Witsaroot Pariyaprasert
Graduate School of Business, Assumption University

บทคัดย่อ

การศึกษานี้ศึกษาผลกระทบของประกาศมาตรการการผ่อนคลายเชิงปริมาณของประเทศสหรัฐอเมริกาที่มีต่อตลาดหลักทรัพย์แห่งประเทศไทย เนื่องจากการศึกษาในอดีตส่วนใหญ่จะศึกษาเกี่ยวกับผลกระทบจากประกาศนโยบายการเงินของประเทศสหรัฐอเมริกาที่มีต่อประเทศอื่น ๆ ในช่วงระยะเวลาสั้น การศึกษานี้จึงเน้นการศึกษาเกี่ยวกับพฤติกรรมของผลตอบแทนการลงทุนของหุ้นในประเทศไทยในระยะยาวโดยขยายขอบเขตระยะเวลาการศึกษาเป็นก่อนหน้าวันประกาศ 10 วันจนถึง 30 วันภายหลังวันประกาศ จำนวนกลุ่มตัวอย่างบริษัท 309 แห่งสำหรับการประกาศมาตรการการผ่อนคลายเชิงปริมาณครั้งแรก ณ วันที่ 25 พฤศจิการยน 2551 และจำนวนกลุ่มตัวอย่างบริษัท 344 แห่ง สำหรับการประกาศครั้งที่ 2 ณ วันที่ 3 พฤศจิกายน 2553 จากการศึกษาพบว่า การประกาศมาตรการดังกล่าว ส่งผลเชิงลบต่อผลตอบแทนการลงทุนในตลาดหลักทรัพย์ของประเทศไทย ณ วันที่มีการประกาศและก่อนวันที่จะมีการประกาศใช้ 1 วัน แต่ผลตอบแทนการลงทุนจะกลับเป็นบวกภายหลังจากมาตรการถูกประกาศใช้แล้วเป็นระยะเวลา 1 สัปดาห์ นอกจากนี้การศึกษายังพบว่าผลตอบแทนการลงทุนในตลาดหลักทรัพย์แห่งประเทศไทยจะมีการปรับตัวต่อการประกาศในลักษณะที่คล้ายเดิมแต่รวดเร็วขึ้น

Abstract

This study examines the impact of the U.S. Quantitative Easing announcement on the stock market in Thailand. Many previous studies examine the effect of U.S. monetary policy announcement on the stock market in the other countries with a narrowly examined period. This study focuses on the long term behavior of the stock return in Thailand, so the examined period (event window) is expanded to Day -10 through Day 30. Two Quantitative Easing announcements are examined with 309 firm-announcement observations for the announcement on November 25, 2008 and 344 firm-announcement observations for the announcement on November 3, 2010. The U.S. Quantitative Easing announcements provide the negative effects on the Thai stock return on the announcement date. The stock return in Thailand negatively responds to the announcement one day before the announcement and becomes positive value within one week. In addition, there is the evidence of learning curve in the stock market in Thailand.

Keywords: monetary policy, Q.e. announcement, stock market, stock return, Thailand
JEL Classification: E44; E52; G14

INTRODUCTION

The conventional monetary policy tool is the tool that the Central Bank applies to control the economy during normal economic times. Three outstanding tools are the open market operation, the discount window and the reserve requirement (Meulendyke, 1998; Nakornthab, 2009). The Central Bank can control the economy by buying and selling short-term government securities to adjust the short term-interest rate, which is called the open market operation. The Central Bank can expand the economy by purchasing short-term government securities from the market. The process reduces the short-term interest rate since the government security price increases. When the short-term interest rate decreases, the demand for loans to develop the economy increases which can enhance the activity in the business unit.

However, the U.S. economy has become sluggish since the subprime crisis in U.S. (Dodd, 2007). The conventional monetary policy is not sufficient to stimulate the economy since the U.S. policy rate in U.S. is already low (0-0.25%). The U.S. Federal Reserve, therefore, uses the unconventional monetary policy tool as the approach to stimulate the economy. The chosen unconventional monetary tool is the Quantitative Easing (Q.E.). The Central Bank uses new printed money to buy securities from the market. This process increases the size of the Central Bank's balance sheet. When the Central Bank buys the securities from the market, which mostly focuses on the long-term securities, the long-term yield is reduced since the long-term security price increases. The process, therefore, focuses on the long-term interest rate rather than the short-term interest rate as in the open market operation. There were U.S. Q.E. announcements on November 25, 2008 and November 3, 2010.

