

THE HALLOWEEN EFFECT: AN EVIDENCE ON
ASIAN-5 COUNTRIES FROM 2000 – 2014

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DECLARATION

We hereby declare that:

- (1) This undergraduate research project is the end result of our own work and that due acknowledgement has been given in the references to ALL sources of information be they printed, electronic, or personal.
- (2) No portion of this research project has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.
- (3) Equal contribution has been made by each group member in completing the research project.
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DEDICATION

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LIST OF ABBREVIATIONS

AR	Autoregressive
ARCH	Autoregressive Conditional Heteroscedasticity
ASE	Athens Stock Exchange
CAPM	Capital Asset Pricing Model
CATS	Computerized-Aided Trading System
CSRC	China Securities Regulatory Commission
EGARCH	Exponential GARCH
EMH	Efficient Hypothesis Market
FAST	Fully Automated Securities Trading System
FBMEMAS	FTSE Bursa Malaysia Emas
FBMKLCI	FTSE Bursa Malaysia KLCI
GARCH	Generalized Autoregressive Conditional Heteroscedasticity
GARCH-M	GARCH-in- Mean
GDP	Gross Domestic Product
IDX	Indonesia Stock Exchange
IDX	Indonesia Stock Exchange
JCI	Jakarta Composite Index
JGBs	Japanese Government Bonds

JSX	Jakarta Stock Exchange
KLSEB	Kuala Lumpur Stock Exchange Berhad
MA	Moving Average
NASDAQ	National Association of Securities Dealers
NGTS	New Generation Trading System
NYSE	New York Stock Exchange
OLS	Ordinary Least Square
ROC	Republic of China
SEMS	Stock Exchange of Malaysia and Singapore
SES	Stock Exchange of Singapore
SESDAQ	Stock Exchange of Singapore Dealing and Automated Quotation
SGX	Singapore Exchange
SIMEX	Singapore International Monetary Exchange
SSE	China Shanghai Stock Exchange
SSX	Surabaya Stock Exchange
STI	Straits Times Index
TAIEX	Taiwan Stock Exchange Weighted Stock Index
TARCH	Threshold Autoregressive GARCH
TWSE	Taiwan Stock Exchange
UNWTO	United Nations World Tourism Organization
VOC	Dutch East Indices Company

PREFACE

Undergraduate student of University Tunku Abdul Rahman (UTAR) are required to conduct a group work research to complete the degree of Bachelor of Business Administration (Hons) Banking and Finance. We are a group formed by five students who are going to conduct a research study with title of “The Halloween Effect: An Evidence on Asian-5 countries from 2000-2014”.

The Halloween effect found to exist not only on European countries but also in Asian countries. However, there was lacks of study done by previous researches that focus merely on Asian countries. Hence, the main objective for this study is to investigate the existence of Halloween effect on Asian-5 countries namely Malaysia, Singapore, Taiwan, Indonesia and China from 2000-2014. In the other hand, the present of Halloween effect after the global crisis act as a signal of economy recovery in the country. Therefore, to a more specific objective, we decided to examine the existence of the Halloween effect after the global crisis period for the Asian-5 countries.

ABSTRACT

The Halloween effect is one of the famous calendar anomalies that challenge the Efficient Market Hypothesis. Halloween effect also known as “Sell in May and Go Away” indicate that the opportunity of abnormal return that investors can earn in the Halloween period. Recent empirical researchers revealed that there were diminishing or disappearing happened in this calendar anomaly from the stock markets around the world. Moreover, there are some researchers said that this calendar anomaly is more popular in European countries rather than Asian countries. The purpose of this study is to examine the existence of Halloween effect in the Asian-5 countries (Malaysia, Singapore, Taiwan, Indonesia and China) over the period ranging from 2000 to 2014 by applying GARCH test. Meanwhile, this study also examines the existence of Halloween effect after the global crisis 2007-2008 in the Asian-5 export countries in order to track out the signal market recovery after the global crisis. Other than that, this study also takes into consideration the relationship between Halloween effect and January effect to examine whether the effect demonstrated may well be a reflection of the well-known January anomaly. Overall, the finding of this study indicates that the Halloween effect is significant in Asian countries over 2000 to 2014. There is appearance of Halloween effect after crisis in Malaysia, Singapore and China which indicate that the particular countries are undergoing a economy recovery process.

CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

Stock market, also known as equity market refers to the market where the issuers and investors of the stock are pooled together and the stocks are traded through the market. Efficient Market Hypothesis (EMH) assumes that the stocks are traded at the fair price in which the stock price reflects all available information, thus it is impossible for investors to make an abnormal profit by buying the undervalued stock or selling the overvalued stock. In the presence of market anomalies, the market is said to be inefficient and investors tend to predict the stock price movement and earn extraordinary profit.

Calendar anomalies are a kind of market anomalies in which they refer to some observed patterns in the stock market that are due to particular calendar events. Monday effect, turn-of-the-month effect, Halloween effect, and January effect are some of the calendar anomalies that have been discussed throughout the decades. It is an attractive topic to discuss in which the presence of these anomalies was argued from different viewpoints.

Monday effect, weekend effect, or day of the week effect means that there are negative stock returns on Monday itself but positive stock returns for the remaining four days. On the other hand, Friday's returns are expected to be higher than average. Some literatures argued that this effect happens due to the news announcement day normally falling on Friday or weekend; some mentioned that it is due to the Monday Blue hypothesis; and some said it may be due to the short sellers who take their short position on Monday and cause the fall in stock price and close their short position on Friday and cause the rise in stock price. In addition, when there are abnormal high positive returns in the first half of the month, it refers to the turn-of-the-month effect. The reasons behind this effect include the liquidity position of the investors, the occasional payment date of the salary,

interest, and liabilities and also the news regarding the company's earnings announcing date.

January effect is where there are higher stock returns in the January compared to others eleven months. This effect appear in the stock market because the tax purposes. Investors may sell off their losing stocks and claim for the capital losses for reduce for their income taxes. Besides, window dressing also a reason for this effect as the companies want their statement to have a good appearance to show to their stakeholders.

Debate regarding the existence of the Halloween effect in the stock market still exists over the decades. There was research mentioned the presence of Halloween effect may due to the investors sell off their stock on May for liquidity purpose in order to go for their summer vacation and enter into stock market again in November. On the other hand, there was also finding mentioned that it may due to the investors feel optimistic towards the returns at every beginning of the year. A country's economy growth can be shows by looking into the spending behavior and the confident of the investors towards the stock market. Thus, the study of Halloween effect is considers as one of the ways to examine the signal of economic recovery after the global crisis. The direct impact of the financial crisis on Asian countries relatively smaller compared to Europe and US. However, the countries' exports were being affected and suffered from a sharp decline in demand. Asian countries had weathered the crisis successfully and recovered quickly. Hence, the study is seek to examine the existence of the Halloween effect after the global crisis 2007-2008 in the five Asian export countries which are Malaysia, Singapore, Indonesia, Taiwan and China. In addition, due to there is a literature pointed out that the present of Halloween effect might due to the January effect, hence, this study also further examine on this issue.

This chapter provides a general picture of the research topic. Research background gives brief introduction on the fundamentals for this research, follow by problem statements, research objectives and research questions of this research. The subsequent section discusses about the significance of this research and chapter

layout provides the summary for the remaining chapters in this research. Lastly, the conclusion summarizes the Chapter 1.

1.1 The Development of Stock Market in Asian-5 Countries

1.1.1 How Malaysia Develop Its Stock Market

In early 1930, the Singapore Stockbrokers' Association was being established as the first sanctioned securities trading organization in Malaysia and it was re-registered as the Malayan Stockbrokers' Association in 1937 (Kain, 2013). However, public trading of shares only commenced with the establishing of the Malayan Stock Exchange in 1960. With the secession of Singapore from Malaysia, the Stock Exchange of Malaysia and Singapore was established in 1965 with an agreement of currency interchangeability among these two countries. Follow by the abrogation of the agreement of currency interchangeability, the Stock Exchange of Malaysia and Singapore was divided into Kuala Lumpur Stock Exchange Berhad (KLSEB) and Stock Exchange of Singapore (SES). KLSEB has become a demutualised exchange and was re-named as Bursa Malaysia Berhad on 14th of April, 2004. In March 2005, Bursa Malaysia was made its debut on the Main Board of Bursa Malaysia Securities Berhad (Stock Market Malaysia History and Operations, n.d.).

Bursa Malaysia is an approved exchange holding company under section 15 of the capital market and compliant with the Service Act 2007. Bursa Malaysia operates a fully-integrated exchange, bonds, derivatives, offering equities, offshore, Islamic products as well as provide a diverse range of investment choices internationally. "To be the preferred partner in Asia for fund raising, trading and investment" is the vision of Bursa Malaysia (Bursa Malaysia Annual Report, 2013). Today, Bursa Malaysia became one of the largest bourses in Asia listing 1000 companies' and across 50 economic

activities worldwide. Bursa Malaysia is committed to make the Malaysian capital market more attractive to investor worldwide by ensuring the fairness and orderly of stock market all the times. Bursa Malaysia involves their trading in three main types of market which are primary, secondary and order-driven market.

On 26th of June 2006, Bursa Malaysia was joined together with FTSE and came out a FTSE Bursa Malaysia index series. FTSE Bursa Malaysia index is the index use to measure the activity of Bursa Malaysia and it is helpful for investors as it allow them to conduct cross broader analyses, helps all the stock sizes within the market and it also enable the comparison on the management of the series of index. There are seven benchmark of indices listed in Malaysia such as FTSE Bursa Malaysia Emas (FBMEMAS), FTSE Bursa Malaysia KLCI (FBMKLCI), FTSE Bursa Malaysia mid 70 index, FTSE Bursa Malaysia top 100 index, FTSE Bursa Malaysia small cap index and FTSE Bursa Malaysia fledgling index. However, the FTSE Bursa Malaysia KLCI Index is the major, common and most widely used index in Malaysia. KLCI Index is a free-float (minimum of 15%) and a capitalization-weighted stock market index that comprises of the largest 30 companies by full market capitalization on the main board of Bursa Malaysia (Trading Economics, n.d.). The KLCI stock trading is available from Monday to Friday which excluding public holiday and its trading hours have been distributed into two sessions which are morning trading session which is start from 9:00am until 12:30pm and afternoon trading session which is start from 2:30pm until 5:00pm (Overview Bursa Malaysia Bhd, n.d.).

1.1.2 How Singapore Develop Its Stock Market

In 1970, the ability of the Singapore government to identify the opportunity in their financial sector enables them to strengthen Singapore economy. In 1973, Singapore Stock Exchange was established as the consequences of the broke down of Stock Exchange of Malaysia and Singapore (SEMS) due to the abolishment of the agreement of currency interchangeability in year. The existence of strong, geographic strategically and an open economy with a well-developed infrastructure have made Singapore become the third most prominent Asia financial center in 1980. However, despite of its strength and opportunities, Singapore Stock Exchange was crashed in year 1985. Follow by this crashed, the Securities Industry Council was formed to help Singapore government to exert tighter control over the securities trading. On 1st of December 1999, Singapore Stock Exchange was merged together with Singapore International Monetary Exchange (SIMEX) to form the Singapore Exchange (SGX) (Singapore Exchange- SGX, n.d.). Besides, Singapore Stock Exchange has been established an agreement with United States' National Association of Securities Dealers (NASDAQ) in order to promote trading between these two countries.

