

Short Selling And The Weekend Effect: Evidence From Malaysia Stock Market 2007 - 2017

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Abstract: Weekend effect is a complex phenomenon that requires much research in order to understand the dynamic factor affecting it. The short selling mechanism in the Malaysia stock market provides a unique opportunity to investigating weekend effect where some stocks are allowed for short selling while others are not allowed for short selling. Thus, this paper has examined daily stock returns of shortable and nonshortable stock in Malaysia stock market for the period 14 August 2007 to 26 January 2017. The research is conducted by applying GARCH and EGARCH model because of heteroscedasticity has been found by ARCH-LM test which showed that the weekend effect is present in shortable stock return. No evidence of weekend effect was found for nonshortable stock. These results indicate that short selling of stock maybe one of the factors that affecting the weekend effect in Malaysia stock market. This is because short sellers face a greater risk if they hold their short positions over the weekend. So, they tend to close their short positions on Friday, which cause the buying pressure to increase before the weekend and reestablish their positions on next first day of trading which result in increased selling pressure that will cause the stock price decreases and thus contribute to the weekend effect. This study also suggests that Malaysia stock market is weak-form inefficient as a result of the existence of weekend effects.

Keywords: Nonshortable stock, Shortable stock, Short selling, Weekend effect

1. Introduction

The existence of calendar anomalies in stock market has been documented for many years and one of them are the weekend effect. Weekend effect shows that stock returns is normally higher at last day of trading for a week than first day of next trading [1]. Let say Friday is the last day of trading in a week while Monday is the first day of the next trading, then the stock return of Friday must be higher than stock return on Monday. Lots of explanation of the weekend effect in stock market has been investigated over the past few decades but none of those papers can explain the weekend effect. These include settlement effect and systematic errors [1], bid-ask bounce [2], expiration day of stock option [3], data mining and unusual events [4]. One of the explanations which may explain the presence of weekend effect in stock market is short position of the stock as short sellers will unwind their short position on last day of trading and reestablish their short position on next first day of trading causing the stock price to go up on last day of trading and go down on the following next first day of trading [5]. But the empirical evidence is inconclusive and stills a matter of debate. A short selling is selling the stock that you do not own with the belief that stock price will decline and purchase back at a lower price [6]. Most of investors purchase stock with intent to make profit from an increase in stock price but they also can sell the stock short if they believe a stock is overpriced and make a profit from decline in the stock price. In Malaysia stock market, short selling reintroduced to the market on 3rd January 2007 [7]. Prior to 2006, short-selling of stocks was banned in 1997 after its benchmark stock index plunged 52% during the Asian financial crisis [8]. However, only the selected stocks which qualify as approved stocks are eligible for short selling and the list of approved stock will to be reviewed every six months. Criteria for the selection of RSS approved stocks are average monthly volume traded must more than 1 million units during the past year with at

least 50 million shares in public float and average daily market capitalization must more than RM500 million for the past three months [7]. Stocks that are eligible for short selling will be reviewed every six months in an advantage because it implies a reduced likelihood that comparison will be affected by possible contemporaneous changes in market-view factors [9]. Malaysia's regulations on short selling practices make its data unique and well-suited to serving our purpose of investigating directly whether short selling affect the weekend effect in Malaysia and enable us compares the same stocks across different short selling regimes in term of their returns. Comparing the stocks that never been removed from the short selling list and stocks that have never been added to the short selling list make it difficult to identify pure weekend effect than compare the same stocks that across different short selling regimes. It also would be difficult to conclude that regime changes do not have weekend effects if no changes in the pricing behavior are detected because other concurrent factors could nullify regimes changes.

1.1 Problem statement

Despite several studies have been investigated based on the weekend effect in Malaysia stock market but none have been conducted to investigate whether short selling of stocks contributing to weekend effect in Malaysia [10]-[13]. Thus, this research attempts to determine whether short selling of stocks contribute to the weekend effect. Based on the literature, relationship between short selling and the weekend effect is subject to controversy; some claim that short selling do have an impact [5], [14], [15] while others found them to be insignificant [16]-[18]. Weekend effect maybe cannot be generalized beyond a particular nation as every country may provide different results. So, it is appropriate to study whether short selling affect the weekend effect of each country's stock market independently. I also believe that this

is the first study to investigating whether short selling of stock affects the weekend effect in Malaysia stock market.

