南華大學企業管理學系管理科學碩士班碩士論文

A THESIS FOR THE DEGREE OF MASTER BUSINESS ADMINISTRATION

MASTER PROGRAM IN MANAGEMENT SCIENCES

DEPARTMENT OF BUSINESS ADMINISTRATION

NANHUA UNIVERSITY

亞洲新興市場之市場效率性分析:

以日曆效果與動能效果檢視

A STUDY OF MARKET EFFICIENCY IN ASIAN EMERGING MARKETS-

EVIDENCE OF THE CALENDAR EFFECT AND MOMENTUM EFFECT

指導教授: 袁淑芳 博士

ADVISOR : SHU-FANG YUAN Ph.D.

研 究 生: 涂亞

GRADUATE STUDENT : TUYAJARGAL TULGAA

中 華 民 國 １０４ 年 ６ 月

南　華　大　學

企業管理學系管理科學碩士班

碩　士　學　位　論　文

亞洲新興市場之市場效率性分析:以日曆效果與動能
效果檢視

研究生：涂亞

經考試合格特此證明

口試委員：建雲雯

　　　　　侯嘉聲

　　　　　喜涼茗

指導教授：喜涼茗

系　主　任：黃國忠

口試日期：中華民國　104　年　06　月　10　日

準碩士推薦函

本校企業管理學系管理科學碩士班研究生＿＿＿涂亞＿＿＿君

在本系修業＿二＿年，已經完成本系碩士班規定之修業課程及論文研究之

訓練。

1、在修業課程方面：＿＿＿涂亞＿＿君已修滿＿＿33＿＿學分，其中必修科

目：研究方法、＿＿管理科學＿＿、決策專題、經營專題＿等科目，

成績及格(請查閱碩士班歷年成績)。

2、在論文研究方面：＿涂亞＿君在學期間已完成下列論文：

(1)碩士論文：A study of market efficiency in Asian emerging markets-evidence of the
Calendar effect and Momentum effect

(2)學術期刊：A study of market effiency in Asian emerging markets-evidence of the
January Effect and Momentum Effect

本人認為＿涂亞＿君已完成南華大學企業管理學系管理科學碩士班

之碩士養成教育，符合訓練水準，並具備本校碩士學位考試之申請資

格，特向碩士資格審查小組推薦其初稿，名稱：A study of market efficiency in

Asian emerging markets-evidence of the calendar effect and momentum effect，以參加

碩士論文口試。

指導教授：＿＿＿＿＿＿＿簽章

中華民國 104 年 5 月 14 日

ACKNLOWLEDGMENTS

Abstract

The purpose of our study is trying to investigate the market efficiency in Asian emerging markets. The Asian emerging stock markets developed dramatically in the last decade and more and more individual investors joined the markets. It is rational to expect the market price behavior could be inconsistent with developed markets where the institutional investors are the majority. Two market anomalies of calendar effect and momentum effect are employed as the evidence to this study. It aims to provide useful information for potential Asian investors. Using T-test to examine the Calendar Effect and using Moving Average price index (MA) technical analyze to investigate the Momentum effect. However we did not find market anomaly, namely January Effect and Day of the Week Effect. But there were indications of Momentum effect.
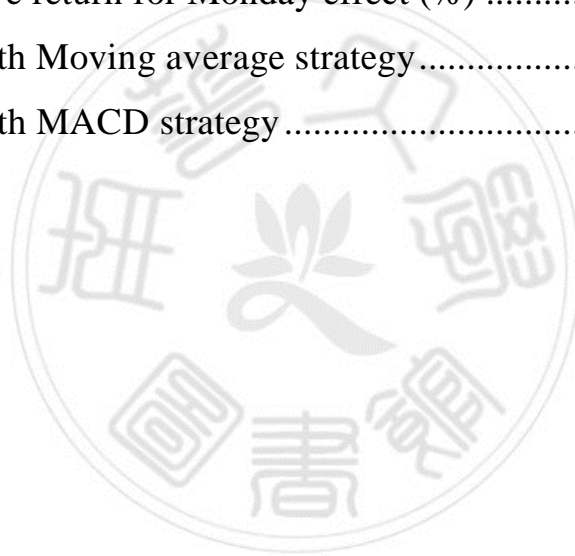

Keywords：Market efficiency, Price Behavior, Market anomaly, Calendar Effect, Momentum Effect

TABLE OF CONTENTS

LIST OF TABLE

LIST OF FIGURE

CHAPTER ONE
INTRODUCTION

In finance, Efficient Market Hypothesis (EMH. Fama, 1970)[1] suggested that the   market price will reflect the true price efficiently. It implies that if markets are efficient enough, excess profit cannot be possible to be earned even for an inside trader. However in the real world, the EMH will be contradicted by some phenomenon, it is known as market anomalies. Two of the market anomalies, calendar effect and momentum effect, are usually be observed in the real world especially for emerging markets. Some study tried to explain the market anomalies, and most of studies agree that the investors' irrational behavior could be a reason.

The emerging markets refer countries that have progressed towards modern to industrialize but have not yet achieved the financial maturity and stability of developed nations. These nations are experiencing rapid growth but there is continuing risk of financial and political instability. However, there is plenty of individual investors   for emerging market compare to the matured market such as U.S. market, Japan, etc, in which institution investors are the majority. Since the behavior of individual investors is quite different with the institution investor', thus it is rational to expect that the market price behavior would not be the similar with matured markets. This study aims to investigate whether the market anomalies would be observed in the Asian emerging markets.

Emerging countries, such as China and India, have some of the highest economic growth rates in the world. In 1988, the Morgan Stanley Capital

---

[1] "Efficient Capital Market: A Review of Theory and Empirical Work ",The   Journal of Finance, Vol.25(2), pp383-417.

International (MSCI) initiated the first comprehensive emerging markets index. Since then, emerging markets Index has become a meaningful and aggregated part of a global equity portfolio allocation. Besides, the emerging market index also launched by US Department of Commerce in the similar way. According to the criteria recognized by the Morgan Stanley Capital International (MSCI), the world emerging stock markets are divided into three categories America, Europe and Middle East & Africa, and Asia. This study select the Asian emerging markets as the study's evidence for the following reasons.

"Demographic dividend"2 will not exist anymore in North America and South America or most of matured markets. Also for Europe markets, they usually suffer for the national debt problem. So that is the reason why we choose the Asian emerging markets as the study evidences. Further more, most of the Asian emerging markets enjoy the demographic dividend like India, China and Indonesian, etc.

Asia, in particular, offers a lot of potential investing opportunities. The Asian emerging markets, such as China, India, Indonesia, Hong Kong, Singapore, Malaysia, Philippines, Taiwan and Thailand, that are going experiencing great economic expansion and booming since year 2000. Table 1.1 illustrated the GDP growth rate of Asian emerging countries, it shows the high growth rate of GDP compare with other mature markets including US, UK, and Japan, during the last 5 years. In which, the risk represented by the Standard deviation of GDP growth rate for Asian emerging countries are relatively smaller than developed countries, moreover, the economic growth rate of Asia emerging market are apparently higher than these develped contries, it provides evidence to support the inference that Asian emerging market

---

[2] The freeing up of resources for a country's economic development and the future prosperity of its populace as it switches from an agrarian to an industrial economy. In the initial stages of this transition, fertility rates fall, leading to a labor force that is temporarily growing faster than the population dependent on it. All else being equal, per capita income grows more rapidly during this time too. www.investopedia.com

provide great potential investing opportunities for investors. And that also is the main reason why the Asia emerging market are chosen to be the empirical study data to investigate the market behavior by this study.

Table 1.1 GDP growth rate (annual %)

Country name	China	Indonesia	India	United Kingdom	United States	Japan
2009	9.2	4.6	8.5	-5.2	-2.8	-5.5
2010	10.4	6.2	10.3	1.7	2.5	4.7
2011	9.3	6.5	6.6	1.1	1.8	-0.5
2012	7.7	6.3	4.7	0.3	2.8	1.4
2013	7.7	5.8	5.0	1.7	1.9	1.5
Average	**8.9**	**5.9**	**7.0**	**-0.1**	**1.2**	**0.3**
STDev	**1.19**	**0.74**	**2.35**	**2.91**	**2.30**	**3.75**

Data source: World Development Indicators

MSCI annualized the yearly performance of MSCI AC Asia ex Japan index at the end of 2014. It shows the growth average returns during the last 10 years. Annual index performance of Net Returns at 1 year was 4.80, 3 year was 9.74, 5 year was 5.51 and 10 year was 9.40[3]. Also according to NASDAQ report "Asian stocks are cheap and Asian company profits will benefit from lower commodity prices and increased consumer demand due to higher revenue, as well as opportunities for firms to gain market share in still fragmented industries"[4]. Asia is clearly on investors horizon. Also more than half the

---

[3] www.msci.com

[4] www.nasdaq.com

population of the world lives in Asia. Table 1.2 presents the population of the world by continent. It shows that following the good demographic dividend in Asia, there is a very good potential opportunity in the future for investors. This valuable study aims to provide useful information for potential Asian investors.

Table 1.2 World population growth rate (annual %)

Rank	Continent	Population 2013	±% p.a. 2010-2013
	World	7,162,119,000	1.17%
1	Asia	4,298,723,000	1.06%
2	Africa	1,110,635,000	2.51%
3	Americas	972,005,000	1.03%
4	Europe	742,452,000	0.10%
5	Australia	38,304,000	1.47%

Data source: www.wikipedia.org

Numerous study have examined the efficiency of developed markets for the purpose of finding the opportunities to earn the abnormal return. Market anomalies is one of the reasons to result in the inefficient market, however, it indeed provides the opportunity for investor to gain It believes that there are some abnormal returns can be found the stock market. One of the most discussed anomalies phenomenon is calendar effect. Sometimes we also call it season effect, for instance, the day of the week effect, the January effect. Refering to the relative study, most of the study has the calendar effect for a particular industry or for a developed market. For example, Huag and Mark (2006) find evidence on the January effect in value-weighted returns for large-

cap stocks from 1802-2004, and equally-weighted returns for small cap stocks from 1927-2004, who reported a persistent January effect for both stocks even during the period. Ritter (1988) reported that individual investors tend to sell stock, otherwise their purchasing appears low at the end-of-year and an annual high at the beginning of January. The month of the year effect is described by the existence of patterns in stock returns during a particular month of the year, the most discussed effect is the January effect. The January effect is associated with the higher average stock returns in January compared with the other months of the years[5].

As for the Day of the Week effect, it is primarily relating to stock market patterns occurring on Friday and Monday trading days. Gibbons and Hess (1981) reported the tendency for stock price on Fridays and on Mondays are different compared with other weekdays the US stock market from 1962 to 1978 [6].

Another often discussed anomalies phenomenon is Momentum Effect. The rate of acceleration of a security's price or volume. The idea of momentum in securities is that their price is more likely to keep moving in the same direction than to change directions. In technical analysis, momentum is considered an oscillator and is used to help identify trendlines. Once a momentum trader sees acceleration in a stock's price, earnings or revenues, the trader will often take a long or short position in the stock in the hope that its momentum will continue in either an upward or downward direction. To investigate the calendar effect and the momentum effect in Asian emerging markets, we use the monthly and daily indices and closing price data from TEJ (Taiwan Economic Journal) to test day of week effect, January effect and

---

[5] Rozeff, M. And Kinney, W., Capital market seasonality: the case of stock returns, Journal of Financial Economics, 3, p.379-402

[6] Gibbons, M., and P, Hess, Day of the week effects and asset returns, Journal of Business, 54(1981), p.579-596

Momentum effect existing over the selected periods.

The purpose of this study is trying to investigate whether the market anomalies including calendar effect and momentum effect can be observed in Asian emerging markets.

CHAPTER TWO
LITERATURE REVIEW

Harry Markowitz (1952) proposed the theory of Market Efficient Hypothesis. A number of studies provide some evidence that seem to be consistent with the Efficient Market Hypothesis. Many studies indicate market anomalies are against the Efficient Market Hypothesis. One market anomaly is Calendar Effect another anomaly is Momentum Effect. For example, calendar anomalies investigated by Dzhabarov and Ziemba (2010), such as the January effect, January barometer, monthly effect, sell-in-May-and-go-away phenomenon, holiday effect, and turn-of-the-month effect, still exist in the turbulent markets. The evidence came out that there is still value in these anomalies. In their study, the researchers use futures data from 1993 to 2010 and from 2004 to 2009 for small-cap stocks measured by the Russell 2000 Index and for large-cap stocks measured by the S&P 500 Index. The reported effects tend to be stronger in small-cap stocks. The results provide suitable information for investors who wish to tilt portfolios and for speculators who wish to trade the effects. In this study we pay attention the January Effect, Day of the Week Effect and Momentum Effect in the Asian markets.

2.1 January Effect

In a seminal article, Rozeff and Kinney (1976) found that January is a period of high stock returns. They used the NEW YORK Stock Exchange data for the period 1904-74. They analyzed the time series over 4 periods: 1904-28, 1929-40, 1941-74, and 1904-28 plus 1941-74. When they computed the autocorrelation functions, the results did not reveal seasonality. However, when average monthly returns were tested, except for the period 1929-40, they found

statistically significant differences in the monthly returns due to the large January returns. Most of the study explains the January Effect by referring to the specific trading behaviors of individual and institutional investors. One explanation is the tax-loss-selling hypothesis, it explains the January anomaly with tax-motivated trading of individual investors. As the end of the year approaches, stocks are sold by individual investors that declined in value in order to realize tax losses. After the beginning of the year individuals again invest in these securities, which pushes stock prices increase (Ritter 1988). Secondly, institutional investors' portfolio rebalancing activities are responsible for the January anomaly, which suggestion called "window-dressing"[7] hypothesis. Institutional investors are compared to their industry peers. Towards the close of a reporting period, they look to buy "winners" and sell "losers" even though they did not hold the stocks. This maneuver allows them to present appreciable year-end portfolio holding (Lakonishok, Shleifer, Thaler, and Vishny 1991). Gultekin and Gultekin (1983) examined calendar anomalies in capital markets countries: Australia, Austria, Belgium, Canada, Denmark, France, Germany, Italy, Japan, Netherlands, Norway, Singapore, Spain, Sweden, Switzerland, United Kingdom and the United State. The Capital International Perspective data used for study, that covered the period 1959-79. They computed first 12 monthly autocorrelations, the result were mostly not significant except for Australia, Denmark , and Norway. Kruskal-Wallis test used for the all countries, and found that the monthly returns are not equal for 12 countries from 1965-78. They found that January effect explained by distinctive large January returns in most countries on the first 4 weeks of the year. Many studies such as Keim (1983), and Roll (1983) attribute this

---

[7] A strategy used by mutual fund and portfolio managers near the year or quarter end to improve the appearance of the portfolio/fund performance before presenting it to clients or shareholders. To window dress, the fund manager will sell stocks with large losses and purchase high flying stocks near the end of the quarter. These securities are then reported as part of the fund's holdings.www.investopedia.com

phenomenon to the well-known so called small-firm or size effect. Keim (1983) used the NYSE and AMEX data for the period 1963-79. The stocks divided equally into 10 portfolio groups on the basis of size, portfolio one contained the smallest firms and portfolio ten contained the largest firms. It shows that the January effect is significant for small-firm portfolios (1 to 4 groups) and the excess returns are negatively related to larger firms (5 to 10 groups). He also found that the January effect occurred during the first 5 trading days of the year. He used 3 types of beta, namely, the OLS estimated beta, Scholes-Williams beta, and Dimson beta to calculate the risk adjusted excess returns for the portfolios of small firms. Roll (1983) compared the daily returns of NYSE and AMEX indexes for the last trading day of December and the first 4 trading days of January (turn-of- the year) for the period 1963-1981. Research presented that the first days of January showed the highest mean return and the January effect is significant for both small and large firms. Roll infers the January effect probably occurred because the relative trading cost is larger for the smaller firms than for the larger firms. Haug and Hirschey (2006) found evidence on the January effect in value-weighted returns for large-cap stocks from 1802-2004, and equally-weighted returns for small cap stocks from 1927-2004. They find a persistent January effect for both stocks, even during the period. Lean, Smyth and Wong (2007) used daily data for the period 1988-2002 in several Asian markets, which are Hong Kong, Indonesia, Japan, Malaysia, Singapore, Taiwan and Thailand to test for the existence of Day of the Week and January Effect. The empirical study indicates the existence of weekday and monthly calendar effect in some Asian markets, but the January Effect doesn't exist.

2.2 Day of the Week Effect

Fama (1965) is the first scholar for concept of the anomalies showed by security price returns. The most prevailing anomalies appear to be the Day of Week Effect. Following studies such as Gibbons and Hess (1981) have all documented lower return variances for US stocks on Mondays than it is on other days. The study used the S&P 500 index and the value- and equal-weighted portfolios during the period from July 1962 until December 1978, it designed by the Center for Research in Security Prices. In addition to the US evidence, many studies illustrate the day of the week effect on international stock market. Jaffe, Westerfield and Ma (1989) find that abnormally low returns on Mondays seem to follow previous stock market declines in all the five countries they examined. Keim and Stambaugh (1984) used the data from US stock market, it covered the period of 1928 through 1982, and they also indicated evidence that the Monday negative returns and Friday positive returns. A study of Agrawal and Tandon (1994) negative Monday effect disappears when the market has risen in the previous week, especially pointed out the strong correlation between Monday's return and previous Friday's return except in USA and the UK market. Mehmet and John (2014) investigated the day of week effect for international equity markets, which evaluated 51 markets in 33 countries for the period 2000-2007. The result shows the day of week effect exists in almost all markets, especially it exists in a significant number of individual stocks. Choudhry (2000) investigated the day of the week effect in Asian emerging markets namely Thailand, Taiwan, South Korea, Philippines, Malaysia, Indonesia and India. This study covered the period from January 1990 to June 1995. The result indicates the significant day of the week effect on both stock returns and volatility in all markets. Mehdian and Perry (2001) re-examined the Monday effect, used the data from 1964 to 1999 using daily returns in the US stock market. Monday returns are

significantly negative in all five stock indices for a period before 1987. But they found a significant reversal of the Monday effect since Monday returns are significantly positive in the post 1987 period. Kenneth, Johan and Seppo (2011) re-examined the issue of the robustness Day of the Week Effects, which are measured for returns as well as for volatilities. Researchers analyzed the 18 European country indexes and the weekday pattern in the return on the European market index for the period from January 2000 through December 2006. Ordinarily, the empirical result estimated Day of the Week Effects in both the return and volatility seems to be very robust over the return distribution. However most of the country-specific indexes indicate significant difference in the weekday coefficients. But in a few cases, significant Day of the Week Effect is caused by significant events. Chan, Wai and Ko (2004) documented that Monday return is significantly negative and is lower than the mean return on other weekdays. They also found that the Monday is stronger in stocks with low institutional holdings during the 1981-1998 period and the Monday effect is not significantly different from the return Tuesday to Friday returns for stocks with high institutional holdings during the 1990-1998 period.

2.3 Momentum Effect

Another efficiency market anomaly is momentum, which is proposed by several studies. An important study Jegadeesh and Titman (1993) evidenced the existence of a Momentum Effect. They investigate the impact of the short-term momentum effect on two stock markets in United States, which are NYSE and AMEX. Stock returns in this study covered for the period of 1965-1989. They recognize trading strategy in which buy such stocks that have realized well in the past and sell those stocks that have performed worst in the past. Stock have done well over the past year tend to continue to do well. Jegadeesh and Titman (2001) again argued that the Momentum Effect represents

anomalies the strongest evidence against the efficient market hypothesis. Using empirical data over the 1990 to 1998 period, they found that the momentum strategy continues to be profitable and to exist in both small cap and large cap stocks. Chen and Bondt (2004) investigated momentum on S&P -500 stocks, it divided into three groups by firm characteristics such as dividend yield, market value of equity, and book to market ratio. They comprised the data period from 1976 to 2000. The result performed for large U.S companies, investors could earn from chasing trading strategy that were successful over the previous 3 to 12 months. Naughton, Truong and Veeraraghavan (2008) examined the benefit of momentum investment strategies in Shanghai Stock Exchange for the period 1995 to2005. They found evidence of significant momentum gain during the study period and that momentum is an expansive behavior of stock returns for the Chinese market. Nusret, Frank and Sinan (2013) exhibited the evidence of strong value and momentum effects in eighteen emerging stock markets, except Eastern Europe. Their study covered period from 1990 through 2011 for three emerging regions namely Asia, Latin America and Eastern Europe. In Asia, the momentum effect investigated by Chui, Titman and Wei (2000) on eight Asian markets during the longer time period 1976 to 2000, including the period of the Asian financial crisis. They used a 6-month/ 6-month strategy and found strong evidence in aggregate excluding Japan. When researchers investigate momentum effect they use different tools. Some studies used Moving Average Analysis other studies used rank in the market. Rouwenhorst (1999) examined the momentum effect on emerging markets over the period from 1982 to 1997 for a sample of 1706 companies from 20 emerging market countries. He also used a 6-month/6-month strategy[8]. The empirical

---

[8] First 6 months which is called as the in-simple period are used to form the winner portfolio and loser portfolio. Then, the momentum strategy of buying winner portfolio and selling the loser portfolio at same time will be traded in the next 6 months which is called simulation period. The simulated trading performance will be compared for evidencing the momentum effect.

results indicated that past winners outperformed past losers in 17 of the 20 countries.   Generally, he considered a Momentum Effect existed in emerging market, they show a lower momentum return in emerging markets than developed markets.

The momentum in Europe argued by Bird and Whitaker (2003) who are examined a wide selection of momentum strategies applied to seven major European markets from 1990 to 2002. Bird and Whitaker found that the momentum strategy continues to provide good results for holding periods. They also argue that the momentum strategies show profits in all countries for all holding periods. These results provide that the profitability of the momentum strategies is largely attributable to the performance of price momentum within the individual markets.