“To create growth and wealth by being the trusted Asia marketplace for capital raising, risk transfer, trading, clearing and settlement” is the vision of the Singapore Exchange (SGX Annual Report, 2006). Singapore Stock Exchange which trades in equity index futures is the first publicly held of exchange in Asia Pacific. Companies which listings under Stock Exchange of Singapore are divided into two groups which are Singapore Stock Exchange Mainboard and Singapore Stock Exchange SESDAQ. The main portion of revenues that Singapore Stock Exchange earns is from the securities market follow by the derivatives market which is only 25% of the total revenues. The major stock market index of Singapore Exchange is the FTSE Straits Times Index (STI). Purpose of the Straits Times Index is to track the performances of the top 30 companies listed in the Singapore Exchange. Same as Malaysia, the trading days of Straits Times Index also

held daily from Monday to Friday while the public holiday will be excluded. For the trading hours, there are two session per day which is 9:00am to 13:30pm and 2:00pm to 5:00pm (Singapore Exchange-SGX, n.d.).

1.1.3 How Taiwan Developed Its Stock Market

Taiwan stock exchange (TWSE) was first developed in year 1953. According to Ammermann (1999), Nationalist government of the Republic of China (ROC) initiated the “land-to-the-tiller” program as to encourage all the large landholders in Taiwan to sell off their land to exchange for government bonds and shares in government-owned enterprises. By doing so, government will be able to allocate land for tenant farmers and the former landholders will be act as capitalist. However, at that time, there is no formal stock market for landholders to find investors who want to buy their shares. Therefore, Securities and Exchange Commission was establish on 1961 and a year later Taiwan Stock Exchange (TWSE) formed and operated. In the first year TWSE operated, there is only 18 firms listed. The number of listed firm increase dramatically by which there is 246 firms listed in 1992 and by September 1995 the total face value reached US\$45.3 billion (Ammermann, 1999).

As same as other stock exchange, Taiwan stock exchange also entitled several rules and restriction. Ammermann (1999) stated that TWSE require listed firm to periodically disclose set of financial and operational information in both print and electronic forms. The firm’s stock will be suspended if fail to do so. Also, there are no listed options or futures are traded in Taiwan stock exchange as they want to avoid speculation. Another rules under TWSE is that short-selling of shares is prohibited (Ammermann, 1999). In addition, the Securities and Exchange Commission also imposed daily price limit on the stock price movement. As according Ammermann (1999), different limit were imposed in different years such as before October 1987 the limit was 5%, in October 1987 the limit dropped to 3%, it

increase again to 5% in November 1988 and then further increased to 7% in October 1989.

TWSE further expand for foreign investors. In 1983 before October, TWSE was opened for foreign firm and individuals. As such, foreigners are allowed to invest in one of four mutual fund which is Taiwan (ROC) Fund, Formosa Fund, Taipei Fund and Taiwan Fund (Ammermann, 1999). According to Tsai (2013), Taiwan stock exchange was began to transform their trading floor to a computerized-aided trading system (CATS) in August 1985. TWSE was then achieve further as the trading volume keep increasing. In October 1988, TWSE was the third largest capital market in term of capitalization in the world. Moreover, in January 1990, due to heavy trading by investors, TWSE able to challenge US and Japan stock market for the position of world's largest stock market in term of daily trading volume (Ammermann, 1999). In 1993, TWSE upgraded the trading floor to a fully automated securities trading system (FAST) (Tsai, 2013).

Taiwan index known as Taiwan Stock Exchange Weighted Stock Index (TAIEX). Taiwan happen to achieve peak of 12,495, but it fell about 80% to 2,560 mark in October 1990. However, as Taiwan is appreciating, TAIEX closed above 10,000 mark in July 1997 for the first time since 1990 (Ammermann, 1999). Throughout the year 2000 to 2014, TAIEX achieved highest mark in year 2014 at 9307.26 mark and lowest in year 2002 at 4452.45 mark (Historical Data: TAIEX Index, n.d.).

1.1.4 How Indonesia Developed Its Stock Market

The national stock exchange of Indonesia, known as Indonesia Stock Exchange (IDX), is a stock exchange based in Jakarta, Indonesia. In Indonesia, the capital market was established to provide the interests of Dutch East Indices Company (VOC). The World I and World II was influence the gradual growth when Indonesia gained independence from the

Dutch. In year 1977, the capital market was reactivated and has rapidly growth ever since. Before year 2007, it was previously known as Jakarta Stock Exchange (JSX) and after merging with Surabaya Stock Exchange (SSX), as a result, it changed its name into Indonesia Stock Exchange (IDX).

According to the Indonesia Stock Exchange (2014), Indonesia Stock Exchange (IDX) composite index is the main index for IDX. It consists of 483 listed companies, which is selected based on certain criteria. All the listed companies used by Jakarta composite index (JCI) as the constituents for index calculation. Indonesia stock exchange has the authority to exclude and eliminate one or several listed companies from calculation of JCI to assure JCI will in the fair market condition. Jakarta Composite Index (JCI) is owned by Indonesia Stock Exchange. Indonesia Stock Exchange is not responsible for any products and any investments decisions released by any parties that use Jakarta Composite Index (JCI) as a benchmark.

In Indonesia, the capital market actually exists long before the independence of Indonesia. In year 2000, script less trading system was used for the first time in Indonesia's capital market. Jakarta stock exchange (JSX) started to implement the remote trading system in year 2002. In March of 2009, Indonesia stock exchange (IDX) launching new trading system called JATS Next-G. The Indonesia stock exchange (IDX) composite formerly known as Jakarta stock exchange (JSX) composite is an index of all stocks that trade on the Indonesia stock exchange, previously known as Jakarta stock exchange (JSX). There are nine sectors indices that divided by the benchmark stock index included agriculture, basic industry and chemicals, consumer goods industry, finance, infrastructure, utilities and transportation, mining, miscellaneous industry, property and real estate.

Jakarta stock price index is a modified capitalization, the weighted index of all the stocks that listed in the regular board of the Indonesia stock exchange (IDX). Base value of 100 was developed by the index in year 1982. Composite index of Indonesia stock exchange (IDX) is 5,148.38, decrease

40.33 value, mean that decrease 0.78%. In August 2014, Jakarta is look as the highest price growth worldwide in between June 2013 until 2014 with the growth of 27.3%. Based in Knight Frank Indonesia, Jakarta plays as role of limited land supply and international city that will superiority to premium pricing.

1.1.5 How China Develop Its Stock Market

The China Shanghai Stock Exchange (SSE) was first developed on 26th of November 1990. In the same year, it started the operation on 19th of December. The China Securities Regulatory Commission (CSRC) was supervised the operation of SSE as SSE was the membership institution. From time to time, in Mainland China the SSE is the greatest stock market regarding the amount of listed shares, amount of companies listed, overall of the value of market, value of market that can be traded, value of turnover for T-bond, value of turnover for stock as well as the value of turnover for securities.

To measure the performance of the securities market of China, there was SSE indices that generally complied by the users of SSE. The SSE Index Series included fund index, bond indices, equity indices as well as other series of indices. On 15th of July 1991, the SSE Composite Index was introduced as the index that mostly used by the securities market in China. During year 2002, the SSE 180 Index was introduced to replace the previous SSE 30 Index as a restructuring of index. Later, other indices such as SSE 50 Index also being implemented in order to represent the differenced among the listed stocks.

After years of running for the SSE, the listed companies on SSE have achieved a number of 953 during the year end of 2013. Besides, there was a new listed company that joined SSE which showed a good signal for the market. According to the Shanghai Stock Exchange (2014), in the same year

the report of the SSE has stated that the total market capitalization of SSE was worth RMB 15,116.53 billion and the listed stocks have achieved the number of 997. It was a 4.75% of yearly declining. For the free-float market capitalization, there was an increase of 1.66% from the year before and now worth the amount of RMB 13,652.64 billion. The SSE also attracted the important business fields such as high-technology sectors to list at SSE in order to accumulate capital to strengthen their business.

After the years of speedy growth, SSE has greatly enhanced the security level of the system as well as the basic facilities in order to bring users the confident when using the services. For example, one of the technology advancement systems that being implemented by the SSE was new generation trading system (NGTS). It was the highly developed trading system that leading around the world. The benefit of this system was connecting with the biggest database of stock exchange around the world. Thus, the SSE was updated with the latest data and news of global stock exchange.

1.2 Problem Statement

Stock market is assumed to be efficient if it follows the efficient market hypothesis (EMH) in which all the stock prices reflect the information available. Investors are assuming to be able to receive all the information correctly and comply with the stock prices, only new information tends to cause the change in the price. In addition, Murphy's Law states that the anomaly will disappear or reverse by itself after being discovered.

Calendar anomalies or seasonal anomalies refers to long observed patterns in financial markets that related to specific calendar events (Gultekin & Gultekin, 1983). These calendar anomalies included weekend effect, monthly effect, holiday effect, Halloween effect and turn-of-the-month effects (Bakri, Zulkefly & Tang,

2012). The presence of the calendar anomalies challenges the efficient market hypothesis (EMH) theory.

The Halloween effect, also known as “Sell in May and go away” effect is a popular yet simple investment strategy that applied in the stock market over a long period. This effect was first discussed in 2002 by Bouman and Jacobsen in the *American Economic Review*. Their study successfully drew the attention from the academic, press and also the investors. Bouman and Jacobsen (2002) figured out that the Sell in May effect had been profound in *Financial Times* 1964. However, the effect is not been investigate comprehensive until their first study.

The argument about the existence of this anomaly has been persistent throughout the decades and it is one of the reason for which this anomaly consider as the popular topic for the recent financial literature. In the near future, there were numbers of studies being carried out across various countries to investigate whether the Halloween effect still alive or statistical significance. Jacobsen and Zhang (2012), Hooi (2011) and Andrade, Chhaochharia and Fuerst (2013) proved that the anomaly still happening and do not seem to disappear or reverse by itself after being documented. In contrary, there were some studies included Maberly and Pierce (2004a), Lucey and Zhao (2008), Oprea (2014) and Dichtl and Drobetz (2014) tried to argue down the existence of this anomaly over the time and disbelief that there will be “free lunch” available over the time.

In addition, the anomaly sounds interesting because there were different points of view by different researches regarding the possible cause of this effect such as summer vacation and optimistic-cycle hypothesis.

Bouman and Jacobsen (2002) proved there is relationship between the Halloween effect and the summer vacation. In that case, investors might sell in way and get the money for their summer vacations and come back again during winter. Doeswijk (2005) came out with the findings that support the optimistic-cycle hypothesis and this may be the possible cause of the Halloween effect. The optimistic-cycle presumes that the investors have different perceived outlook on

the economy and the returns throughout the year. Near the end of the year, investors may feel optimistically towards the economy growth and returns earning in the coming year but when the time pass, they become more pessimistic and resulting the “Sell in May” effect in stock market.

In the other hand, according to Kawai (2009), Goldstein and Xie (2009) and Isgut (2014), the economies of most of the Asian countries have been affected during the global crisis 2007-2008. The Asian economies had experienced a sharp drop in demand and nearly double-digit declines in exports. Stock markets said to be the most sensitive leading indicator to show whether the economies is in the recovery process (Kawai, 2009). Yang, Kolari and Min (2002) stated that the financial markets tend to be more integrated after the crisis. The integrated financial markets will lead to a more efficient allocation of resource, greater risk diversification and higher growth opportunities (Levine, 1997).