1.2 Research objectives

The purpose of this research is to investigate the relationship between short selling and the weekend effect in Malaysia stock market.

1.3 Research hypothesis

H_1 : Only stocks that are allowed for short selling show the presence of weekend effect than the stocks that have been removed from short selling list for the same period.

1.4 Significance of research

1.4.1 Theoretical perspectives

The significant of this study is to make a contribution to the research on the factors that affect the weekend effect in Malaysia stock market. Moreover, this study will support future research in a similar field and provide a better understanding of the subject matter.

1.4.2 Management perspectives

The research is believed to contribute the related management team whether short selling affect the weekend effect in Malaysia stock market. This typically help manager of financial sector make the best decision when is the right time to buy or sell stocks as the weekend effect show that stock price is higher on Friday and lower on Monday. We also can identify whether markets are more suitable for passive investors or active investor. Passive investors are beneficial if absence of the weekend effect because they are more willing to adopt buy-and-hold strategy and active investors are beneficial if market shows the presence of weekend effect.

1.4.3 Academic perspectives

This research is beneficial to the students who are interested with the factors that affecting the weekend effect in Malaysia stock market. The research also can use as the referenced for the students in their academic scope.

1.5 Scope

The scope of this research will cover only the Regulated Short Selling (RSS) approved stocks that are traded in Malaysia stock market and this research examine only for the same period. However, the period before and after the stock that is eligible for short selling is not cover in this research.

1.6 Limitations

One of the important limitations is limited literature support related to short selling and weekend effect in Malaysia or countries outside the Malaysia.

2. Literature review

2.1 Weekend effect

It was not relatively new by research on weekend effect as there was a bulk of researchers and scholars have been extensively studied on it as a dependent variable. Standard & Poor's Composite Stock Index performed better in last day of trading for a week than first day of next trading from 1953 to 1970 [19]. Weekend effect has been tested by using daily return of Standard & Poor's composite portfolio from 1953

to 1971 and the result show the negative mean return for Monday over the whole period [20]. Weekend effect also has been investigated by using Standard & Poor's Composite Stock Price Index to further examine the weekend effect and their finding indicated consistently negative Monday returns from 1928 to 1982 [1]. However, different result indicated that weekend effect only present in nine countries with is consistent with the finding in U.S. equity market but others eight countries show that lowest returns occurs on Tuesday [21]. Similar result is reported indicated that weekend effect is present in return equation between 1973 to 1997 from Standard and Poor's market index [22]. Weekend effect not only happened to U.S. equity market but also have the same effect in other international equity market. Result was similar with those for U.S. market for weekend effect as abnormal returns of stocks was highest on Friday by analyzed the Italian stock market from 1975 to 1989 [23]. Intraday data for 276 companies for year 1989 has been employed to examine the weekend effect and the research showed that Monday's stock trading activity normally lower for institutional traders but individual traders have a higher sell orders on Monday [24]. Therefore, individual traders contribute directly through their trading while institutional traders contribute indirectly through their withdrawal of liquidity. The Ordinary Least Squares (OLS) and GARCH models were using to examine the weekend effect for war period ended 2009 in Sri Lanka market have shown the presence of weekend effect with negative Monday return and followed by high positive Friday return [25]. Weekend effect also present for Malaysian stock market [10]-[13]. In Table 1, the findings for the weekend effect have been listed.

Table 1: Study of Weekend effect in Malaysian market

Authors	Year published	Study period	Main findings
Nasir, Mohamad and Hamid	1988	1975-1985	Negative return for Monday Highest return for Friday
Chia, Liew and Wafa	2006	1993-2005	Negative Monday return Positive return for Friday
Muhammad and Rahman	2010	1999-2006	Monday has lowest mean return Friday has highest mean return
Lim and Chia	2010	2002-2009	Monday has negative mean return Friday has highest mean return