In 2002, also Dijk and Huibers investigated the momentum in 15 European countries from 1987 to 1999. The 12-month formation periods and holding periods of 1, 3, 6, or 12 months used for strategies. Researchers indicated the momentum strategies to be profitable for all the examined holding periods.

CHAPTER THREE
METHODOLOGY

This study investigates whether the market anomalies will be observed in the Asian emerging markets. Two market anomalies including calendar effect and momentum effect are interested to examine in this study. Ten Asian emerging markets are employed as our empirical evidence including TSEWeight Stock Index (Taiwan), Hang Seng Index-Hong Kong (Hong Kong), Hang Seng China Enter. Index (Hong Kong), FTSE Straits Times Index (Singapore), Bangkok Set Stock Index (Thailand), Kuala Lumpur-Stock Index (Malaysia), Manila-Stock Index (Philippine), Synthesis Index (Shanghai), JSX-Stock Index (Indonesia), Bombay 100 Stock Index (India). The empirical data is resourced from Taiwan Economic Journal Database.

3.1 Calendar Effect

Calendar effect explores the price trend pattern during a particular time period. Actually, the calendar effect deals with the time one of the main pattern of the market anomalies includes January effect, Day of the Week effect, the Month of the Year effect, Monthly effect, Holiday effect, Monday effect, Friday effect, Weekend effect, Turn of the Year effect etc. We followed above empirical studies constructs. If a market demonstrates the calendar effect, that implies that the investors will have higher opportunity to earn the abnormal return using the well-designed trading rule according to the particular price change pattern. The empirical result also provides evidence against the market efficiency. The following paragraph will detail January effect and week effect of calendar effects respectively.

3.1.1 January effect

The month of the year effect is described by the existence of patterns in stock returns during a particular month of the year, the most discussed effect is the January effect. The January effect is associated with the higher average stock returns in January compared with the other months of the years. Rozeff and Kinney (1976) investigated January is a period of high stock returns. Numerous studies have suggested the January effect may be due to the prevalence of end-of-year by professional investors who seek to eliminate uncongenial losers from their portfolios prior to the end of important reporting periods. This activity is known as "window-dressing".

Because most studies believe that the emerging markets are not as efficient as the mature market majority of investors are individuals. Besides that, even for the institution investors, they still prefer to close their position before the new year vacation for decreasing the position's risk exposure. Thus, the positive return is usually observed in January, called January effect. However, if the efficiency of information transformation is improved, the investor might buy stock before the price increase, that is to say the January Effect might not be observed anymore. Hypothesis test[j] is used to test whether the January effect can be observed in these Asian emerging markets as shown as below. And t-test is employed to test whether the null hypothesis H^J can be rejected in statistic at 5% of significance level.

H^J: There is no January effect among the Indices of Emerging Stock Markets in Asia.

To analyze the effect among January returns of selected emerging stock markets in Asia, the study covered a period of 10 years from 1st Oct, 2004, to 30th Sep, 2014. If January effect exists either the percentage of positive return during all of the empirical period should be higher than the percentage which

return is negative, or the average positive return are higher than the absolute value of average negative return for all observation of January return. In our study to test January effect, the positive returns for Januaries compared with negative returns for Januaries of empirical period. If P-value is less than the significant value (says at 5% in this study), the null hypothesis is rejected. This means the January effect statistically exist in the sample markets. Therefore, the two sided hypothesis will be suitable as an instrument for our case, which can be described by the following:

$$H^J_0: \overline{R^+} \geq \overline{R^-}$$

$$H^J_1: \overline{R^+} < \overline{R^-}$$

Where, $\overline{R^+}$ and $\overline{R^-}$ are the average positive return and the absolute value of average negative return respectively. They are defined as follow,

$$\overline{R^+} = \frac{\sum_{i=1}^{n_1} R_i^+}{n_1}$$

R_i^+ - the monthly positive return of January

n_1 - number of January month with positive return in our empirical data

$$\overline{R^-} = \left| \frac{\sum_{j=1}^{n_2} R_j^-}{n_2} \right|$$

R_j^- - the absolute value of monthly negative' return of January

n_2 - number of January month with negative return in our empirical data

After, we use T-test to estimate the null hypothesis. T-test to test the significance of the difference between average returns. The formula is:

$$t = \frac{(\overline{R_i^+} - \overline{R_j^-})}{\sqrt{\dfrac{S_1^2}{n_1} + \dfrac{S_2^2}{n_2}}}$$

Where, the formula for standard deviation is given by:

$$S_1 = std\ (R_i^+) \quad => \quad S_1 = \sqrt{\frac{\sum_{i=1}^{n_1}(R_i^+ - \overline{R_i^+})}{n_1 - 1}}$$

$$S_2 = std\ (R_j^-) \quad => \quad S_2 = \sqrt{\frac{\sum_{j=1}^{n_2}(R_j^- - \overline{R_j^-})}{n_2 - 1}}$$

3.1.2 Day of the Week effect

The day of the week effect has been an important topic for investing. Numerous empirical studies have been conducted to examine the existence of day of the week effect in various countries of various markets. Most of the empirical studies found negative Monday returns and positive Friday returns. One possible explanation for such Day of the Week effect anomaly may be that most of the negative economic news comes at the beginning of the week and investors try to sell their investment which result in a negative return on Mondays. On the other hand, most of the positive economic news comes at the week end investors show affirmative and hopeful investment behavior which result in a positive return on Fridays. However, if the efficiency of information transformation is improved, the investor might buy stock before the price increase, that is to say the Monday and Friday Effect might not be observed anymore. H_2 is used to test whether the Day of the effect can be observed in these Asian emerging markets as shown as below. And t-test is employed to test whether the null hypothesis H^f can be rejected in statistic at 5% of significance

level.

Hᶠ: There is no Friday effect among the Indices of Emerging Stock Markets in Asia.

To examine the Day Of the Week effect among returns of chosen markets, the research covered a period of one year from 1ˢᵗ Oct, 2013, to 30ᵗʰ Sep, 2014. If Friday effect exists either the percentage of positive return during all of the empirical period should be higher than the percentage which return is less than 0, or the average positive return are higher than the absolute value of average negative return for all observation of Friday return.   In our study to test Friday effect, the positive returns for Fridays compared with negative returns for Fridays of empirical period. If P-value is significant, we can reject the null hypothesis. This means the Friday effect statistically exist in the study period. Therefore, the two sided hypothesis will be suitable as an instrument for our case, which can be described by the following:

$H^f_0:$ $\overline{R^+} \geq \overline{R^-}$
$H^f_1:$ $\overline{R^+} < \overline{R^-}$

Where, $\overline{R^+}$ and $\overline{R^-}$ are the average positive return and the absolute value of average negative return respectively.

Hᵐ: There is no Monday effect among the Indices of Emerging Stock Markets in Asia

Next, Investigation is Monday effect, the analysis covered a period of 1 year from 1ˢᵗ Oct,2013, to 30ᵗʰ Sep,2014.   If the Monday Effect, exists either the percentage of positive return during all of the empirical period should be higher than the percentage which return is less than 0, or the average positive return are higher than the absolute value of average negative return for all

observation of Monday return. If P-value is significant, we can reject the null hypothesis. This means the Monday Effect statistically exists in the study period. Therefore, the two sided hypothesis will be suitable as an instrument for our case, which can be described by the following:

$H^m{}_0$: $\overline{R^+} \geq \overline{R^-}$

$H^m{}_1$: $\overline{R^+} < \overline{R^-}$

Where, $\overline{R^+}$ and $\overline{R^-}$ are the average positive return and the absolute value of average negative return respectively. They are defined as follow,

When we investigate the Friday and Monday effect, replaced the formulas of January effect.

We use the SPSS to convert the daily return, and calculate the mean and standard deviation. Furthermore, we also use SPSS to perform the T test. We sort out data by using SPSS, such like grouping all the positive or negative returns separately by market. The MSExcel is very useful to draw the tables and graphs.

3.2 Momentum effect

One of most discussed anomalies phenomenon is momentum effect. The rate of acceleration of a security's price or volume. The idea of momentum in securities is that their price is more likely to keep moving in the same direction than to change directions. In technical analysis, momentum is considered an oscillator and is used to help identify trendlines. Once a momentum trader sees acceleration in a stock's price, earnings or revenues, the trader will often take a long or short position in the stock in the hope that its momentum will continue in either an upward or downward direction. To examine the momentum effect

among prices of chosen markets, the study covered a period of one year from 1st Oct 2013, to 30th Sep 2014 including 245 trading days. Here we investigated below 2 observations

1. H^m: There is no Momentum effect among the Prices of Emerging Stock Markets in Asia.

   H^m_0: The log return and discrete return doesn't exist in the market

   H^m_1: The log return and discrete return does exist in the market

2. Which composition will prefer better.

Our empirical analysis examined a 2 trading rules with Moving Average (MA) , another   is Moving Average Convergence/Divergence (MACD) , they do work or don't work in Asian emerging market, which combined MA5:MA10, MA10:MA20 and MA5:MA20. The momentum effect begins with calculating the log returns and discrete of sample markets.

3.2.1 For MA strategy

If MA t_1 > MA t_2, it is named as golden cross in which MA_{t1} (MA_{t2}) is the moving average price for shorter (longer) time horizon t1 (t2), it means the momentum for recent prices' movement is bullish and it also suggests that is a good time to long a position. On the other hand, if MA t_1 < MA t_2, it is named as death cross in practice and suggest that is better to short a position since the price movement is bearish. In this study, 3 compositions for (t1, t2) are (5, 10) (10, 20) and (5, 20), in which composition of (5, 10) and (10, 20)   are recognized as shorter and longer term compositions respectively, and (5,20) is defined as middle term composition. MA calculated by following formula:

$$MA_j = \sum_{i=1}^{j} \frac{P_i}{j}$$

Where MA_j is the average price for the lastly j observations. For forming the momentum trading strategy, MA_{t1} and MA_{t2} which are denoted as the shorter and longer price trends respectively will be compared. In this study there are 3 compositions for (t1, t2), they are (5,10) , (10,20) and (5,20).

Finally, the computed the cumulative return (CR) is employed to measure the performance of using MA strategy for simulating trading. In which, CR is defined as follow,

$$CR = \sum_{k=1}^{n_1} R_{t+1}^k$$

Where, t - is the time which the signal

n_1 - number of $R_{t+1} > 0$ in our empirical data

k - show buying point

R_t is the log returns or discrete of sample markets either at time t. We used below formula to calculate for the log return:

$$R_t = \log(P_t) - \log(P_{t-1})$$

for the discrete return:

$$R_t = \frac{P_t - P_{t-1}}{P_{t-1}}$$

3.2.2 For MACD strategy

    If   DIF t_1 > MACD t_2

                      DIF t_2 > MACD t_3

                      DIF t_1 > MACD t_3 => where the time which the buying signal otherwise selling signal.

Where, DIF t_1= difference between MA t_1 and MA t_2

DIF t_2= difference between MA t_2 and MA t_3

DIF t_3= difference between MA t_1 and MA t_3

$$MACD_t = \left(1 - \frac{2}{1+n}\right) * MACD_{t-1} + \frac{2}{1+n} * DIF_{t-1}$$

Where, n-number of days in moving average

Finally we calculate the cumulative return (CR) of log and discrete returns. For this we used next formula:

If $R_{t+1} > 0$

$$CR = \sum_{k=1}^{n_1} R_{t+1}^k$$

Where, t - is the time which the signal

n_1 - number of $R_{t+1} > 0$ in our empirical data

k - show buying point

In this case, Microsoft excel is used to obtain the statistical results of returns. A decision rule is a hypothesis-testing rule that specifies in advance, for all positive high values of a test statistic that might be computed from a sample, whether the null hypothesis should be accepted or whether it should be rejected in favor of the alternative hypothesis. Whether the hypothesis is accepted or rejected depends on the return volume. If the cumulative return is large enough for the simulating trading, the null hypothesis is rejected in statistic, it mean the momentum effect indeed exists in the sample markets; otherwise, it does not provide the evidence in statistic to support the hypothesis of momentum effect. Here we are suggesting cumulative positive returns are higher than 0.57 percent, which reported by average interest rate of LIBOR (The London Interbank Offered Rate) for 1 year in same period with our study period. It provides evidence to support our influence.

CHAPTER FOUR
FINDINGS

Table 4.1 shows four statistics for the monthly returns of empirical data of 10 Asian emerging markets indices including mean, standard deviation, skewness, and kurtosis during the empirical period from 1st October 2004 to 30st September 2014. During the study period, the index of Shanghai stock earned lowest average return (0.4501), followed by Singapore (0.6938) , Hong Kong (0.7046) and the index of Indonesia stock earned highest average return (1.8965), followed by Philippine (1.5198) , India (1.1868) than that of all other Asian sample indices. In our study each country economy is different. In which, Shanghai, Singapore and Hong Kong though be categorized as emerging markets, they are considered Finance centers in Asia. Contribute to their well-designed market trading rules and lower trading costs, a lot of investors prefer to trade there. This might be an explanation for these market efficiencies. Economies of Indonesia, Philippines and India are rapidly increasing followed by high stock returns. Although in mature market perform the low risk for investor, but emerging markets it indeed provides the high risk .It following more good opportunity for investor to gain in emerging market than mature market. Investor believes that they can earn high profit from emerging market.

Here we can compare the returns of Asian emerging markets with the returns of mature market in Table 4.1 and Table 4.2, such as United States, United Kingdom, and Japan. In the same sample period the index of US stock performed the average return (0.4975), the average return of United Kingdom stock (0.4892) and the average return of Japan (0.3593). Although in mature market perform the low risk for investor, but emerging markets it indeed

provides the high risk .It following more good opportunity for investor to gain in emerging market than mature market. Investor believes that they can earn high profit from emerging market.

In terms of market unpredictability as measured by the standard deviation of monthly returns , one sample stock market namely Hang Sheng Chine Entrepreneur assumed the highest risk value (9.1981), followed by Shanghai (8.8673). At the same period indicates of the developed market fact that there was low risk, such as US stock recorded the risk value (3.8226), index of UK stock showed the risk value (4.1952) and Japan stock assumed   the risk value (5.4549). The result is consistent with real market that usually shows the emerging market is much risky but profitable than matured markets .However, some of the emerging market provides the better potential investing opportunity but lower risk, for example for Indonesia market, it shows the market has higher return but relatively lower risk, the attractive investing opportunity might be induced by the demographic dividend in Indonesia which is rare to be observed in another markets. Besides, Table 4.1 also shows most of the monthly returns are skewed negatively which is consistent with the developed markets, and it is very common to be observed in real market.

Table 4.1 Statistics for Asian emerging market indexes

Indicator	TSE Weight Stock.Index	Hang Seng Index	Hang Seng China Enter Index	FTSE Straits Times Index	Bangkok Set Stock Index	Kuala Lumpur Stock Index	Manila Stock Index	Synthesis Index	JSX Stock Inex	Bombay 100 Stock Index
Average	0.9319	0.7046	1.1458	0.6938	0.9300	0.9047	1.5198	0.4501	1.8965	1.1868
Standart deviation	6.0624	6.4784	9.1981	5.6224	6.3780	3.7909	6.0244	8.8673	6.8699	8.3092
Skewness	-0.1348	-0.5240	-0.2973	-0.0893	-1.1135	-0.3464	-0.7091	-0.0469	-0.7797	-1.2280
Kurtosis	1.4058	1.9487	0.9407	6.6202	4.2750	3.4786	2.6670	1.1933	4.9131	5.1243

Empirical period: 1 October 2004 – 30 September 2014

Table 4.2 Statistics for Mature market indexes

Returns	Tokyo Topix Stock Index	London FTSE-100 Index	New York Dow Jones industrial average index
Average	0.35926	0.48918	0.49754
Std	5.45488	4.19518	3.82262
Skewness	-0.50390	-0.36223	-0.78428
Kurtosis	1.26514	1.01854	2.72234

Period: 1 October 2004 – 30 September 2014

Our empirical period has covered from October 2004 through September 2014. Here we should mention about the one specific period because that period have included to our study period, which is 2008. At that time an economic crisis happened in many Europe countries. So we interested Asian stock markets' performance at the time of economic crisis. In Table 4.3 we examined same four statistics for the monthly returns of empirical data of 10 Asian emerging markets indices including mean, standard deviation, skewness, and kurtosis during the empirical period 2008. During the specific period, the index of all sample stock showed negative average return, lead by Shanghai (-9.0573). In 2008 the standard deviation of monthly returns exhibited the high risk value lead by Hong Kong Chine Entrepreneur Index (16.5385). That specific period indicates fact that there was high risk and negative return in Asian stock markets. According to our simple analyze we think that European economic crisis definitely influenced to Asia economic.

Table 4.3 Statistics for Asian emerging market indexes in 2008

INDICATOR 2008	Taiwan-TSE Weight.Stock .Index.	Hongkong- Hang Seng Index- Hongkong	Hongkong- Hang Seng China Enter.I	Singapore- FTSE Straits Times Index	Thailand- Bangkok Set Stock Index	Malaysia- Kuala Lumpur- Stock Inex	Philippine- Manila- Stock Index	Shanghai- Synthesis Index	Indonesia- JSX- Stock Inex	India- BOMBAY 100 STOCK Index
Average	-3.9032	-4.2628	-3.8328	-4.6748	-5.4248	-3.6047	-3.2873	-9.0573	-4.1405	-5.5288
Standart deviation	9.0002	10.3645	16.5385	8.6975	10.9108	5.2880	10.6844	10.7690	11.6501	11.4712
Skewness	-0.1966	-0.1719	0.2730	-1.1510	-0.9033	-0.7388	-0.1749	-0.0625	-1.3056	-0.3296
Kurtosis	-0.8946	-0.7229	-0.6940	0.6066	2.0357	0.7785	0.6340	-1.7165	3.1788	-1.1036

Empirical period: January 2008 – December 2008

Next, this study investigates if these sample markets exist the market anomalies which contradicts the efficient-market hypothesis. January effect, one of calendar effect which is considered as the market anomaly, is be examined in this study and the result is shown in Table 4.4. It shows that the percentage of January return is positive in 10 years in our sample is mostly less than or equal to 50% , it provides the sketch of evidence against the January effect can be observed in these Asian emerging markets. Moreover, if we further compare the cumulative return for the positive and negative in January respectively, it shows that the absolute value of cumulative negative return are much higher than the cumulative positive return except for Manila and Indonesia. Furthermore, T test is employed to test the Null Hypothesis 1 (H_1^J,), there is no January effect exist in the indices of Emerging Stock Markets in Asia. It shows the cumulative positive return is not significantly different from absolute value of cumulative negative return at significant level of 5%. For instance, Although the percentage of January return is positive for all sample period is 60% for Singapore market, but cumulative return for Januaries with positive return (23.16) is lower than cumulative negative return (-27.18). According to table 6 the T-Value of January return data for all the sample indices was less than critical value (2.23). It implies that H_1^J, was supported at significant level of 5%, it implied that there is no January effect in these Asian emerging markets. Although the result on Table 4.4 showed large difference between cumulative positive return and negative return, but T value didn't reveal any significance in some markets. That is related to index volatility showed high performance in Asia emerging markets.

Table 4.4 Cumulative returns for January (%)

Return Statistics	TSE Weight Stock.Index	Hang Seng Index	Hang Seng China Enter Index	FTSE Straits Times Index	Bangkok Set Stock Index	Kuala Lumpur Stock Index	Manila Stock Index	Synthesis Index	JSX Stock Inex	Bombay 100 Stock Index
Possitive return	4/10	5/10	4/10	6/10	4/10	4/10	6/10	5/10	5/10	4/10
Cumulative return for Januaries with positive return	11.64	22.67	37.30	23.16	25.81	11.74	37.20	24.11	20.10	21.97
Cumulative return for Januaries with negative return	-31.03	-47.91	-68.98	-27.18	-27.38	-13.85	-21.06	-34.40	-17.97	-46.72
T value	-0.91	-1,559	-0.439	-1.133	1.238	0.359	0.401	-0.684	0.516	-0.671

Empirical period: 1 October 2004 – 30 September 2014

Whether another calendar effect can be observed in these sample markets? Two weekday effects are examined by this study, The result of Friday return test for ten emerging Asian stock market indices during the study period from 1st October 2013 to 30th September 2014 are presented in Table 4.5. It presents that the percentage of Friday return is positive in period of Oct 2013 through Sep 2014 in our sample is mostly less than or equal to 50%, it refers the sketch of evidence to contrast the Friday effect can be observed in These Asian emerging markets. Moreover, we compared the cumulative return for the positive and negative in Friday respectively. It shows that the absolute value of cumulative negative return are much higher than the cumulative positive return except for Bombay, Shanghai, Hang Seng and Hang Seng China Entrepreneur. T test is used to test the Null Hypothesis 2 (H$_1^f$,), there is no Friday effect exist in the indices of Emerging Stock Markets in Asia. It shows the cumulative positive return is not significantly different from absolute value of cumulative negative return at significant level of 5%. For instance, Although at the four sample markets' namely Bombay, Shanghai, Hang Seng and Hang Seng China Entrepreneur cumulative positive return higher than cumulative negative return, but we could not find a significant difference . According to Table 4.5 for all the T-Value of Friday return indices was smaller than critical value (2.021). The Null Hypothesis 2 is no Friday effect exist in the indices of Emerging Stock Markets in Asia. The hypothesis supported.