The study on the Halloween effect is one of the signal reflect economy recovery after the global crisis in 2007-2008 (Magalong, 2014). According to the UNWTO Annual Report (2010), due to the global crisis 2007-2008, the international tourist arrival was declined by 4% in 2009. It showed that when the economy downturn, there will be relatively lesser world’s demand for vacation. Furthermore, based on the study done by Bennet, Selvam, Vivek and Shalin (2012), the variables such as interest rate, inflation rate and economy growth which related to the macroeconomic factors tend to affect the investors’ confident level and optimism in India stock market. Thus, if the economy downturn, investors will pessimistic towards the stock market and have less confident to enter into the market. Therefore, the Halloween effect may not be significant in this economy downturn period as there will be lesser investors to sell off the stocks in May for their summer vacations purpose and they will be unwilling to invest in the stock markets.

Based on the existing studies, most of them focused on the US and Europe markets and lack of the studies done for the Asian countries. Hooi (2011) is the first paper to examine only focus the six Asian countries included namely

Malaysia, China, India, Japan, Hong Kong and Singapore but the study examined the effect within the period of 1991 until 2008. The economy seems to be recovery after the global crisis 2007-2008. Hence, this paper is attempts to investigate whether the Halloween effect still exists after the global crisis 2007-2008 as a signal to shows the country's economy recovery. In respect to the research done by Lucey and Zhao (2008) that argued that the present of January effect tend to affect the Halloween effect, this paper also examine on this issue. The data used for this study will be in monthly index across the year 2000-2014 for Asian-5 countries namely Malaysia, Singapore, Indonesia, Taiwan and China. The reason of choosing these five Asian countries for this research paper is due to the growing trend of their export activities. According to Tambunan (2010), export is the most important transmission channel, thus, the countries with high export activities will have higher impact from the global crisis.

1.3 Research Objective

The general objectives of this study is to investigate the existence of Halloween effect in Asian-5 countries namely Malaysia, Singapore, Indonesia, Taiwan and China from 2000 – 2014.

The more specific objectives are:

- i. To investigate the existence of Halloween effect in Asian-5 countries after the global crisis 2007-2008.
- ii. To investigate whether the existence of Halloween effect is due to the present of January effect.

1.4 Research Question

There are three research questions in this research paper:

- i. Does the Halloween effect exists in Asian-5 countries?
- ii. Does the Halloween effect exists in Asian-5 countries after the global crisis 2007-2008?
- iii. Does the present of January effect disguise the existence of Halloween effect?

1.5 Hypotheses of the Study

There are three hypotheses in this study:

H₀: The Halloween effect does not exists in Asian-5 countries.

H₁: The Halloween effect exists in Asian-5 countries.

H₀: Halloween effect does not exists in Asian-5 countries after the global crisis 2007-2008.

H₁: Halloween effect exists in Asian-5 countries after the global crisis 2007-2008.

H₀: The present of January effect will not disguise the existence of Halloween effect.

H₁: The present of January effect disguise the existence of Halloween effect.

1.6 Significance of Study

The main purpose of this study is to investigate the existence of Halloween effect in Asian-5 counties from the period 2000 – 2014. As cited from Bouman and Jacobsen (2002), the old saying mentioned “Sell in May and go way, but buy back

on St. Leger Day”. For which this indicate the stock market returns during winter and summer is different.

Bouman and Jacobsen (2002) mentioned that the “Sell in May” effect is strong in European countries. However, this study focused mainly on Asian country which is Malaysia, China, Singapore, Indonesia and Taiwan. The result of this study is useful where it proved the existence of Halloween effect is not only in European countries. Investors from Asian country can be more aware on the issue and invest on suitable period. Moreover, for investors who like to invest their money oversea, this study is beneficial in term of identify which Asian country is present with Halloween effect and therefore they make investment wisely.

Another contribution of this study is it provides the information on whether Halloween effect is affected by global crisis. According to Dumitriu, Stefanescu, and Nistor (2012), events such as global crisis may provoke the major changes in the calendar anomalies like Halloween effect. Hence, it is important for investor to know how will be the impact on Halloween effect after global crisis. In the other hand, the research also helps to enhance the investors’ knowledge in economy situation in the country recent years as the crisis effect is different in different country.

Furthermore, this study is essential as it provide research starting from 20 century. Most of the previous research such as Bouman and Jacobsen (2002) conducts research on Halloween effect from period 1973 – 1996, and Jacobsen and Zhang (2012) have time sampling of more than 60 years. In addition, there is lack of research done mainly focus on Asian countries. Therefore, this study contributes to the research on examine the Halloween effect in recent decades especially for the after crisis period and show the economy recovery progress in Asian-5 countries.

1.7 Chapter Layout

This chapter is structured as follows:

- i. Chapter 1 provides the research background of the countries, research objectives, problem statement, research question and hypotheses and significant of the research.
- ii. Chapter 2 covers an overview of the existing relevant literature review
- iii. Chapter 3 identified the scope of the research and explains the methodology.
- iv. Chapter 4 describes the data used and interprets the empirical results.
- v. Chapter 5 discusses on the major findings from the research and conclusion.

1.8 Conclusion

The main purpose of our research is to investigate the existence of Halloween effect in Asian-5 countries namely Malaysia, Singapore, Indonesia, Taiwan and China from 2000 – 2014. Throughout the research, we hope that our research will become reference for future research and provide guidance for investor. The following chapter will further research about the Halloween Effect of the countries in the given period.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

In chapter 1, this paper had discussed about the research background, problem statement, research objectives, research questions, hypotheses and significance of the study. This paper has reviewed a series of journal regarding this topic. However, the contents of Chapter 2 are classified into several parts. This chapter aims to discuss and provide relevant literature review on the Halloween effect and January effect; review on the relationship between stock analysis and volatility; review on theory and empirical work of Efficient Market Hypothesis (EMH) and random walk and Efficient Market Hypothesis (EMH). The previous researchers used the methods to conduct their studies as well as major findings will be presented in this chapter.

2.1 Review on the Relationship between Stock Market and Volatility

The relationship between stock market and volatility are being more and more attention. Studies such as Hooi (2011) showed that there is a relationship between volatility and stock market. According to Wagner (n. d.), volatility is evaluating the security of average return or mean. One way to evaluate volatility is through the standard deviation, throughout the moving average (MA) or mean, it will identify that how the price of stock is grouped. The value of standard deviation is small when the prices are difficult to predict. Otherwise, the value of standard deviation is large when the prices are spread apart. Many researchers have used conditional and GARCH models to estimate volatility recently. Hence, volatility can affect stock market through various methods (Zakarian & Shamsuddin, 2012).

The researcher such as Black (1976) and French, Schwert and Stambaugh (1987) speculate that stock market returns are associated to changes in conditional volatility. However, two different perspectives to examine whether the causality runs from conditional volatility to asset returns. Chiang and Doong (2001) using Threshold Autoregressive GARCH to test the stock market and time-varying volatility. Besides, some Asian stock markets are selected to test whether they have relationship. They used monthly data ranged from January 1988 to June 1998 and found that for all the Asian stock markets that studied, GARCH parameters in the daily return are highly significant. Besides, in the weekly return, the significant level and the size of the GARCH result become smaller. Other than that, there have evidence shows that there is little GARCH result on monthly data. This is because hypotheses that no asymmetric effect are extremely rejected at high level of significance. The low frequency data are proven when the asymmetric effect disappears.

On the other hand, an asset which has minimum expected return mean that it is a function of market price of risk, risk-free rate and variance of their returns. Brailsford (1996) and Mahajan and Singh (2008) for the Australian stock market and Latin America stock market found positive relationship between stock market and volatility. The study by Duffee (1995) in the U.S on the relationship between stock market and current and future volatility for the Brazilian stocks is conducted by using robustness test and has been done analyzing two sub-periods, one of the data ranged from June 1990 to July 1994 and the other period of data ranged from August 1994 to April 2002. Result showed that Brazilian stock market formed significant relationships with contemporaneous volatility as volatility gives positive pressure on Brazilian stock market index. This is because it found an important theoretical implications that Duffees hypothesis cannot be excluded. Besides that, to examine the relation between stock return and volatility for the Brazilian stock market, two methodologies are using to focuses the relationship. One of the method is single regression method are used for Nelson (1991) exponential GARCH, basically an AR (1)-EGARCH (1, 1) estimation and the most liquid stocks. The other method is from Engle and Ng (1993) that using sign and size effects tests. Result showed that there is a positive relationship between

stock returns and current volatility and have strong asymmetric effects in volatility. This is because the results are significant to produce a powerful explanation of stock price moving and for building models that describe the moving of stock prices. This is supported by Poon and Taylor (1992) studied the relationship between stock returns and volatility in U.S. The empirical model was estimated using monthly sample variances and ARCH models and daily, weekly, fortnightly and monthly data ranged from January 1965 to December 1989. Result showed that there is a positive relationship between stock market and volatility. Previous studies authors indicates that four out of seven Asian stock markets, it found that market excess returns are significant related to the expected volatility. Therefore, stock returns higher when volatility is higher level.

Other than that, some of the literatures found that there is negative relationship between volatility and asset returns. Li, Yang, Hsiao and Chang (2005) using a semi-parametric GARCH-M model and found a negative relationship between stock returns and volatility. Similarly to authors that mentioned before, he examines an insignificant relationship by using an exponential ARCH model. He interprets the relationship via the volatility feedback effect which an increase in anticipated volatility of future income will increase the required rate of return of the investor as now he perceives the stock as being more risky. Relatively, it will decrease the present value of the asset. Furthermore, the authors found a negative relationship of unpredictable volatility and stock returns. Two researchers Black (1976) and Christie (1982) investigated the risk-return relationship; they found that individual firms increase the financial leverage while the stock prices decrease, resulted show an increase in equity volatility. As a result, they founded the insignificant relationship between stock returns and volatility. In this case, the impact of volatility on stock market returns is negative.

2.2 Review on Theory and Empirical Work of Efficient Market Hypothesis

The term “Efficient Market” has been greatly discussed by people when concerning about the issue regarding stock market. As defined by Fama (1970), efficient market is the market where stock price is fully reflect the available information in the market. This term was first used in the security market which been define as “market adjust rapidly to new information” by authors Fama, Fisher, Jensen and Roll (1969). In their study, they linked the random walk model with competitive market. However, the literature suggesting existence of unexploited “excess return” is rejected as it would be inconsistent with the behavior of rational investor in the competitive markets. The authors then continued to analyze the theory by connect the “market model” with Sharpe-Lintner capital asset pricing model (CAPM) together with the information set without any development in the efficient market theory. Therefore, according to Ball (1989), the early stage of empirical work of efficient market was studied the competitive equilibrium in stock market with the information used. However, it is do so without any formal model of this equilibrium involved.