The focus of the studies above has been the seasonal pattern in stock return but many empirical studies have been conducted to investigate potential explanation of the weekend effect. Many researchers tried to explain the weekend effect but none of them prove satisfactory such as settlement effect and systematic errors [1]. Most of the reasonable or unreasonable explanations have been tested and rejected for weekend effect [26]. One of the explanations was because of market was efficient in 1975. Some researchers also tried to explain systematic differences in the probabilities of bid and ask price across weekend effect [2]. However, the result showed that weekend effect only can

partly explained by systematic movements within the bid-ask spread. Options expiration day also cannot explain why the Monday effect is concentrated in the past two weeks of the month [3]. Two possible explanations of weekend effect which is data mining and unusual events also have been rejected [4]. Thus, weekend effect still has remained unresolved puzzle for many years despite extensive research. Based on the empirical results reported so far, we can suggest that weekend effect exists in some of the countries but none of the explanation can completely explain this phenomenon by providing direct evidence.

2.2 Relationship between short selling and weekend effect

Chen and Singal (2003) proposed that weekend effect maybe link to short sales of stock [5]. This is because short sellers require monitoring their position closely as they face unlimited downside risk. So they tend to close their position on last day of trading and reopen a new short position following the first day of next week in order to avoid any potential losses during non-trading period. Their studies argue that high short interest stocks have larger weekend effect compare to stock with low relative short interest. However, number of shorted shares is drawn from just one day in the middle of the month and there is no guarantee that this day reflects the patterns in the short selling from data series of Chen and Singal (2003). Therefore, a new research has been conducted with much larger daily trading data set through Nasdaq's stock from 2000 to 2001 [14]. During their test, stocks show a large weekend effect in return for smallest company and they find that trading volume is high on Mondays if compare to Fridays for a weekend effect in speculative short selling. Hypothesis of Chen and Singal (2003) also has been tested in a different time period using short sales transactions data from a sample of NYSE-listed stocks [16]. Their finding display that returns of Monday are lower than returns on Friday but Monday's short selling activities are lower than Friday's short selling activities which contrary to the hypothesis of Chen and Singal (2003). Chen and Singal (2003) hypothesis also has been rejected because their findings show that positive correlation between short selling and stock returns are higher on Monday which contradicting the notion that short selling pressure lower the Monday returns [17]. Empirical tests also have been extended by employing daily stock index from 60 markets. From 1980 to 1994, shorting stock can explain weekend effect well but cannot explain the weekend effect from 1995 to 2007 [15]. The finding indicates that the hypothesis proposed by Chen and Singal (2003) worked well in the past but didn't perform well over the last decade especially in the developed markets. One of the possible explanations is that short sellers now can hedge and not limited by a single market in the developed market if compare to the short sellers in the developing markets. Besides that, results showed that Hong Kong stock market have strong weekend effect for both periods during the pre-1994 and during the post-1994 as short selling was banned before 1994 and was allowed only for the stocks that meet the criteria for short selling after 1994 [18]. However, there is no significant difference between the weekend effect of shorted stocks and non-shorted stocks for high volatility group which contrary to the hypothesis of Chen and Singal (2003). From the literature review, we can see that previous empirical studies fail to reach a consensus on whether short selling of stock

can explain the weekend effect. Therefore, this study aims to identify the relationship between short selling and the weekend effect in Malaysia stock market.

3. Research methodology

3.1 Research design

Research design refers to the overall strategy within which research is conducted such as collection, measurement and analysis of data [27]. This research is an explanatory research using a quantitative method that primarily aims to find whether short selling of stocks contribute to weekend effect. Quantitative research proposed that explanatory research is designed to study a problem or a situation in order to identifying the relationship between variables [28].

3.2 Research philosophy

This research is referring to epistemic beliefs. Epistemology is the study of knowledge especially about its validation and method used. It concerns with how we know things and what we can regard as acceptance knowledge in a discipline [29].

3.3 Research approach

Deduction owes more to positivism [27]. Therefore, this research is based on deductive approach due to the nature of this research which is based on positivism. A deduction study would begin at the theoretical level of analysis which proposes a relationship between two or more variables [30]. After that, we need observe on the variables that we are concern and look at the pattern of data. Lastly, make an explanatory statement about why the data fall into the particular patterns and should we support or refute the original hypothesis.