Table 4.5 Cumulative return for Friday effect (%)

Return Statistics	TSE Weight Stock.Index	Hang Seng Index	Hang Seng China Enter Index	FTSE Straits Times Index	Bangkok Set Stock Index	Kuala Lumpur Stock Index	Manila Stock Index	Synthesis Index	JSX Stock Inex	Bombay 100 Stock Index
Possitive return	21/49	29/48	25/48	23/48	25/47	22/48	19/46	25/47	22/47	27/45
Cumulative return for Friday with positive return	8.58	14.97	18.2	7.79	9.26	5.64	10.64	18.61	14.31	22.05
Cumulative return for Friday with negative return	-13.33	-11.91	-15.6	-8.89	-11.24	-9.76	-16.99	-13.91	-16.56	-12.98
T value	-0.593	-0.779	0.249	-0.201	-1.281	-1,507	-0.568	0.665	-0.067	0.449

Empirical period: 1 October 2013 – 30 September 2014

Table 4.6 describes the results of cumulative returns for ten emerging Asian stock market with Monday during the study period from 1st October 2013 to 30th September 2014. It presents that the percentage of Monday return is positive in sample period mostly higher than 50%, It also shows the sketch of evidence to contrast the Monday effect can be observed in These Asian emerging markets. Furthermore, the cumulative return for the positive and negative in Monday respectively compared for test, it shows that the absolute value of cumulative negative return are much less than the cumulative positive return except for Hang Seng, Singapore and India. T test is used to test the Null Hypothesis 3 (H$_1$^{m},), there is no Monday effect in the indices of Emerging Stock Markets in Asia. It shows the cumulative positive return is not significantly different from absolute value of cumulative negative return at significant level of 5%. However three markets' namely India, Singapore and Hang Seng cumulative negative return higher than cumulative positive return, but we could not find a statistically significant difference except India market. We found just significant level of 10% in the India market. According to Table 4.6 for all the T-Value of Monday return indices was also smaller than critical value (2.021). The Null Hypothesis 3 there is no Monday effect exist in the indices of Emerging Stock Markets in Asia. The hypothesis is supported.

Table 4.6 Cumulative return for Monday effect (%)

Return Statistics	TSE Weight Stock.Index	Hang Seng Index	Hang Seng China Enter Index	FTSE Straits Times Index	Bangkok Set Stock Index	Kuala Lumpur Stock Index	Manila Stock Index	Synthesis Index	JSX Stock Inex	Bombay 100 Stock Index
Possitive return	28/49	22/47	25/47	23/48	24/44	23/47	27/46	29/47	24/46	29/46
Cumulative return for Monday with positive return	12.12	15.93	23.95	8.05	13.35	8.14	17.21	23.68	20.33	24.34
Cumulative return for Monday with negative return	-11.582	-18.58	-21.73	-10.03	-16.00	-6.93	-11.45	-18.3	-13.23	-8.01
T value	-1.186	-0.096	-0.102	-0.538	-1.235	0.868	0.245	-0.850	1.250	1,991*

Empirical period: 1 October 2013 – 30 September 2014.

Another market anomaly will be examined in this study is the momentum effect. If the investors of a particular market adopt the strategy of buying high and selling low, then the stock price will keep the momentum trend in the short run which is called as momentum effect. In which, the market is not supported to Effciencent Market Hypothesis. However, it provides the opportunity for investors to earn the abnormal return if they can adopt the well-designed strategy using the moving price technical analysis. Next, this study examines if these sample markets exist the momentum effect which contradict the efficient-market hypothesis. Table 4.7 presents the empirical result of Momentum effect examination. Price level used to do the technical analysis. For the price level measure, two different definitions of return are considered including continuous (logarithm) return and discrete return. 3 combinations of short-long term trading days are considered in this study, they are (5, 10) , (5,20), (10,20). It presents the log and discrete returns of the MA5 versus MA10 days combination in the short-term, the MA10&MA20 days combination in the long-term, and in the mid-term the MA5&MA20 days combination for Buyer and Seller. According to Table 4.7 Momentum Effect exists in the Asian Emerging Markets. We found that however, golden cross works in the Taiwan, Philippines, Indonesia and India markets, but selling signal doesn't work. In the case of Hong Kong China Entrepreneur Index, Singapore, Shanghai, and Thailand markets golden cross and selling signal work partially. Using the Moving Average strategy doesn't show any significant value in the Hong Kong and Malaysia markets, except MA10&20 combination's golden cross (0.99%) of Malaysia. The momentum effect doesn't exist in Hong Kong market, but Hong Kong China Entrepreneur Index shows the positive returns in the long-term combination, probably it correlated with Shanghai market Index. Golden cross works using the Moving average strategy.

We believed that in most of the investors are individuals, who are prefer

to stand in the long position. The return of MA10&20 days combination is better than the other combinations for purchaser. We are suggesting the Moving average technical analyze long-term combination for investors to buy a stock in Hong Kong China Entrepreneur, Thailand, Philippines, Shanghai, Indonesia , Taiwan, and India markets. The result of Table 4.7 shows golden cross better than selling signal. Most of the sample markets don't work the selling signal.

Table 4.7 Return with Moving average strategy

Moving Average	Returns		TSE Weight Stock Index	Hang Seng Index	Hang Seng China Enter Index	FTSE Straits Times Index	Bangkok Set Stock Index	Kuala Lumpur Stock Index	Manila Stock Index	Synthesis Index	JSX Stock Index	Bombay 100 Stock Index
MA5:MA10	Golden cross	Log return	2.75%	-1.05%	0.14%	1.79%	2.58%	0.05%	3.30%	-1.32%	-1.15%	4.11%
		Discrete return	6.56%	-2.13%	0.77%	4.26%	6.23%	0.17%	7.97%	-2.59%	-2.14%	9.97%
	Selling signal	Log return	0.02%	-0.36%	1.51%	0.88%	-1.13%	-0.68%	-0.99%	-5.44%	-6.19%	-6.87%
		Discrete return	-0.13%	-1.36%	2.50%	1.90%	-3.14%	-1.67%	-2.61%	-12.96%	-14.64%	-16.16%
MA10:MA20	Golden cross	Log return	1.00%	-1.00%	1.75%	-1.16%	4.89%	-0.06%	3.49%	4.77%	4.33%	2.38%
		Discrete return	2.55%	-1.94%	4.78%	-2.54%	11.63%	-0.05%	10.27%	11.46%	10.58%	6.04%
	Selling signal	Log return	-1.73%	-0.30%	3.12%	-2.07%	1.18%	-0.78%	-0.81%	0.64%	-0.71%	-8.60%
		Discrete return	-4.14%	-1.18%	6.51%	-4.91%	2.26%	-1.89%	-2.13%	1.09%	-1.92%	-20.09%
MA5:MA20	Golden cross	Log return	0.68%	-2.35%	-2.15%	0.30%	4.35%	0.40%	2.94%	3.11%	2.96%	2.58%
		Discrete return	1.80%	-5.11%	-4.45%	0.83%	10.31%	0.99%	7.14%	7.61%	7.40%	6.49%
	Selling signal	Log return	-2.05%	-0.36%	-0.78%	-0.61%	0.64%	-0.33%	-1.36%	-1.01%	-2.08%	-8.40%
		Discrete return	-4.90%	-1.36%	-2.72%	-1.54%	0.94%	-0.85%	-3.43%	-2.76%	-5.10%	-19.64%

Empirical period: 1 October 2013 – 30 September 2014

One of the simplest and most reliable indicators is Moving Average Convergence/Divergence (MACD). Table 4.8 shows the empirical result of Momentum effect examination with MACD strategy and price return are used to do the technical analysis. Also for the return measure, two different definitions of return are considered including continuous (logarithm) return and discrete return. 3 combinations of short-long term trading days are considered in this study, they are (5,10), (5,20), (10,20). It presents the log and discrete returns of the DIF and MACD for 5&10 days combination in the short-term, the DIF and MACD for 10&20 days combination in the long-term, and in the mid-term the DIF and MACD for 5&20 days combination for Buyer and Seller. Here we found in the Thailand and India market golden cross works, but selling signal doesn't work. However, the result of indexes in Taiwan, Hong Kong, Singapore and Shanghai markets exhibit that golden cross works completely, but selling signal partially works in some combinations. In Malaysia and Indonesia markets golden cross and selling signal are work partially. In the case of Hong Kong China Entrepreneur Index golden cross, selling signal show significant value for all DIF and MACD combinations. But DIF and MACD technical analysis show any significant value except 10&20 days combination golden cross (0.64%) in the Philippines' market index. If investors use the strategies with MACD, we are suggesting the short-term combination for investors to buy a stock in Asian emerging markets without Malaysia and Philippines. Specifically The Momentum Effect cannot be observed in Malaysia market.

According to the Table 4.8 the return of the DIF and MACD for 5&10 days combination is better than other combinations for purchaser. Also the result of Table 4.7 presents same result with MA strategy that buying signals are better than selling signals.

In general Momentum Effect is consistent with our influence because individual investors usually follow and respond to the direction of stock price movements. The result of Table 4.7 and Table 4.8 show golden cross better than selling signal. Most of the sample markets partially work the selling signal .It is explained by these next reasons. The empirical data covered one year, in which period the sample markets exist bullish tendencies. The appendix 1 show a markets' trendline during our empirical period. Furthermore, we think that those markets institution are influenced largely by the market performance, but short selling trade doesn't work for security institutions. From Table 4.7 and Table 4.8 we reject Hypothesis 4 in the all markets except Malaysia. Here the result exhibited by the figures using the MA and DIF and MACD strategy for Momentum effect in sample markets.
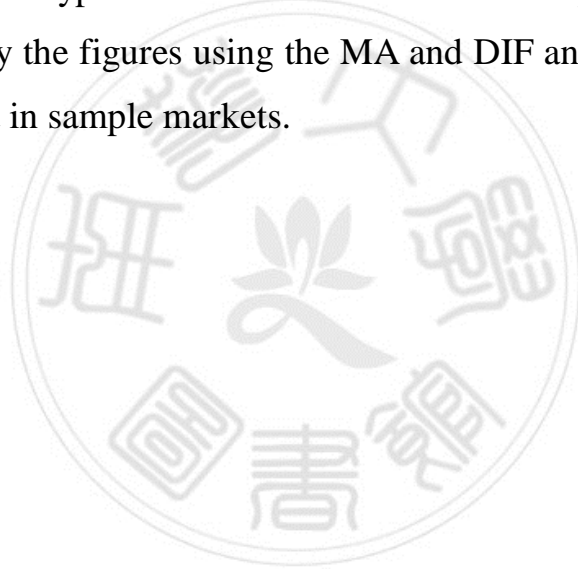
Table 4.8 Return with MACD strategy

DIF-MACD		Returns	TSE Weight Stock Index	Hang Seng Index	Hang Seng China Enter Index	FTSE Straits Times Index	Bangkok Set Stock Index	Kuala Lumpur Stock Index	Manila Stock Index	Synthesis Index	JSX Stock Inex	Bombay 100 Stock Index
MA5:MA10	Golden cross	Log return	2.33%	3.43%	1.55%	1.84%	3.74%	1.17%	-3.24%	1.93%	-0.79%	6.03%
		Discrete return	5.54%	8.18%	4.10%	4.35%	8.90%	2.76%	-7.17%	4.89%	-1.34%	14.27%
	Selling signal	Log return	-0.78%	3.19%	1.33%	0.88%	0.01%	0.49%	-7.92%	-2.35%	-5.68%	-5.97%
		Discrete return	-2.04%	6.78%	2.13%	1.87%	-0.53%	1.02%	-18.63%	-5.85%	-13.50%	-14.22%
MA10:MA20	Golden cross	Log return	1.07%	-1.77%	0.79%	0.58%	4.18%	0.09%	0.13%	3.14%	0.24%	2.30%
		Discrete return	2.61%	-3.81%	2.24%	1.44%	9.87%	0.24%	0.64%	7.64%	0.98%	5.63%
	Selling signal	Log return	-2.88%	-0.38%	4.78%	-0.71%	-2.72%	-1.06%	-7.90%	0.42%	-7.98%	-9.81%
		Discrete return	-6.86%	-1.34%	10.29%	-1.79%	-6.69%	-2.56%	-18.46%	0.61%	-18.73%	-22.99%
MA5:MA20	Golden cross	Log return	4.72%	0.94%	1.42%	2.00%	1.77%	-0.29%	-0.82%	3.54%	2.26%	1.24%
		Discrete return	11.01%	2.45%	3.72%	4.71%	4.35%	-0.61%	-1.55%	8.56%	5.79%	3.16%
	Selling signal	Log return	0.77%	2.34%	5.41%	0.70%	-5.13%	-1.44%	-8.85%	0.82%	-5.96%	-10.87%
		Discrete return	1.54%	4.92%	11.76%	1.48%	-12.21%	-3.41%	-20.66%	1.53%	-13.93%	-25.46%

Empirical period: 1 October 2013 – 30 September 2014

39
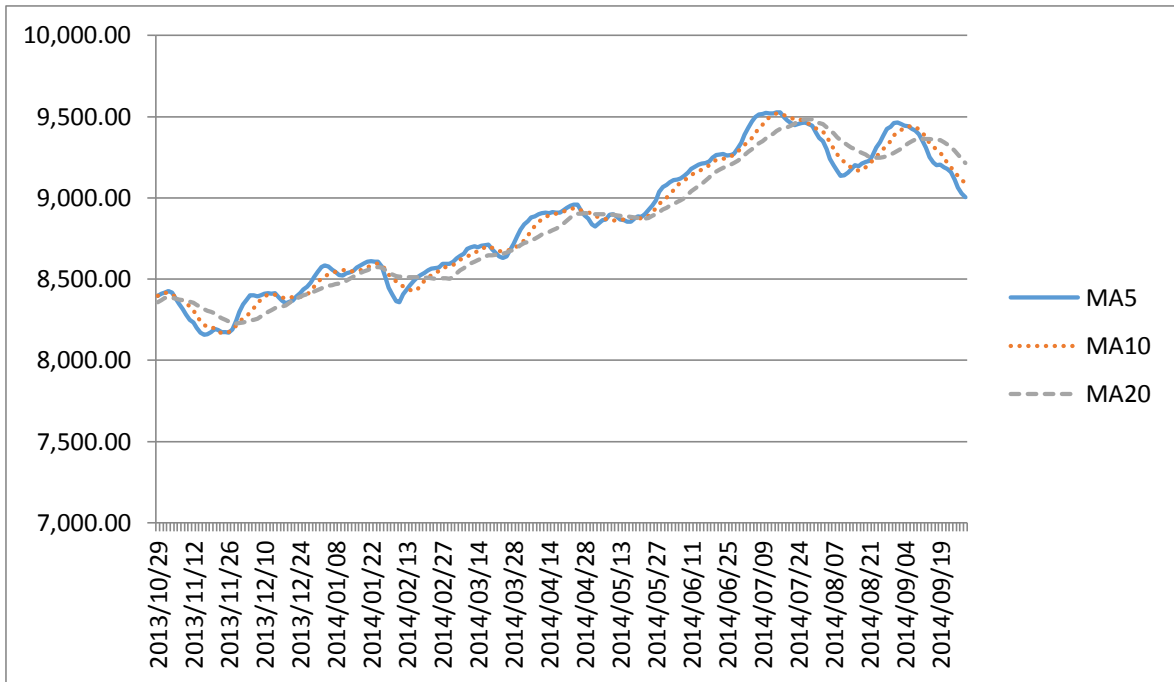
Figure 4.1 Moving average for 5, 10 and 20 days of TSE Weight Stock Index

Period: Oct 2013- Sep 2014

The graph above exhibits some of the more commonly used Moving Averages including a 5, 10 and 20 period. Investor may choose to use more than one Moving Average as depicted in the graph. When using a series of moving averages traders can employ a crossover trading strategy. You will choose two series of averages and view the trend as down when the shorter period moving average is residing below the longer period moving average. For example, we can see on the MA10 chart trend as down when the MA5 chart trend is up. At that point Moving Average traders may watch opportunities to buy. The same way can be give buying and selling signal.   Other graphs for MA can follow same explanation.
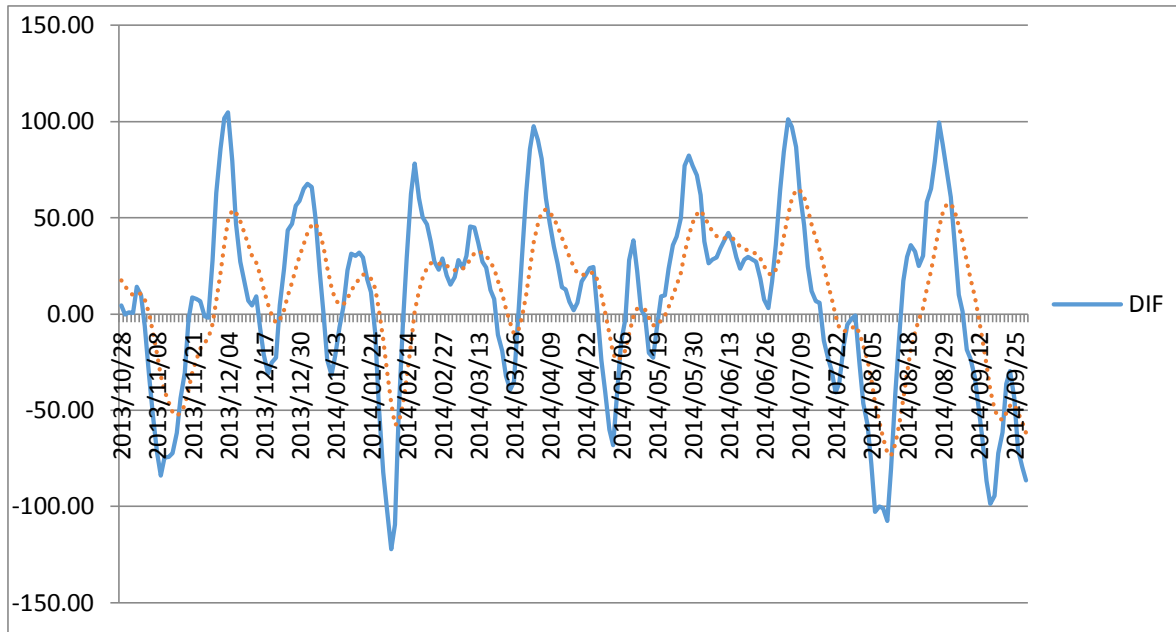
Figure 4.2 Difference of Moving average and MACD for 5 and 10 days of

TSE Weight Stock Index

Period: Oct 2013- Sep 2014

The graph above shows one of the commonly used Moving Averages including a 5, 10 and 20 period. When using a series of moving averages traders can employ a crossover trading strategy. You see a series of averages and view the trend as down when the difference of shorter moving average and long period moving average is residing below the moving average convergence and divergence. For example, we can see on the difference of MA5 and MA10 chart trend as up when the MACD series trend goes down. At that point Moving Average traders may watch opportunities to sell. The same way can be give buying and selling signal. Other graphs of Difference of Moving average and MACD can follow same explanation.
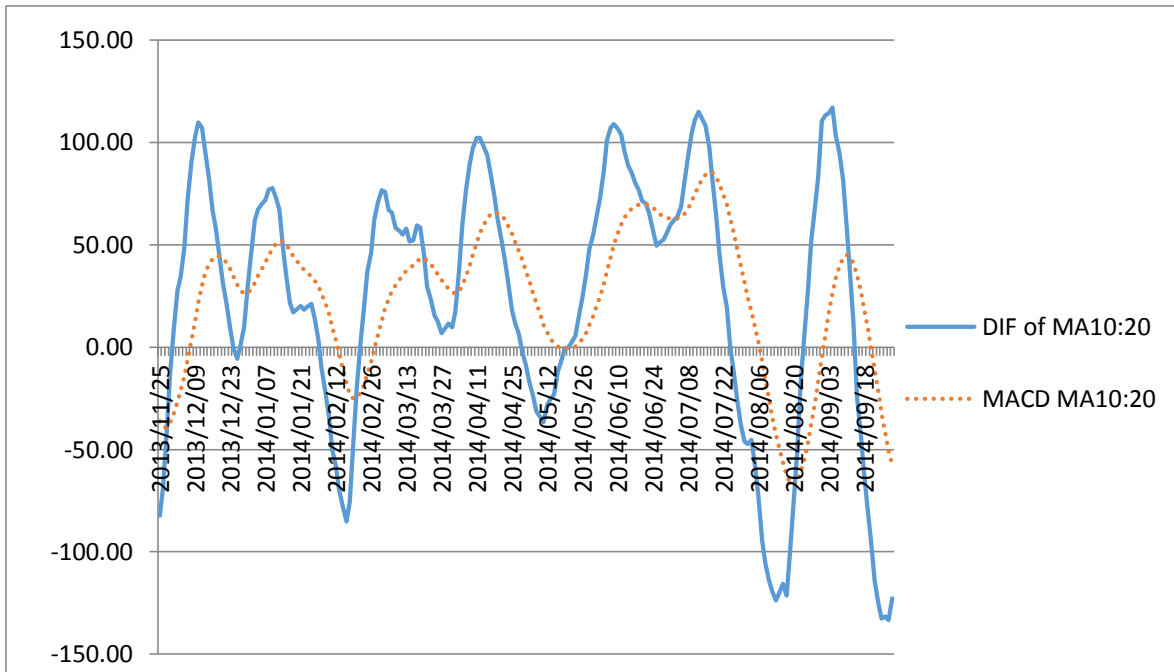
Figure 4.3 Difference of Moving average and MACD for 10 and 20 days of

