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THE EFFECTS OF REGULATED SHORT SELLING ON STOCK RETURNS OF AFFECTED COMPANIES

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Universiti Utara Malaysia

MASTER OF SCIENCE FINANCE
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THE EFFECTS OF REGULATED SHORT SELLING ON STOCK RETURNS OF AFFECTED COMPANIES

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I declare that thesis work described in this research paper is my own work (unless otherwise acknowledged in the text) and that there is no previous work which has been previously submitted for any academic Master's program. All sources quoted have been acknowledged by reference.

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ABSTRACT

Short selling is an investment technique that allows an investor to sell stocks which he does not own currently and buy later at possibly a lower price. In Malaysia, short selling trading was prohibited effectively from 5th September 1997 for the purpose of stopping speculation on stock during 1997 Asian Financial Crisis. Short selling activities were commonly designed or structured by local regulators, financial intermediaries, and investors for purposes of managing risks, increasing liquidity and strengthening market infrastructure. There is a lack of study on short selling in Malaysia, hence, this study focuses on "Regulated Short Selling (RSS)" in Malaysia and concentrates on stock price fluctuation on announcements of either a stock is being added into or withdrawn from the RSS list by Bursa Malaysia (BM). In this case, we could investigate whether short selling is welcomed by investors. A total of 259 stocks to be added into RSS list and a total of 121 stocks to be withdrawn from RSS list were retrieved from 2013 to 2016. Average abnormal return (AAR) and cumulative average abnormal return (CAAR) were taken to test on hypothesis in this study. The findings show that prices of stocks go up following the announcements of adding the stocks to the RSS list, stock prices would change surrounding the effective dates after it is added into the RSS list, and stock exclusions influence prices negatively on effective dates. Based on this research, to earn abnormal profits, an investor could try to predict RSS additions or removals by BM.

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ABSTRAK

Jualan singkat adalah satu teknik pelaburan yang membolehkan pelabur untuk menjual saham yang tidak dimiliki pada masa kini dan membeli kemudian pada harga yang lebih rendah. Di Malaysia, perdagangan jualan singkat dilarang sejak 5 September 1997 untuk tujuan menghentikan spekulasi pada saham berikutan krisis kewangan Asia. Aktiviti jualan singkat biasanya direka oleh pihak berkuasa tempatan, pengantara kewangan, dan pelabur untuk tujuan pengurusan risiko, penigkatan kecairan dan pengukuhan infrastruktur pasaran. Terdapat kekurangan kajian mengenai jualan singkat yang terdapat di pasaran Malaysia. Kajian ini memberi tumpuan kepada "Jualan Singkat Terkawal (RSS)" dalam pasaran Malaysia dan menumpukan perhatian kepada pergerakan harga saham berikutan pengumuman sama ada saham akan dimasukkan ke dalam atau dikeluarkan dari senarai RSS oleh Bursa Malaysia (BM). Dalam kes ini, kita boleh menyiasat sama ada jualan singkat adalah dialu-alukan oleh para pelabur. Sebanyak 259 saham yang akan ditambah ke dalam senarai RSS dan sebanyak 121 saham yang akan dikeluarkan dari senarai RSS telah diambil dari 2013 hingga 2016. Pulangan purata abnormal (AAR) dan purata kumulatif pulangan (CAAR) telah diambil untuk menguji hipotesis dalam kajian ini. Keputusan kajian menunjukkan bahawa harga saham naik berikutan pengumuman penambahan saham ke senarai RSS, harga saham akan berubah sekitar tarikh berkuatkuasa selepas ia ditambah ke dalam senarai RSS, dan pengeluaran saham mempengaruhi kesan negatif kepada harga pada tarikh berkuatkuasa. Berdasarkan kajian ini, untuk mendapatkan keuntungan yang tidak normal, pelabur boleh cuba untuk meramalkan penambahan atau penarikan balik saham dari senarai RSS oleh BM.

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LIST OF ABBREVIATIONS

Abbreviation		Meaning
BM	=	Bursa Malaysia
HKEx	=	Hong Kong Stock Exchange
PIPE	=	Private Investment in Public Equity
RSS	=	Regulated Short Selling

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CHAPTER ONE

INTRODUCTION

1.1 Introduction of the Study

An investment is undertaken as it is expected to generate positive income and provide benefit to investors. A risk taker investor will invest their money in high risk investment such as options and real estate investments trusts (REITs). According to Gitman *et al*. (2011), investment is an activity that could be conducted by investors in the economy for their mission to increase capital or wealth. A formal definition of investment by Brown and Reilly (2002) refers to future payment to investors, for a period of time that will compensate the investors for the time of the fund invested, inflation rate during the investment period and the unforeseen investment value changes in the future payment.

Typically, there are two types of investors which are individual and institutional investors (Gitman *et al*., 2011). Individual investor refers to individual or household who invests for personal financial goal. Meanwhile, institutional investor is comprised of government, corporations, banks, pension funds, fund managers and insurance companies whom are paid to manage money of people for capital gain or for the purpose to increase the shareholders' wealth (Gitman *et al*., 2011).

In this study, stocks listed on Bursa Malaysia (BM) are chosen to be the main focus of the investment strategy. As per audited report of BM dated 31st December 2016, there is a total of 805 Public Listed Companies listed in BM. This study has further narrowed down to examine the list of stocks on "Regulated Short Selling (RSS)", to find out what are the effect of changes in stock prices when it is announced to be added into or withdrawn from

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RSS list in BM. The criteria to be included into a short selling list are: (1) average daily market capitalization of more than RM500 million for the past 3 months, (2) at least 50 million shares in public float and (3) average monthly volume traded of more than 1 million units for the past 12 calendar months (Bursamalaysia.com, 2006).

1.2 Background of the Study

Short selling is an investment technique that allows an investor or a broker to sell stocks which he or she does not own and buy later at possibly a lower price. Over the past decades, empirical researches are conducted by scholars using extensive theories to learn more about short selling. Short selling has been implemented in the developed financial markets for decades. In Malaysia, short selling trading was prohibited effectively from 5th September 1997 for the purpose of stopping speculation on stock during 1997 Asian Financial Crisis (Thestar.com, 2006). Reintroduction of short selling in 2007 is to give an energy and interest to one of the most popular investment techniques that is actively practiced by investors in Asia (Thestar.com, 2006).

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BM reintroduced RSS in the year 2007, effective from 3rd January 2007, with 70 selected stocks listed on Bursa Malaysia at the initial stage and the number is increased to 100 stocks (Thestar.com, 2006). Announcement of reintroduction of short selling could contribute to attracting more investors, increasing the stock market liquidity and enhancing the vibrancy of Malaysian market (Thestar.com, 2006). Short selling activities were commonly designed or structured by local regulators, financial intermediaries, and investors for purposes of managing risks, increase liquidity and strengthening market infrastructure.