Ball (1989) stated that Fama, Fisher, Jensen and Roll (1969) had done a research by setting the information beyond the past prices and to include the publicly-available information. The research done by using the simple model of competitive equilibrium which imply the average revenue is equal to its marginal cost of the activity. Hence, if the cost of reproducing the public information is zero, the expected gain will be zero. Fama, Fisher, Jensen and Roll (1969) believe that stock prices should adjust at the first time after it becomes publicly-available, the gain and losses should experience by the investors at the time the information announce and no gain or loss to be experienced for those who seek to trade on information. After all, Fama (1970) continue to develop the theory by defined the efficient market with stated with few sufficient conditions that to be fulfill which is “(i) there are no transaction costs in trading securities, (ii) all available information is costlessly available to all market participants, and (iii) all agree on

the implication of current information for the current price and distribution of the future prices of each security”.

According Ball (1989), Fama differentiated three information set which are past prices, publicly-available information and all information. Also, Fama (1970) distinguish efficient market into three different namely “weak”, “semi-strong” and “strong” forms. The different forms is mainly due to the different cost in producing information. We will further look into the definition of each form of efficient market. Firstly, weak form efficiency is the information that only discussed on the historical prices (Fama, 1970). This means that, no one will earn or “beat” the market with examining on the historical prices. To use this past price in predict future stock price movement, a technical (trend) analysis is developed. Investor can also use fundamental analysis or insider trading to beat the market or made profit in this weak form efficient market (Yalcin, 2010).

Secondly, the semi-strong form of efficiency, according to Fama (1970) it look into whether the price is efficiently adjust to the publicly available information by which it is also addition to the past prices. The public information are such as announcement of earnings, dividend, stock split and etc. This form of efficiency is far stronger than the weak form of efficiency, however, one will still profit with something that everyone known as the information is public. To earn from this efficiency, it requires professional market analysts who is expert in interpret or analyze market information and also understand the process in products and input markets (Clarke, Jandik & Mandelker, 2001). Yalcin (2010) suggest that technical analysis in semi-strong form market cannot help investor to earn profit due to the information is publicly available, if a market is efficient in semi-strong form, it will also efficient in weak form. However, insider traders can help to earn profit.

The last form is the strong form efficiency by Fama (1970) stated it is “concern whether given investors or groups have monopolistic access to any information relevant price formation are reviewed”. In other words, Yalcin (2010) define it as the market that “reflect all information including both past prices and all the publicly available information and plus all private information”. As also suggested

by Yalcin (2010), technical and fundamental analysis cannot work in strong form efficiency to help to earn profit. Clarke, Jandik and Mandelker (2001) stated that the main difference between semi-strong and strong efficiency is that no one will be able to gain profit even trading on the information that is not publicly available. This means that even the company's insider will also not be able to generate profit with the information that do not announce.

Nevertheless, studies show that different form of efficiency is different in country that with different economy. Oke and Azeez (2012) had done a research to test strong-form efficiency of Nigerian capital market from 1986 to 2010. The result showed that Nigerian capital market is in weak form efficiency. However, another research done by Gimba (n.d.) which using daily data from January 2007 to December 2009 and weekly data from June 2005 to December 2009 with the result proved that Nigerian Stock Exchange market is inefficient in weak form. Azeez and Sulaiman (2012) also conduct a test on strong form efficiency in Nigeria and the result suggest Nigerian capital market is in strong form efficiency. In the case of Dhaka stock exchange by Khandoker, Siddik and Azam (2001), their studies proved that the market is not efficient in weak form. Worthington and Higgs (2003) suggest no market in Latin American are in weak form efficient. Indian capital market is proved in semi-strong form efficient by Khan and Sana (2010).

As cited from Clarke, Jandik and Mandelker (2001), "the main engine behind the price changes is the arrival of new information". If the prices changes quickly with new announce of new information, the market is said to be efficient for which it indicated that the stock price reflect all available information in any time. Moreover, Clarke, Jandik and Mandelker (2001) said that the reason of the existence of the efficient market is due to the competition among investors in order to generate revenue from new information.

2.3 Review Relevant Theoretical Model

2.3.1 Random Walk and Efficient Market Hypothesis

The efficient market hypothesis is always related to random walk theory as most the research will use the random walk model to test on the efficiency of the market. By definition, random walk theory stated that stock price changes are independent and have same distribution. Therefore, the past movement of stock price cannot be used to predict future price movement. In the following paragraph will discuss on the history of random walk theory and the research regarding the theory.

In year 1863, a French financial philosopher Jules Regnault founded the random movement of bond prices and hence the discovered of the random walk theory. His finding was then been recorded in a book with title “Calculus des chances et philosophie de la bourse”. The theory were left ignored for sixty years until Louis Bachelier, a French mathematician continue the studies by added it in his PhD thesis “The Theory of Speculation” in year 1900. The mathematics and statistics of Brownian motion is developed by Bachelier, he deduced that the “mathematical expectation is zero” (Sewell, 2011). According to Sewell (2011), Bachelier’s research was ignored until later a professor Karl Pearson continue his work and included in a articles named Nature. The research of random walk is been further studied by a professor Eugene Fama who develop efficient market hypothesis and relate it with random walk theory.

As according to Fama (1965a) discussed two approaches in predicting stock prices in his article “Random Walks in Stock Prices”. These two approaches are the technical or chartist theories and the fundamental analysis approaches. Under the assumption of the chartist theory, it believed that the past patterns of price behavior will act to repeat itself in future. In others words, it indicates that the method to predict stock price should be developed similar according to the past price behavior as it will likely to

reoccur. However, the assumption of fundamental analysis approach believe that an individual security has intrinsic value for which it is depends on earning potential of the security in any point of time. By doing so, the earning potential should greatly base on the fundamental factors such as the management quality, industry or even the economy. Fama (1965a) stated that one should able to determine whether the actual prices move up or down the intrinsic value with careful study on the fundamental factors. Towards the end of the studies Fama (1965a) concluded that in technical theories, it is like of no value in stock market analysis if the random walk model is valid. To make better prediction in stock prices, the author must show the constant use of this theories. In the case of fundamental analysis, the random walk theory is more involved whereby it is valid when the security exchange in “efficient” market which means that stock price reflect a good estimate of intrinsic value in any time. Besides, the fundamental analysis is said to have added value when there is new information. Fama (1965a) added in his word saying the challenge of random walk theory with fundamental analysis is to prove that the more complicated procedures are more profitable.

In the same year, Fama (1965b) published his another studies “The Behavior of Stock Market Prices”. The research is aimed to test the stock price behavior of random walk model. In the studies, Fama (1965b) proposed the random walks in two different hypotheses which are successive price changes are independent and secondly the prices changes conform to some probability distribution. To the result of the research, the author found that the successive price changes are independent for which it is consistent to the present of “efficient” market. According to Fama (1965b), the result obtained is due to “(1) the existence of many sophisticated chart readers actively competing with each other to take advantage of any dependencies in series of price changes, and (2) the existence of sophisticated analysts, where sophistication implies an ability both to predict better the occurrence of economic and political events which have a bearing on prices and to evaluate the eventual effects of such effects on prices”. Another important

research by Fama in year 1970 is that random walk model is one of the model that suggested to test market market efficiency (Gimba, n.d.). For which, the random walk theory is often related to the three form of efficiency discussed earlier which are weak form, semi-strong form and strong form efficiency. The random walk theory have been raised a lots when the author Burton Malkiel wrote on a book title “Random Walk Down Wall Street” in year 1973.

However, there is still argument on the existence of random walk in market. A research by Andrew and Mackinlay (1988) using simple specification test suggested that the stock prices do not follow random walk on the sample period 1962 to 1985. Moreover, Chaibi (2014) also conclude that random walk is rejected in Hong Kong stock exchange and thus the market are not in weak form efficiency. For the case in European emerging markets studied such as Greece, Hungary, Poland, Portugal and Turkey by Smith and Ryoo (2003), proved that the markets are also rejected random walk hypothesis. The authors Hooi and Smyth (2005) are however obtained the opposite result. They used LM unit root test to test on whether Asian stock market follow random walk with the eight selected Asian country namely Hong Kong, Indonesia, Japan, South Korea, Malaysia, Philippines, Singapore and Thailand. According to their result, the stock markets in Asian country studied are followed by random walk.

2.4 Review on the Halloween Effect

According to Dumitriu, Stefanescu, and Nistor (2012) mentioned that Halloween Effect is one of the main calendar anomalies that used to challenge against Efficient Market Hypothesis. As discussed earlier, an efficient market is where the stock prices are reflect to all information available. Other than that, Allen, Brealey and Myers (2011) argued that efficient market is defined when it is not possible to earn a return higher than market return. Also, Degutis and Novickyte (2014) said

that investor cannot earn risk-weighted excess return in an efficient market. This is somehow against the nature of Halloween Effect by which the stock returns are significantly different between two periods. In another words, the principle in Efficient Market Hypothesis is said to be disappear when it happen to have proven the existence of Halloween Effect.

The popular phrase “Sell in May and go away” is being used as the investors in the market believe that there will be better return in some specific period around the year During the research that done by Bouman and Jacobsen (2002), they found that there is anomaly return for the equity market that brings better returns during the months of November to April compare to rest of the period which is the months of May to October. Since the anomaly return is start from November which after the day of Halloween celebration that fall on 31st of October, thus this effect is name to be “Halloween Effect”. Besides, the seasonal effect of Halloween Effect also known as Halloween indicator by the other researchers.

According to the research of Bouman and Jacobsen (2002), they conducted a research on 37 developed and emerging markets from January 1970 to August 1998 in order to find out the existence of Halloween Effect. As result, there is large return for 36 countries out of 37 countries during the November to April. However, in the rest of the period which is May to October only average return is exist. In further, they found out there is significant and positive relation for the period of vacation during summer and its impact to the stock trading. It might be a possibility that during the summer break, parents are planned to bring their children go for vacation. Vacation do need money for spending, thus stock is being sold off before summer break that normally held on May to October which lead to low trading during these months. In other hand, while having vacation investors have lesser time to focus on stock trading activity hence during the May to October period the trading is low compare to the rest on the period.

In year 2004, the researchers Maberly and Pierce (2004a) found interesting on the research that previously done by Bouman and Jacobsen (2002). They study again the result that acquired previously and add in the S&P 500 futures for further

analyze. The data for futures that used by the researchers are from April 1982 to April 2003. The researchers made an adjustment on the previous research to prevent the existence of outliers and this result that the Halloween Effect is absent in U.S. In addition, the equity returns of the Japanese market show negative to the existence of Halloween effect. So, it can see that the result that done by Maberly and Pierce (2004a) is different when compare to the result of Bouman and Jacobsen (2002).

In the other hand, Maberly and Pierce (2004b) conducted another research during the same year. This time they examine the Halloween Effect on the Japanese Government Bonds (JGBs). As Halloween Effect show that stock trading during the period of November to April will get anomaly return compare to the period of May to October. However, the JGBs is one type of the risk-free investments that more preferable to invest during the period of May to October. From their research, they found the Halloween Effect is only significantly during the mid-1980s. The Nikkei 225 index of Japanese market get the anomaly return during the period of November to April when the market is in bull market condition but this effect does not last long when the market condition turn to bear market. Later on, they found that major of the result show the Nikkei 225 index is having negative return during the period of November to April although the market condition is stated as bull market. Thus, from the research the Halloween Effect for Japanese stock market is exists for the mid 1980s but not exist in the later studied period.