TSE Weight Stock Index
Period: Oct 2013- Sep 2014
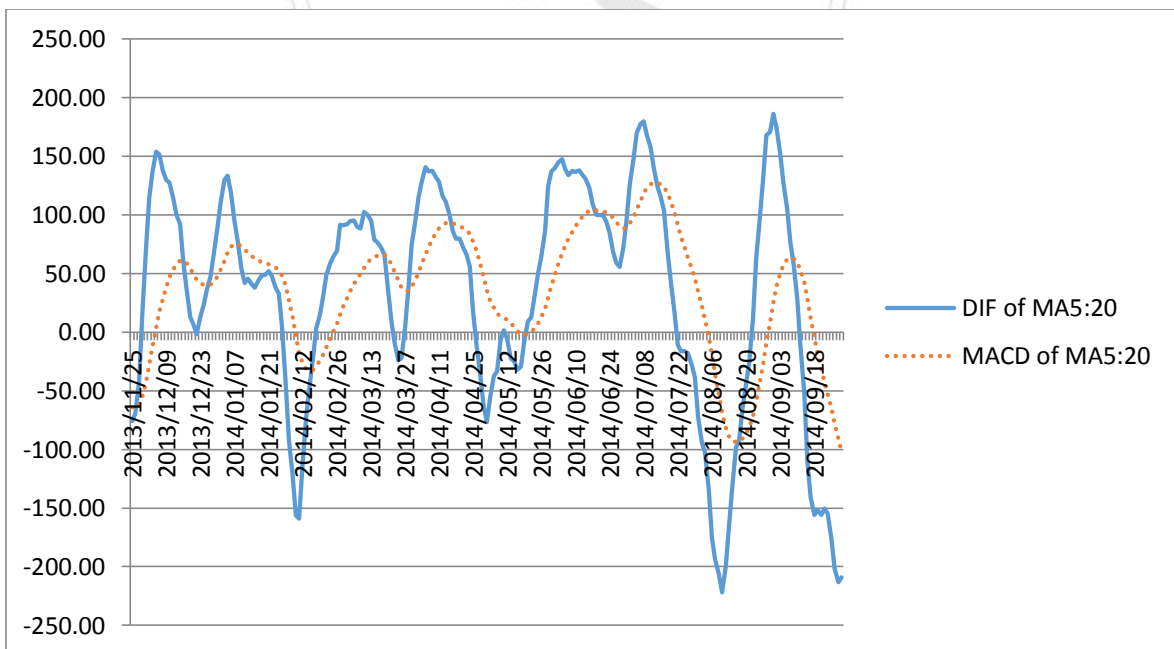
Figure 4.4 Difference of Moving average and MACD for 5 and 20 days of
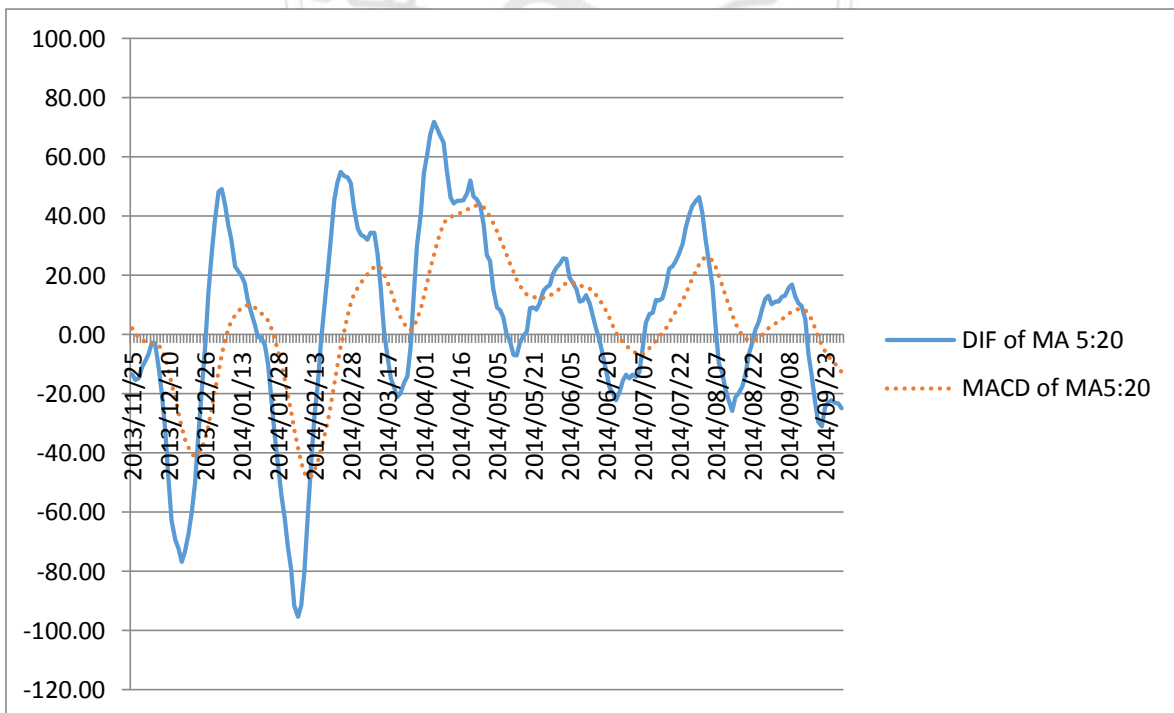TSE Weight Stock Index
Period: Oct 2013- Sep 2014
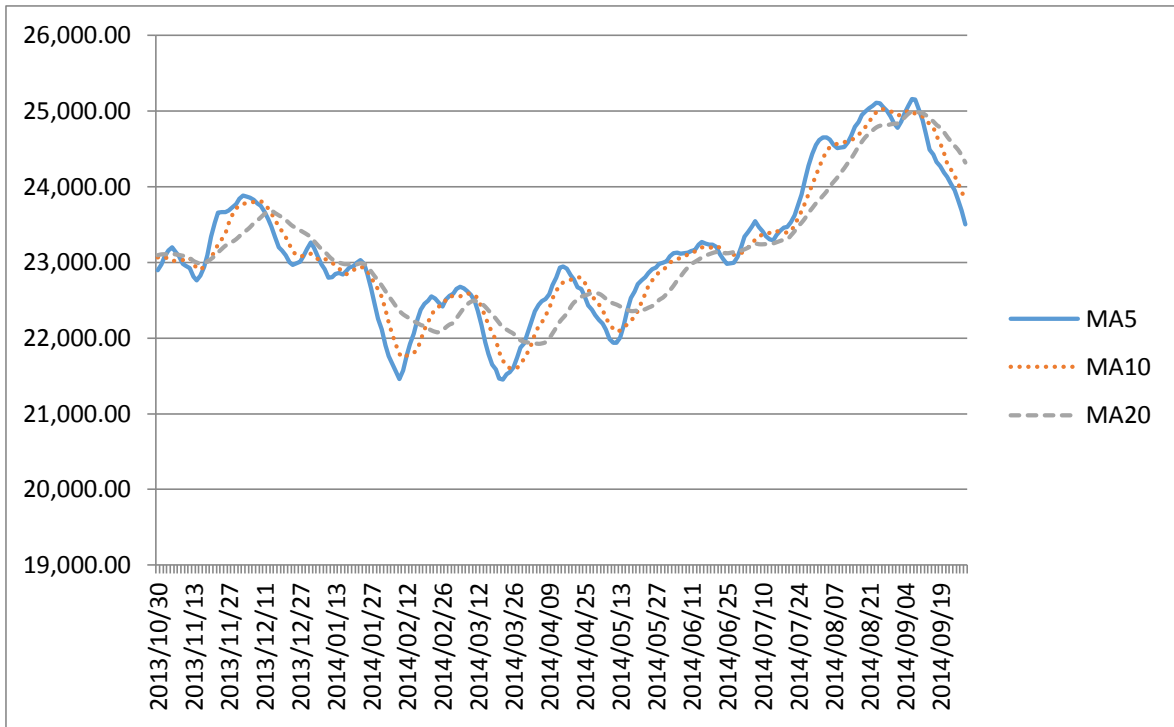
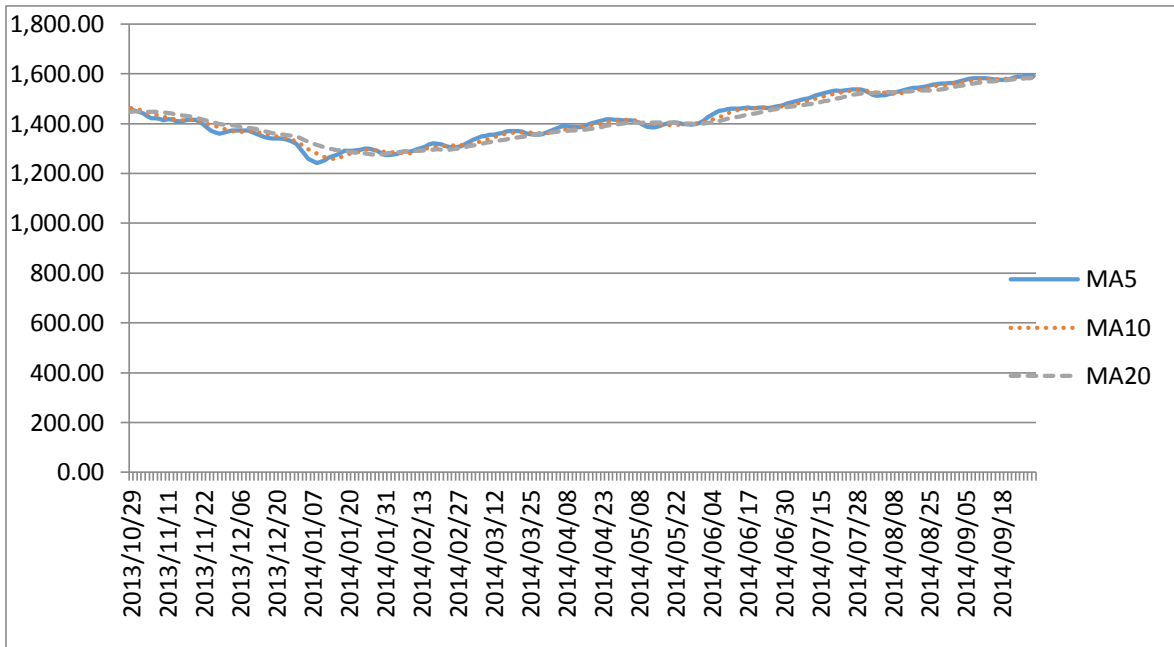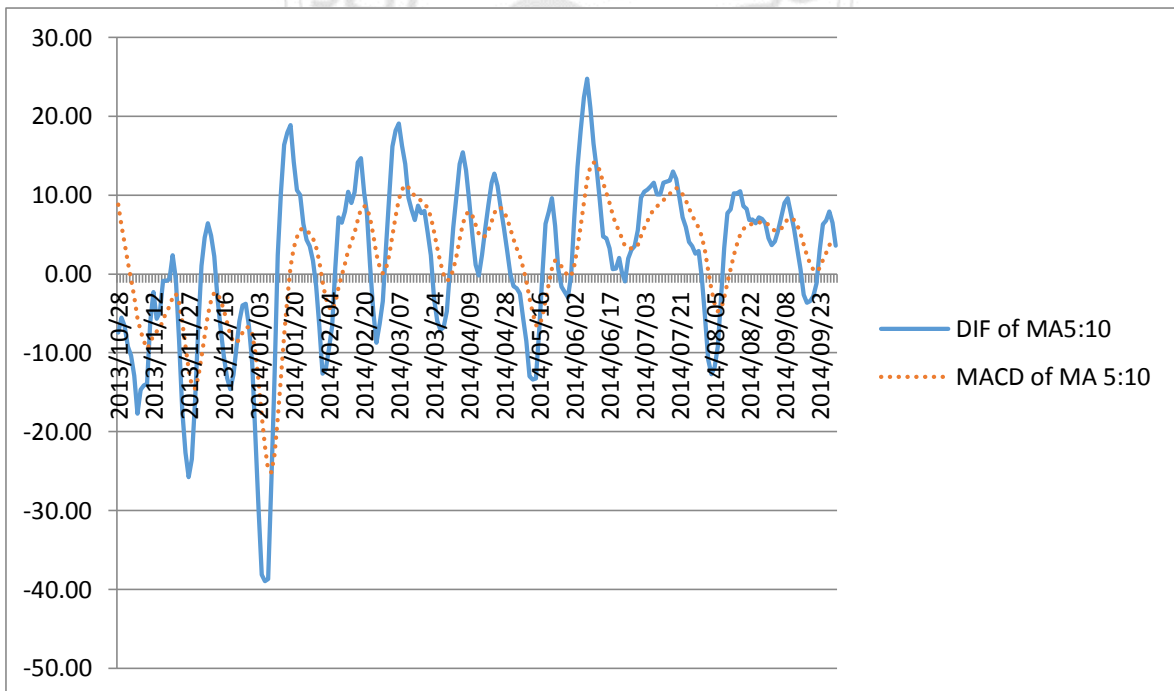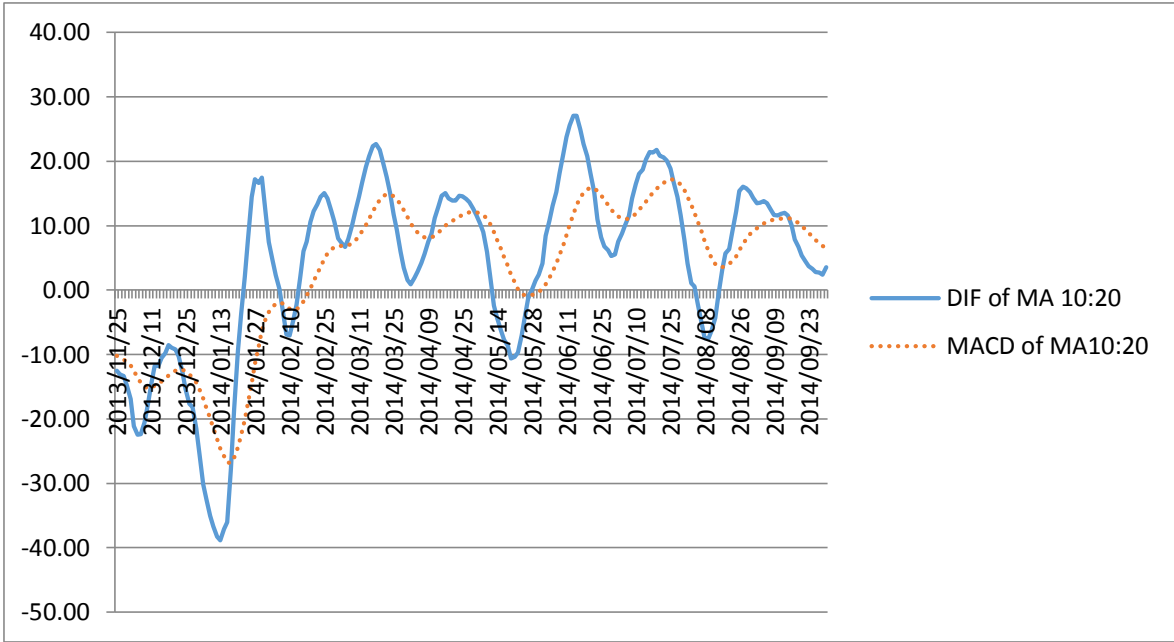Figure 4.5 Moving average for 5, 10 and 20 days of Hang Seng Index
Period: Oct 2013- Sep 2014
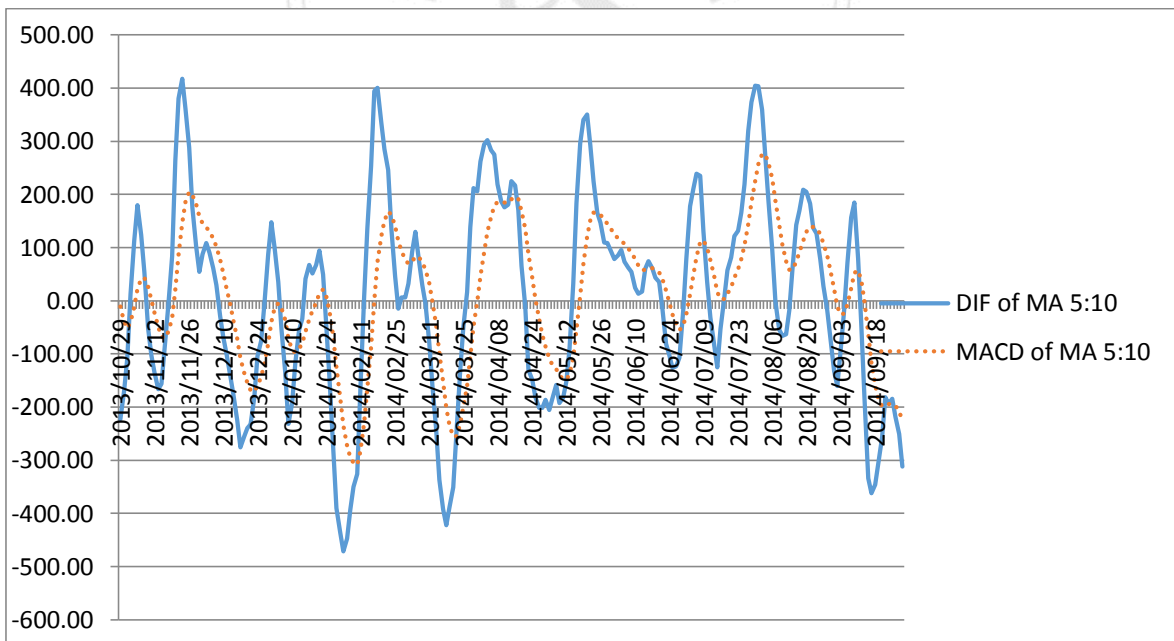
Figure 4.6 Difference of Moving average and MACD for 5 and 10 days of
Hang Seng Index
Period: Oct 2013- Sep 2014
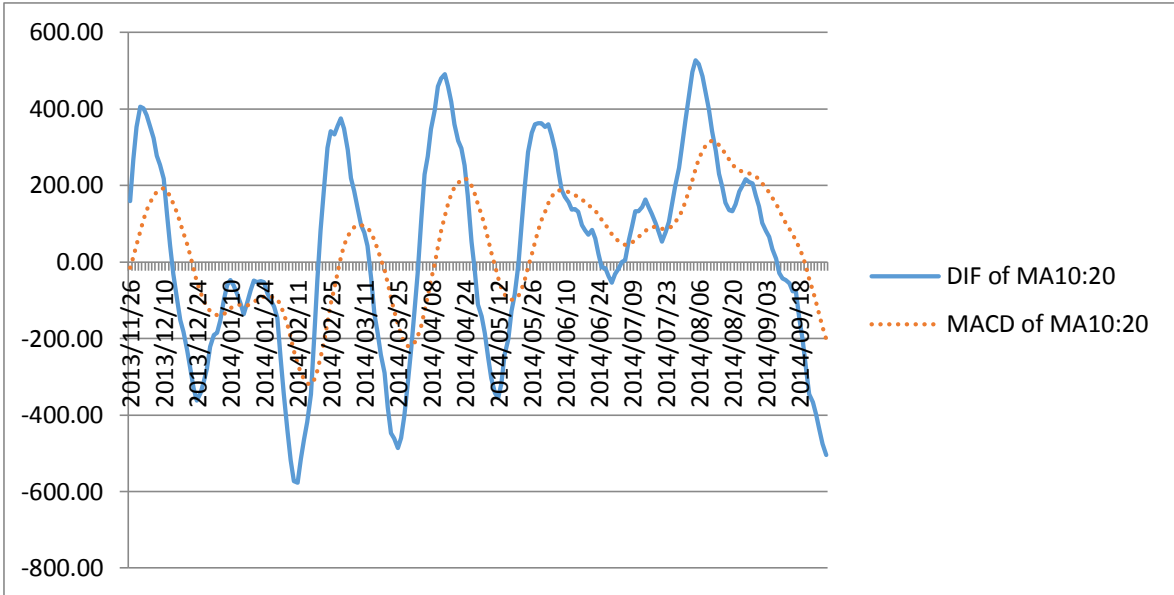
Figure 4.7 Difference of Moving average and MACD for 10 and 20 days of