There is a lack of study on RSS found in Malaysia market, hence, this study focuses on regulated short selling in Malaysian market and concentrates on stock price fluctuation on announcements of either a stock is being added into or withdrawn from RSS list. In this case, we could investigate whether short selling is welcomed by investors.

1.3 Problem Statement

RSS implemented by BM is to allow for short selling activities as short selling could attract more investors and increase stock market liquidity. Prices of stock are believed to be affected when it is being added into or withdrawn from the regulated short selling list.

There is a lack of evidence or research being conducted on stock price changes when it is being added into or removed from RSS list in Malaysian market. Therefore, there is a need to examine the reaction of stock prices when the stocks is added into or removed from RSS list in BM.

The main objective of this study is to analyze the changes of stock prices following the changes in the RSS list. This study could help both individual and institutional investors to have some insight on their future investment arrangement that probably could assist them to achieve their financial goals and planning. In addition, it helps regulators for regulation setting and implementation and it could be used by management of Bursa Malaysia to examine in depth on implementation of RSS.

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1.4 Research Questions

This study is to examine how is the reaction of stock price changes to announcements of stocks being added into or removed from RSS. The research questions of this study are as follows:

1. Do stock prices changes inclusions following into RSS list on announcement and on effective dates?

2. Do stock prices changes exclusions following into RSS list on announcement and on effective dates?

1.5 Research Objectives

The objective of this study is to analyze the prices changes in a stock that is either added into or removed from the RSS list. The specific research objectives are as follows:

1. To identify stock price changes of inclusion into Regulated Short-Selling list on the announcement and on effective dates.

2. To identify stock price changes of exclusion into Regulated Short-Selling list on the announcement and on effective dates.

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1.6 Significance of the Study

Due to lack of research in Malaysia in relation to investor reactions to regulated short selling, this study is undertaken. This study is relevant to investors, policy makers and researchers. For investors, this study will provide some indication as to when be the right time to buy or sell stocks that will be added into or removed from the list of allowable short selling stocks. As the criteria for inclusions into or exclusions from the list are known, investors can expect about the stocks that will be added into or removed from the list.

BM, as the main policymaker in matters related to short selling, will gain knowledge about investor's perception of the short selling policy. If investors reacted positively to short selling initiative by BM, then BM could think more about making short selling to be more attractive. This study also of interest to researchers as it provide evidence on investor's reactions and efficiency of stock market in Malaysia.

1.7 Scope of the Study

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This study concentrates on stock price changes following its inclusion into or removal from the RSS list by BM. The research period is from the year 2013 to 2016. The RSS list is identified from BM's website. The total observations are 380 which consist of 259 observations under inclusions and 121 observations under exclusions.

1.8 Structure of the Thesis

The remainder of the thesis is organized as follow. Chapter one consists of the introduction, background of study, problem statement, research objectives, research questions, significant of the study, scope of the study and structure of the thesis.

Chapter two presents the theories of short selling. It also discusses about the progress of short selling activities in Malaysia. Next the chapter reviews previous studies on short selling conducted by other scholars.

Chapter three presents the chapter overview, data collection procedures, event study methodology, theoretical framework and hypothesis development. Chapter four presents the descriptive analysis and main findings. Finally, chapter five provides the overview of this study, summary of findings, limitations of the study, recommendations for future research and conclusions.

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CHAPTER TWO

LITERATURE REVIEW

2.0 Chapter Overview

This chapter will review the theories related to this study, existing empirical studies and findings of price changes related to short selling. This chapter starts with theories, follows by progress of short selling activities, and finally reviews previous studies on short selling.

2.1 Theories of the Study

Early papers, such as Miller (1977), argued that security prices tend to be overpriced and move upward which was a reflection of the most optimistic opinion on short-sales constraints which were preferred by pessimist investors. His study is based on two assumptions: short sales are either prohibited or costly and investors have information about the security's value. Figlewski's (1981) study is consistent with Miller's (1977) intuition. By adopting one-period standard model, excess demand appeared when adverse information is relayed to investors that subsequently resulted in share price increases.

Miller's (1977) studies in relation to Capital Asset Pricing Model framework was challenged by Jarrow (1980) and Figlewski (1981). Jarrow (1980) argued that substitution among stocks led to a more complicated price relationship when short sales was prohibited. Jarrow (1980) showed that the price of share will be volatile in market when short–sales is allowed.

Diamond and Verrecchia (1987) set up a model testing the speed of stock price adjustment of short-sale constraints to private information. Their study concluded that even though short-sale constraints tend to remove some informative transactions, they did not affect

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share price increases. Keeping investors out of short-sale transaction will decrease the speed of stock price adjustment to private information, particularly to adverse information, and share prices tend to move downward gradually. Reed (2007) agreed with Diamond and Verrecchia (1987) on their prediction that the share price of short-sales constraints adjust downward gradually in the event short-sales are constrained.

Bai, Chang and Wang (2003) examined the influence of short-sales constraint on asset prices and market efficiency based on investment driven by private information. Their study determined that transactions were limited by short-sales constraints and short sales constraints decreased the efficiency of news or information distribution in the market. Bai *et al.* (2003) concluded that limiting short-sales based on private information would increase the uncertainty of asset price as a higher number of less informed investors will participate in the market that ultimately decrease their interest over the asset. In such an event, short-sales constraint affected asset prices decrease gradually and increased the price fluctuation.

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2.2 Progress of Short Selling Activities

Short selling activities have been around in the market for decades. According to Staley (1997), short selling activities in 1980s were practiced by smart investors who managed to make profit from their investment in good and bad years based on their own analytical method concentrating on the quality of earnings, quality of assets and quality of management, investing in a business managed by incompetent managers with inflated stock prices. They believed that stock prices would subsequently reflect the prices that were consistent with the true value.

Short selling activities were not popular in early 1990s as short-sale lost out to other investment tools, such as mutual fund, and faced questionable financial statement of listed companies. In mid 1990s, short selling activities were again actively pursued and gained back respect from investors (Staley, 1997).

In Malaysia, short selling trading was prohibited effectively from 5th September 1997 to stop speculation on stock selling during the 1997 Asian Financial Crisis (Star 2006; Oxford Business Group 2006; Bernama 2006). After the crisis, short selling was reintroduced in 2007 as a move to reinvigorate trading and interest in Bursa Malaysia. After a decade of ban, BM reintroduced RSS in 2007 with effect from 3rd January 2007 with 70 selected stocks listed on Bursa Malaysia and gradually increased to 244 stocks by 2016. It is believed that the reintroduction of RSS could attract more foreign investors, increase stock market liquidity and enhance the vibrancy of Malaysia market.