For the research done by Siriopoulos and Giannopoulos (2006), they studied the Halloween Effect in the Greek equity market that known as Athens Stock Exchange (ASE). As the research that done by Bouman and Jacobsen (2002) is first to discuss about the Sell in May Effect and also studied about the Greek equity market so it is being used as the benchmark research. During the research, the researchers do the same adjustment like the Maberly and Pierce (2004a) did in their research which made an adjustment on the outlier data and model specifications that exist. However, the end result show that there is no Halloween Effect exists when the adjustment is being made. This result is different when

compare to the one that done by Bouman and Jacobsen (2002). They also stated that based on the research and observation, the Halloween Effect might be not significant or exist from the time in the future.

In year 2009, the researchers Jacobsen and Visaltanachoti (2009) studied the existence of Halloween Effect for U.S. sectors. The data collected period is started year 1926 to year 2005 from different industries and sectors within U.S. From their finding, Halloween Effect is strongly exists in the individual industries and sectors but not on the overall index of the market. Based on the result in detail, there is strong Halloween Effect in the production sector when compare to other sectors. However, there is no existence of Halloween Effect when come to the sectors or industries that related to consumer consumption.

Other than the researches that focusing on North and South America market as well as Europe market, the researcher Hooi (2011) has done the Halloween Effect research for the six selected Asian equity market. From the result, there are only two countries which Singapore and Malaysia show the existence of Halloween Effect when Ordinary Least Square (OLS) method is being used to conduct the test. When the test method changed to conditional variance models, the result show five Asian equity markets have the existence of Halloween Effect besides Hong Kong. Thus, the researcher made a conclusion that the market anomaly is still applicable to the Asian equity Market.

2.5 Review on the January Effect

According to Lucey and Zhao (2008), the appearance of Halloween effect has been proved will be influenced by January effect. Thaler (1987) mentioned January effect is a challenge to the efficient markets hypothesis. An efficient market can be defined that prices fully reflect the available information. It reflects historical prices, company accounts and others. This indicate that an efficient market made no excess return from the information due to current prices reflect the information. Gultekin and Gultekin (1983) found that in United States have

the effect, yet it is not efficient due to tax loss selling hypothesis. Hence, the January effect arises will make the Efficient Market Hypothesis to disappear.

In the stock market, many investors decide to sell their share before at the end of the year in order to declare capital loss for tax purposes. However, the January Effect occurs. The investors will quickly to buy share in the market to cause the stock prices to increase once the tax calendar rolls over at the beginning of the year. Throughout the historical, January Effect has been observed that hard for the investors to make profit since the stock market predict it to occur and thus adjusts its prices accordingly. Window dressing actions conclude that low returns in December and high returns in January. According to the research of Lee (2015), Asian stock market such as China showed that the economy of the country had slow down. But, it not slowed as people afraid about the economy of their country.

For the research done by Guler (2013), there are several studies that show the existence of January Effect include Asian countries and European countries. Some of the researchers found that high return of January Effect and some of the researchers found January Effect to be development in their local market. Rozeff and Kinney (1976) stated that US stock market have significant higher return in January. Other than that, the researchers also conducted that January effect are significantly higher compared with the other months. Seventeen countries had been selected and thirteen countries had higher January return. Non parametric and parametric tests are used in the study and found seasonality in major industrial foreign countries. Besides, twelve stock markets such as US, UK, Thailand, Singapore, New Zealand, Korea, Japan and Australia are selected and it found that average returns on January are higher than the other months at a 95% level of confidence. In Malaysia, the researchers Annuar, Ariff and Shamsheer (1992) furnish strongly evidence that January Effect occur during the period 1970 to 1986. This is due to absence of capital gains tax in the country and tax loss selling hypothesis cannot interpret.

According to Stoll and Whaley (1983) propose that huge transaction costs and market frictions can cause the small firm stocks earned January returns. The

studies by Keim (1982) examined that January Effect is more significant for small companies. The returns in January are higher and half of the returns are came during the first five days of the month, especially are on the first trading day. Some of the studies prove that small companies earn higher than expected returns. However, for small cap in terms of capitalization, as a result, January Effect was strongly existed. The researcher Ogden (1990) used liquidity hypothesis states that January Effect is significant. This is due to some reasons proving that January takes place to increase the cash flows. For example holiday gifts, annual bonuses and extra holiday payments. Investors likely made investment decisions in January, thus, there is a buying pressure during January. At the same time, some of researchers supported the view and argue that is particularly evident in January. January Effect is not having relationship with the firm size (Kohli & Kohers, 1992). January Effect will arise through expansion but cannot detect when contractions, this is due to business cycle. For the Canadian stock market, Berges, McConnell and Schlarbaum (1984) found that the January effect not only exist in small firms but large firms as well during the period 1973 until 1980. In January, for the small firms, it can earns 8.15 percent average return while the large firms, it can earn 5.4 percent.

Based on the researchers Cheung and Coutts (1999) indicates the January Effect or other monthly seasonality using Hang Seng Index. As a result, for the Hong Kong stock market, they found no January Effect or other monthly seasonality. Besides, Chu, Liu and Rathinasamy (2004) analyzed the monthly stock returns and did not found any significant of January Effect for the period 1926 until 1992 using Markov-switching model. In China, the studies examine the seasonal anomalies, it found that there is no January Effect as well as February Chinese New Year Effect for the Chinese stock market (Zhang, Sun & Wang, 2007). In contrast, they found a significant March Effect. This is because in China, March is the political high season and political window dressing occurs is due by the Chinese government. Therefore, there is a higher return on March in the Chinese stock market.

According to Mehdian and Perry (2002), they tested the NYSE, SP500 and Dow Jones index. They found that January Effect was positively from the year 1964 to 1987 but after year 1987, there was no January Effect. The result showed that in some period have January Effect and in other period, the January Effect does not exist. Cooper, McConnell and Ovtchinnikov (2006) investigate the equally-weighted and value-weighted market returns from year 1940 until 2003 and analyze time series for the NYSE index stock market from year 1825 until 2003. Besides, business cycle variables, investor sentiment indices, macroeconomic and Presidential cycle are occupy as control variables in their analysis. They found that from February until December, stock market returns cannot predict future returns. In contrast, the stock market in January is a dependable predictor.

2.6 Conclusion

In short, according to the review, market might be not entirely efficient in reality. Calendar anomalies such as Halloween Effect and January Effect are always against the principle of Efficient Market Hypothesis. This is whereby Halloween Effect and January Effect will result abnormal return in certain period, however, an efficient market is where the stock price reflect all information available and it is not possible to earn a return higher than market return. In other words, market tends to no efficient with the present of calendar anomalies. As such, this study will investigate the existence of Halloween Effect in recent decades.

CHAPTER 3: METHODOLOGY

3.0 Introduction

This chapter provides an overview on the empirical model to determine the existence of Halloween effect in the Asian-5 countries. Besides, this study will tests for other calendar anomaly that might influence the result which is January effect and also will takes into consideration the effect of outliers. This chapter will further elaborate about the data analysis, model specification, time series analysis and econometrical methodologies used in this research.

3.1 Data Analysis

The objective of this study is to determine the presence of Halloween effect in the selected Asian-5 countries. In order to launch the data processing, data of each country was collected from the Stooq (a static provider of historical price data for world stocks, indices and futures) from 2000 to 2014 on monthly basis (Stooq, n.d.). The sample size of the data used consists of a number of 180 observations for the variables. In this study, dummy variables were applied for all the independent variables (Halloween effect, January effect and Outliers).

3.1.1 Model Specification

To examine the existence of Halloween effect on stock market, the regression analysis with dummy variable which founded by Bouman and Jacobsen (2002) is being employed. The regression model as follow:

$$R_t = \alpha + \beta_1 D_{Ht} + \varepsilon_t \quad \text{Equation (1)}$$

Where R_t = Continuously Compounded Monthly Return of Index in Logarithm form.

α = Intercept (Monthly Mean Return over May-October Periods)

$\alpha + \beta_1$ = Monthly Mean Return over November-April Periods

D_{Ht} = Dummy Variable (1 if month t falls within November-April, Otherwise 0)

According to prior research conducted by Maberly and Pierce (2004a), they claimed that the existence of Halloween effect might be due to the January effect which there is relative high positive returns during that particular month but not due to the Halloween effect itself. Thus, this study also attempt to investigate about whether or not the January effect is masked on the Halloween effect. In other words, the relationship between January effect and Halloween effect is being tested to detect is the January effect disguise the Halloween effect in stock market. The modified regression as follow:

$$R_t = \alpha + \beta_1 D_{Ht} + \beta_2 D_{Jt} + \varepsilon_t \quad \text{Equation (2)}$$

Where D_{Jt} = Dummy Variable (1 if month t is fall in January, Otherwise 0)

Moreover, outlier is a critical element that has to include in a regression model to ensure the accuracy of the result. The existence of the outliers in a regression model might be lead to the problem such as misspecification and autocorrelation which eventually influence the result of each regression parameters. There are researches always employ outliers in their regression in order to obtain the real result. Galai, Levy and Schreiber (2008) was controlling the outliers through conceived a relationship between the Halloween effect and the outliers. Haggard and Witte (2010) stated that outliers as a possible source of the Halloween effect are important aspect that researches always investigated on it. Follow the prior research, the controlling of outliers by using the regression with dummy variables is carrying out in this research. Below is the amended regression:

$$R_t = \alpha + \beta_1 D_{Ht} + \beta_2 D_{Ot} + \varepsilon_t \quad \text{Equation (3)}$$

$$R_t = \alpha + \beta_1 D_{Ht} + \beta_2 D_{Jt} + \beta_3 D_{Ot} + \varepsilon_t \quad \text{Equation (4)}$$

Where D_{Ot} = Dummy Variable for outlier (1 if month t has outlier, Otherwise 0)

3.2 Time Series Analysis

Time series analysis is a mathematical technique that uses to develop an econometrical model through the curve fitting and parameters estimation. Modern time series analysis is a widely used econometrics tool in today's research due to its multitasking and precision characteristic. Time series analysis take into consideration the fact of the data points that have been taken over time as well as the internal structure of the data taken. A time series data is an ordered sequence of observation (William, 2006). Time series analysis is useful for researchers in controlling, adjusting, forecasting, testing hypothesis and interpreting the relative economic data by developing a simple time series model. It is common to find out

that the economic data containing stochastic elements in the seasonal, trend and irregular components, hence time series econometrics is used to estimate the difference equations which contain stochastic components (Enders, 2004).

Time series analysis is a critical econometric tool for forecasting and estimating thus it is mainly adopted in this research which is focus on stock price. Stock price or so called stock is very sensitive to the economic condition as well as the macroeconomic policy. Stock price fluctuate over time and it reflect to the economic change to a certain degree and the alteration of national macroeconomic policy (Zhang, Shan & Su, 2009). Therefore, time series are widely employed to estimate and forecast the stock price trend. In this research, time series is being used to detect the appearance of Halloween effect through investigate the seasonal trend and flow of the stock indexes in Asian-5 countries. The seasonal trend and the flow of any stock index are very helpful for market player such as investor, shareholder, and government and so on to make decision whether or not to invest in the stock market (Devi, Sundar & Alli, 2013). The reason this indicator being chosen not only because of low cost but also for the precise results due to its accuracy.

3.3 Econometrical Methodologies

First of all, Ordinary Least Square (OLS) test will be applied to determine the relationship between variables. Moreover, there are financial statement from claimed that the share price movements are follow the random walk theory and hence it had a normal distribution yet it has been found inaccurate (Financial Times, n.d.). Hence, the leptokurtosis diagram will be briefly explains in this chapter. In order to capture the volatility of the time-varying series, the Autoregressive Conditional Heteroscedasticity (ARCH) and Generalized Autoregressive Conditional Heteroscedasticity (GARCH) test are mainly adopted.