Hang Seng Index
Period: Oct 2013- Sep 2014
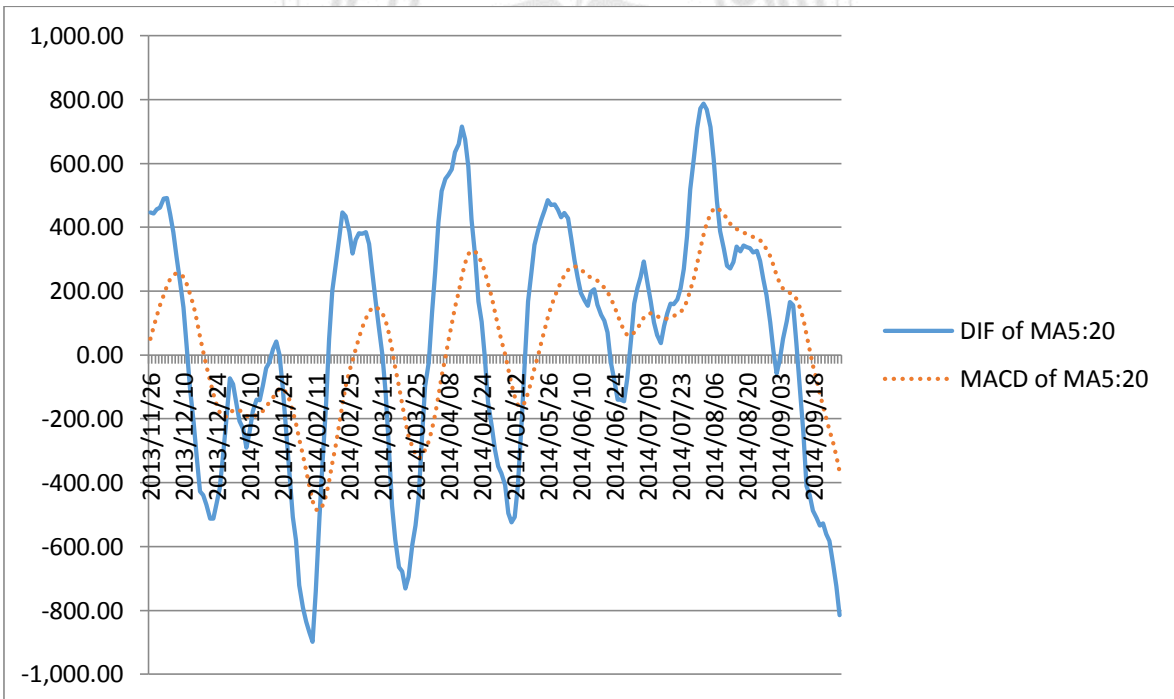
Figure 4.8 Difference of Moving average and MACD for 5 and 20 days of
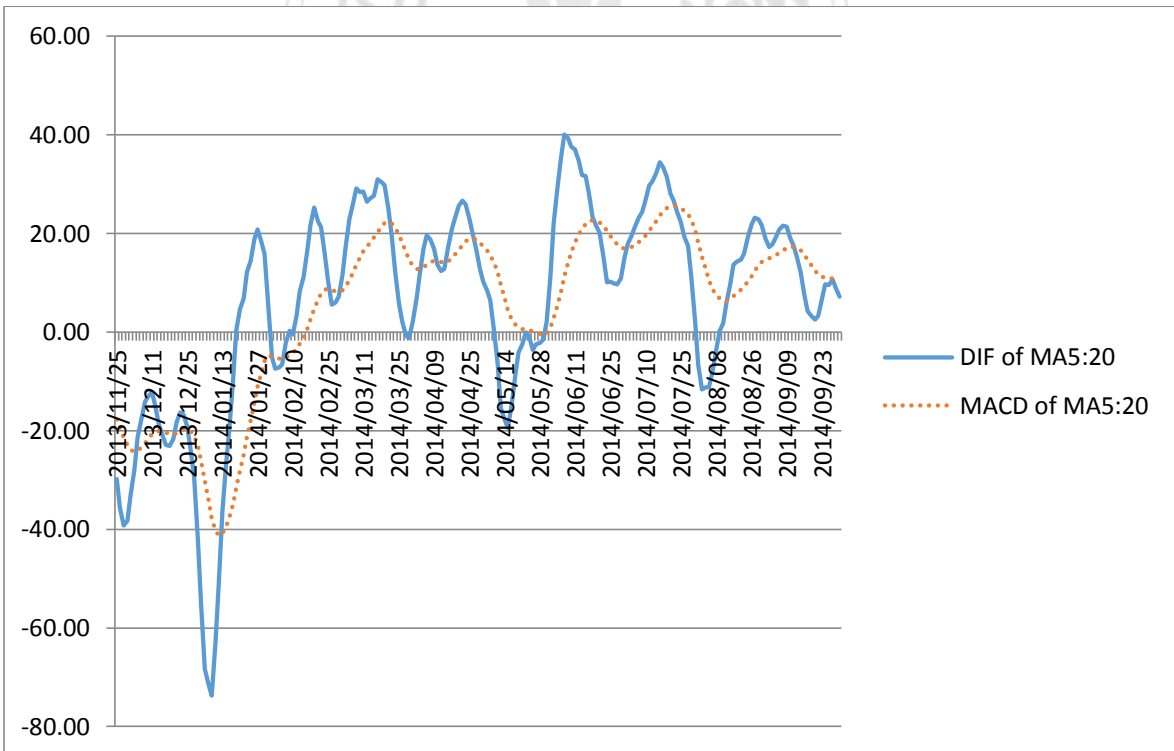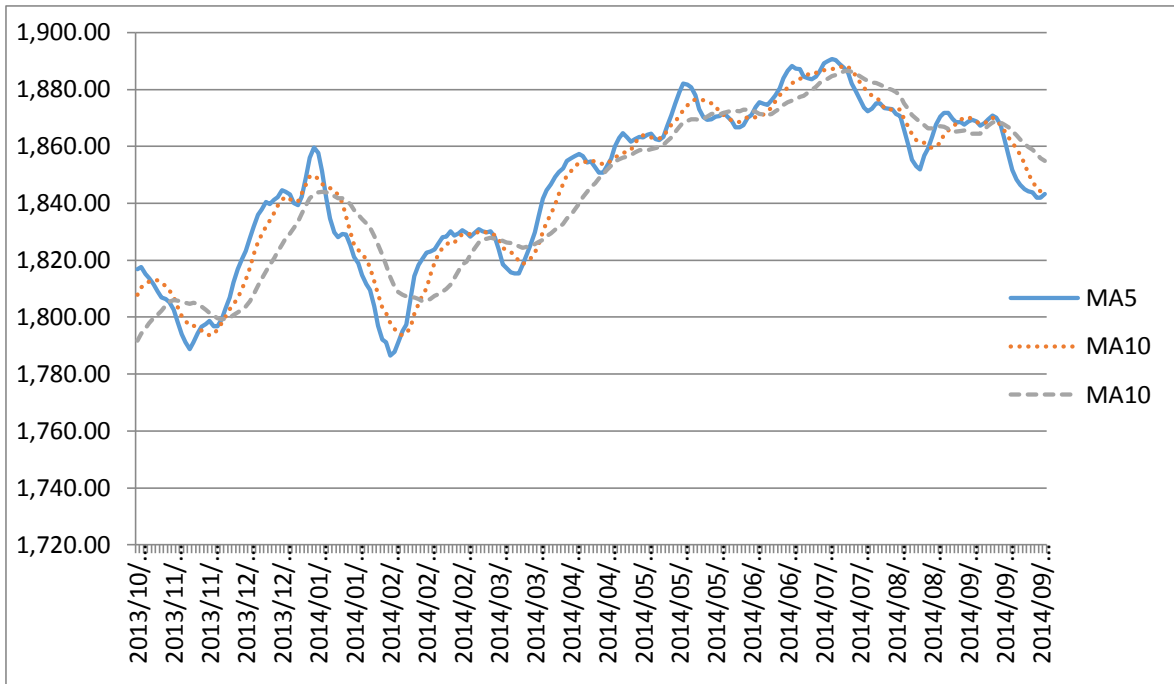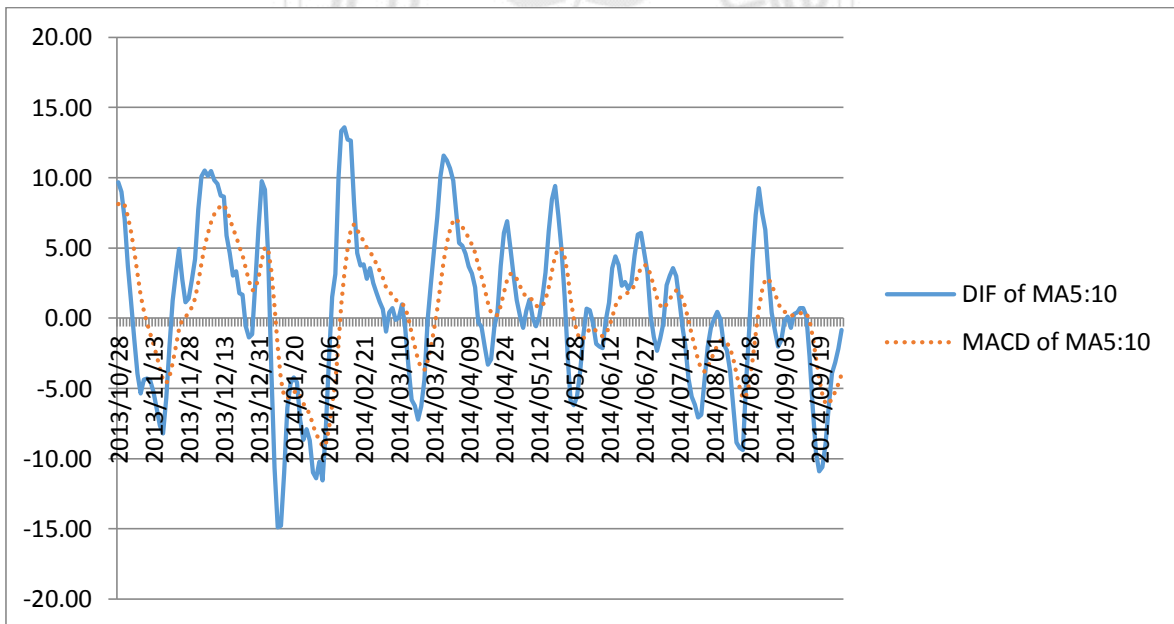Hang Seng Index
Period: Oct 2013- Sep 2014
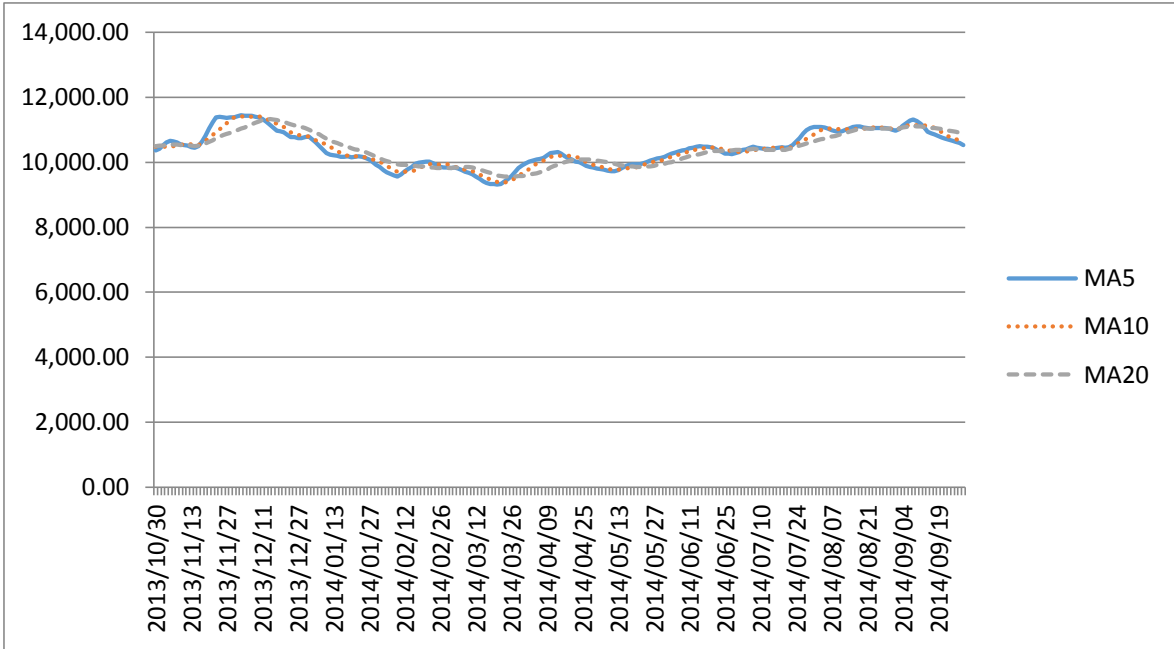
Figure 4.9 Moving average for 5, 10 and 20 days of Hang Seng China
Entrepreneur Index
Period: Oct 2013- Sep 2014
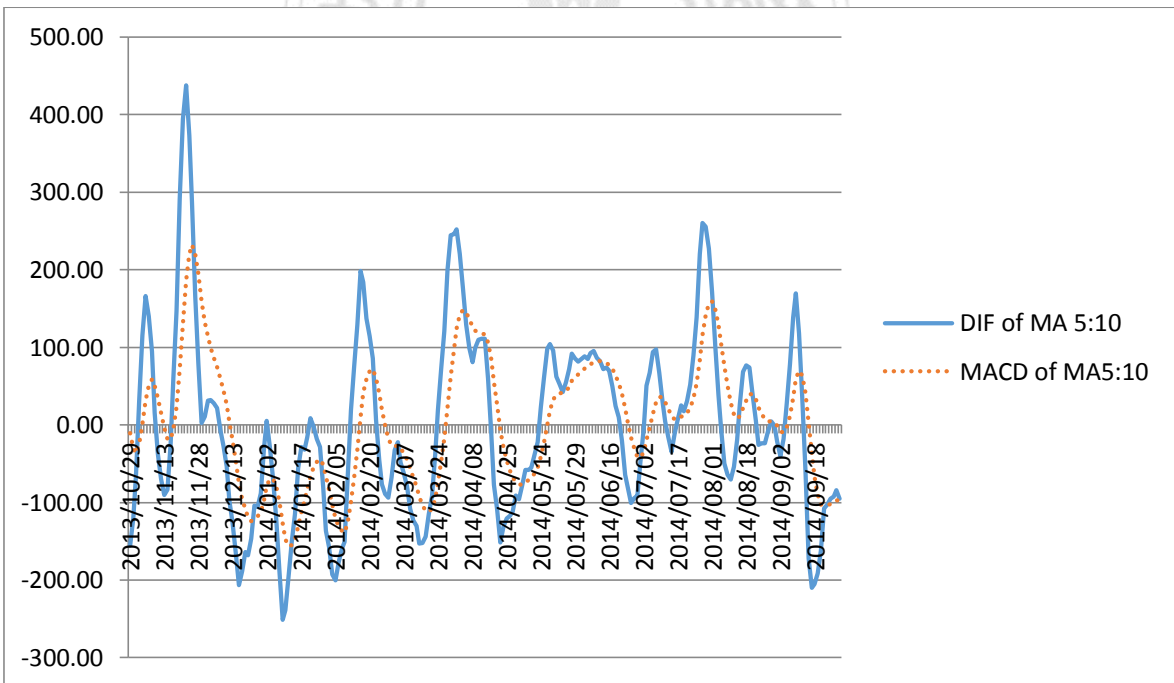
Figure 4.10 Difference of Moving average and MACD for 5 and 10 days of

Hang Seng China Entrepreneur Index

Period: Oct 2013- Sep 2014
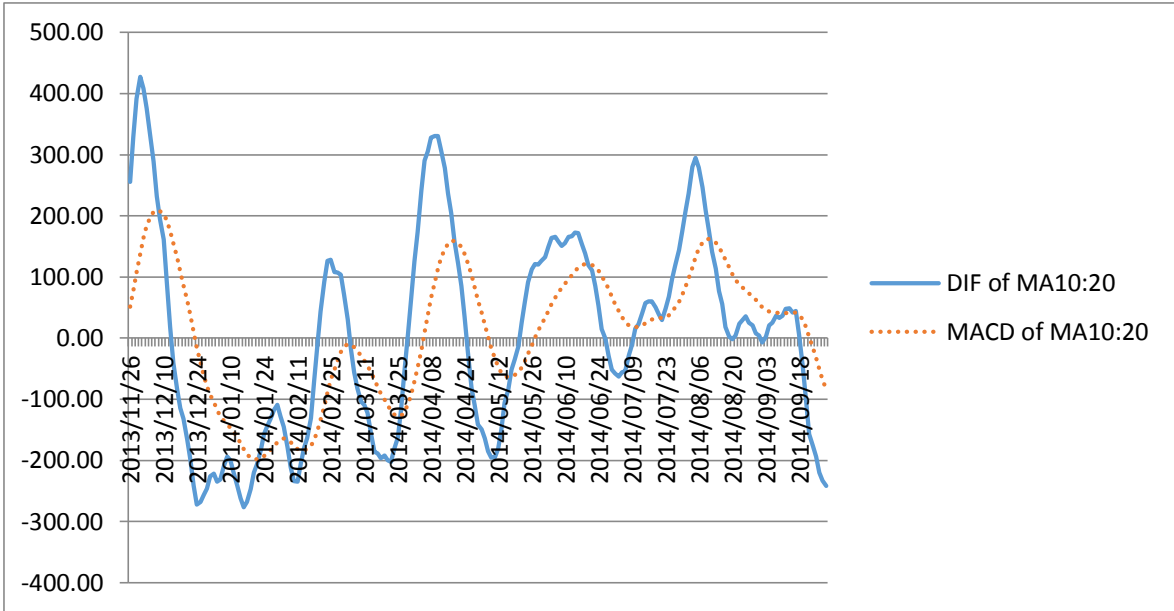
Figure 4.11 Difference of Moving average and MACD for 10 and 20 days of

Hang Seng China Entrepreneur Index

Period: Oct 2013- Sep 2014
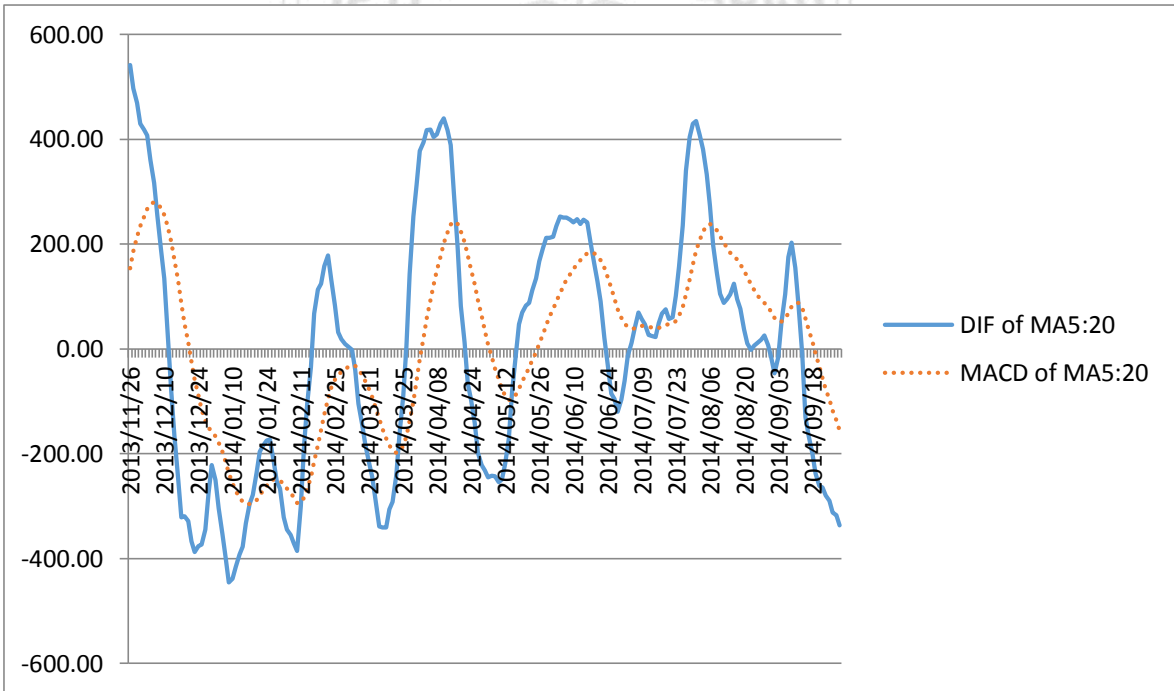
Figure 4.12 Difference of Moving average and MACD for 5 and 20 days of

Hang Seng China Entrepreneur Index

Period: Oct 2013- Sep 2014
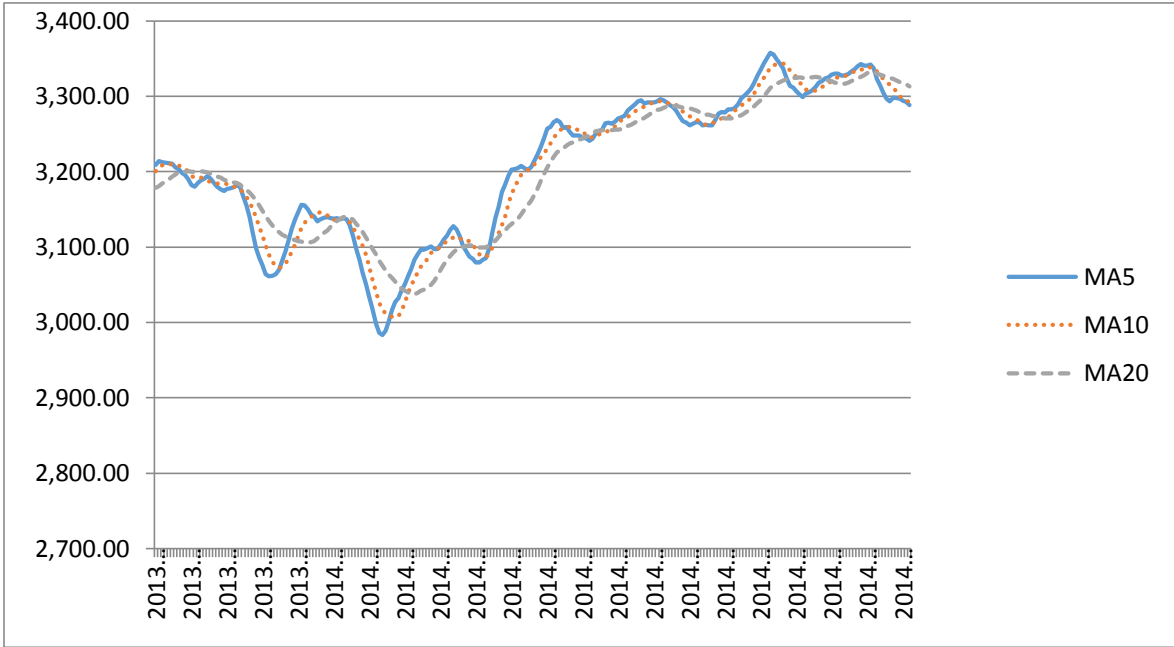
Figure 4.13 Moving average for 5, 10 and 20 days of FTSE Straits Times