2.2 Previous studies on Short Selling

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Several studies conducted by scholars (Chang & Yu, 2004; Reed, 2007; Diamond & Verrecchia, 1987; Haggard *et al.,* 2012; Hao & Zhang, 2012; and Lin, 2012) are related to private information that would affect stock prices and market efficiency which could be related to this study by examining whether stock prices would be affected by the RSS listing announcement. Chang and Yu (2004) studied on short-sales restrictions in the Hong Kong stock market and revealed that short-sales constraints tend to cause share prices to be overvalued. Chang and Yu (2004) retrieved existing record of the list of Designated Securities Eligible for Short Selling from the Hong Kong Stock Exchange. The study period was from January 1992 to July 2003 with a total of 21 revised lists were taken for their research with last revision was dated 27th January 2003. The research result revealed

that there is a total of cumulative 448 stocks appeared in a Designated Security Eligible list with a number of 519 stocks were included into the list and a total of 355 stocks were removed from the list within the research period. The study examined the role of short-sales constraints in price discovery and their role in stabilizing or destabilizing the market. The finding revealed that stock prices move upward when short sales are restricted.

The overvaluation effect is greater for individual stocks with greater dispersion of investor's expectations. Chang and Yu (2004) suggest that removing short-sales restriction contributes to the improvement of the efficiency of price discovery. This suggestion is consistent with Miller (1977) who argued that private information in the scenario of unavailability of short sales would result in stock prices to fluctuate above their true value as investors cannot use that private information to short sell the stock.

Reed (2007) studied on the reaction of share prices towards informational efficiency of short-sales constraints with the direct measure method used. Study period conducted by Reed (2007) was from 1$^{s\ t}$ November 1998 to 20th October 1999 by examining on prices and quantities for lenders of equity loans in the US. The data showed that the median loan duration is 3 days, and the mode of the distribution is 1 day. A total observation of 287,838 representing new loans, 1,579,763 observations representing changes to existing loans, and 1,617,773 observations representing loans that were extended but otherwise unchanged. A total of 684,007 unique loan rate observations was averaged over multiple loans in a given stock each day. The result of their study revealed that short sale constraints impede the incorporation of private information into stock price, stock returns would increase in absolute figures in the event private information is made public. Reed (2007) agreed with

Diamond and Verrecchia (1987) on their prediction that the share price of short-sales constraints adjust downward gradually in the event short-sales are constrained.

Beside private information, other scholars like Haggard, Hao and Zhang (2012) revealed that short selling investor tends to speculate. They examined relationships among hedge fund participation, short-selling levels and stock returns surrounding private investment in public equity (PIPE) issuances, for evidence of manipulative short-selling by hedge funds. Their data were obtained from Sagient Research where they focused on all PIPE deals occurred in the period of 2005 – 2007 with more than 5,000 PIPE deals with total transaction values bigger than USD140billion. Their research narrowed down to concentrate on traditional stock hedge fund with a total of 1,051 PIPE transactions to avoid cross-sectional differences in different PIPE deal structure. The result of their finding revealed that lesser pre-deal short selling happened when hedge funds are included in the PIPE investor group and noted that adjusted returns for firms with hedge funds as investors are positive in the pre-deal period and negative in the post-deal period.

Both results were not in line with the expectation since manipulative short selling by hedge funds during the pre-deal period was not related to adjusted returns of both pre-deal and post-deal periods. They concluded that most hedge funds that invest in traditional stock PIPEs do not involve in manipulation of short selling transactions.

To examine the relationship between excess return and short sales activities for this study, the existing study by Chen (2012), on the relationship between excess returns and short sales activities under unexpected informed and uninformed short sales were considered. Chen (2012) had based on legitimate short selling trading strategy in Hong Kong Stock Exchange (HKEx), studied over 229 stocks which were eligible for short sales for a period

of 269 trading days. The results revealed that stock prices were in decreasing pace for unexpected informed short sale and had a negative effect on excess returns while unexpected uninformed short sales showed increasing pace and has a positive effect on excess returns.

Since September 1998, short selling in Taiwan is not allowed except if the short selling price is above the closing price in the previous trading day. Lin (2012) conducted a research on price changes with the purpose of evaluating short-sales constraint rule. He studied on daily stock returns and other characteristics of 186 stocks from September 13, 1994 to January 19, 2003, which fall under both constrained and unconstrained periods.

His findings were in line with that of Diamond and Verrecchia (1987) that stock prices react to private information. Lin (2012) revealed that stock price changed even during the period when short sales was constrained. Lin (2012) concluded that short-sales constraints imposed by the government were not effective to control the pressure of stock prices that were dropping during a crisis if rational investors continue to hold to their belief.

CHAPTER THREE

METHODOLOGY

3.0 Chapter Overview

This study is designed to examine the price effects subsequent to a stock being added to or withdrawn from the list of short selling stocks. There are two time periods that this study are interested in, which are the announcement dates and effective dates. This chapter starts with data collection procedures followed by event study methodology and research framework.

3.1 Data Collection Procedures

Regulated short selling was suspended in the year 1997 during the Asian Financial Crisis and was reintroduced in 2007. This study intends to examine price changes of a stock after it is added to or removed from the RSS list in BM for the period from 25th January 2013 to 5th August 2016. BM updates the list of short selling twice a year.

Refer to Table 3.1 for the number of stocks added to or withdrawn from the list of SS stocks and the announcements and effective dates. The effective date is the date declared by the Securities Commission (SC), on which shares can be start trading. This usually refers to the date when shares become available for sale in RSS.

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Announcement Date	Effective Date	Inclusions	Exclusions
25 January 2013	4 February 2013	10	8
15 July 2013	22 July 2013	71	7
19 February 2014	27 February 2014	56	10
14 August 2014	21 August 2014	27	21
13 January 2015	27 January 2015	30	16
13 July 2015	28 July 2015	31	21
8 January 2016	22 January 2016	14	20
20 July 2016	5 August 2016	20	18

Table 3.1 Data collection of Regulated Short Selling (RSS) from 2013 until 2016 on announcement and effective dates for inclusions and exclusions.

Secondary data is used in this study. Secondary data is defined as information gathered and recorded by someone other than the researcher who is conducting the current project. In this study, data collected was in the form of secondary data from DataStream Sultanah Bahiyah Library that is located in Universiti Utara Malaysia (UUM) Sintok.

Henderson and Glenn (1990) stated that event study is well suited to assess the impact of market-wide events such as regulation or legislation on the market as a whole. The date selection in the process of an event study should be reflecting the public reasonably expected price according to the news. Most of the event studies choose event dates that are usually 1 or 2 days before or on the announcement date (t = - 1, t = - 2, etc). In this case, we take 10 days before and 60 days after the announcement dates and the effective dates. We take a longer event period to capture the effect of market efficiency.

3.2 Event Study Methodology

Event study is widely used by scholars to examine the impact of a specific event or happening toward a firm (MacKinlay, 1997). Some examples include official earning announcements, mergers and acquisitions, and issue of new debts or equity. This study follows the approach of MacKinlay (1997). The events of interest is the addition of a stock to the list of stocks allowed to be short sold and the removal of stock from the same list.