The stock price should reflect all available information under the Efficient Market Hypothesis (Fama, 1970). Many scholars support the effect of U.S. monetary policy announcement on the stock price (Waud, 1970; Hardouvelis, 1987; Reinhart & Simin (1997). The U.S. monetary policy announcement affects not only the U.S. stock price, it also affects the stock price in the other countries. Many scholors examined the effect of U.S. conventional monetary policy on the stock price in the other coutries (Ehrmann & Fratzscher, 2006; Hausmann & Wongswan, 2006; Wongswan, 2009). However, there is limited evidence which focuses on the effect of the unconventional monetary policy tool (Bernanke, Reinhart, & Sack, 2004; Joyce, Lasaosa, Stevens & Tong, 2011). This study, therefore, aims to investigate the effect of the U.S. Q.E. announcement on the stock return for firms listed on the Stock Exchange of Thailand (SET).

The classic event window is adopted to understand the long term behavior of the stock price (Brown & Warner, 1985). Two announcements, made on November 25, 2008 and November 3, 2010, are under examination. The finding of this study supports the semi-strong Form Efficient Market Hypothesis (Fama, 1970). The finding of this study also supports the overreaction and the learning curve in the stock listed on the SET. The first section of this paper reviews how the domestic monetary policy announcement affects the domestic stock price (Rigobon & Sack, 2004; Bernanke & Kuttner, 2005; Bredin, Gavin & O'Reilly, 2005), the second section reviews how the announcement in one country relates to the stock market in other countries. Then data and methodology are discussed in the third section. The results are presented in the fourth section. The overall conclusion is summarized in the fifth section and a reference list is provided in the last section.

LITERATURE REVIEW

There are two main factors driving the interdependence in financial markets (Sharma & Wongbangpo, 2002). One driver relies on the increasing market liberalization. The other driver comes from the improvement in the technology which facilitates the transaction for the world-wide investors. When the financial market becomes more interrelated, the country's economy cannot be isolated from the foreign shock. Much evidence supports the linkage between cross countries' financial markets (Becker, Finnerty & Gupta, 1990; Connolly & Wang, 1998, 2003; Ehrmann, Fratzscher, & Rigobon, 2005).

The financial market linkage can be explained by two competing explanations. One explanation relies on the Market Contagion Hypothesis (King & Wadhwani, 1990; Karolyi & Stulz, 1996). King and Wadhwani (1990) propose that the complex structure of information blocks information disclosure. The

stock price, therefore, is unable to reflect all information. When the failure of market mechanism exists, the idiosyncratic shock transmits from one country to another. The shock induces the volatility from one country to the other country when the stock market starts trading since the correlation during market crash is high. The other explanation relies on the economic fundamentals (Ross, 1989; Jones, Kaul, & Lipson, 1994; Connolly & Wang, 1998, 2003). Ross (1989) argues that when the rate of information flow is high, the volatility in the asset price is high. The process induces co-movement across the market. Jones et al. (1994) focus on the role of the public information that increases the market volatility. Connolly and Wang (1998) focus on the role of the macroeconomic news in explaining the volatility spillover effect.

There are two lines of empirical research examining the impact of announcement on stock market. One line focuses on the single announcement (Boyd, Hu, & Jagannathan, 2005) or the announcement in a single country (Pearce & Roley, 1985). Boyd et al. (2005) use a single announcement from a single country by examining the impact of U.S. unemployment news on the U.S. stock return. Pearce and Roley (1985) use many announcements from a single country by examining the impact of U.S. macroeconomic announcements (monetary and non-monetary policy) on the U.S. stock return.