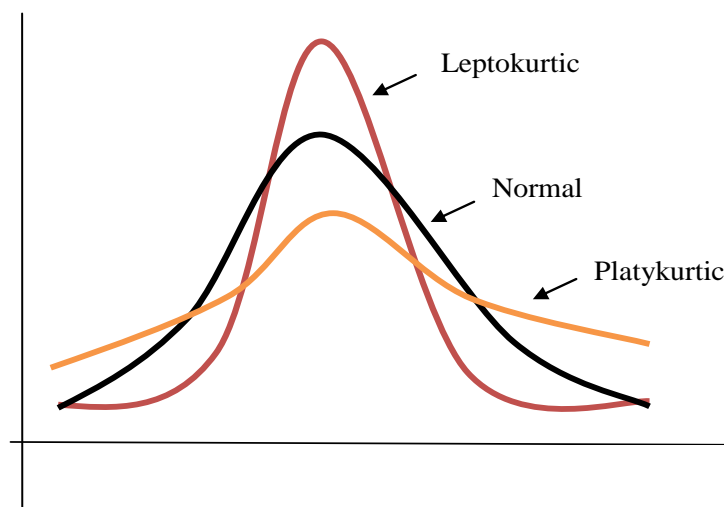
3.3.1 Ordinary Least Square

OLS is a general and common statistical technique used to ensure the perfection of a linear regression. In this research, the purpose of using OLS estimator is to determine the relationship between independent variable (Dummy for Halloween effect, January effect & outliers) and dependent variable (Continuously Compounded Monthly Return of Index). Generally, OLS estimator is used to make sure the data collected is closely fit in order to improve the efficiency of regression model through minimizing the sum of residuals errors from the data.

As mentioned in section 3.2, stock price are considered as a time series data and relatively sensitive to the new market information. According to Brooks (2008), OLS model found to be not sufficient to explain on some important features that commonly found in the financial data such as Leptokurtosis and Volatility Clustering which will be discuss in section 3.3.1.1 and 3.3.1.2 respectively.

3.3.1.1 Leptokurtosis

Figure 3.1: Leptokurtic distribution

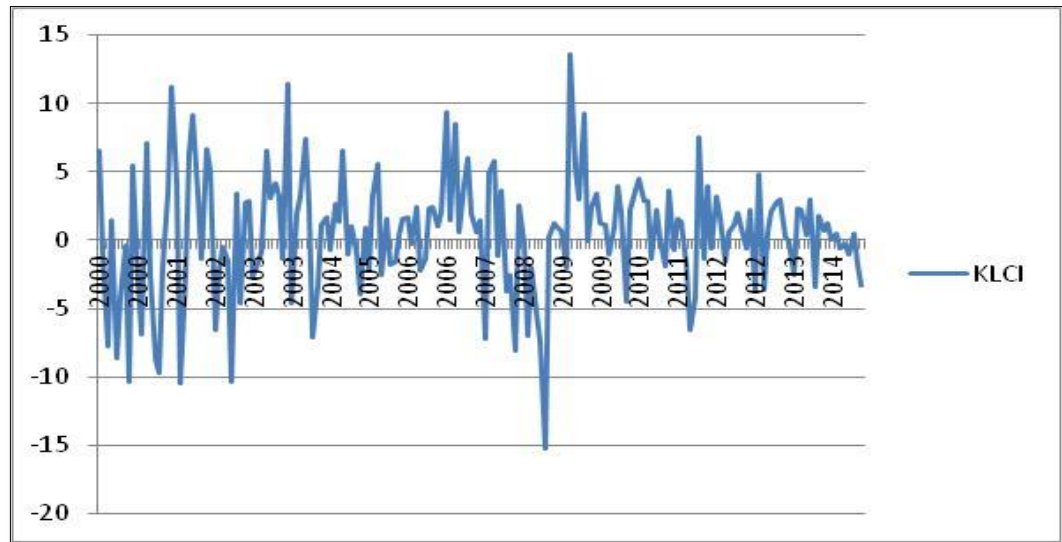


Leptokurtosis is commonly appears in the financial time series data, in which their returns show fat-tailed distribution (Mandelbrot, 1963 and Fama, 1965b). The variances of stocks found to be leptokurtic when examine on the volatility of stocks. In other words, it is usually high chances to get an extreme value on the stocks return. Figure 3.1 shows the leptokurtic distribution, it is more peaked at the mean and with the thicker tails than a normal distribution. According to Brooks (2008), a normal distribution will have kurtosis coefficient of 3. Leptokurtosis is recognized with a larger than 3 moment-based kurtosis measurement. At most of the time, stock prices tend to moves around randomly. However, it is also tendency for the stock to goes beyond this pattern by moving in one direction or the other with a further and faster than the market expectation. In a nutshell, when the data exhibits leptokurtosis, it violated the normal distribution assumption based on the OLS model.

3.3.1.2 Volatility Clustering

“Volatility clustering - the tendency for volatility in financial markets to appear in bunches.” (Brooks, 2008). In the presence of volatility clustering, the stock returns data will have a characteristic in which large returns will followed by large returns and small returns tend to followed by small returns. According to Mandelbrot (1963), the random walk hypothesis is violated when volatility clustering is observed. Figure 3.2 shows the returns on one of the Asian-5 countries which is Malaysia throughout the sample period 2000-2014. The figure illustrates the stock returns follows the volatility clustering characteristic and OLS is not suitable to model this data.

Figure 3.2: Volatility clustering in KLCI returns



3.3.2 Autoregressive Conditional Heteroscedasticity (ARCH) Test

According to the classical linear regression model, the error term should own a constant variance among the independent. Homoscedasticity means the error term are having an equal variance. However, economic time series such as stock price found to have their volatile periods followed by the quiet periods. In such cases, this constant variance assumption is violated. Heteroscedasticity happen with the variance of the error term vary depends on the value of one or more of the independent variables (Gujarati & Porter, 2009).

OLS estimators for the coefficients will still remain unbiased and consistent in the presence of heteroscedasticity. However, heteroscedasticity causes the estimators of the OLS method to be inefficient because it violates the minimum variance attributes. In addition, heteroscedasticity also makes both hypothesis testing (t-statistics and F-statistic) to be not reliable and meaningless. The expected value of t-statistic and F-statistic tend to be

higher due to the OLS method underestimate the variances. Hence, these hypothesis testing will often provide the conclusion to reject H_0 .

Due to the stock returns data that use shows the leptokurtosis and volatility clustering properties, Autoregressive Conditional Heteroscedasticity (ARCH) is to be applying in this study. ARCH model was introduced by Engle (1982). It is an Autoregressive (AR) model with conditional heteroskedacity. Instead of finding ways to solve the heteroscedasticity problem, Engle proposed to allow the conditional variance varies over time as a function of past errors and left the unconditional variance constant. ARCH model can be estimated using the OLS method.

By using the OLS regression model equation shown in section 3.1.1, the ARCH 2 equation shows as below:

$$R_t = \alpha + \beta_1 D_{Ht} + \varepsilon_t \quad \text{Equation (1)}$$

$$\varepsilon_t = \alpha + \beta_1 \varepsilon_{t-1} + \beta_2 \varepsilon_{t-2} + V_t \quad \text{Equation (1.1)}$$

$$R_t = \alpha + \beta_1 D_{Ht} + \beta_2 D_{Jt} + \varepsilon_t \quad \text{Equation (2)}$$

$$\varepsilon_t = \alpha + \beta_1 \varepsilon_{t-1} + \beta_2 \varepsilon_{t-2} + V_t \quad \text{Equation (2.1)}$$

$$R_t = \alpha + \beta_1 D_{Ht} + \beta_2 D_{Ot} + \varepsilon_t \quad \text{Equation (3)}$$

$$\varepsilon_t = \alpha + \beta_1 \varepsilon_{t-1} + \beta_2 \varepsilon_{t-2} + V_t \quad \text{Equation (3.1)}$$

$$R_t = \alpha + \beta_1 D_{Ht} + \beta_2 D_{Jt} + \beta_3 D_{Ot} + \varepsilon_t \quad \text{Equation (4)}$$

$$\varepsilon_t = \alpha + \beta_1 \varepsilon_{t-1} + \beta_2 \varepsilon_{t-2} + V_t \quad \text{Equation (4.1)}$$

As mentioned in Bollerslev (1986), a simple GARCH (1,1) model is better fit than a ARCH(8) model. When adding an extra lag period into the model, the degrees of freedom tend to lose (Brooks, 2008). Hence, a modified ARCH (GARCH) model will be further discussed in the next section 3.3.3.

3.3.3 Generalized Autoregressive Conditional Heteroscedasticity (GARCH)

The ARCH being proposed by Engle in year 1982 has proven useful in modelling few of different economic phenomena. However, ARCH model faced the computational problem. In order to study the volatility clustering effect, higher ARCH order is needed. This required the model to include much more parameters and leads to a more complex calculations process. Therefore, Bollerslev (1986) came out with the GARCH model to overcome the computational issues faced in ARCH model and to give a more flexible lag structure. GARCH model is a modified ARCH model in which it includes the moving average together with the standard time series AR process and form the ARMA process. “This model is a weighted average of past squared residuals, however it allocates declining weights which will never reach to zero.” (Engle, 2001). In other words, it means the prediction of the variance for the upcoming period is not only based on the previous error term, but also the current predicted variance, and together with the new information on the period that is with the recent squared residual. Hence, when it is time series data with heteroscedasticity together with volatility clustering, GARCH will be more suitable to use for this modelling.

In this study, the GARCH (1,1) equation can be expressed as below:

$$R_t = \alpha + \beta_1 D_{Ht} + \varepsilon_t \quad \text{Equation (1)}$$

$$\varepsilon_t = \alpha + \beta_1 \varepsilon_{t-1} + \beta_2 V_{t-1} \quad \text{Equation (1.2)}$$

$$R_t = \alpha + \beta_1 D_{Ht} + \beta_2 D_{Jt} + \varepsilon_t \quad \text{Equation (2)}$$

$$\varepsilon_t = \alpha + \beta_1 \varepsilon_{t-1} + \beta_2 V_{t-1} \quad \text{Equation (2.2)}$$

$$R_t = \alpha + \beta_1 D_{Ht} + \beta_2 D_{Ot} + \varepsilon_t \quad \text{Equation (3)}$$

$$\varepsilon_t = \alpha + \beta_1 \varepsilon_{t-1} + \beta_2 V_{t-1} \quad \text{Equation (3.2)}$$

$$R_t = \alpha + \beta_1 D_{Ht} + \beta_2 D_{Jt} + \beta_3 D_{Ot} + \varepsilon_t \quad \text{Equation (4)}$$

$$\varepsilon_t = \alpha + \beta_1 \varepsilon_{t-1} + \beta_2 V_{t-1} \quad \text{Equation (4.2)}$$

3.4 Conclusion

In a nutshell, dummy variables are used in order to study the existence of the Halloween effect and January effect in the Asian-5 countries' stock markets. A total numbers of 180 monthly observation data was obtained from 2000 to 2014. The econometrical methodologies being discussed in this chapter included OLS, ARCH and GARCH. In the presence of leptokurtosis and volatility clustering problem in the sample data used, GARCH model are employed and together with the empirical result for the test will be further discussed in the next chapter.