To test the hypotheses, this study examines the stock prices before, on and after the event dates. We measure the abnormal returns (ARs), average abnormal return (AAR) and cumulative abnormal returns (CARs) around event dates based on the approach of MacKinlay (1997) and Brown and Warner (1985). Prior to measuring the abnormal returns (ARs), the raw daily return of the RSS stocks during the event window of 71 days (-10 to + 60) for each security, with day 0 defined as the event day, has to be determined.

Raw daily returns are calculated as follows:

$$R_{i,t} = (P_{i,t} - P_{i,t-1}) / P_{i,t-1}$$

Where:

$R_{i,t}$ = raw return of stock *i* either added to or removed from the RSS list on day *t*

$P_{i,t}$ = closing price of RSS stock on day *t*

$P_{i,t-1}$ = closing price of RSS stock on day *t =1*

Expected return is required for AR calculation. The expected return is estimated based on the return of the KLCI index as KLCI represents the overall market performance of Malaysia market. Daily expected returns are calculated as follows:

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$R_{m,t} = (P_{m,t} - P_{m,t-1}) / P_{m,t-1}$

Where:

$R_{m,t}$ = raw return of KLCI on day *t*

$P_{m,t}$ = closing price of KLCI on day *t*

$P_{m,t-1}$ = closing price of KLCI on day *t*

Once stock and market returns are obtained, daily abnormal returns (AR) can be estimated as follows:

$AR_{i,t} = R_{i,t} - R_{m,t}$

Where:

$AR_{i,t}$ = Abnormal return of stock *i* either added to or removed from the RSS list on day *t*

$R_{i,t}$ = raw return of stock *i* either added to or removed from the RSS list on day *t*

$R_{m,t}$ = Raw return on KLCI on day *t*

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Subsequently, the average abnormal return (AAR) for day *t* across all stocks can be estimated as follows:

$AAR_t = \left(\frac{1}{N}\right) \sum_{i=1}^{n} ARit$

Where:

AAR_t = Average daily abnormal return of stock *i* either added to or removed from the RSS list on day *t*

N = Number of RSS stock in the sample

Next, the cumulative average abnormal return (CAAR) on the specified event period is calculated as the sum of the daily average abnormal returns. Thus

$$CAAR_{t1,t2} = \sum_{t=t1}^{t} AARt$$

Where:

$CAAR_{t1,t2}$ = Cumulative average abnormal return of stock i either added to or removed from the RSS list on day t1 to event day t2

Finally, a t-statistic is used to test for the significance of CAAR.

3.3 Research Framework

The objective of this study is to analyze the price changes in a stock that is either added into or removed from the RSS list. There are two theoretical framework in this study. Figure 3.1 show stock prices is the dependent variables while inclusions into Regulated Short-Selling (RSS) list on announcement and effective dates as an independent variables. Meanwhile, Figure 3.2 show the stock prices as dependent variables and exclusions into Regulated Short-Selling (RSS) list on announcement and effective dates as an independent variables.

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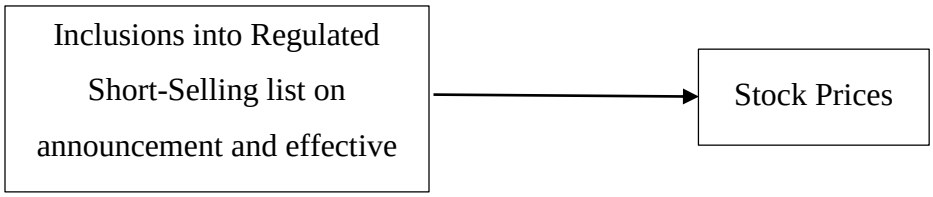

Figure 3.1: Theoretical framework of inclusions into RSS list.

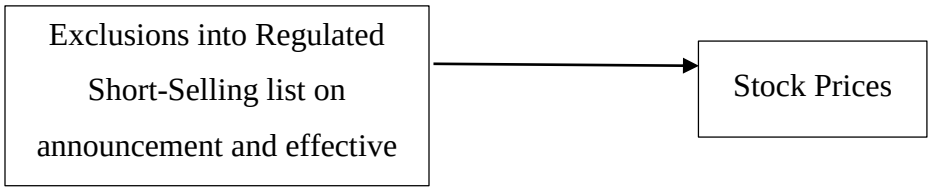

Figure 3.2: Theoretical framework of exclusions from RSS list.

3.3.1 Hypotheses Development

The hypotheses of this study are as follows:

3.3.1.1 Hypothesis 1:

H_1: Abnormal returns are observed surrounding the announcement dates after stocks are added to the RSS list by BM.

3.3.1.2 Hypothesis 2:

H_2: Abnormal returns are observed surrounding the effective dates after stocks are added to the RSS list by BM.

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3.3.1.2 Hypothesis 3:

H_3: Abnormal returns are observed surrounding the announcement dates after stocks are withdrawn from the RSS list by BM.

3.3.1.4 Hypothesis 4

H_4: Abnormal returns are observed surrounding the effective dates after stocks are withdrawn from the RSS list by BM.

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CHAPTER FOUR

RESULTS AND ANALYSIS

4.0 Chapter Overview

This chapter presents and discusses the results of the study. Section 4.1 discusses the result of average abnormal returns (AAR) in RSS list. Section 4.2 discusses on the inclusion of stocks to RSS list by looking at the changes in prices as measured by cumulative average abnormal return (CAAR). Following that, 4.3 discusses on the result obtained from exclusion of stocks from RSS list is provided.

4.1 Average Abnormal Returns in RSS List

Table 4.1 shows the average abnormal returns on announcement and effective dates of inclusions and exclusions of stocks from RSS list. The event windows period is from ten days before to ten days after announcements. However, this AARs is only focus on 1 day before to 1 day after the event dates. The table provides information about AAR and p-values.

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Table 4.1: Analyses of average abnormal returns and p-value following inclusions and exclusions of stocks into the RSS list following the announcement and effective dates.