The other line of research focuses on the impact of many announcements (Hardouvelis, 1987; Flannery & Protopapadakis, 2002) or the announcement from many countries (Connolly & Wang, 1998, 2003). Hardouvelis (1987) examines the impact of U.S. monetary and non-monetary policy announcements on four U.S. stock indices and two interest rate series. Connolly and Wang (1998, 2003) investigated the U.S. stock market response to fourteen macroeconomic announcements from U.S., U.K., and Japan. Two common conclusions from the research in examining the impact of announcement on the stock market are drawn. The first one is that monetary policy announcement plays a more important role than the non-monetary policy announcement in explaining the variation in stock market (Hardouvelis, 1987; Connolly & Wang, 1998, 2003; Flannery & Protopapadakis, 2002). The second one is that foreign annoucement plays a more imporatnt role than domestic annoucement in explaining the variation in the domestic stock market (Connolly & Wang, 1998, 2003).

DATA AND METHODOLOGY

Previous literature widely supports the event study approach as the method to examine the effect of announcement on a stock market (Brown & Warner, 1985; Bernanke & Kuttner, 2005). This study, therefore, adopts the event study approach to examine the impact of U.S. Q.E. announcement on the stock return for the firms listed on the SET. The event day (Day 0) is the earliest trading day at which the U.S. Q.E. announcement affects the stock market in Thailand. This study, therefore, has 2 event days which are November 26, 2008 for the first announcement and November 4, 2010 for the second announcement. There are initially 1,034 firm-announcement observations. The initial observations from the first announcement are 517 observations and from the second announcement are 517 observations. After cleaning data by excluding the infrequent trading stock, the stock with IPO announcement, dividend announcement and stock split announcements, the final firm-announcement observations are 653 observations. The final observations from the first announcement are 309 observations and from the second announcement are 344 observations.

The stock return is calculated by taking the first difference in logarithm of stock closing price. The market portfolio return is calculated by taking the first difference in logarithm of SET index. The return generating process to generate the expected return relies on the market model, which relates the stock return to the market return. The abnormal return is the difference between the actual return and the expected return. The cumulative abnormal return is calculated by summing the abnormal return during the event window (Day -10 through Day 30). The Z statistic is used to test whether the abnormal return (cumulative abnormal return) is significantly different from zero. The Z-statistic in examining whether the abnormal return equals to zero is:

$$Z\text{-}statistic = TSAR_t \sqrt{\Sigma_{t=1}^{N} [(T_i - 2) / (T_i - 4)]} \quad (1)$$

where $TSAR_t$ is the total standardized abnormal return, T_i is the number of trading days for the stock i during the estimation period, and N is the number of stocks in the sample. The Z statistic was also used to test whether the cumulative abnormal return of all stocks (cumulative standardized abnormal return) during the event window equals to zero. The Z-statistic in examining whether the cumulative abnormal return equals to zero is:

$$Z\text{-}statistic = (1/N)\left[\Sigma_{t=j}^{k} SAR_{it} / \left(\sqrt{(k - j + 1)(T_i - 2)(T_i - 4)}\right)\right] \quad (2)$$

where SAR_{it} is the standardized abnormal return for stock i in each day over the event window (e.g. Day -10 through Day 5), N is the number of stocks in the sample, j is the first day in the event window (e.g. Day -10), k is the last day in the event widow (e.g. Day 5) and T_i is the number of trading day for stock i over the estimation period.

RESULTS

Many studies have examined the effect of the U.S. monetary policy action on the stock price in other countries with narrow examining period (Ehrmann & Fratzscher, 2006; Hausmann & Wongswan, 2006; Wongswan, 2009). However, there is limited evidence examining the effect of U.S. unconventional monetary policy action on the stock price (Bernanke, Reinhart, & Sack, 2004; Joyce, Lasaosa, Stevens & Tong, 2011). This study focuses on the effect of U.S. unconventional monetary policy action on the stock price in Thailand by examining the long term behavior of stock price. The behaviors of mean abnormal return during Day -10 through Day 30 are under examination.

There are 309 observations (mean return = -0.642% and standard deviation = 0.037) for the announcement on November 25, 2008 and 344 observations for the announcement (mean return = -0.264% and standard deviation = 0.037) on November 3, 2010. The firm announcement observations for two announcements are 653 observations (mean return = -0.443% and standard deviation = 0.037). Table 1 shows the mean abnormal return and the mean cumulative abnormal return on the SET around the announcement on November 25, 2008. (N = 309). The results show that the mean abnormal return on the day prior to the announcement day (Day -1) is -0.38% and is statistically significant at 10% level. The mean abnormal return on the announcement day (Day 0) is -0.93% and is statistically significant at 1% level. The mean abnormal return becomes statistically insignificant on the subsequent day but becomes statistically significant and negative on Day 2. The positive abnormal return is visible on Day 7 (the mean abnormal return is 0.68% at 1% significant level). The results also show that the mean cumulative abnormal return over a longer period (Day -10 through Day 10) is -3.41% and is statistically significant at 1% level.