3.4 Research strategy

This research strategy will be based on experiment. The aim of an experiment is to investigate whether there is a relationship between two variables. Experiments are also at the heart of scientific method with its practice of formulating and testing hypotheses through designed and controlled test.

3.5 Research choices

Quantitative research is concerned with quantifying phenomena [32]. As weekend effect is measured by differences between stock return of Friday and the following Monday, this study will therefore employ quantitative method.

3.6 Time horizon

This research will be time series and cross-sectional in order to compares stocks that are eligible for short selling (shortable stock) with stocks that are previously eligible for short selling but have been removed from short selling list (nonshortable stock) for a period from 2007 to 2017 to determine whether short selling of stocks contributes to weekend effect. Cross-sectional study aims to finding out the prevalence of a phenomenon, situation or problem by taking a cross-section of the population [33].

Table 2: Changes in the RSS approved stock list

Effective date	Addition	Addition*	Deletion	Deletion*	RSS approved securities
3-Jan-07	70	0	0	0	70
14-Aug-07	36	23	6	2	100
28-Jan-08	20	15	20	11	100
28-Jul-08	20	16	20	16	100
30-Jan-09	24	15	24	18	100
30-Jul-09	17	11	17	9	100
3-Feb-10	12	10	12	8	100
29-Jul-10	23	19	23	15	100
2-Feb-11	15	14	15	8	100
1-Aug-11	15	12	15	13	100
9-Feb-12	12	10	12	9	100
1-Aug-12	17	17	17	11	100
4-Feb-13	10	9	10	9	100
22-Jul-13	79	77	8	8	171
27-Feb-14	58	57	11	8	218
21-Aug-14	30	27	21	20	227
27-Jan-15	30	30	18	16	239
28-Jul-15	31	31	22	20	248
22-Jan-16	14	14	20	20	242
5-Aug-16	21	21	19	16	244

3.7 Data collection and processing

This research will be using secondary data as source of data collection. I rely on few sources for secondary data. Daily historical data for shortable and nonshortable stocks and the complete list of Regulated Short Selling (RSS) approved stock from August 2007 to January 2017 were obtained from Google Finance and Bursa Malaysia respectively. Stocks that are meeting the criteria will be added to the short selling list while stocks are no longer eligible will be removed from the short selling list. Table 2 shows the information of the RSS approved stock list including the effective date, the number of stock that are allowed for short selling (“Addition”) and stocks that are previously allowed for short selling but currently have been removed for short selling list (“Deletion”) and total number of stocks approved for short selling. Then, we will compare the result of shortable stock and nonshortable stock from the same period to investigate the weekend effect. However, number of stock added (shortable stock) to and deleted (nonshortable stock) use in this research is refer to “Addition*” and “Deletion*” because some of the stocks was already delisting from Bursa Saham Malaysia. After that, the data gathered will be keyed into Microsoft Excel and then imported to Econometric Views (EViews).

3.8 Data analysis

It enables us to collect information about large and representative samples of people or organizations with numerical measurement and use this numerical data to make valuable prediction or to simplify complex relationship [34].

Idea can be developed and tested by analyzing and interpreting such numerical data.

3.8.1 Preliminary statistical tests

The logarithmic returns of shortable and nonshortable will be calculated and the daily rate of change is computed as the natural logarithmic first difference of the daily closing price of the shortable and nonshortable stock:

$$R_t = \ln(I_t / I_{t-1})$$

where:

R_t = Continuously compounded rate of return of stock

I_t = Closing price of stock in day t

I_{t-1} = Closing price of stock in the day before day t

ln = Natural logarithm to the basis e

3.8.2 Descriptive statistics

Descriptive statistics is concerned with describing numbers and to summarize data in a meaningful way [34]. Mean is the average of the number in a set of data while median representing the middle value of a set of data which has been ordered. Frequently, the median will differ in value from the mean and these differences may tell us something about variability within the data [35]. A far more important measure of variability is the standard deviation. Standard deviation used to show the changing volatility of share prices. Coefficient of skewness tries to provide an impression of the general shape of the data distribution. Thus, we can infer the general shape of the distribution by simply knowing the value for the skewness coefficient [36]. Jarque-Bera test, on the other hand, helps us to determine whether the data are normally distributed.