Event Day	AAR on announcement dates of Inclusions	P-value	AAR on effective dates of Inclusions	P-value	AAR on announcement dates of exclusions	P-value	AAR on effective dates of exclusions	P-value
-10	-0.163%	0.191	0.493% ***	0.003	-0.266%	0.647	-0.015%	0.915
-9	0.187%	0.107	0.310%	0.027	0.097%	0.899	0.216%	0.172
-8	0.201% *	0.083	0.001%	0.996	-0.184%	0.755	-0.066%	0.659
-7	0.293% **	0.035	-0.021%	0.854	-0.158%	0.821	0.223%	0.361
-6	0.264% *	0.077	0.139%	0.239	-0.036%	0.954	-0.388%	0.101
-5	0.352% **	0.024	0.159%	0.194	0.085%	0.892	0.014%	0.932
-4	0.379% **	0.011	0.195%	0.135	0.484%	0.344	-0.192%	0.255
-3	-0.113%	0.370	0.525% ***	0.001	-0.247%	0.793	0.276%	0.177
-2	-0.063%	0.645	-0.168%	0.154	0.060%	0.937	-0.422% **	0.018
-1	-0.072%	0.557	-0.230% **	0.040	-0.371%	0.593	-0.539% **	0.019
0	0.194%	0.152	-0.341% ***	0.005	-0.068%	0.914	-0.318% *	0.056
1	0.434% ***	0.004	0.092%	0.393	0.223%	0.733	-0.316% **	0.041
2	0.135%	0.270	-0.118%	0.215	0.090%	0.867	-0.055%	0.725
3	0.099%	0.373	-0.127%	0.202	-0.209%	0.775	-0.010%	0.949
4	-0.402% ***	0.000	-0.264% **	0.026	-0.415%	0.596	-0.096%	0.669
5	0.066%	0.493	-0.003%	0.979	0.130%	0.860	0.105%	0.595
6	-0.063%	0.558	0.269% **	0.022	-0.197%	0.779	0.115%	0.546
7	0.184%	0.137	0.080%	0.502	0.104%	0.903	0.101%	0.579
8	-0.060%	0.586	0.160%	0.198	-0.429%	0.541	0.026%	0.894
9	0.090%	0.428	-0.026%	0.858	-0.062%	0.952	-0.054%	0.757
10	0.059%	0.628	0.356% ***	0.008	-0.082%	0.900	0.170%	0.285

***, **, and * indicate that AAR is significant at 1%, 5% and 10% levels respectively.

Based on Table 4.1, there is only one significant result, which is for event window one day after announcement dates of stocks to be added into RSS list with an AAR of 0.434%. Meanwhile, there are two significant results for effective dates when stocks are being added into the list with negative AAR of -0.230% and -0.341% on event days -1 and 0 respectively. However, none of results is significant when the stocks are withdrawn from the list on announcement dates. Based on the AAR on effective dates of exclusions, the result show that AARs are negative and significant from event day -2 to event day 1. The AARs are -0.422%, -0.539%, -0.318% and -0.316% on event days -2, -1, 0 and 1 respectively.

4.2 Inclusions of RSS stock listed on RSS list in BM and result discussion using CAAR

Section 4.2.1 discusses the stock price reactions to the inclusion of stocks into RSS list on the announcement dates while section 4.2.2 discusses on the stock price reactions to the inclusion of stocks into RSS list on the effective dates.

4.2.1 Effect of stock prices on announcement dates of inclusions into the RSS list

Table 4.2 shows the cumulative average abnormal returns for event windows period of 2013 to 2016 and the overall sample is used in this study. The total number of observations in inclusion is 259. The table provides information about the number of observations, CAARs and p-values.

Investor reactions to announcement of stocks being added to the RSS list are summarized in Table 4.2. The result based on additions in 2013 show that investors reacted positively for the overall period from 10 days before to 60 days after the

announcement (-10, 60) and also from 10 days before to a day before the announcements (-10, -1). CAARs for (-10, 60) and (-10, -1) are 3.165% and 2.038% respectively and both values are significant at 5% level. In 2014, significant result are observed to short window periods such as (-10, -1), (-5, 5), (-5, -1) and (-1, 1) when the CAAR are 2.199%, 1.684%, 1.578%, 0.845% respectively and all values are significant at 5% level. In 2015, there is only one significant result, which is for event window (-10, 10) with a CAAR of 2.688%. Meanwhile, in 2016, there are two significant result, which is for event window (-5, 5) and (-5, 1) with a CAAR of 2.662% and 2.134%. Based on observations from 2013 to 2016, there are eight significant event windows and only two event windows that are not significant (1, 60) and (-3, 1).

Based on the results in Table 4.2, several observations could be made. First, prices go up even before announcement dates. It is noted that CAAR of the stock starts to increase from 10 days before event day as shown in Table 4.2 within the research period. It is possible that either information about the RSS listing announcement had leaked to investors or investors could expect which companies would be added to the RSS list.

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Table 4.2: Analyses of cumulative average abnormal returns following inclusions of stock into the RSS list following the announcement dates (p-value is in bracket)

Event Window	2013 (81 obs)	2014 (83 obs)	2015 (61 obs)	2016 (34 obs)	All (259 obs)
CAAR(-10,60)	3.165% ** (0.030)	1.631% (0.437)	1.438% (0.484)	1.424% (0.708)	2.038% * (0.063)
CAAR(-10,-1)	2.038% ** (0.011)	2.199% ** (0.028)	0.870% (0.340)	2.649% (0.100)	1.895% *** (0.001)
CAAR(1,60)	1.550% (0.180)	-0.232% (0.899)	1.224% (0.438)	-0.921% (0.791)	0.578% (0.522)
CAAR(-10,10)	1.650% ** (0.038)	1.629% (0.173)	2.688% ** (0.045)	2.519% (0.149)	2.002% *** (0.002)
CAAR(-5,5)	0.294% (0.633)	1.684% ** (0.028)	0.121% (0.893)	2.662% ** (0.034)	1.009% ** (0.019)
CAAR(-5,-1)	-0.564% (0.172)	1.578% *** (0.004)	-0.535% (0.352)	2.134% ** (0.023)	0.484% * (0.091)
CAAR(-3,3)	0.617% (0.211)	1.100% * (0.076)	-0.053% (0.936)	0.624% (0.491)	0.615% * (0.060)
CAAR(-3,1)	-0.166% (0.646)	1.080% * (0.064)	0.167% (0.805)	0.365% (0.689)	0.381% (0.199)
CAAR(-1,1)	0.556% (0.161)	0.848% ** (0.019)	0.354% (0.529)	0.215% (0.718)	0.557% ** (0.020)
CAAR(0,3)	1.454% *** (0.008)	0.574% (0.165)	0.627% (0.209)	0.580% (0.351)	0.862% *** (0.002)

***, **, and * indicate that AAR is significant at 1%, 5% and 10% levels respectively.

Second, the effect of stock prices on announcement dates when stocks are added into the RSS list is welcomed by investors as in many event windows, CAARs are positive. This result support Hypothesis 1 where it is predicted that stock price will increase following announcements by BM. Third, CAARs following at announcement dates and 60 days after the announcements on event windows (1, 60) are not significant and these results show that the market is efficient.