Index

Period: Oct 2013- Sep 2014
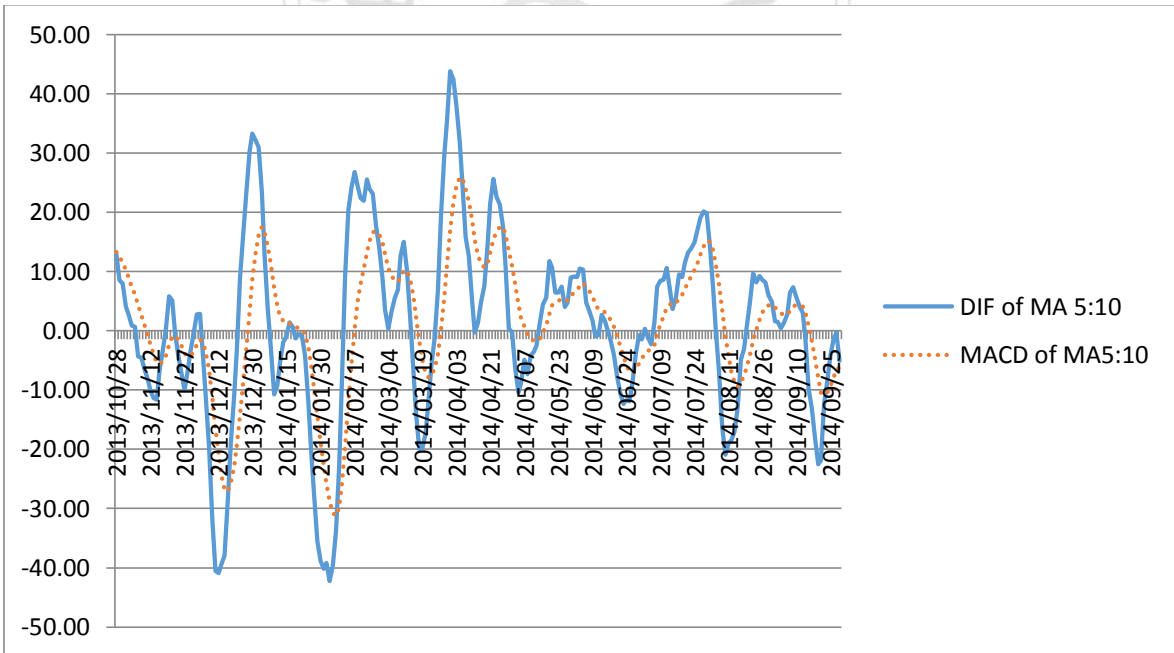
Figure 4.14 Difference of Moving average and MACD for 5 and 10 days of

FTSE Straits Times Index
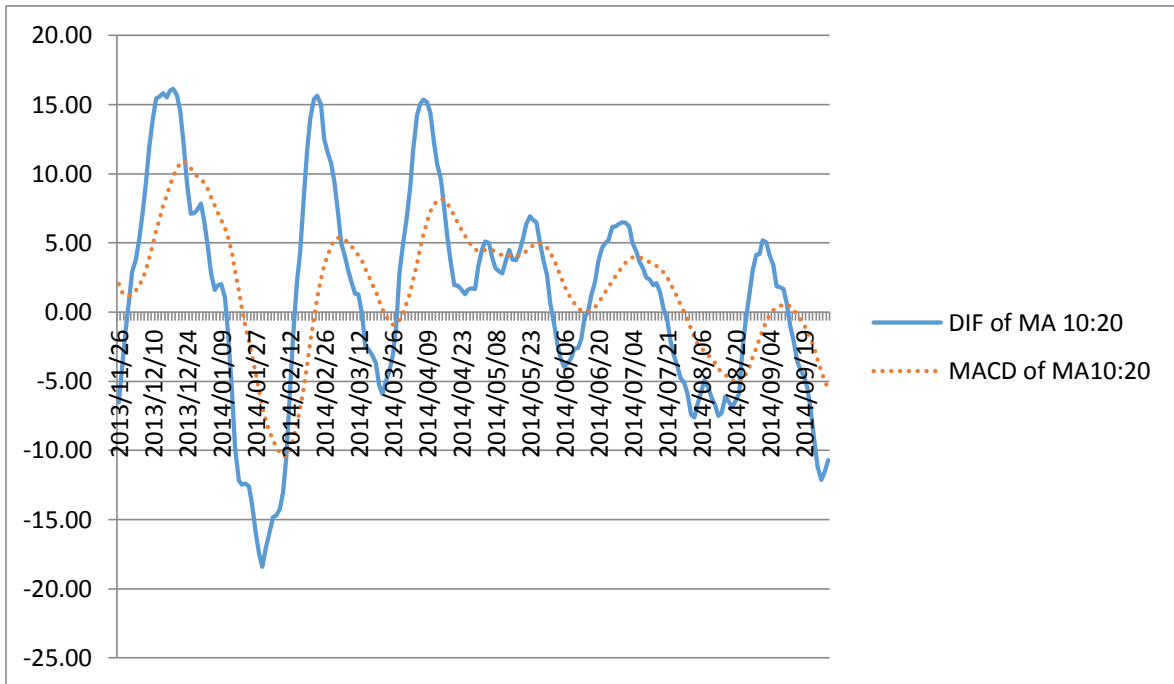
Period: Oct 2013- Sep 2014
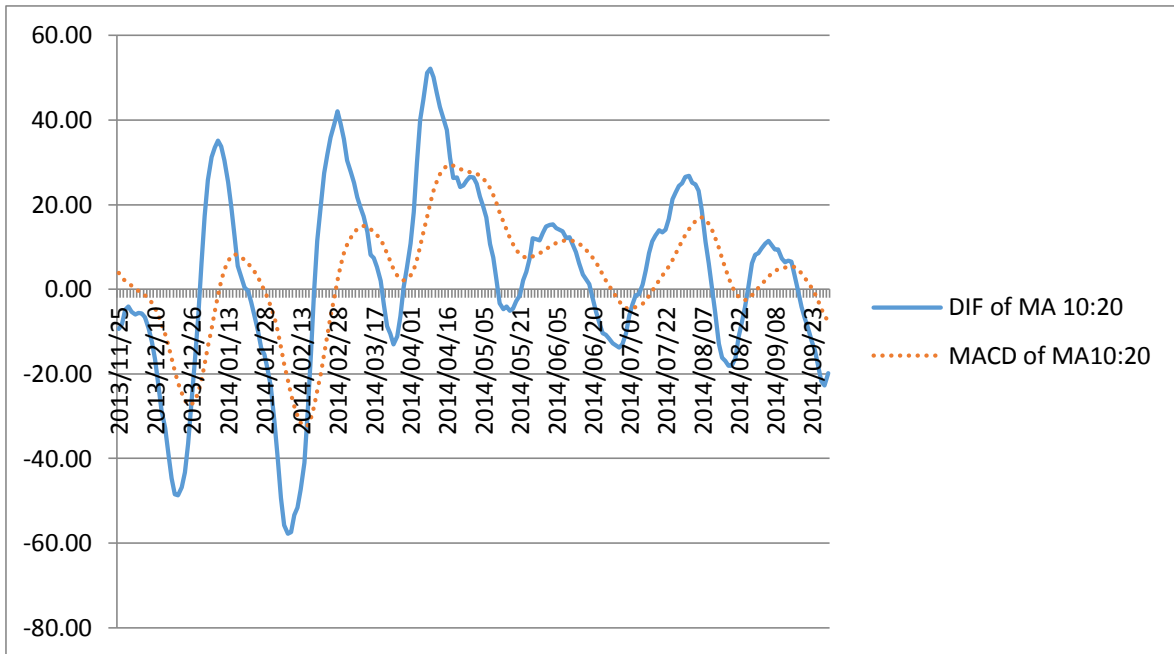
Figure 4.15 Difference of Moving average and MACD for 10 and 20 days of
FTSE Straits Times Index
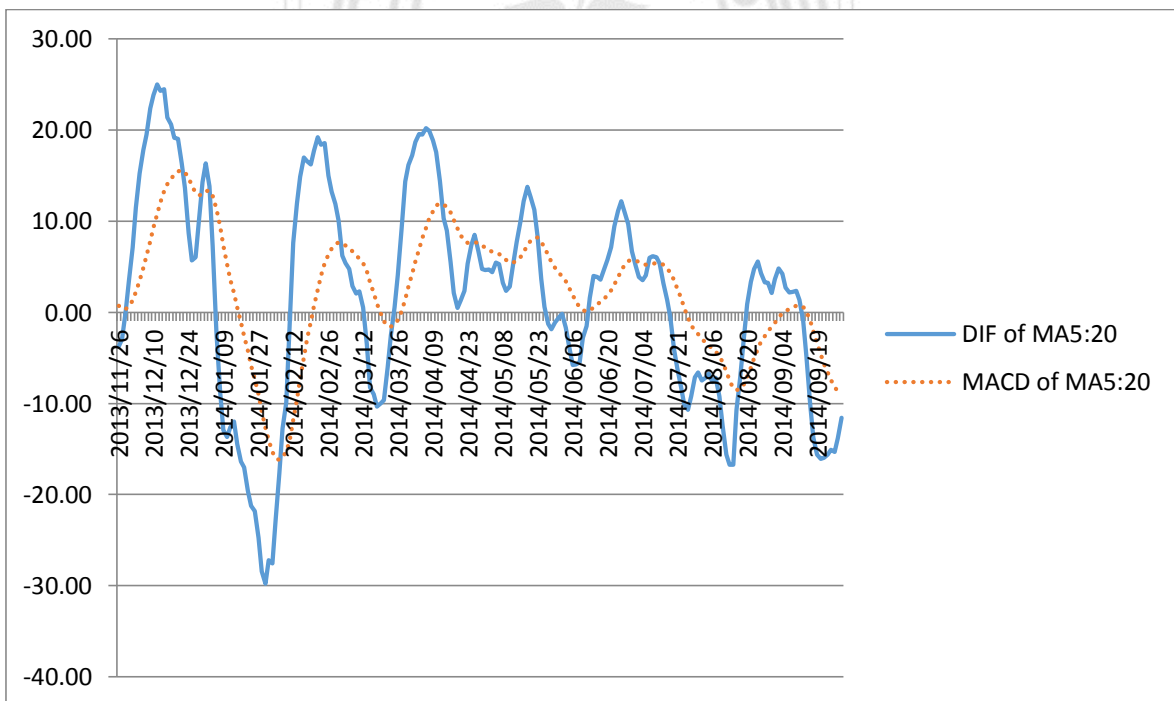Period: Oct 2013- Sep 2014

Figure 4.16 Difference of Moving average and MACD for 5 and 20 days of
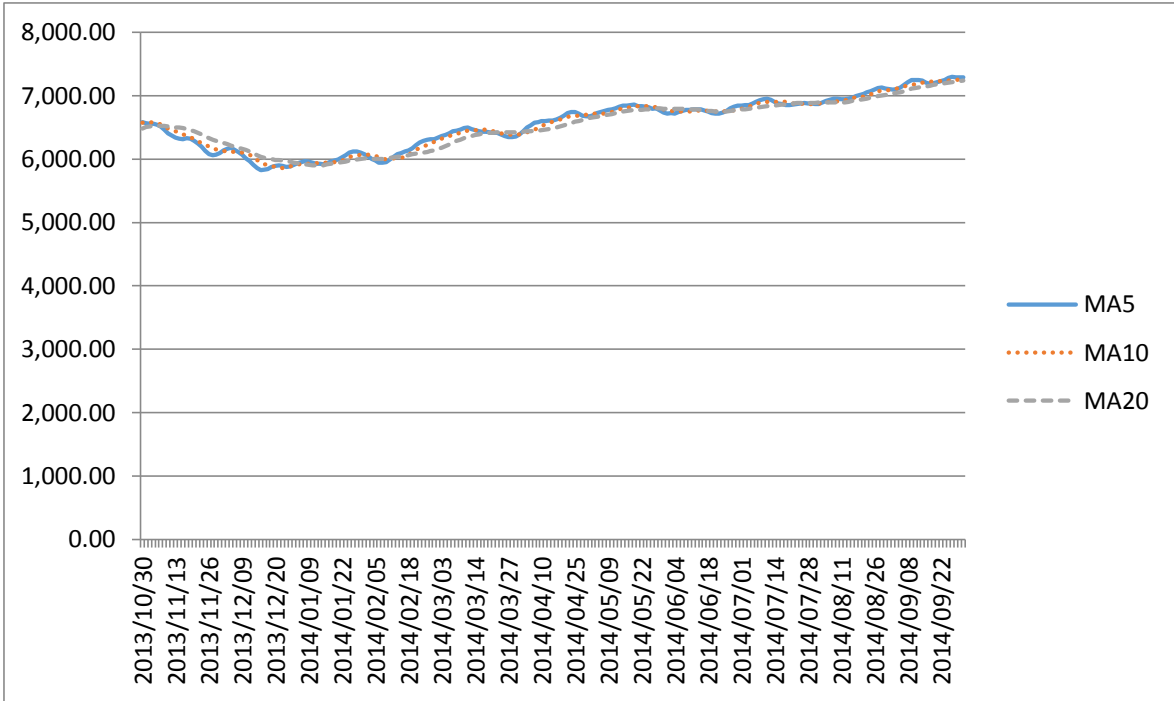FTSE Straits Times Index
Period: Oct 2013- Sep 2014

Figure 4.17 Moving average for 5, 10 and 20 days of Bangkok Set Stock
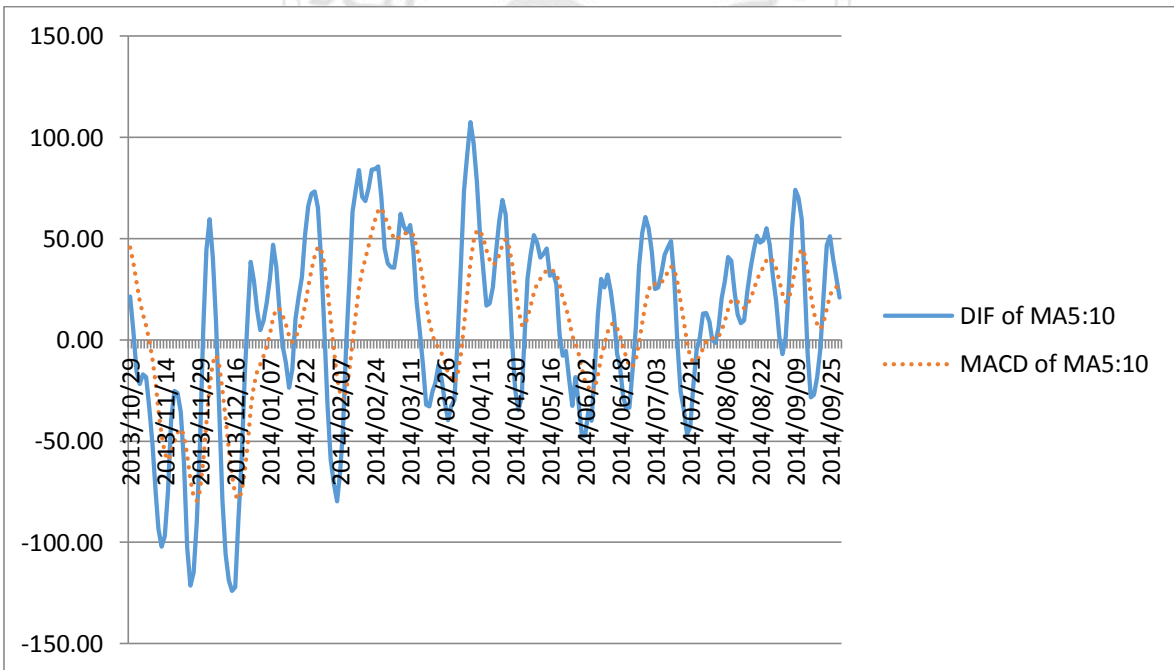
Index

Period: Oct 2013- Sep 2014

Figure 4.18 Difference of Moving average and MACD for 5 and 10 days of
Bangkok Set Stock Index
Period: Oct 2013- Sep 2014

Figure 4.19 Difference of Moving average and MACD for 10 and 20 days of
Bangkok Set Stock Index
Period: Oct 2013- Sep 2014

Figure 4.20 Difference of Moving average and MACD for 5 and 20 days of
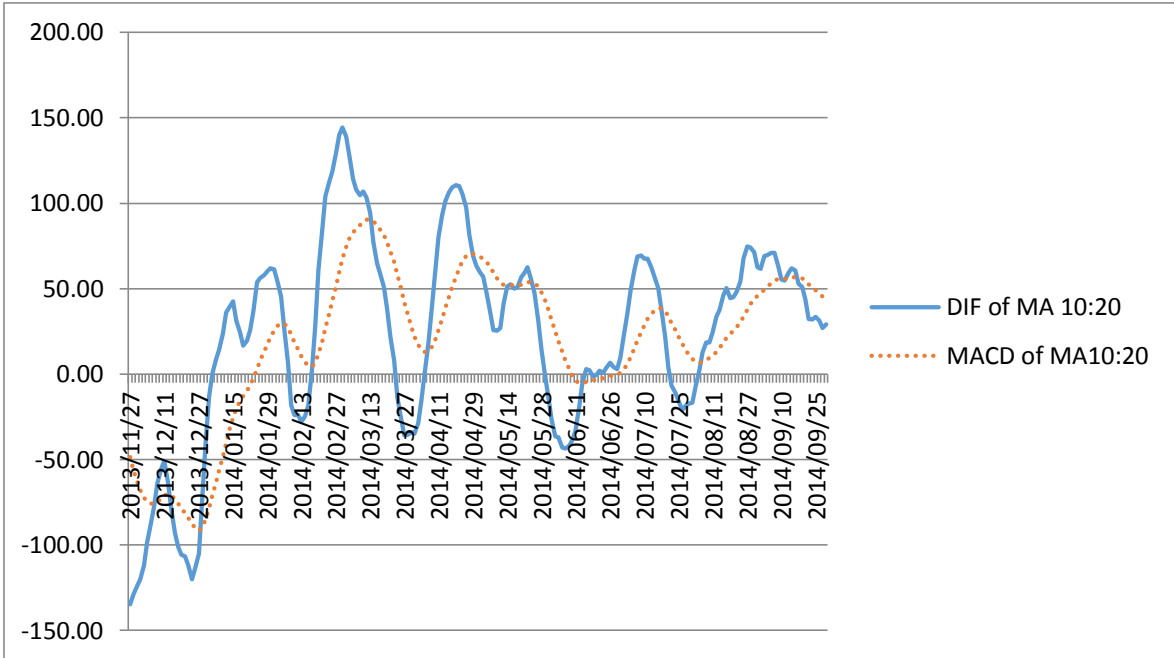Bangkok Set Stock Index
Period: Oct 2013- Sep 2014

Figure 4.21 Moving average for 5, 10 and 20 days of Kuala-Lumpur Stock
Index
Period: Oct 2013- Sep 2014

Figure 4.22 Difference of Moving average and MACD for 5 and 10 days of
Kuala-Lumpur Stock Index
Period: Oct 2013- Sep 2014

Figure 4.23 Difference of Moving average and MACD for 10 and 20 days of
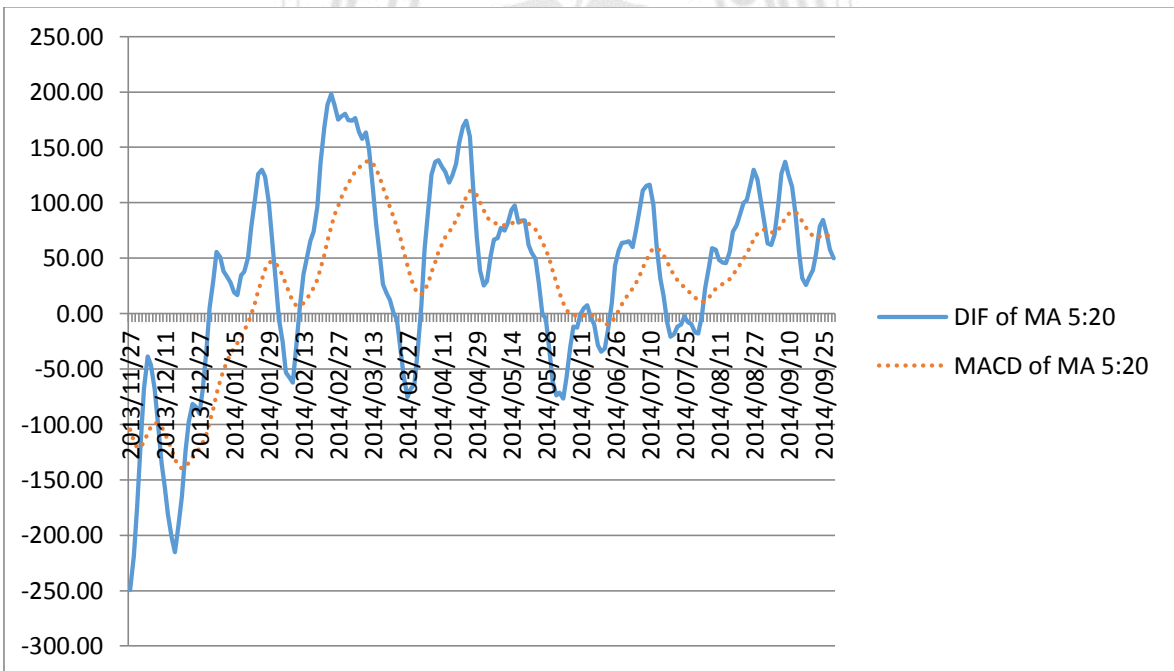Kuala-Lumpur Stock Index
Period: Oct 2013- Sep 2014

Figure 4.24 Difference of Moving average and MACD for 5 and 20 days of
Kuala-Lumpur Stock Index
Period: Oct 2013- Sep 2014

Figure 4.25 Moving average for 5, 10 and 20 days of Manila Stock Index
Period: Oct 2013- Sep 2014