3.8.3 Inferential statistics

Two important things must be considered for the model specification. The first one is the autocorrelation problem resulted from the violation of the assumption of no autocorrelation in classical linear regression model [37]. The second problem is that error variances may not be constant over time [37]. Standard error estimates could be wrong if the errors term is heteroskedastic but assumed homoscedastic. Error variances also may not be constant over time in the context of financial time series. But this can be solved by allowing variances of errors to be time dependent to include a conditional heteroskedasticity. Thus, error terms have a mean of zero and a time-varying variance of h_t , i.e. $\varepsilon_t \sim (0, h_t)$. Autocorrelation in volatility is modeled by allowing the conditional variance of the error term to depend on the immediately previous value of the squared error under the ARCH model, which was developed by the econometrician Engle [38]. The generalized ARCH (GARCH) model, developed by the econometrician Bollerslev [39], extends the ARCH model to let conditional variance depends on its own lags as well as lags of the squared error. But GARCH model enforces a symmetric response of volatility to negative and positive shock [40]. This arises since the conditional variance in equations is a function of the magnitudes of the lagged residuals and not their signs but some argued that a negative shock to financial time series is likely to cause volatility to rise by more than a positive shock of the same magnitude [40]. One of the popular asymmetric formulations is exponential GARCH (EGARCH) model proposed by Nelson [41] is used in this study as this model account for possible asymmetries. The mean equation of GARCH(1,1) model used in this research is described below [42]:

$$R_t = \partial_1 R_{t-1} + \sum_{i=1}^5 \lambda_i D_{it} + \varepsilon_t \quad (1)$$

where R_t is the continuously compounded rate of returns of the shortable and nonshortable stock at time t . R_{t-1} is a proxy for the mean of R_t conditional on past information and ε_t is the error term. In order to avoid dummy variable trap, we only includes four out of five days in the week in the conditional mean equation [43]. Thus, D_{it} ($i = 1, 2, 3$ and 4) are dummy variables for Monday, Tuesday, Thursday and Friday. GARCH and EGARCH model deviated from each other in the way they specified the conditional variance h_t . The two conditional variance equations fit into daily stock returns to model the shortable and nonshortable data are [44]:

GARCH model:

$$h_t = \omega + \alpha \varepsilon_{t-1}^2 + \beta h_{t-1} \quad (2)$$

EGARCH model:

$$\log(h_t) = \omega + \alpha \left[\frac{|\varepsilon_{t-1}|}{\sqrt{h_{t-1}}} - \sqrt{\frac{2}{\pi}} \right] + \gamma \frac{\varepsilon_{t-1}}{\sqrt{h_{t-1}}} + \beta \log(h_{t-1}) \quad (3)$$

In conditional variance equation (2), the ARCH term, α , stands for the contribution of shocks to short-run persistence and GARCH term, β , indicates the long-run persistence of shocks. If the sum of the two regression coefficients in equation (2) is equal to one, the volatility shocks are persistent. According to conditional variance equation (3), α , β and γ are parameters and ω is intercept. The existence of leverage effects in this model can be tested by the hypothesis that $\gamma > 0$, whereas if $\gamma < 0$, then the positive shocks (good

news) generates less volatility than negative shocks (bad news). If $\gamma = 0$, then the model is symmetric [40].

4. Results

4.1 Descriptive analysis of shortable stock

From the result of Table 3, the highest mean return is observed on Friday while Monday mean return is negative which shows the presence of weekend effect. Monday is the day with the highest variance while Friday shows less volatility than any other day of the week if looking at the standard deviation. Returns of shortable stock reflect negative skewness indicating that they are asymmetric. Kurtosis is higher than that of a normal distribution in all the cases showing the fat tails. Finally, a large Jarque-Bera test value indicates that errors are not normally distributed.

4.2 Descriptive analysis of nonshortable stock

Table 4 shows that the lowest mean return earned in Monday and highest mean return earned in Wednesday. Weekend effect also present for nonshortable stock return with positive Friday return and negative Monday stock return. The standard deviation is highest for Monday and lowest for Tuesday. Returns of nonshortable stock reflect negative skewness (except Tuesday and Wednesday) showing that they are asymmetric. Kurtosis is higher than of a normal distribution indicating that the data has heavier tails and is called a leptokurtic distribution. Finally, a large Jarque-Bera test value indicates that errors are not normally distributed.