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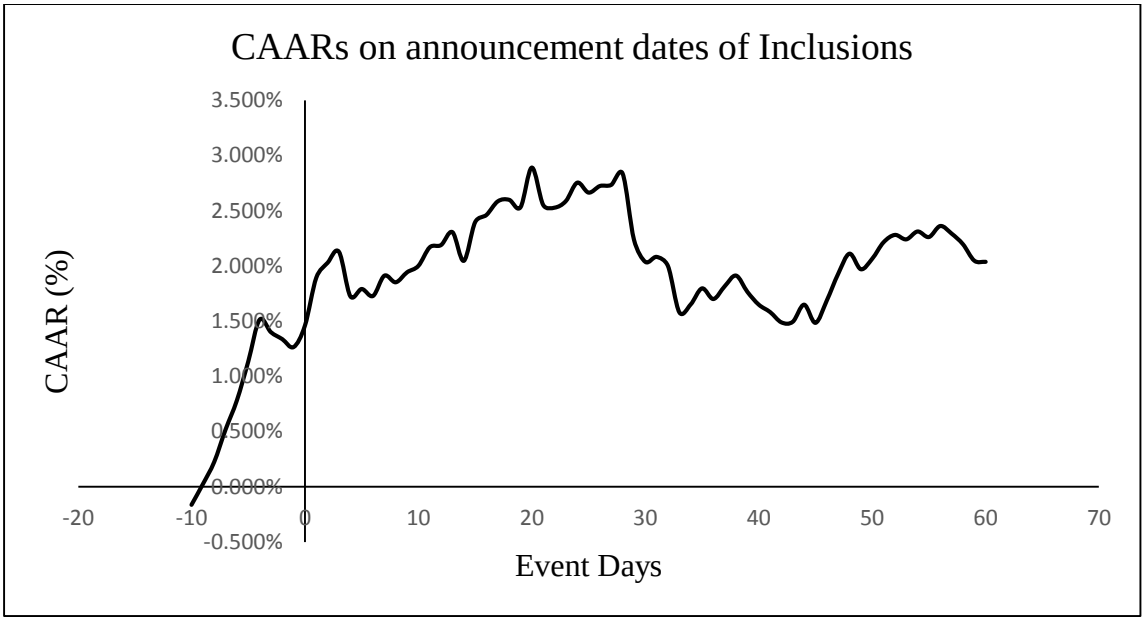

Figure 4.1: CAARs on announcement dates of Inclusions.

Based on the Figure 4.1, the CAARs show an upward trend before the announcement dates. The prices of stocks fluctuate with an upward trend until 30 days after the announcement dates. Thereafter, the prices show downward trend from event day 30 onwards.

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4.2.2 Effect of stock prices on effective dates of inclusions into the RSS list

Table 4.3 present the cumulative average abnormal returns from 2013 to 2016 and the overall event windows. Table 4.3 summarizes the results when the stocks are officially allowed to be short sold on the effective dates. In 2013, two significant results are observed to short window periods of (-5, -1) and (-1, 1) where the CAARs are 1.221% and -0.723%. In 2014, there are two significant windows, which are (-3, 1) and (-1, 1), however, these negative results are only significant at a 10% level. However, there is no significant result in 2015 and 2016. For the overall period, significant results are observed only for windows (-5, -1) and (-1, 1) where CAARs are 0.481% and -0.479% respectively. Even though the results are statistically significant, the economic effect is very small as the absolute value of returns are less than the transaction costs.

Table 4.3: Analyses of cumulative average abnormal returns following inclusions of stock into the RSS list following the effective dates (p-value is in bracket)

Event Window	2013	2014	2015	2016	All
CAAR(-10,60)	1.012% (0.398)	0.946% (0.654)	1.684% (0.411)	-0.072% (0.985)	1.007% (0.335)
CAAR(1,60)	0.630% (0.582)	-0.201% (0.913)	-0.543% (0.731)	-0.445% (0.896)	-0.054% (0.952)
CAAR(-5,5)	0.351% (0.496)	-0.383% (0.563)	-0.444% (0.602)	-1.236% (0.289)	-0.280% (0.446)
CAAR(-5,-1)	1.221% ** (0.018)	-0.296% (0.474)	0.944% (0.135)	-0.214% (0.784)	0.481% * (0.085)
CAAR(-3,3)	-0.303% (0.497)	-0.660% (0.174)	-0.208% (0.760)	-0.092% (0.914)	-0.367% (0.203)
CAAR(-3,1)	0.057% (0.894)	-0.783% * (0.060)	0.357% (0.576)	0.203% (0.783)	-0.123% (0.633)
CAAR(-1,1)	-0.723% ** (0.013)	-0.514% * (0.099)	-0.323% (0.488)	-0.095% (0.800)	-0.479% ** (0.012)

***, **, and * indicate that AAR is significant at 1%, 5% and 10% levels respectively.

Based on Figure 4.2, the prices of stocks increase from day -10 to -3. After that, the prices tend to drop until day 5. The prices fluctuate until day 30 and drop again after that.

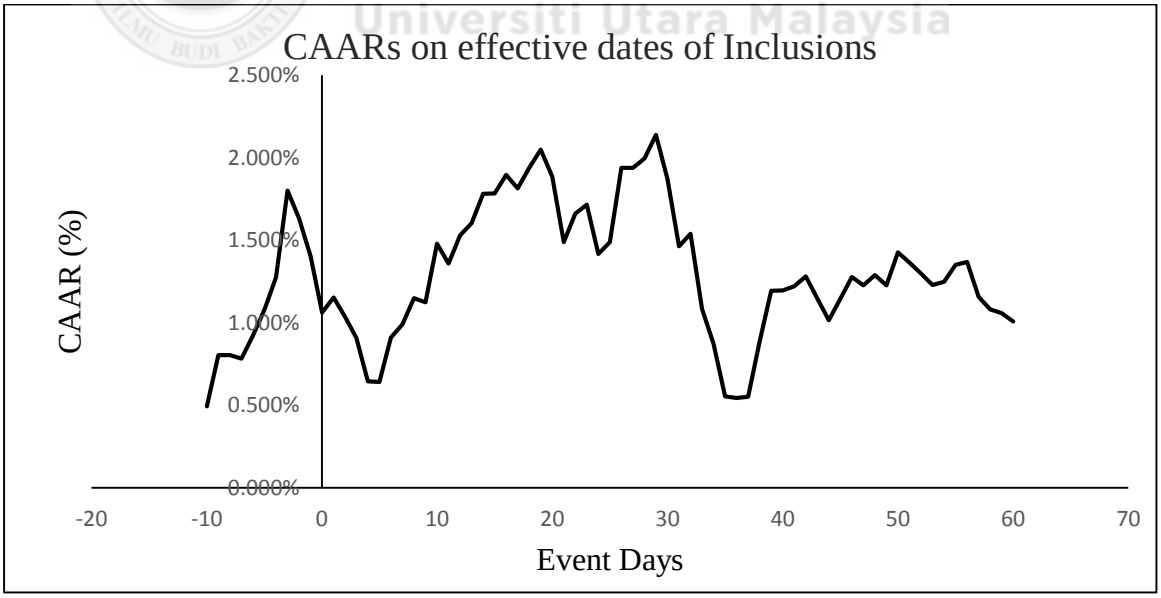

Figure 4.2: CAARs on effective dates of Inclusions.

4.3 Exclusions of RSS stock listed on RSS list in BM and result discussion using CAAR

Section 4.3.1 discusses on the stock price reactions to the exclusion of stocks into RSS list on the announcement dates while section 4.3.2 discusses on the stock price reactions to the exclusion of stocks into RSS list on the effective dates.