The table 1 below presents the mean abnormal return on all stocks for the subsample, which includes only the first announcement on November 25, 2008. The event window is Day -10 through Day 30. The mean abnormal return during the event window (Day -10 through Day 10) is presented with the Z statistic and the P value. The mean cumulative abnormal returns are also presented during the event window (Day -10 through Day 10) with the Z statistic and the P value.

From the figure, it is shown that the cumulative abnormal returns seem to be the negative value before the announcement date. The negative cumulative abnormal return starts around Day -7. The cumulative abnormal returns are negative in the greatest magnitude during Day 8 through Day 10. The cumulative abnormal return becomes positive on Day 20 and continues after Day 25.

Table 2 shows the mean abnormal return and the mean cumulative abnormal return on the SET around the announcement on November 3, 2010 (N = 344). The results show that the mean abnormal return on the day prior to the announcement day (Day -1) is -0.32% and statistically significant at 10% level, which is consistent with previous results. The mean abnormal return on the announcement day (Day 0) is -0.95% and is statistically significant at 1% level, which supports the previous tables with a similar magnitude. The mean abnormal return on the subsequent day is -0.62% and is statistically significant at 1% level. The mean abnormal return becomes statistically significant and positive after Day 1. However, the mean cumulative abnormal return over a longer period (Day -10 through Day 4) is -2.29% and is statistically significant at 5% level.

Table 1: Abnormal Return for Announcement on November 25, 2008 (N = 309)

The table 1 below presents the mean abnormal return on all stock returns for the subsample, which includes only the first announcement on November 25, 2008. The event window is Day -10 through Day 30. The mean abnormal return during the event window (Day -10 through Day 10) is presented with the Z statistic and the P value. The mean cumulative abnormal returns are also presented during the event window (Day -10 through Day 10) with the Z statistic and the P value.

Day	AR (%)	Z-Statistic	p-value	Positive AR (%)	Period	CAR (%)	Z-Statistic	p-value
-10	0.43	1.546	0.122	58.58	(-10, -10)	0.43	1.546	0.122
-9	-0.58	-3.990	0.000	44.98	(-10, -9)	-0.14	-1.728	0.084
-8	0.15	2.686	0.007	55.34	(-10, -8)	0.00	0.140	0.889
-7	-0.56	-3.503	0.000	41.10	(-10, -7)	-0.55	-1.631	0.103
-6	-0.07	-0.833	0.405	54.37	(-10, -6)	-0.62	-1.831	0.067
-5	-0.40	-1.078	0.281	51.46	(-10, -5)	-1.02	-2.112	0.035
-4	-0.47	-4.009	0.000	50.49	(-10, -4)	-1.49	-3.470	0.001
-3	0.20	1.441	0.149	44.66	(-10, -3)	-1.29	-2.736	0.006
-2	0.14	0.746	0.456	56.96	(-10, -2)	-1.16	-2.331	0.020
-1	-0.38	-1.741	0.082	37.86	(-10, -1)	-1.53	-2.762	0.006
0	-0.93	-5.988	0.000	30.10	(-10, 0)	-2.46	-4.439	0.000
1	-0.08	1.292	0.197	58.25	(-10, 1)	-2.54	-3.878	0.000
2	-0.27	-1.705	0.088	43.04	(-10, 2)	-2.81	-4.198	0.000
3	-0.04	-0.001	1.000	53.72	(-10, 3)	-2.86	-4.046	0.000
4	-0.15	-0.673	0.501	51.13	(-10, 4)	-3.01	-4.082	0.000
5	-0.48	-3.290	0.001	37.54	(-10, 5)	-3.49	-4.775	0.000
6	0.03	-0.692	0.489	54.69	(-10, 6)	-3.46	-4.801	0.000
7	0.68	4.034	0.000	49.84	(-10, 7)	-2.77	-3.714	0.000
8	-0.50	-2.058	0.040	32.69	(-10, 8)	-3.28	-4.088	0.000
9	-0.58	-4.016	0.000	38.51	(-10, 9)	-3.86	-4.882	0.000
10	0.45	4.173	0.000	56.96	(-10, 10)	-3.41	-3.854	0.000