Table 3: Descriptive statistics of shortable stock

Shortable stock					
	Monday	Tuesday	Wednesday	Thursday	Friday
Mean	-0.002930	-0.000706	0.000434	-0.000193	0.001450
Median	-0.001639	-0.000344	0.001175	0.000430	0.001386
Std. Dev.	0.016036	0.011981	0.011758	0.012999	0.011420
Skewness	-2.598400	-0.177428	-0.019199	-0.694630	-0.252002
Kurtosis	35.18559	8.411894	7.396576	10.57282	10.70531
Jarque-Bera	19752.57	567.4551	382.5997	1148.503	1150.281
Observations	446	463	475	465	463

Table 4: Descriptive statistics of nonshortable stock

Nonshortable stock					
	Monday	Tuesday	Wednesday	Thursday	Friday
Mean	-0.001735	-0.000165	0.000820	0.000464	0.000148
Median	-0.000661	-1.81E-06	0.000207	0.000471	0.000000
Std. Dev.	0.016480	0.011908	0.011917	0.015107	0.012366
Skewness	-0.143914	0.401342	0.748498	-1.035296	-0.455996
Kurtosis	8.161707	6.444799	9.800800	14.68217	9.052391
Jarque-Bera	496.6594	241.3569	959.7350	2727.235	722.7270
Observations	446	463	475	465	463

4.3 Patterns of the residuals series of shortable stock return

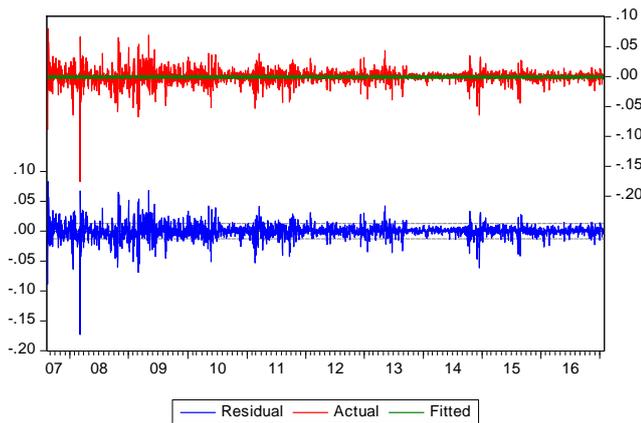


Figure 1: Graph of actual and residuals series of shortable stock return

4.4 Patterns of the residuals series of nonshortable stock return

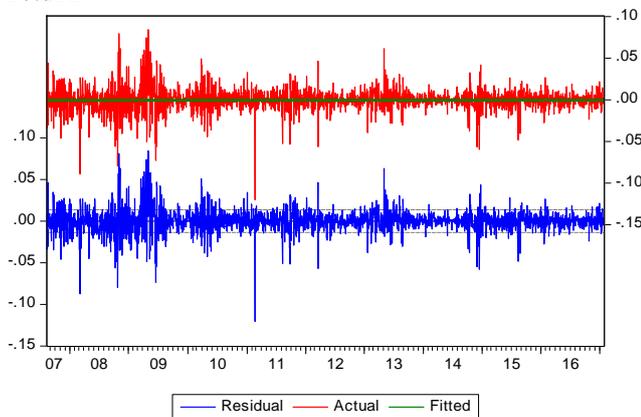


Figure 2: Graph of actual and residuals series of nonshortable stock return

Figures 1 and 2 shows the patterns of actual and residual

series for shortable and nonshortable stock return. The visual inspection indicates the presence of volatility clustering which implies some period of low volatility and some period of high volatility [45]. As we refer to the Figure 1 and 2, there is prolonged period of high volatility especially during the financial crisis of mid-2007 to 2009 and there is also some period of low volatility such as from 2013 to 2014.