CHAPTER 4: INTERPRETATION OF RESULT

4.0 Introduction

This chapter will examine the results from GARCH model. The stock returns data have violated the OLS assumption of normal probability distribution for all data and thus might lead to inaccuracy in results. Volatility clustering was found in the stock returns data used, there might have too many lag terms to be included in an ARCH model and it will lead to the complexity of the regression. Hence, GARCH model is the only model to be employed for this study and all of the empirical results shows in this chapter are mainly acquired from this model. The objective of conducting this chapter is to determine the existence of Halloween effect in Asian-5 countries. First of all, the overall regression will be examined to detect the existence of Halloween effect in Asian-5 countries. Next, dummy for January effect will be inserted into the regression to test whether January effect masked on the Halloween effect. After that, both regression will be determined the effect of outliers. Lastly, the appearance of Halloween effect is re-examine by dividing the data into two periods, which is before crisis and after crisis.

4.1 Testing on the Halloween Effect – Overall Result (Halloween Effect) using GARCH Test

Table 4.1.1 Result of GARCH Test – Overall Result (2000-2014)

Variables/Countries	Malaysia	Singapore	Indonesia	Taiwan	China
D_H (Halloween Effect)	0.046001***	0.013639*	0.092025**	0.042218***	0.026832*
C (Fixed Variable)	6.945203***	8.033596***	7.758455***	8.912719***	7.645389***
C (Fixed Variable)	0.007414**	0.000621	0.006860*	0.001740*	0.000906
$RESID(-1)^2$	1.291888**	1.129246***	1.112666***	0.783735***	0.756968***
$GARCH(-1)$	-0.318808**	-0.145362	-0.285611*	0.125367	0.243081***

NOTE: *, **, *** indicates the rejection of null hypothesis at 10%, 5%, and 1% of significance level.

From Table 4.1.1, the empirical result shows that there is sufficient evidence to conclude that there is Halloween effect exists in the Asian-5 at 1%, 5% and 10% significant level. “Does Halloween effect exist in stock market?” This issue has been subject to a great interest among all market players with the concern of the issue of market recovery after financial crisis. There are a lot of studies being conducted to determine the answer for it. However, most of the past studies were focus only on the Europe countries. “The Halloween effect tends to be particularly strong in European countries and is robust over time.”(Bouman & Jacobsen, (2002). “Halloween effect does have a stronger presence in Europe and in a number of countries that were former colonies or under direct influence of European countries.” (Su & Lu, 2010). “Halloween effect has a higher preponderance in European Countries, though being its presence is undeniable all over the world.” (Santos, 2013). In other words, Halloween effect in Asian countries has been pay less attention throughout the year. Table 4.1.1 shows that Halloween effect is exist in the Asian-5. It proves that the Halloween effect is not only focus on Europe countries yet it did appear among Asian countries. There was a researcher stated that the Halloween effect is strongest in European countries, but it is also significant in North America and Asia countries (Zhang,

2013). This statement can be further proven in the study done by Jacobsen and Zhang (2012) which claimed that the Halloween effect is more prevalent in European and Asian countries than in other regions. The result that shows the existence of Halloween effect in Asian-5 countries is same as the previous studies done by Hooi (2011), Andrade, Chhaochharia and Fuerst (2013) and Jacobsen and Zhang (2012).

4.2 Testing on the Halloween Effect and January Effect using GARCH Test

Table 4.2.1 Result of GARCH Test – Overall Result take into consideration of the January Effect (2000-2014)

Variables/Countries	Malaysia	Singapore	Indonesia	Taiwan	China
D_H (Halloween Effect)	0.015846*	0.013217*	0.012284*	0.042055***	0.026231*
D_J (January Effect)	0.020074**	-0.005544	-0.008693	0.000609	-0.005430
C (Fixed Variable)	6.813520***	8.034045***	7.644122***	8.912760***	7.645426***
C (Fixed Variable)	0.001218***	0.000628	0.057565	0.001739*	0.000923
RESID(-1) ^2	1.204840***	1.130825***	1.608120**	0.883610***	0.755489***
GARCH (-1)	-0.197541*	-0.147761	-0.740662***	0.075430	0.239203***

NOTE: *, **, *** indicates the rejection of null hypothesis at 10%, 5%, and 1% of significance level.

Based on Table 4.2.1, there is sufficient evidence to conclude that there is Halloween effect exists in Asian-5 at 1%, 5% and 10% significant level. “Is the Halloween effect can be utilize as a good investment strategy to earn profit?” “Will the January effect subsume such profit?” This is the common question that market player concern about. There are researches done to investigate the relationship among Halloween effect and January effect. Lucey and Zhao (2008) stated that the appearance of Halloween effect has been influenced by January

effect. In contrary, the relationship among these two calendar anomalies has been proven unrelated by Bouman and Jacobsen (2002), Zarour (2006), Haggard and Witte (2010), and Hooi (2011). Empirical evidence from the result shows in Table 4.2.1 illustrate that the coefficient D_H (Halloween effect) of Asian-5 is positive and significant but the January effect does not attain significance except for Malaysia (significant at 0.05 confidence level). The significant result of January effect shows in Malaysia can be explained by the appearance of “New Year Effect”. During the Chinese New Year which is normally at the late of January or early of February, Malaysian especially Chinese will speculate their money in the stock market at the end of December in order to earn more money for giving “angpao” and they will start to move out from the market after Chinese New Year in February. Yong (1989) stated that stock brokers in Malaysia act as a “big players” who aim to push up the prices in early January due to their large capital on hand and tends to move out their capital in late January and early February for the preparation of the Chinese New Year celebration. The idea of Chinese New Year effect was supported by Wong, Neoh, Lee and Thong (1990). Recent study done by Tahir (2008) was also concluded that the Chinese New Year effect has significant impact toward Malaysia’s stock market. In conclusion, there is Halloween effect present in Asian-5 countries from year 2000 to 2014 which the January effect was not in disguise for the Asian stock market.

4.3 Testing on the Effect of Outliers on Halloween Effect and January Effect using GARCH Test

Table 4.3.1 Result of GARCH Test – Overall Result after take into consideration of the Outlier (2000-2014)

Variables/Countries	Malaysia	Singapore	Indonesia	Taiwan	China
D_H (Halloween Effect)	0.005440	0.005180	0.000073	0.038392***	-0.002553
D_0 (Outlier)	0.701457***	-0.743547***	-1.716296***	-0.509025***	0.660844***
C (Fixed Variable)	6.796991***	8.012204***	7.799860***	8.916034***	7.643907***
C (Fixed Variable)	0.000785***	0.002111***	0.009563***	0.001801*	0.000996
RESID(-1) ^2	1.001715***	1.053892***	1.252740***	0.865576***	0.812410***
GARCH (-1)	0.007806	-0.121449*	-0.340846***	0.080517	0.182048***

NOTE: *, **, *** indicates the rejection of null hypothesis at 10%, 5%, and 1% of significance level.

Table 4.3.2 Result of GARCH Test – Overall Result after take into consideration of the Outlier which includes January Effect (2000-2014)

Variables/Countries	Malaysia	Singapore	Indonesia	Taiwan	China
D_H (Halloween Effect)	0.004075	0.003503	0.024469	0.036398**	-0.004410
D_J (January Effect)	-0.009772	-0.012086	0.012020	0.011481	-0.018290
D_0 (Outlier)	0.703459***	-0.738286***	-1.810212***	-0.509591***	0.696613***
C (Fixed Variable)	6.798630***	8.012886***	7.815615***	8.915406***	7.617161***
C (Fixed Variable)	0.000803***	0.002283**	0.002693	0.001751*	0.005228***
RESID(-1) ^2	1.039490***	1.074997***	1.009665***	0.911482***	1.148752***
GARCH (-1)	-0.042982	-0.110429*	-0.001459	0.079090	0.155649***

NOTE: *, **, *** indicates the rejection of null hypothesis at 10%, 5%, and 1% of significance level.

Table 4.3.1 and 4.3.2 tabulated the results after take into consideration the effect of outliers. Results show that the Halloween effect is absent in Asian-5 except for Taiwan (Table 4.3.1 significant at 5% & Table 4.3.2 significant at 10%). Taiwan shows the appearance of Halloween effect even the appearance of outlier. It might due to the outlier is not strong enough to affect the stock market in Taiwan. However, the result for January effect is consistent with previous result except for Malaysia. After the outlier has been determined together, it turns the result of Malaysia become insignificant. With the empirical result, it proves that outliers will actually mess up the analysis by altering the results of data analysis and hence it is necessary to take action in controlling that outlier. For this study, after consideration the effect of outliers, another empirical test was carrying out to further test for the present of Halloween effect in Asian-5 countries. Maberly and Pierce (2004a) claimed that the existence of outliers might reduce the presence of Halloween effect. With the empirical test by injecting the dummy variable D_0 into the regression model, it has been proven that outliers will affect the analysis result by reducing the presence of the Halloween effect in particular Asian countries.

4.4 Testing on the Halloween Effect Before and After Global Crisis using GARCH Test

The study further examine whether the Asian-5 show the signal of economy recovery after the global crisis. This study attempts to analyze the Halloween Effect for two periods of time: the first, before the global crisis and the second, after the global crisis spread into the respective country.

As mentioned by Harun, Selim and Subir (2012) and Goh and Lim (2010), Malaysia experienced the negative impact from the global crisis around the fourth quarter of 2008. On the other hand, Abidin and Rasiah (2009) figured out that GDP growth rate of Malaysia have been drop significantly in the third quarter of 2008. Hence, the study divides the sample of Malaysia data into the following sub-periods:

- i) Before the global crisis period, from January 2000 to July 2008;
- ii) After the global crisis period, from August 2008 to December 2014

Singapore was the first Asian country that affected by the global crisis and leads to negative growth in 2008 (Shandre, 2008 and Lin, Edvinsson, Chen & Beding, 2013). Singapore's GDP fell sharply in the second quarter of 2008 and continues decline to negative growth by the third quarter of 2008. Hence, Singapore data divided into the following sub-periods:

- i) Before the financial crisis period, from January 2000 to June 2008;
- ii) After the financial crisis period, from July 2008 to December 2014

According to Tambunan (2010), Indonesia suffered relatively lesser effects from the global crisis 2007-2008. When most of the Asian countries showed a significant decline in their economy starting from fourth quarter of 2008, Indonesia managed to maintain a positive growth. However, it is also mentioned that Indonesia GDP started to decline only in the last quarter of 2009 compared with GDP in 2008. Hence, the study divides the sample of Indonesia data into the following sub-periods:

- i) Before the global crisis period, from January 2000 to August 2009;
- ii) After the global crisis period, from September 2009 to December 2014

Taiwan suffered from the recession due to the global crisis since the late 2008 (Chou & Kan, 2009). The economy in Taiwan included the consumption, the investment and the exports and imports declined because of the recession starting

from third quarter of 2008 and became more worst in the fourth quarter of 2008. Hence, Taiwan data divided into the following sub-periods:

- i) Before the global crisis period, from January 2000 to October 2008;
- ii) After the global crisis period, from November 2008 to December 2014

China is unable to escape from the global crisis because of their heavy involvement in the international trade. Ji (2010) indicated that similar to the situation in many Asian countries, China experienced the declines in the exports and get into crisis by the fourth quarter of 2008. Therefore, China data divided into following two periods:

- i) Before the global crisis period, from January 2000 to August 2008;
- ii) After the global crisis period, from September 2008 to December 2014

Table 4.4.1: Result of GARCH Test - Before Global Crisis

Variables/Countries	Malaysia	Singapore	Indonesia	Taiwan	China
D_H (Halloween Effect)	0.040776***	0.047376***	0.036850**	0.033798*	0.043841**
C (Fixed Variable)	6.764890***	7.582942***	6.596969***	8.675834***	7.392008***
C (Fixed Variable)	0.000408	0.001078	0.000564**	0.001511**	0.003181
RESID(-1)^2	0.804043**	1.100161**	1.117323**	0.825870**	1.108270**
GARCH(-1)	0.193099*	-0.126343	-0.118787	0.123112	-0.139297

NOTE: *, **, *** indicates the rejection of null hypothesis at 10%, 5%, and 1% of significance level.