Figure 1: Cumulative Abnormal Return for Announcement on November 25, 2008 (N = 309)

The figure below presents the cumulative abnormal return on all stock returns for the subsample, which includes only the first announcement on November 25, 2008. The event window (Day -10 through Day 30) is presented with the number of observations in the subsample of 309.

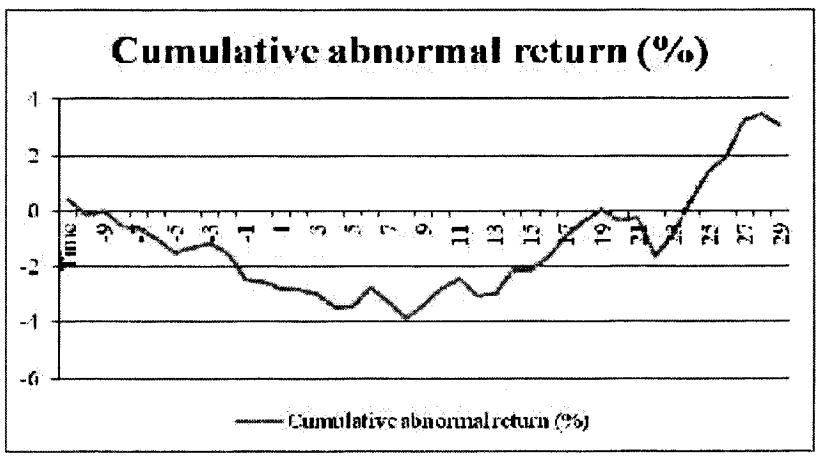


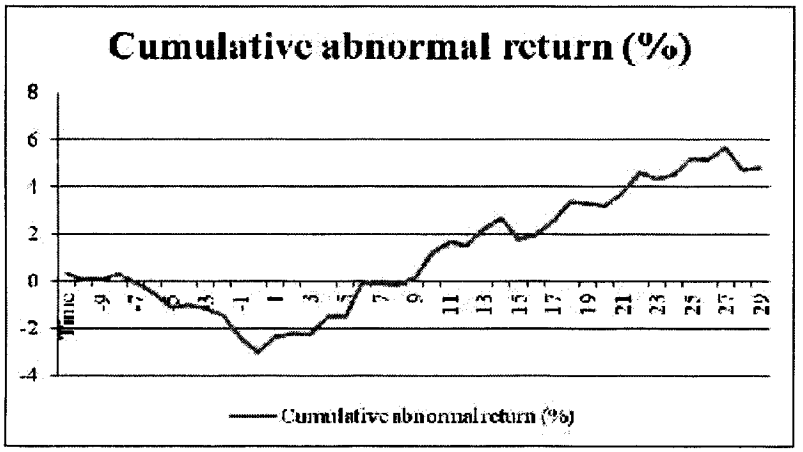
Table 2: Abnormal Return for Announcement on November 3, 2010 (N = 344)

The table below presents the mean abnormal return on all stock returns for the subsample, which includes only the second announcement on November 3, 2010. The event window is Day -10 through Day 30. The mean abnormal return during the event window (Day -10 through Day 10) is presented with the Z statistic and the P value. The mean cumulative abnormal returns are also presented during the event window (Day -10 through Day 10) with the Z statistic and the P value.