4.5 Result of stationarity test

Table 5: Unit root test results

Augmented Dickey-Fuller Test			
Variables	Intercept	With intercept and trend	Without Intercept & trend
Shortable stock	-46.62851 (p-value = 0.0001)	-46.63644 (p-value = 0.0000)	-46.60318 (p-value = 0.0001)
Nonshortable stock	-31.46490 (p-value = 0.0000)	-31.45820 (p-value = 0.0000)	-31.47075 (p-value = 0.0000)

The Augmented Dickey-Fuller (ADF) test was employed in this research to test the stationarity of shortable and nonshortable data before conducting time series analysis as non-stationarity variable could cause several model misspecifications. The result in Table 5 rejects the null hypothesis of non-stationarity for shortable and nonshortable stock returns as the p-value is less than 0.05. This indicates that Malaysia stock markets are weak-form efficiency.

4.6 Result of heteroskedasticity test

Table 6: Results of Langrange Multiplier Test

Parameters	Shortable stock return	Nonshortable stock return
ARCH-LM (1)	67.63140 (p-value = 0.000)	46.77837 (p-value = 0.000)

We can observe from the Table 6 that the shortable and nonshortable return shows evidence of ARCH

(Autoregressive Conditional Heteroskedasticity) effects judging from the significant ARCH-LM with lags 1, which means that the data exhibits autoregressive conditionally heteroskedasticity. This indicates that the GARCH effect such as time-varying second moment has been detected in the shortable and nonshortable returns series. So the use of GARCH-type models for the conditional variance is justified.

4.7 Results of GARCH and EGARCH models for shortable stock return

As refer to Table 7, the findings of conditional mean equation of GARCH (1, 1) and EGARCH (1, 1) showed that weekend effect is present in shortable stocks return. This pattern is present in both models in which Monday shows the negative stock returns while Friday showed the positive stock returns. In term of volatility of GARCH (1, 1), the ARCH variable is positive and statistically significant at 5%

significant level. This indicates that volatility can be predicted by ARCH(α) variable as the stock returns on a particular day are influenced by the stock return on the previous day. The probability of GARCH(β) variable is equal to zero, indicates that if the error is positive on a particular day, the error on the following day will also be positive. Also, the sum of the coefficient of ARCH(α) and GARCH(β) equal to one, which mean that volatility shocks are persistent. In term of volatility of EGARCH (1, 1), the coefficient estimates are negative (-0.067813) and the asymmetry terms are statistically significant as the p-value less than 5% suggesting that positive shock will have a small impact on volatility if compare to negative shock of the same magnitude. Based on the information criteria measures, the EGARCH (1, 1) model outperform the GARCH (1, 1) model with higher log likelihood and lower Akaike info criterion and Schwarz criterion implying that asymmetry plays a role when investigating the weekend effect.

Table 7: Results of GARCH and EGARCH models for shortable stock return

Mean equation				
	GARCH (1, 1)		EGARCH (1, 1)	
Variable	Coefficient	P-value	Coefficient	P-value
C	0.000770	0.0268	0.000490	0.1449
MON	-0.002167	0.0000	-0.002003	0.0000
TUE	-0.000632	0.1923	-0.000568	0.2376
THUR	-0.000805	0.1116	-0.000768	0.1260
FRI	0.000960	0.0418	0.001004	0.0386
Variance equation				
ω	9.06E-07	0.0000	-0.301111	0.0000
ARCH(α)	0.136784	0.0000	0.207606	0.0000
GARCH(β)	0.875207	0.0000	0.984079	0.0000
γ			-0.067813	0.0000
Log likelihood	7326.233		7349.129	
Akaike info criterion	-6.330651		-6.349593	
Schwarz criterion	-6.310769		-6.327225	