4.3.1 Effect of stock prices on announcement dates of exclusions into the RSS list

Table 4.4 shows the cumulative average abnormal returns from 2013 to 2016 and the overall window periods. The table presents the number of observations, CAARs and p-values.

The analyses of Table 4.4 is based on 121 observations of exclusions from RSS list from 2013 to 2016. In 2013 to 2015, none of the result is significant at any significant level. However, in 2016, there are three significant results, which are for event windows (-10, 60), (1, 60) and (-10, 10) with negative CAAR of -5.216%, -4.188% and -3.36% respectively.

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Based on the overall results in Table 4.4, none of the results is significant. This shows that stock exclusions do not influence prices. We expect that exclusions from RSS list would lead to negative returns. However, the results based on announcement dates do not support that hypothesis. In the next section, we will test whether the hypothesis is supported by using effective dates.

Table 4.4: Analyses of cumulative average abnormal returns following exclusions of stock into the RSS list following the announcement dates (p-value is in bracket)

Event Window	2013 (15 obs)	2014 (31 obs)	2015 (37 obs)	2016 (38 obs)	All (121 obs)
CAAR(-10,60)	-3.541%	-5.151%	-1.893%	-5.216% **	-3.975%
	(0.395)	(0.116)	(0.422)	(0.022)	(0.455)
CAAR(-10,-1)	0.420%	-0.750%	-0.162%	-0.606%	-0.380%
	(0.878)	(0.493)	(0.894)	(0.455)	(0.875)
CAAR(1,60)	-3.668%	-4.377%	-1.574%	-4.188% **	-3.373%
	(0.2907)	(0.1315)	(0.4345)	(0.0417)	(0.470)
CAAR(-10,10)	-0.604%	-1.659%	0.341%	-3.360% ***	-1.451%
	(0.807)	(0.284)	(0.829)	(0.004)	(0.628)
CAAR(-5,5)	-1.814%	-0.712%	0.665%	-0.104%	-0.237%
	(0.298)	(0.373)	(0.583)	(0.915)	(0.913)
CAAR(-5,-1)	-0.662%	0.169%	-0.283%	0.439%	0.012%
	(0.669)	(0.764)	(0.758)	(0.505)	(0.994)
CAAR(-3,3)	-1.259%	-0.725%	-0.465%	-0.116%	-0.520%
	(0.394)	(0.296)	(0.546)	(0.893)	(0.758)
CAAR(-3,1)	-0.617%	-0.643%	-0.944%	0.409%	-0.401%
	(0.667)	(0.336)	(0.171)	(0.573)	(0.792)
CAAR(-1,1)	-0.057%	-0.713%	-0.638%	0.541%	-0.215%
	(0.949)	(0.139)	(0.205)	(0.146)	(0.826)

***, **, and * indicate that AAR is significant at 1%, 5% and 10% levels respectively.

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Figure 4.3 shows a downward trend of CAARs on announcement dates when the stocks are withdrawn from the RSS list. It shows that the price start to decrease from -10 until the end of the period. This evidence shows that investors react negatively to exclusion announcements.

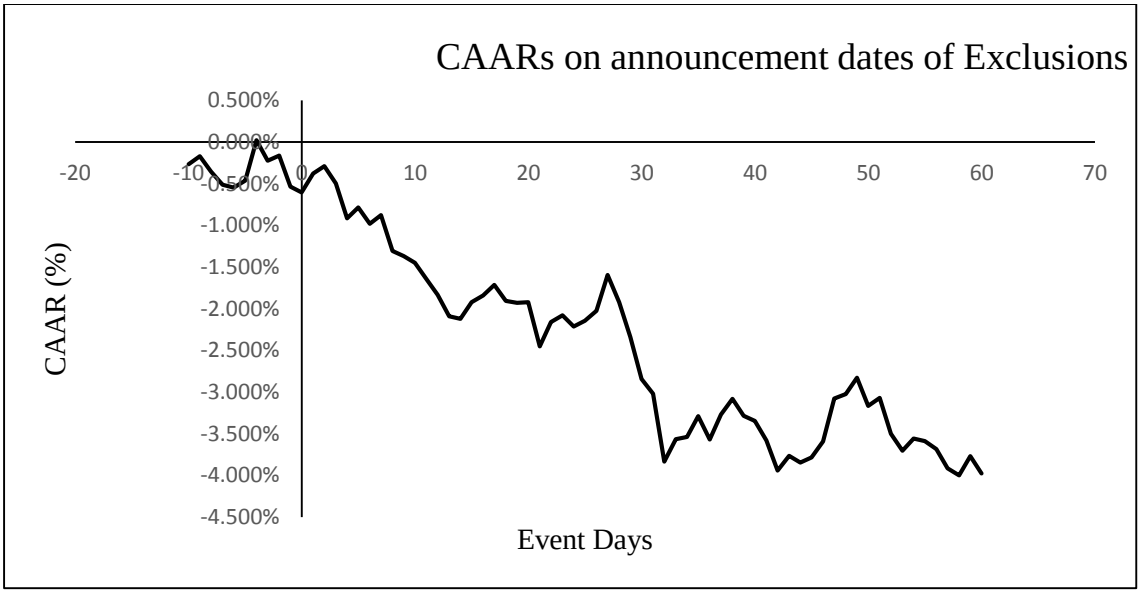

Figure 4.3: CAARs on announcement dates of Exclusions.

4.3.2 Effect of stock prices on effective dates of exclusions into the RSS list

Table 4.5 present the cumulative average abnormal returns from 2013 to 2016 and the overall event windows.

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Table 4.5 summarize the results when the stocks are withdrawn from short selling on the effective dates. In 2013, three significant results are observed to short window periods of (-3, 3), (-3, -1) and (-1, 1) where the CAARs are -2.279%, -2.871% and -2.471% respectively. In 2014, there are three significant windows, which are (-10, 60), (-3, 1) and (-1, 1); however, these negative results are only significant at 10% level. There is no significant result in 2015. In 2016, there are five significant windows, which are (-5, 5), (-5, -1), (-3, 3), (-3, 1) and (-1, 1) where the CAARs are -3.125%, -2.215%, -1.946%, -2.202% and -1.542% respectively.