Day	AR (%)	Z-Statistic	p-value	Positive AR (%)	Period	CAR (%)	Z-Statistic	p-value
-10	0.34	1.817	0.069	54.36	(-10, -10)	0.34	1.817	0.069
-9	-0.27	-0.254	0.800	45.64	(-10, -9)	0.07	1.105	0.269
-8	0.01	0.033	0.973	40.41	(-10, -8)	0.08	0.922	0.357
-7	0.25	2.042	0.041	46.51	(-10, -7)	0.33	1.819	0.069
-6	-0.39	-1.430	0.153	49.13	(-10, -6)	-0.05	0.988	0.323
-5	-0.44	-1.678	0.093	35.17	(-10, -5)	-0.50	0.217	0.828
-4	-0.62	-2.242	0.025	48.26	(-10, -4)	-1.12	-0.647	0.518
-3	0.10	0.298	0.765	42.73	(-10, -3)	-1.01	-0.500	0.617
-2	-0.12	-0.733	0.463	41.28	(-10, -2)	-1.13	-0.715	0.474
-1	-0.32	-1.945	0.052	37.50	(-10, -1)	-1.45	-1.294	0.196
0	-0.95	-7.703	0.000	32.27	(-10, 0)	-2.40	-3.556	0.000
1	-0.62	-3.736	0.000	34.30	(-10, 1)	-3.02	-4.483	0.000
2	0.66	3.244	0.001	46.51	(-10, 2)	-2.36	-3.408	0.001
3	0.11	1.886	0.059	49.42	(-10, 3)	-2.25	-2.780	0.005
4	-0.04	0.031	0.976	50.58	(-10, 4)	-2.29	-2.678	0.007
5	0.78	4.936	0.000	61.92	(-10, 5)	-1.51	-1.358	0.174
6	0.00	-2.155	0.031	53.78	(-10, 6)	-1.51	-1.841	0.066
7	1.49	6.287	0.000	47.97	(-10, 7)	-0.02	-0.307	0.759
8	-0.06	-0.907	0.364	56.98	(-10, 8)	-0.08	-0.507	0.612
9	-0.05	0.083	0.934	51.74	(-10, 9)	-0.13	-0.475	0.635
10	0.28	2.039	0.041	45.93	(-10, 10)	0.15	-0.019	0.985

Figure 2: Cumulative Abnormal Return for Announcement on November 3, 2010 (N = 344)

The figure below presents the cumulative abnormal return on all stock returns for the subsample, which includes only the second announcement on November 3, 2010. The event window (Day -10 through Day 30) is presented with the number of observations in the subsample of 344.



From the figure, it is shown that the cumulative abnormal returns seem to be the negative value before the announcement date. The negative cumulative abnormal return starts around Day -6. The cumulative abnormal returns are negative in the greatest magnitude during Day 1 through Day 4. The cumulative abnormal return continuously becomes the positive value after Day 10. By comparing Figure 1 and Figure 2, it is shown that there is a learning curve in the stock market. The stock market in Thailand responds to the U.S. Q.E. announcement more quickly. The negative cumulative abnormal returns become a positive value quicker from announcement 1 (Day 20) to announcement 2 (Day 10).

CONCLUSION

This study examines the impact of U.S. Q.E. announcement on the stock market in Thailand by focusing on the long term behavior of stock price in the SET. This study uses the event study approach to examine such stock return behavior. Since there were two U.S. Q.E. announcements in 2008 and 2010, there are two event dates in this study. Overall, six main findings are revealed. Firstly, the U.S. Q.E. announcements provide the negative impact on the stock return in Thailand on the announcement dates. Secondly, the pre-announcement is visible one day before the announcement date. Thirdly, the negative abnormal return exists on the subsequent date. Fourthly, the significant mean abnormal return disappears in a few days which supports the Efficient Market Hypothesis. Fifthly, the stock market reaction to the 1st announcement is similar in magnitude with the 2nd announcement. Lastly, there is the evidence of the learning curve in the stock market in Thailand since the stock market adjusts to the announcement more quickly and the abnormal return also disappears more quickly.

References

Becker, K., Finnerty, J., & Gupta, M. (1990). The inter-temporal relation between the U.S. and Japanese stock markets. *Journal of Finance*, 45(4), 1297-1306.

Bernanke, B., & Kuttner, K. (2005). What explains the stock market's reaction to Federal Reserve policy? *Journal of Finance*, 60(3), 1221-1257.

Bernanke, B., Reinhart, R., & Sack, B. (2004). Monetary policy alternatives at the zero bound: An empirical assessment. *Brookings Papers on Economic Activity*, 2, 1-78.

Boyd, J., Hu, J., & Jagannathan, R. (2005). The stock market's reaction to unemployment news: Why bad news is usually good for stocks. *Journal of Finance*, 60(2), 649-672.