4.8 Results of GARCH and EGARCH models for nonshortable stock return

According to the outcomes of the conditional mean equation in Table 8, GARCH (1, 1) and EGARCH (1, 1) models showed that no weekend effect is present on stock returns. Negative Monday returns for both GARCH (1, 1) and EGARCH (1, 1) are statistically significant as their p-value is less than 5%. But Friday return is also negative for both models and result is insignificant for GARCH (1, 1) and significant for EGARCH (1, 1). Thus, no weekend effect is present on stock returns. In term of volatility of GARCH (1, 1), the ARCH variable is positive and statistically significant at 5% significant level. This indicates that high return in day t is followed by high return in $t+1$. The probability of GARCH(β) variable is equal to zero, indicates that if the error is positive on a particular day, the error on the following day will be positive. Also, the sum of the coefficient of ARCH(α) and GARCH(β) equal to one, indicates that volatility shocks are quite persistent. In term of volatility of EGARCH (1, 1), the coefficient estimates are negative (-0.027632) and significant which means that negative shock has a greater impact on volatility if compare

to the positive shocks of the same magnitude. Based on the information criteria measures, the EGARCH (1, 1) model outperform the GARCH (1, 1) model with higher Log likelihood and lower Akaike info criterion and Schwarz criterion means that asymmetry plays a role when investigating the weekend effect.

Table 8: Results of GARCH and EGARCH models for nonshortable stock return

Mean equation				
	GARCH (1, 1)		EGARCH (1, 1)	
Variable	Coefficient	P-value	Coefficient	Prob.
C	0.000525	0.2379	0.000623	0.1605
MON	-0.001809	0.0020	-0.001518	0.0143
TUE	0.000163	0.8024	7.85E-05	0.9034
THUR	-0.000385	0.5255	-0.000437	0.4588
FRI	-0.000877	0.1456	-0.001144	0.0470
Variance equation				
ω	1.69E-06	0.0000	-0.254963	0.0000
ARCH(α)	0.087675	0.0000	0.164792	0.0000
GARCH(β)	0.910328	0.0000	0.984803	0.0000
Γ			-0.027632	0.0000
Log likelihood	7036.178		7054.399	
Akaike info criterion	-6.079739		-6.094636	
Schwarz criterion	-6.059857		-6.094636	

5. Findings

The purpose of this research was to investigate the relationship between short selling and the weekend effect in Malaysia stock market. The proposed hypothesis in this research were tested and based on the statistical analyses of the results of this study; it was revealed that short selling has contributed to the weekend effect in Malaysia stock market. Result from Table 7 and 8 were also consistent with the hypotheses of Chen and Singal (2003) that the short sellers was contributed to the weekend effect. We found that weekend effect was present for shortable stocks. This is because short sellers face a greater risk if they hold their short positions over the weekend. So, they tend to close their short positions on Friday, which cause the buying pressure to increase before the weekend and reestablish their positions on next first day of trading which result in increased selling pressure that will cause the stock price decreases and thus contribute to the weekend effect. However, no evidence of weekend effect in nonshortable stocks. The reason of no weekend effect in nonshortable stock is when stocks are not eligible for short selling, investors needn't to close their short position on last day of trading and reestablish their short position on next first day of trading which will not causing the stock price to go up on last day of trading and go down on the following next first day of trading. The finding of no weekend effect for nonshortable stock further proved that short seller contribute to the weekend effect in Malaysia as only stock that are allowed for short selling shows the presence of weekend effect.

6. Conclusion

The weekend effect is one of the most enigmatic phenomenon in finance as it lead to efficient market hypothesis does not always hold [1]. The short selling mechanism in the Malaysia stock market provides a unique opportunity to investigating weekend effect where some stocks are allowed for short selling while others are not allowed for short selling. Thus, this paper has examined daily stock returns of shortable and nonshortable stock in Malaysia stock market for the period 14 August 2007 to 26 January 2017. The research is conducted by applying GARCH and EGARCH model because of heteroscedasticity has been found by ARCH-LM test which showed that the weekend effect is present in shortable stock return. No

evidence of weekend effect was found for nonshortable stock. These results indicate that short selling of stock maybe one of the factors that affecting the weekend effect in Malaysia stock market. The findings reported in this study also revealed that the proposed hypothesis of the study is significant. It is contended that short sellers may exert price pressures and contribute to the weekend effect.

7. Recommendations for future research

This study focuses on the relationship between short selling and the weekend effect in Malaysia stock market which cover only stock that are allowed for short selling and the stock that have been removed from the short selling list from the same period. So, future researcher can examine whether there is an increase in the differences between the weekend effect of shortable and nonshortable stocks from the pre-event to the post-event period.

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