Figure 4.26 Difference of Moving average and MACD for 5 and 10 days of
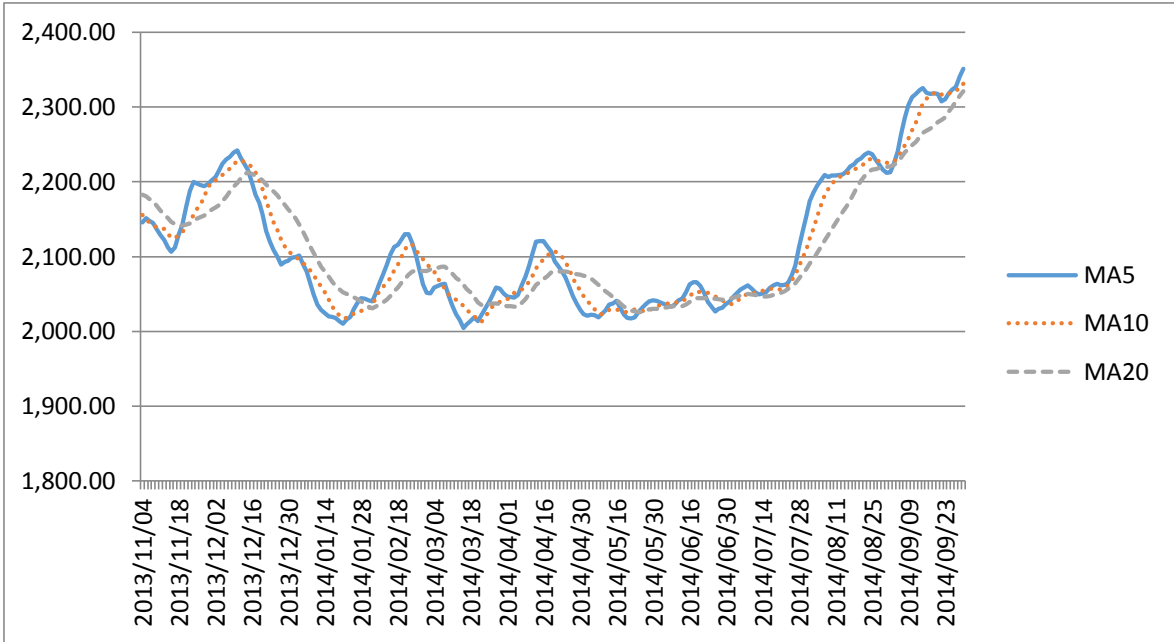Manila Stock Index
Period: Oct 2013- Sep 2014

Figure 4.27 Difference of Moving average and MACD for 10 and 20 days of
Manila Stock Index
Period: Oct 2013- Sep 2014

Figure 4.28 Difference of Moving average and MACD for 5 and 20 days of
Manila Stock Index
Period: Oct 2013- Sep 2014

Figure 4.29 Moving average for 5, 10 and 20 days of Synthesis Index
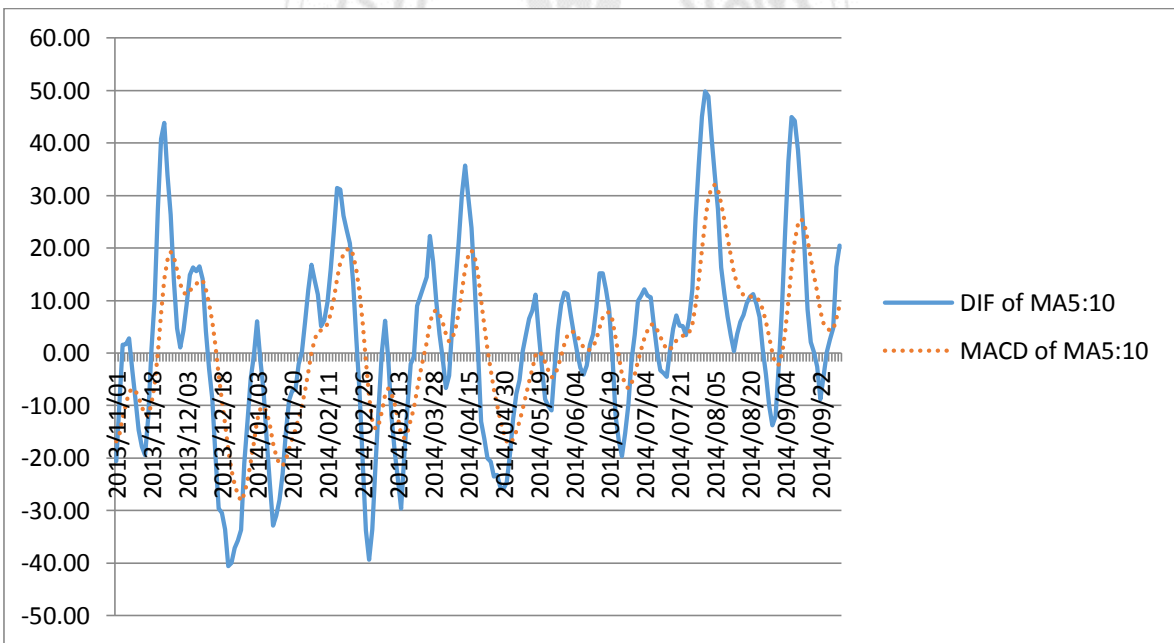
Period: Oct 2013- Sep 2014

Figure 4.30 Difference of Moving average and MACD for 5 and 10 days of

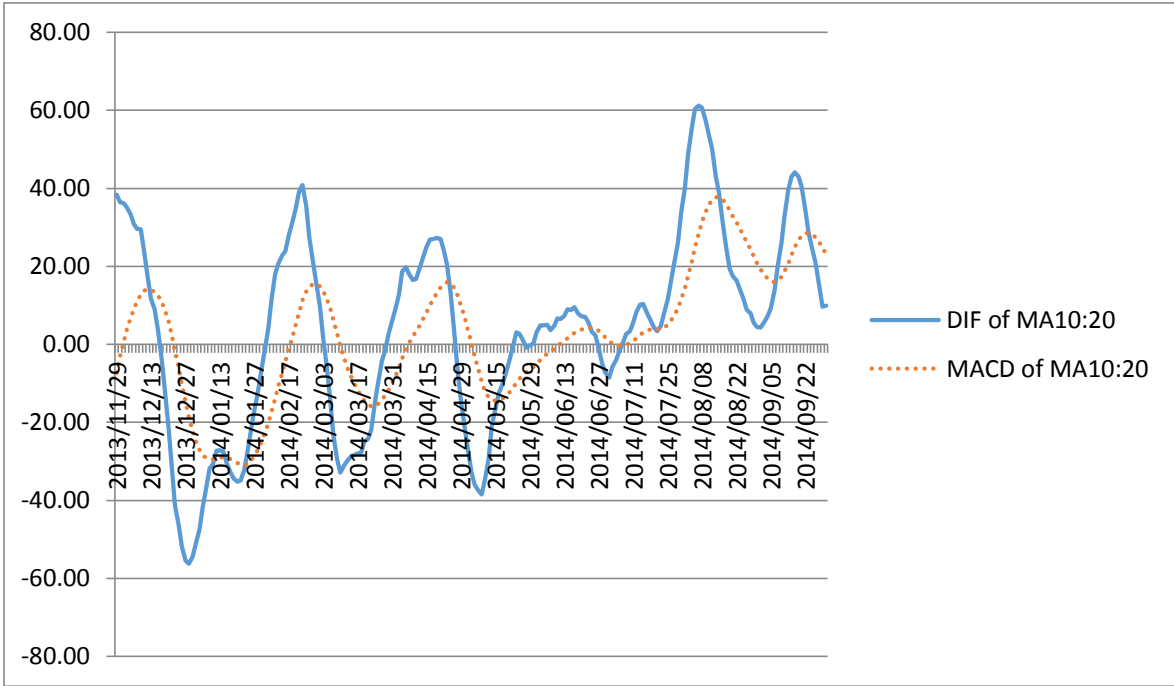Synthesis Index

Period: Oct 2013- Sep 2014

Figure 4.31 Difference of Moving average and MACD for 10 and 20 days of
Synthesis Index
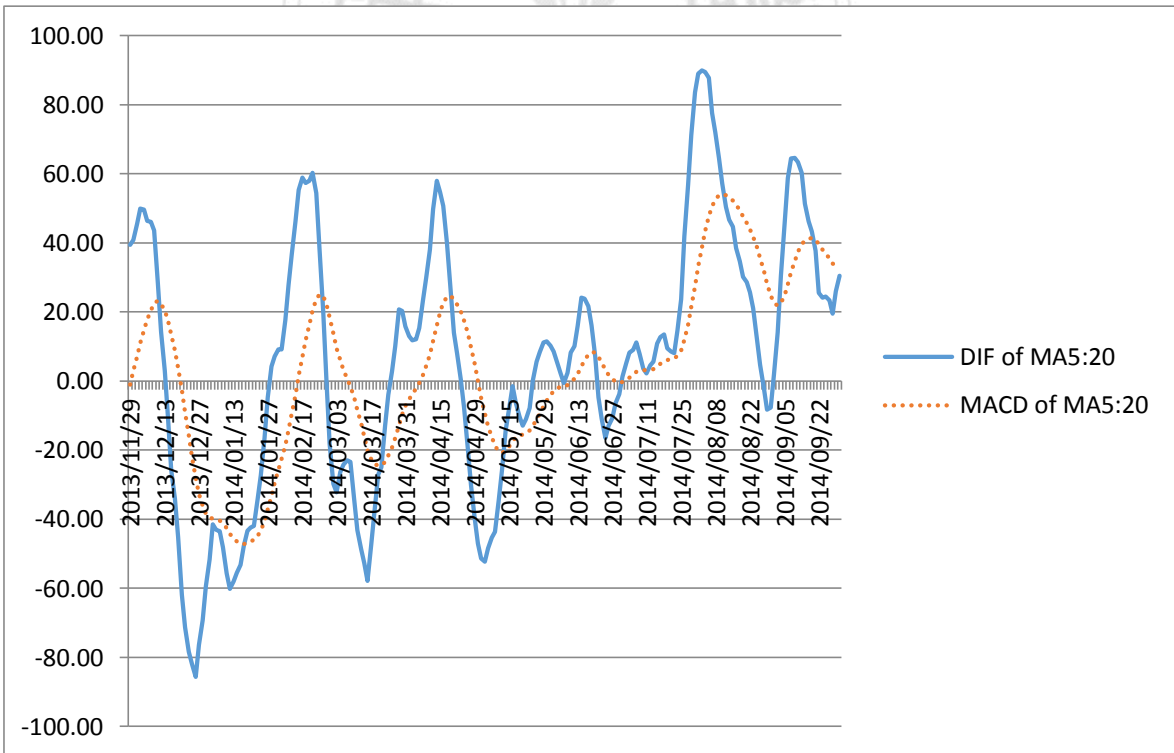Period: Oct 2013- Sep 2014

Figure 4.32 Difference of Moving average and MACD for 5 and 20 days of
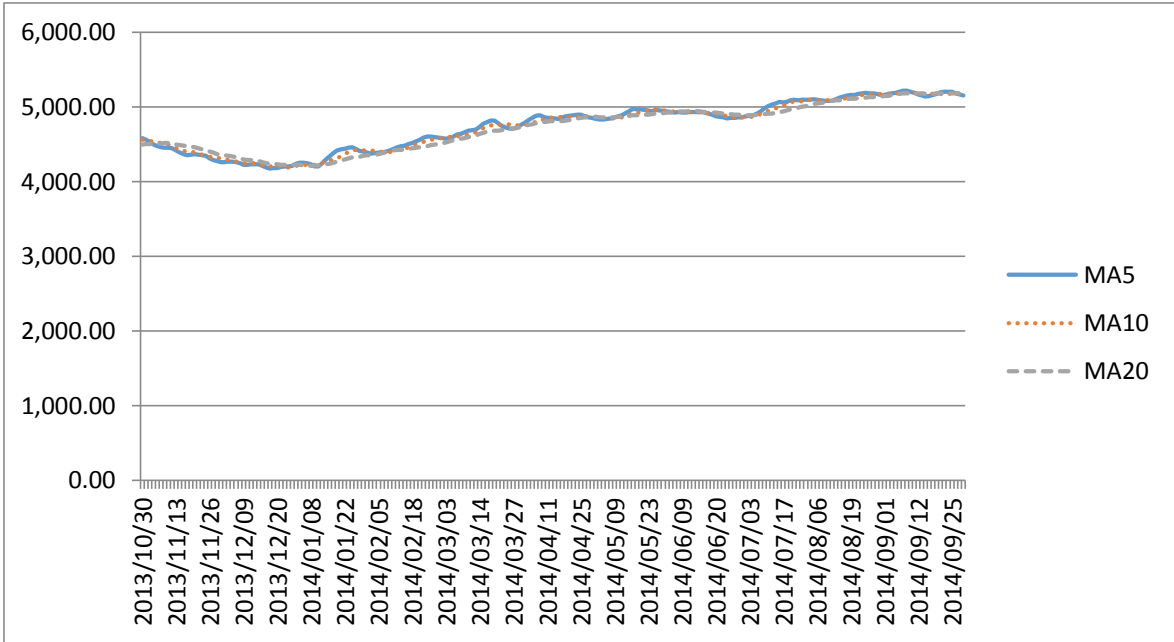Synthesis Index
Period: Oct 2013- Sep 2014

Figure 4.33 Moving average for 5, 10 and 20 days of JSX Stock Index
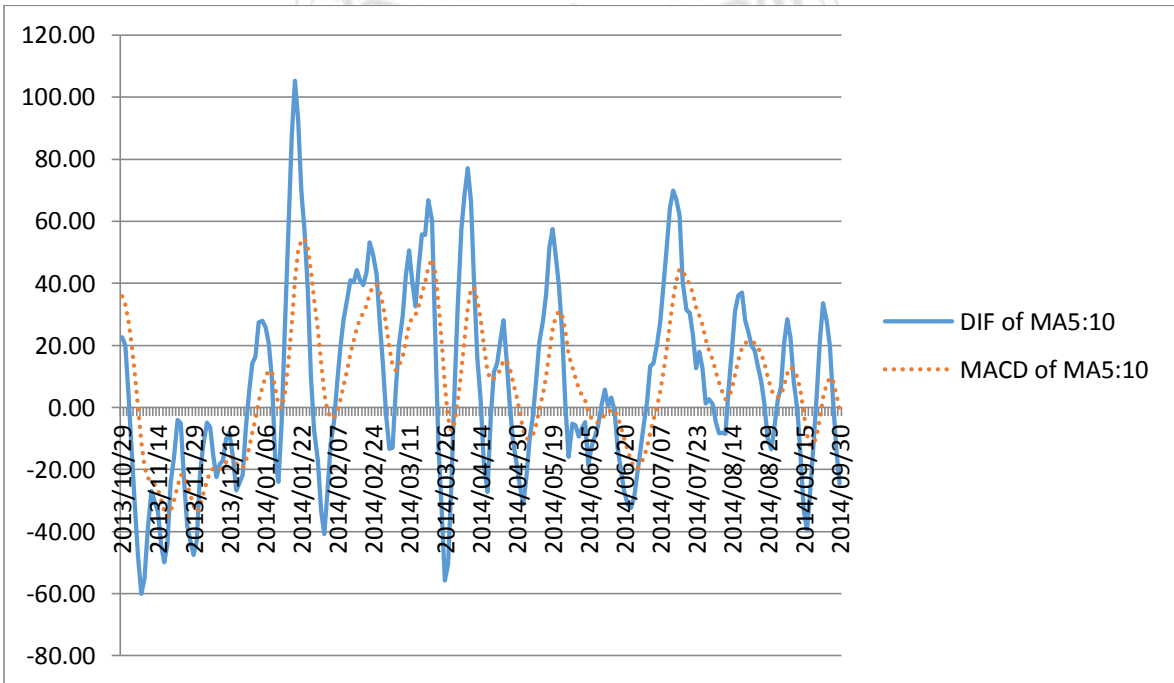Period: Oct 2013- Sep 2014

Figure 4.34 Difference of Moving average and MACD for 5 and 10 days of

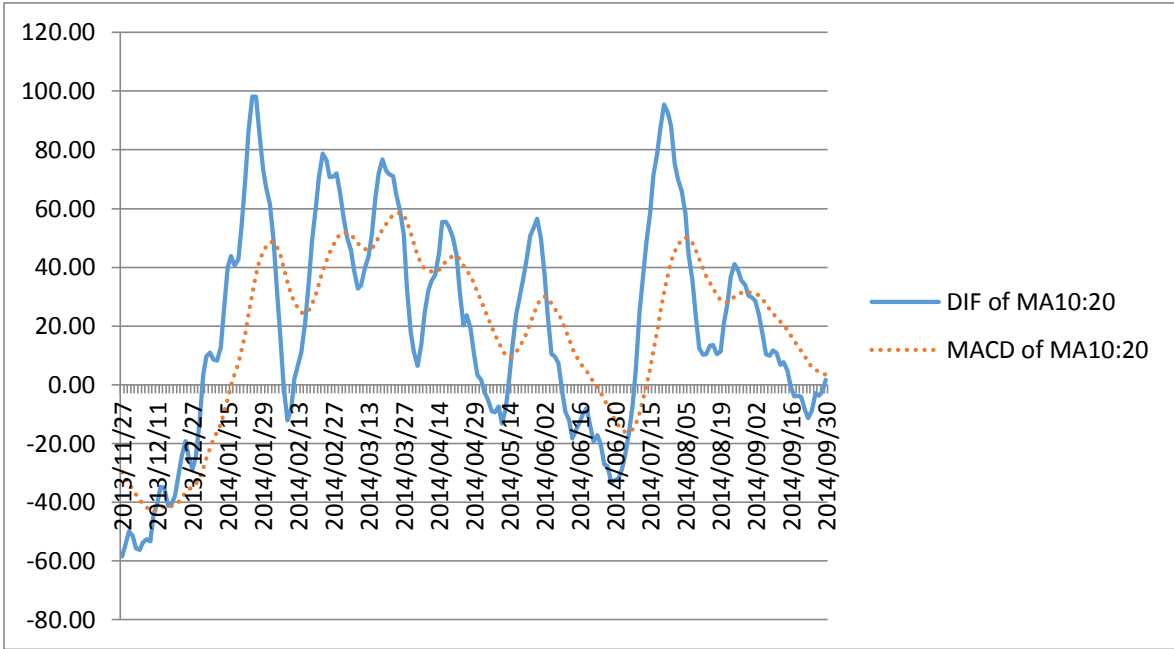JSX Stock Index

Period: Oct 2013- Sep 2014

Figure 4.35 Difference of Moving average and MACD for 10 and 20 days of
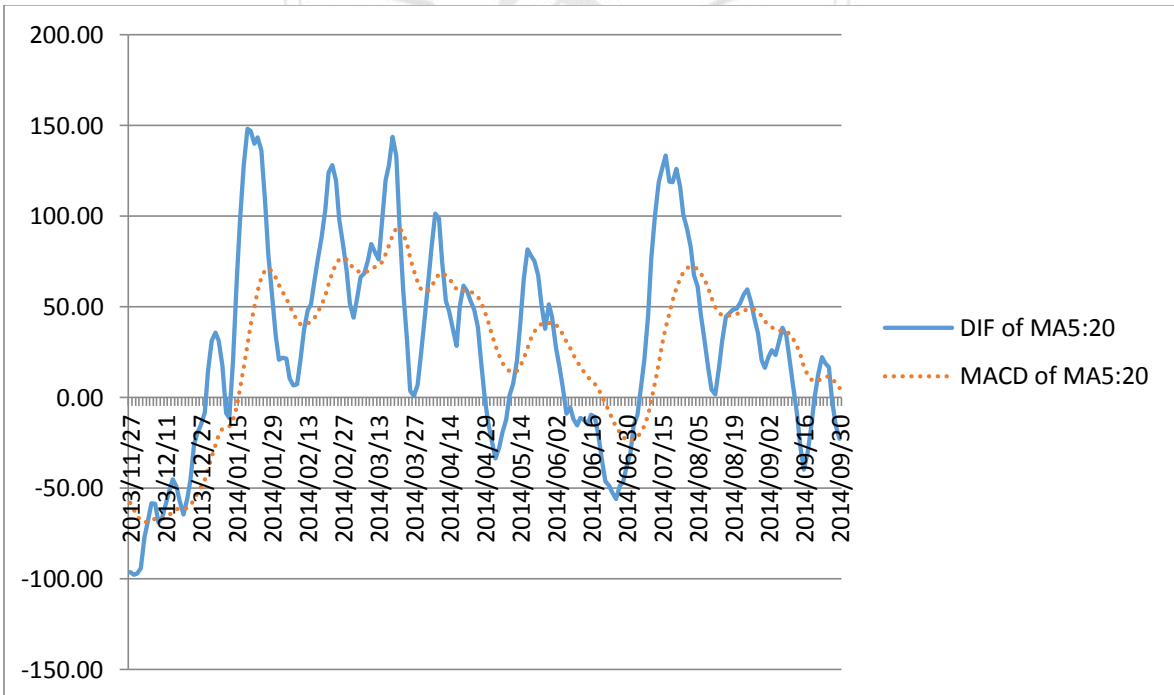JSX Stock Index

Period: Oct 2013- Sep 2014

Figure 4.36 Difference of Moving average and MACD for 5 and 20 days of
JSX Stock Index
Period: Oct 2013- Sep 2014

Figure 4.37 Moving average for 5, 10 and 20 days of Bombay 100 Stock
Index
Period: Oct 2013- Sep 2014

Figure 4.38 Difference of Moving average and MACD for 5 and 10 days of
Bombay 100 Stock Index
Period: Oct 2013- Sep 2014

Figure 4.39 Difference of Moving average and MACD for 10 and 20 days of
Bombay 100 Stock Index
Period: Oct 2013- Sep 2014