Bredin, D., Gavin, C., & O'Reilly, G. (2005). U.S. monetary policy announcements and Irish stock market volatility. *Applied Financial Economics*, 15(17), 1243-1250.

Brown, S., & Warner, J. (1985). Using daily stock returns: The case of event studies. *Journal of Financial Economics*, 14, 3-31.

Connolly, R., & Wang, F. (1998). Economic news and stock market linkages: The evidence from the U.S., U.K., and Japan. *In Proceeding of the Second Joint Central Bank Research Conference on Risk Manangement and Systemic Risk*, 1, 211-240.

Connolly, R., & Wang, F. (2003). International economic equity market comovements: Economic fundamentals or contagion. *Pacific Basin Finance Journal*, 11(1), 23-43.

Dodd, R. (2007). Subprime: Tentacles of a crisis. *Finance and Development*, 44(4), 5-19.

Ehrmann, M., & Fratzscher, M. (2006). Global financial transmission of monetary policy shocks. *European Central Bank Working Paper*, 616.

Ehrmann, M., Fratzscher, M., & Rigobon, R. (2005). Stocks, bonds, money markets and exchange rates: Measuring international financial transmission. *NBER Working Paper*, 11166.

Fama, E. (1970). Efficient capital markets: A review of theory and empirical work. *Journal of Finance*, 25(2), 383-417.

Flannery, M., & Protopapadkis, A. (2002). Macroeconomic factors do influence aggregate stock returns. *Reviews of Financial Studies*, 15(3), 751-782.

Hardouvelis, G. (1987). Macroeconomic information and stock prices. *Journal of Economics and Business*, 39(2), 131-140.

Hausman, J., & Wongswan, J. (2006). Global asset

prices and FOMC announcement. *International Finance Discussion Papers*, 886.

Jones, C., Kaul, G., & Lipson, M. (1994). Information, trading, and volatility. *Journal of Financial Economics*, 36(1), 127-154.

Joyce, M,, Lasaosa, A., Stevens, I., & Tong, M. (2011). The financial market impact of quantitative easing in the United Kingdom. *International Journal of Central Banking*, 7(3), 113-161.

Karolyi, G., & Stulz, R. (1996). Why do markets move together? An investigation of U.S. - Japan stock return co-movements. *Journal of Finance*, 51(3), 951-986.

King, M., & Wadhwani, S. (1990). Transmission of volatility between stock markets. *Review of Financial Studies*, 3(1), 5-33.

Meulendyke, A. (1998). U.S. monetary policy and financial market. *Federal Reserve Bank of New York*, 1998mpaf.

Nakornthab, D. (2009). Thailand's monetary policy since the 1997 crisis. *Kobe University Economic Review*, 55, 75-88.

Pearce, D., & Roley, V. (1985). Stock prices and economic news. *Journal of Business*, 58(1), 49-67.

Reinhart, V., & Simin, T. (1997). The market reaction to Federal Reserve policy action from 1989 to 1992. *Journal of Economics and Business*, 49(2), 149-68.

Rigobon, R., & Sack., B. (2004). The impact of monetary policy on asset prices. Journal of Monetary Economics, 51(8), 1553-1575.

Ross, S. (1989). Information and volatility: The no - arbitrage martingale approach to timing and resolution irrelevance. *Journal of Finance*, 44(1), 1-17.

Sharma, S., & Wongbangpo, P. (2002). Long-term trends and cycles in ASEAN stock markets. Review of Financial Economics, 11(4), 299-315.

Waud, R. (1970). Public interpretation of Federal Reserve discount rate changes: Evidence on the announcement effect. *Econometrica*, 38(2), 1141-1158.

Wongswan, J. (2009). The response of global equity indexes to U.S. monetary policy announcement. *Journal of International Money and Finance*, 28(2), 344-365.

About the Authors:

Yaowaluck Techavongrojwong obtained a PhD in Finance from the Martin de Tours School of Management and Economics. She can be reached at yaowalukt@gmail.com.

Dr. Witsaroot Pariyaprasert is a full-time Faculty member in the Graduate School of Business, Assumption University. His email address is Wits256@gmail. com.