The Table 4.4.1 shows the result of GARCH test on the existence of Halloween effect for five selected Asian countries before global crisis. The result indicates Asian-5 are all significant in 1%, 5% and 10% significance level. The null hypothesis can be rejected and the mean return is significantly different across the time period. Hence, it is sufficient evidence to conclude that the Halloween effect is present in the Asian-5 before the global crisis. This conclusion is matched with

the conclusion made based on the Table 4.1 in which supported on the present of Halloween effect in the Asian-5 countries.

Table 4.4.2 : Result of GARCH Test - After Global Crisis

Variables/Countries	Malaysia	Singapore	Indonesia	Taiwan	China
D_H (Halloween Effect)	0.039552***	0.022822***	0.002407	0.005557	0.034639*
C (Fixed Variable)	7.370596***	8.036322***	8.311421***	8.962881***	7.681993***
C (Fixed Variable)	0.000436	0.000422	0.001518	0.001023	0.001765
RESID(-1)^2	1.314110**	0.893681**	1.004430	0.623365	0.833308**
GARCH(-1)	-0.414556	0.048512	-0.030442	0.242143	0.138246

NOTE: *, **, * indicates the rejection of null hypothesis at 10%, 5%, and 1% of significance level.**

Table 4.4.2 provides with the result of GARCH test on the existence of Halloween effect after global crisis on each respective country. According to the results obtained, among the Asian-5, there are only three countries showing significant results after the global crisis which included Malaysia, Singapore and China at 1%, 5% and 10% significance level. It indicates that the Halloween effect is still present in Malaysia, Singapore and China after the global crisis. In other words, the present of Halloween effect after the global crisis also shows there is signal of economy recovery in those countries. However, Indonesia and Taiwan shows not significant even at 10% significance level. Thus, it can be concluded that Halloween effect disappear after the global crisis and there is no signal of economy recovery in these two countries.

According to My Sinchew (2013), the economy of Malaysia expected to become better with the growth of export as well as the global economy that getting recover from time to time. The higher demand from Eurozone and US for Asian exports helped to overcome the lower demand from China and Japan (The Malay Mail Online, 2014). During the fourth quarter of 2013, the economy of Malaysia has grew better than the forecast that done by economist to 5.1% instead of 4.8% (The Star Online, 2014).

While for Singapore, it is the country that placed at third after Paraguay and Qatar for its rapid growing of economy in year 2010 (Economy Watch, 2010). Singapore's GDP had grown by 15.56% from 2009 to 2010. This signifies that Singapore is recovering speedily after the global crisis. Thus the Halloween effect is still exist in Singapore. In year 2013, the economy growth of Singapore shows a significant increase of 4.1% which a figure that quicker than the forecast that has been done previously (Fiona, 2014).

As mentioned in Chang et al. (2013), China's demand for goods and services had been declined in 2013. It was undeniable that China experienced economy slowdown and it might due to the country over expanding their real estate sector and hence the GDP growth slowed to 7.4% in 2014 (Pei, 2015). It can be argued that although China's economy is slowing down but there was a significant rise in their domestic consumption which still able to maintain the China's economy growth of around 7% (Stone, 2015).

4.5 Testing on the Halloween Effect Before and After Global Crisis using GARCH Test by Taking Into Consideration of January Effect

Lucey and Zhao (2008) argued that the present of Halloween effect is driven by the January effect. As Halloween effect suggested that the market returns tend to be higher April until November, hence the authors questioned whether the higher market returns showed is due to the high return in January. This study tested on the presence of Halloween effect after taking into consideration of January effect in earlier part and the Table 4.2 shows the results on it. The following part is further examine on whether the January effect is present on the Asian-5 countries and is this effect turns the Halloween effect to be disappear by using the two periods of time as mentioned in section 4.4.

Table 4.5.1 : Results of GARCH Test - Before Global Crisis by take into consideration of January effect

Variables/Countries	Malaysia	Singapore	Indonesia	Taiwan	China
D_H (Halloween Effect)	0.040873***	0.041258***	0.039726**	0.033426*	0.041469***
D_J (January Effect)	0.010873	0.015021	0.014531	0.001411	-0.027778
C (Fixed Variable)	6.762907***	7.588899***	6.626637	8.675809***	7.397345
C (Fixed Variable)	0.000382	0.001118	0.001579	0.001517**	0.002660
RESID(-1)²	0.608714**	1.121624***	1.138387*	0.826316**	1.012704**
GARCH(-1)	0.273041*	-0.125864	0.234011**	0.122443	-0.069180

NOTE: *, **, *** indicates the rejection of null hypothesis at 10%, 5%, and 1% of significance level.

In Table 4.5.1, the results shows all the Asian-5 are having a significant dummy variable for Halloween effect in 1%, 5% and 10% significance level. The results corresponded to the results from Table 4.4.1 indicating the Halloween effect presents before the global crisis. On the other hand, the dummy variable for January effect shows not significant even at 10% significance level for all the five selected countries. In a nutshell, the results conclude that the January effect absent in the Asian-5 countries and the Halloween effect are not affected by this January effect based on the sample data of each country before the global crisis.

Table 4.5.2 : Results of GARCH Test - After Global Crisis by take into consideration of January effect

Variables/Countries	Malaysia	Singapore	Indonesia	Taiwan	China
D_H (Halloween Effect)	0.036187***	0.023636**	0.004903	0.005773	0.034164*
D_J (January Effect)	-0.008953	-0.005967	-0.013900	-0.000932	-0.005106
C (Fixed Variable)	7.374260***	8.037131***	8.310714***	8.962785***	7.681923***
C (Fixed Variable)	0.000483	0.000436	0.001437	0.001026	0.001717
RESID(-1)^2	1.161262**	0.984325***	1.010316*	0.622728	0.832788**
GARCH(-1)	-0.197044	0.047306	-0.030515	0.242020	0.141554

NOTE: *, **, *** indicates the rejection of null hypothesis at 10%, 5%, and 1% of significance level.

Table 4.5.2 illustrates the results of the existence of Halloween effect and January effect for the Asian-5. The dummy variable of Halloween effect shows the result similar to the results of Table 4.5.2 in which Malaysia, Singapore and China are significant in 1%, 5% and 10% significance level. In the other hand, Indonesia and Taiwan remained insignificant after the global crisis. For the dummy variable of January effect, Asian-5 had shows not significant results even at 10% significance level after the global crisis. There is not sufficient evidence to conclude that the January effect present in the Asian-5 countries even after the global crisis and the Halloween effect results remained the same regardless the January effect.

From Table 4.2 in the earlier section, Malaysia had showed a significant January effect at 5% significance level. However, when the study attempt to examine the January effect by separated the sample data into two periods of time, neither before the global crisis result (Table 4.5.1) nor after the global crisis result (Table 4.5.2) indicates that Malaysia has a significant January effect. It may be due to the January effect is highly sensitive towards the period chosen. It can be significant in the full sample but turn to be insignificant when examine on the sub-period (Cooper, McConnell & Ovtchinnikov, 2006).

4.6 Conclusion

Throughout this chapter, GARCH Test is applied in order to determine the existence of the Halloween effect in five selected Asian countries. The results proven that the Halloween effect is present in Asian-5 either in the full sample or sub-period before the global crisis. However, when comes to the sub-period after the global crisis, out of the five countries, only Malaysia, Singapore and China are found to have the Halloween effect while the effect disappears after the crisis in Indonesia and Taiwan. In addition, there is a conclusion made on the impact of January effect on Halloween effect. In the full sample, January effect proven to be absent except in Malaysia. When examine on the sub-period data, both before and after global crisis results conclude that January effect is absent in Asian-5 and it will not disguise the present of Halloween effect.

CHAPTER 5: CONCLUSION

5.0 Conclusion

The main objective in this research is to investigate on the existence of Halloween effect in Asian-5 countries throughout the year 2000 – 2014. It is found that the Halloween effect exists in Asian-5 countries when tested using the full sample period. Due to the suspicion that the January effect may influence the existence of Halloween effect, this study further examine on this effect. The January effect proves to absent in Asian-5 countries except Malaysia in the full sample period and it will not disguise the present of Halloween effect. As the Halloween effect was proved to appear in the Asian-5 countries, the study move on to a more specific objective in which to investigate whether the Halloween effect still present after the global crisis event. The result shows the important signal of economy recovery process in the country and hence the investor may aware on the right timing to invest. As a result, the Halloween effect found to disappears in Taiwan and Indonesia after the global crisis while remain present in Malaysia, Singapore and China. In other words, the result indicated that there is no signal of economy recovery found in Taiwan and Indonesia while Malaysia, Singapore and China showed a good economy recovery progress.

5.1 Implication of study

5.1.1 Managerial Implication

In previous chapter, the result proved the existence of Halloween effect in Asian-5 for full sample period or period in before and after crisis. The result is important as it provide useful information on the economic trends for both local and foreign investors.

Result from previous chapter shown that Halloween effect is present in Asian-5 from year 2000 to 2014. This result provides useful information for investors to determine the best timing to make their investment. It is important especially to enhance investors' knowledge to understand the market and economic trends as the effect is different in different country after global crisis. Investors are often risk adverse and they concern on the risk taken when making their investment. They are relatively unwilling to make investment during the economy slowdown as this will incur higher risk on their investment. Therefore, this research contributes to show the investor whether the economy in the particular country is in a recovery process. Given the existence of Halloween effect after the crisis, the economy of the country shows a good recovery signal and hence the investor may feel more optimistic towards the stock market and spend on their investment confidently.

Apart from that, this study is essential as it provide research starting from 20 century as the researchers found were focused on the past decades with historical trends. In addition, most of the previous researches were mainly focused on the US and European markets, therefore this research is contributed to shows the Halloween effect in conjunction with the economy recovery in Asian-5 countries.

5.2 Limitation and Recommendation

Other than that, this study which focused on Asian-5 countries (Malaysia, Singapore, China, Indonesia and Taiwan) found that Halloween effect exist after the crisis in Malaysia, Singapore and China. However, the effect result acquired from this study cannot fully apply in other Asian countries. This is because different countries might have different policies that may resulting in different economy recovery progress, thus same result cannot be apply in other countries. Hence, future researchers are recommended to study on developed and developing countries in order to increase the validity on the existence of Halloween effect especially on the after global crisis period so that the result can be apply as a indicator of the economy recovery in the country.

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