Figure 4.40 Difference of Moving average and MACD for 5 and 20 days of
Bombay 100 Stock Index
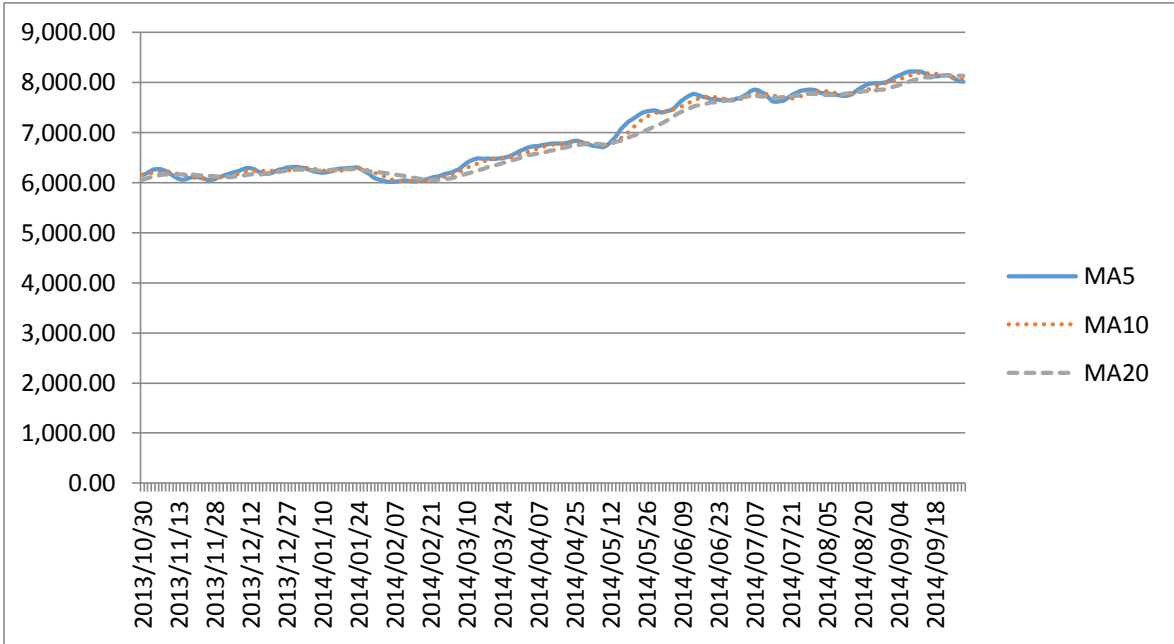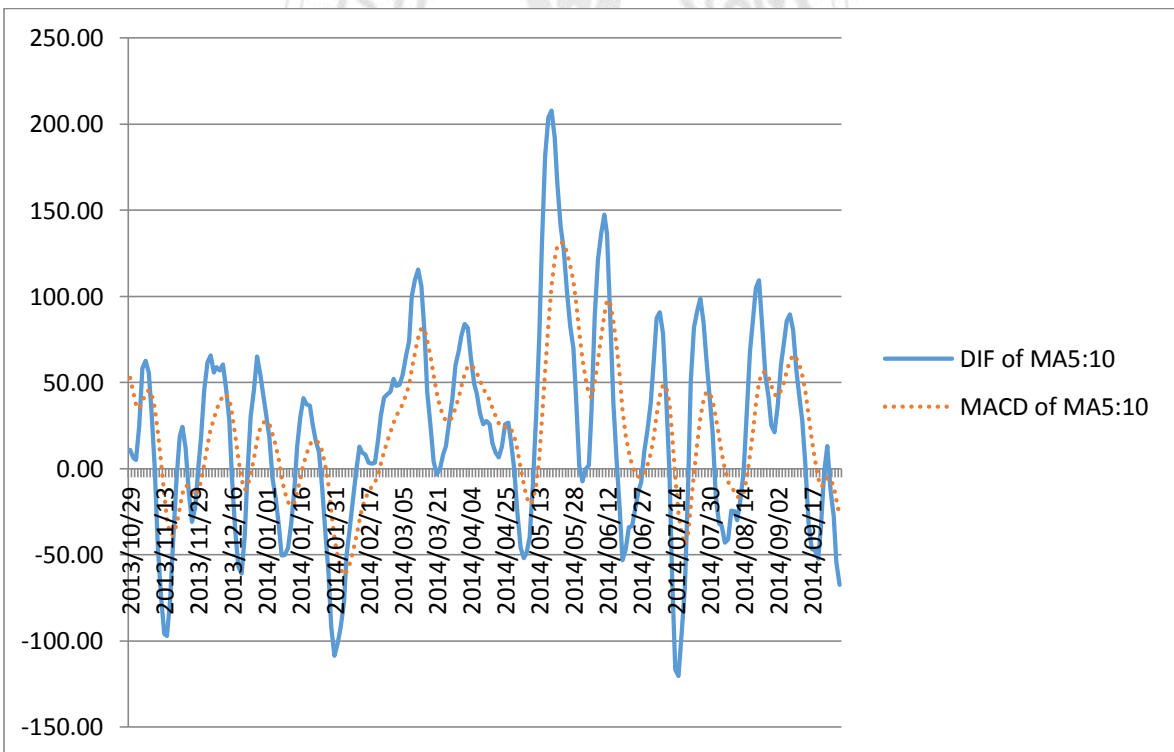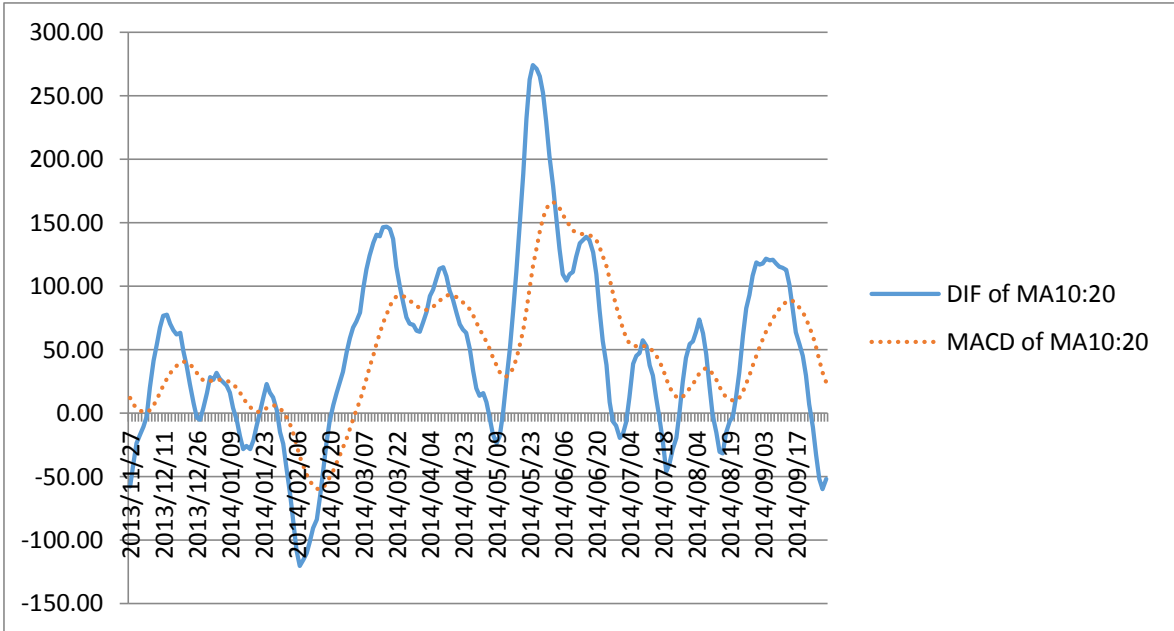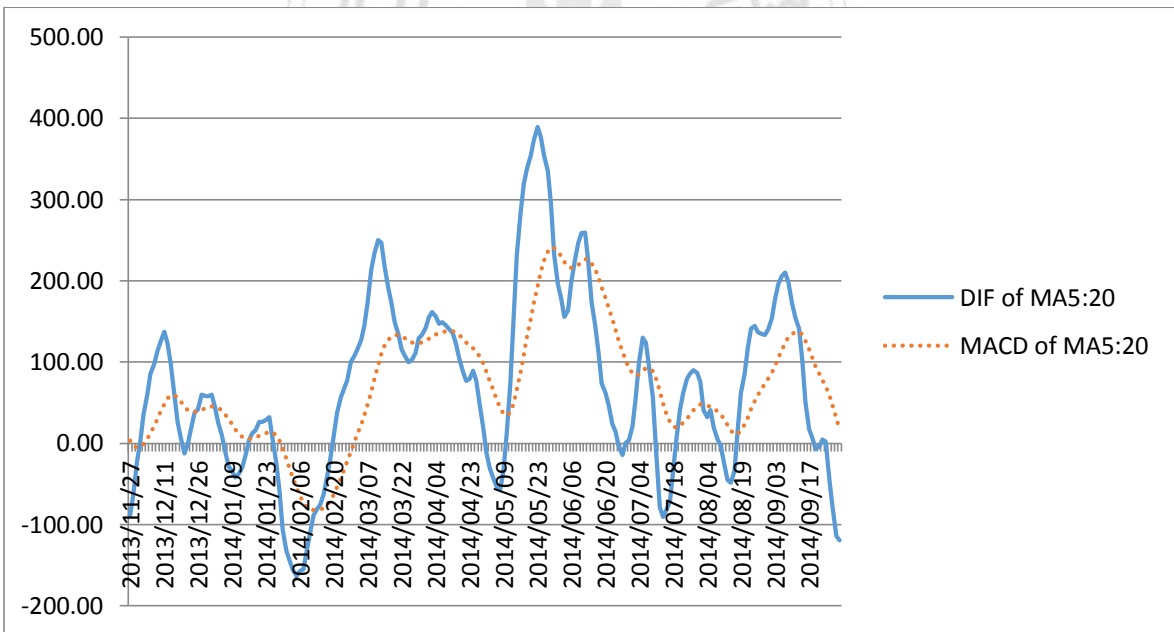Period: Oct 2013- Sep 2014

CHAPTER FIVE
CONCLUSIONS

5.1 Overall conclusion

The emerging markets refer countries that have progressed towards modern to industrialize but have not yet achieved the financial maturity and stability of developed nations. These nations are experiencing rapid growth but there is continuing risk of financial and political instability. Emerging countries, such as China and India, have some of the highest economic growth rates in the world. Also more than half the population of the world lives in Asia. It shows that following the good demographic dividend in Asia, there is a very good potential opportunity in the future for investors. In emerging market the behavior of individual investors is quite different with the institution investor', thus it is rational to expect that the market price behavior would not be the similar with matured markets. This valuable study aims to provide useful information for potential Asian investors. The purpose of our study is trying to investigate whether the market anomalies including calendar effect and momentum effect can be observed in Asian emerging markets.

In this study we investigated the two market anomalies of Asian emerging markets, including calendar effect and momentum effect. For calendar effect, the January effect, Monday effect, Friday Effect are considered in this study. . The study revealed the short period of monthly returns from October 2004 to September 2014 for January effect and the daily returns from October 2013 through September 2014 for the Day of week effect and Momentum effect. The result shows that the calendar effect including the January effect, Monday and Friday effect does not exist in these markets, however, the momentum effect is partly supported in these market.

Most of study believed the Asian emerging market probably inefficient market where alive market phenomenon, because the individual investor are the major in. It should observe market anomaly result from the investors' irrational behavior. But our study provide opposite result to evidence that one of the market anomalies, calendar effect, does not exist in Asian emerging markets for last 10 years. . The result may be probably explained that investors can get the information more fluently and not costly from websites, television, internet in the past decades. Before many years was hard to get information than nowadays for investors. It is rational to expect that the smart investor will get the investment position before the price goes up, then if more and more investors do the same thing, it might induce the calendar effect cannot be observed anymore.

Moreover, most of the investors are individuals in Asian markets where institutional investors are few. Institutions are better informed than individual majority. This view is supported by the impact of institutional trading on stock market anomalies has been indicated by Leung, Wang, and Chan (2004). They present evidence that highlight the role of institutional investors on the Monday for U.S stock market. In this study they think that if there are many institutional investors the calendar effect will be observed frequently. They believed institutional investor's trading strategy is the one reason of security price's movement and institutional investor maybe reason to induced Monday effect. But our study focused on individual investors. We think that Asian individual investors cannot use the Calendar effect for decisions.

Secondly The Momentum effect can be observed in Asian markets and is probably related to investors' behavior. Individual investors usually follow and respond to the direction of stock price movements. Investors seek to buy (sell) stock while the price keeps increasing (decreasing). Using technical analysis - specifically moving average prices - works in these markets according to our

empirical result.

5.2 Limitation and Suggestion for Further Research

This study examines the Calendar anomalies and Momentum of the Asian emerging markets. The study just covered the short term period 10 years for examination of January effect and 1 year for investigation of Day of the week effect and Momentum effect. The scope of this study can also be extended to investigate the long term period that for these changing patterns of the calendar anomalies.

Furthermore we used a simple method named t-test for the Calendar effect and Moving average and MACD strategy used for Momentum. There are other more complicated tools and methods to investigate the market anomalies of stock market index. Using these easy tools, calendar effect cannot be found in Asia emerging markets. We think this is a very interesting topic. We suggest to further research consider on another month effect. For example, December effect, because investor get full information about December effect. Also Asia has a lot holiday on February, we think that pricing anomalies might be reveal on December and February in Asian markets. Furthermore there is strong co-movement between the markets in the same area. Maybe we clean up the co-movement effect that it will give different result.   Another suggestion is dig more deeply with more complicated methodology into this topic. With more research it is probable to either find calendar effect and momentum effect or more strongly disprove the hypotheses.

REFERENCES

一、English References

1. Agrawal, A. & Tandon,K. (1994), Anomalies or Illusions?: Evidence from Stock Markets in Eighteen Countries, <u>Journal of International Money and Finance</u>, Vol.13, No.1, pp.83-106.

2. Bird, R. & Whitaker, J. (2003), The Performance of Value and Momentum Investment Portfolios: Recent Experience in the Major European Markets, <u>Journal of Asset Management</u>, Vol.4, pp.221-246.

3. Chan, S. H. Wai, K. L. & Ko, W. (2004), The Impact of Institutional Investors on the Monday Seasonal, <u>The Journal of Business</u>, Vol.77, No.4, pp.967-986.

4. Chen, H. L. & Bondt, W. D. (2004), Style momentum within the S&P-500 index, <u>Journal of Empirical Finance</u>, Vol.11, pp.483-507.

5. Choudhry, T. (2000), Day of the week effect in emerging Asian stock markets: evidence from the GRACH model, <u>Applied Financial Economics</u>, Vol.10, pp.235-242.

6. Chui, A. C. W., Titman, S. & Wei, K. C. J. (2000), <u>Momentum, Legal Systems, and Ownership Structure: An Analysis of Asian Stock Markets</u>, NBER Working Paper.

7. Dijk, R.V. & Huibers, F. (2002), European Price Momentum and Analyst Behavior European Price Momentum and Analyst Behavior, <u>Financial Analysts Journal</u>, Vol.58, pp.96-105.

8. Dzhabarov, C. & Ziemba, W. T. (2010), Do seasonal anomalies still work?, <u>Journal of Portfolio Management</u>, Vol.36, No.3, pp.93-104.

9. Fama, E. F. (1970), Efficient Capital Markets: A Review of Theory and Empirical Work, <u>The Journal of Finance</u>, Vol.25, No. 2, pp.383-417.

10. Fama, E. F. (1965), Behavior of stock market prices, <u>Journal of Business</u>, Vol.38, pp.34-105.

11. Gibbons, M. & Hess, P. (1981), Day of the week effects and asset returns, <u>The Journal of Business</u>, Vol.54, No.4, pp.579-596.

12. Gultekin, M. N. & Gultekin, N. B. (1983), Stock market seasonality: International Evidence, <u>Journal of Financial Economics</u>, Vol.12, No.4, pp.469-481.

13. Lean, H. H. Smyth, R. & Wong, W. K. (2007), Revisiting calendar anomalies in Asian stock markets using a stochastic dominance approach, <u>Journal of Multinational Financial Management</u>, Vol.17, pp.125-141.

14. Jaffe, J., Westerfield, R. & Ma, C. (1989), A twist on the Monday effect in stock prices: Evidence from the US and foreign stock markets, <u>Journal of Banking and Finance</u>, Vol.13, pp.641-650.

15. Jegadeesh, N. & Titman, S. (1993), Returns to buying winners and selling losers: Implications for stock market efficiency, <u>Journal of Finance</u>, Vol.48, pp.65-91.

16. Jegadeesh, N. & Titman, S. (2001), Profitability of momentum strategies: An evaluation of alternative explanations, <u>Journal of Finance</u>, Vol.56, pp.699-720.

17. Keim, D. B & Stambaugh, R. F. (1984), A further investigation of the weekend effect in stock returns, <u>Journal of Finance</u>, Vol.39, pp.819-835.

18. Kenneth, H., Johan, K. & Seppo, P. (2011), Cross-distributional robustness of conditional weekday effects: evidence from European equity-index returns, <u>European Journal of Finance</u>, Vol. 17, No.5-6, pp.377-390.

19. Lakonishok, J. Shleifer, A. Thaler, R. & Vishny, R. (1991), Window Dressing By Pension Fund Managers, <u>American Economic Review</u>, Vol.81, pp.227-231.

20. Huag, M. & Hirschey, M. (2006), "The January effect" <u>Finance Analyst</u>

Journal, Vol.62, No.5, pp.78-88.

21. Markowitz, H.M. (1952), Portpolio Selection, Journal of Finance, Vol.7, No.1, pp.77-91.

22. Mehdian, S. & Perry, M. (2001). The reversal of the Monday effect: new evidence from US equity markets, Journal of Business Finance and Accounting, Vol.28, No.7&8, pp.1043-1065.

23. Mehmet, D & John, L. (2014), The day-of-the- week effect revisited: international evidence, Journal of Economics and Finance, Vol.38, No.3, pp.407-437.

24. Naughtom, T., Truong, C. & Veeraraghavan, M. (2008), Momentum strategies and stock returns: Chinese evidence, Pacific-Basin Finance Journal, Vol.16, pp.476-492.

25. Cakici, N. Fabozzi, F. J. & Tan, S. (2013), Size, value, and momentum in emerging market stock returns, Emerging market review, Vol.16, pp.46-65.

26. Ritter, J. R. (1988), The Buying and Selling Behavior of Individual Investors at the Turn of the Year, The Journal of Finance, Vol.43, No. 3, pp.701-717.

27. Roll, R. (1983), Vas ist das? The Turn-of- the-Year Effect and the Return Premia of Small Firms, Journal of Portfolio Management, Vol.9, No.2, pp.18-28.

28. Rouwenhorst, K. G. (1999), Local Return Factors and Turnover in Emerging Stock Markets, The Journal of Finance, Vol.54, pp.1439-1464.

29. Rozeff, M. S. & Kinney Jr, W. R. (1976), Capital market Seasonality: The Case of Stock Returns, Journal of Financial Economics, Vol.3, No.4, pp.379-402.

30. Chan, S. H., Wai, K. L. & Ko, W. (2004), The impact of institutional investors on Monday seasonal, Journal of Business, Vol.77, No.4, pp.967-

986.

二、Web pages

1. www.msci.com

2. www.nasdaq.com

3. www.wikipedia.org

4. www.worldbank.org

5. www.investopedia.com

6. www.tradingeconomics.com

APPENDIX 1

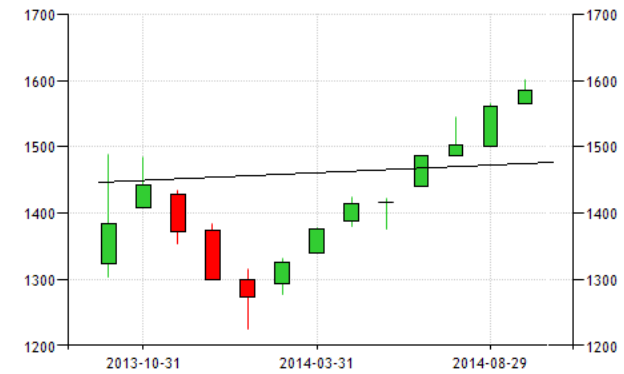Graph 1 Taiwan stock market performance

Graph 2 Hong Kong stock market performance

Graph 3 Singapore stock market performance
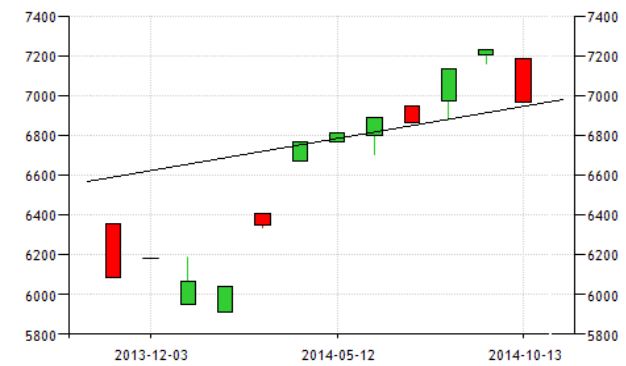

Graph 4 Thailand stock market performance

Period: October 2013 – September 2014; Source: www.tradingeconomics.com
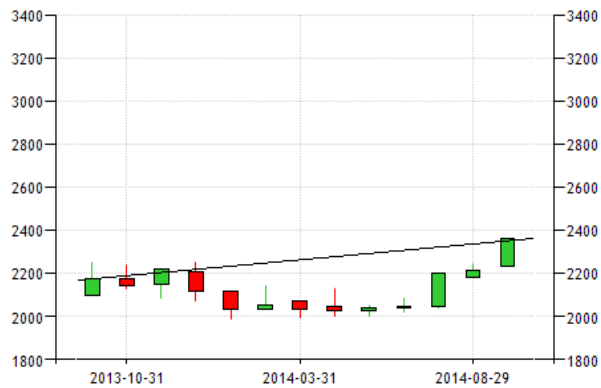
Graph 5 Malaysia stock market performance	Graph 6 Philippine stock market performance

Graph 7 China stock market performance	Graph 8 Indonesia stock market performance

Period: October 2013 – September 2014;   Source: www.tradingeconomics.com

Graph 9 India stock market performance	

Period: October 2013 – September 2014; Source: www.tradingeconomics.com