Table 4.5: Analyses of cumulative average abnormal returns following exclusions of stock into the RSS list following the effective dates (p-value is in bracket)

Event Window	2013	2014	2015	2016	All
CAAR(-10,60)	-5.624% (0.156)	-5.882% * (0.084)	-1.714% (0.278)	-3.144% (0.265)	-3.716% ** (0.013)
CAAR(1,60)	-3.792% (0.315)	-4.880% (0.117)	-2.166% (0.147)	-0.386% (0.891)	-2.504% * (0.072)
CAAR(-5,5)	-0.233% (0.871)	-1.052% (0.261)	-0.894% (0.336)	-3.125% *** (0.000)	-1.553% *** (0.003)
CAAR(-5,-1)	-0.704% (0.479)	-0.811% (0.139)	0.417% (0.635)	-2.215% *** (0.002)	-0.863% ** (0.037)
CAAR(-3,3)	-2.279% * (0.089)	-0.880% (0.173)	-0.869% (0.217)	-1.946% *** (0.005)	-1.385% *** (0.001)
CAAR(-3,1)	-2.871% ** (0.031)	-0.847% * (0.070)	-0.180% (0.787)	-2.202% *** (0.001)	-1.320% *** (0.001)
CAAR(-1,1)	-2.471% *** (0.005)	-0.847% * (0.076)	-0.542% (0.284)	-1.542% *** (0.000)	-1.173% *** (0.000)

***, **, and * indicate that AAR is significant at 1%, 5% and 10% levels respectively.

Based on the overall results in Table 4.5, all event windows are significant. This shows that stock exclusions influence prices on effective dates. We expect that exclusions from RSS list would lead to negative returns and the results based on effective dates do support that hypothesis.

Based on Figure 4.4, CAARs on effective dates of exclusions shows a downward trend in all the event window periods. Again these results show that the actual removal of stocks from the RSS list is greeted unfavorably by investors.

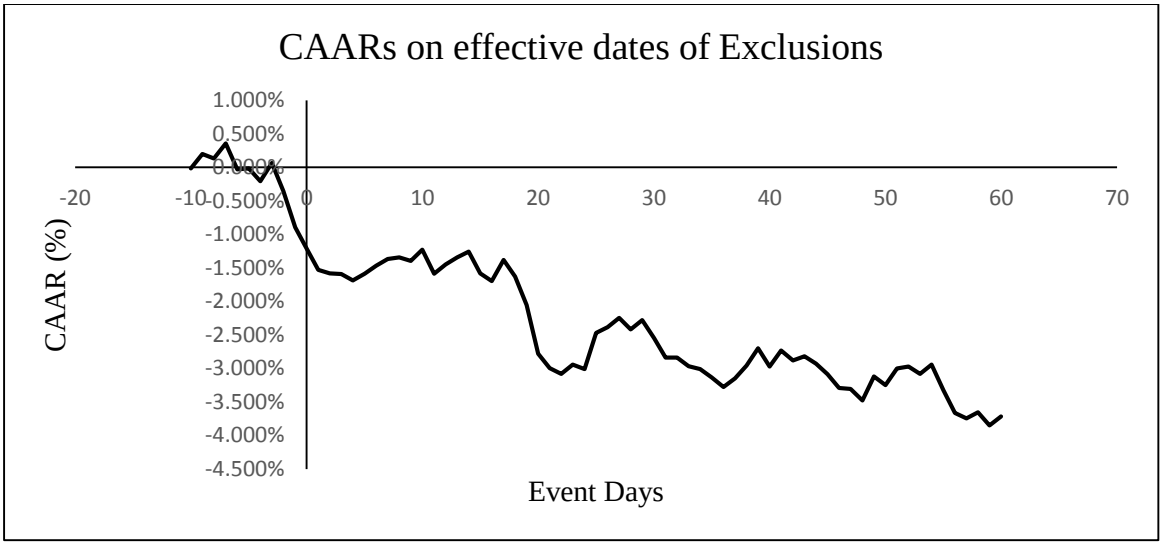

Figure 4.4: CAARs on effective dates of Exclusions.

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CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.0 Chapter Overview

This chapter starts with overview of this study, a summary of findings, limitations of the study, recommendations of the study followed by suggestions for future research and finally conclusion.

5.1 Overview of the Study

The purpose of this study is to examine the effect of the stock price changes from 2013 to 2016 when stocks being added into RSS list or to be removed from RSS list. Secondary data was collected based on RSS list with share prices of the affected stocks during the research period were taken. A total of 259 stocks were added into RSS list and a total of 121 stocks were withdrawn from the RSS list. Average return (AR), average abnormal return (AAR) and cumulative average abnormal return (CAAR) were used to test on hypothesis in this study with t-statistic used to test on the significance of CAARs.

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5.2 Summary of Findings

This section discusses the findings based on the research questions and research objectives. The results of the research support only three hypotheses in this study on effect of stock price changes on stock to be added into or withdrawn from RSS list from BM.

The research revealed a mixed result with Hypothesis 1, 2 and 4 supported by the research result and Hypothesis 3 was not supported by research results. Hypothesis 1 predicted that prices of stocks go up following the announcements of adding the stocks to the RSS list. Hypothesis 2 predicted that stock prices would change surrounding the effective dates after it is added into the RSS list in BM. Hypothesis 4 predicted the stock exclusions influence prices on effective dates. The results of testing stock price changes to being withdrawn from RSS list do not support Hypothesis 3. It is observed that stock exclusions do not influence prices on announcement dates. Thus this study finds that inclusions into RSS list lead to positive abnormal returns, while exclusions lead to negative abnormal return. Thus investors view inclusions into RSS list as positive news and exclusions from the list are viewed unfavorably.

The result also indicates that the market is efficient in term of additions to the RSS list as CAAR for the event window (1, 60) is not statically significant for both announcement and effective dates. However, CAAR over the same period for effective dates is negatively significant for exclusions, which is against market efficiency.

The implication of this study is that investors should try to predict stocks that would either be added into or removed from the RSS list since correct predictions could lead to abnormal profit.

5.3 Limitations of the Study

Short selling was reintroduced in 2007. However, because of time constraint, this study began from 2013. The data of stocks prices were collected from DataStream; however, stock prices for twenty two companies are not available. Thus this study had to drop those companies from the analyses.

5.4 Recommendations for Future Research

The investors should taking a considerations before they are making investment decisions.

Based on these findings, it would be useful to consider future research as follows:

1. What causes stock prices of RSS stock to be added into RSS list increases earlier than official announcement of stock to be added into the RSS list in BM?
2. Is there any speculative transaction involve for stock to be listed in RSS list or stock to be removed from RSS list?
3. What are the pro and cons of re-implementation of regulated short selling (RSS) activities in Malaysia market?

5.5 Conclusion

Based on the result, it is noted that stock prices tend to move upward before announcement and effective dates of stocks added into RSS list. However, it is observed that prices of stocks to be withdrawn decreased on the effective dates. To increase wealth and or to reduce potential losses, an investor could observe RSS listing and delisting announcement by BM to grab the opportunity to invest in the stock before RSS stock is added into RSS list or to sell off the stock in hand after the announcement of delisting of the RSS stock from the list. In addition, this study is useful for BM as they could look for opportunities to encourage the retail investor to invest more actively in BM, either in normal stock investment, RSS and other investments.

Finally, the researchers could take this study as additional knowledge for studies. It could be taken for their research and for academic purposes that could provide them with the information in relation to Malaysia regulated short selling.

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