Day-of-the-Week Effect on the Bursa (Bourse) Malaysia: Further Evidence from Robust Estimations.

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Abstract

The study examines the day of the week effect on the Kuala Lumpur Composite Index of Bursa Malaysia using the daily data from 4th January 1999 to 29th December 2006. Employing the framework due to Hakan and Halil (2001) the study finds that the day of the week effect is present in Malaysian stock market. Specifically, the results show significant negative and significant positive for Monday and Tuesday, respectively. The Tuesday significant positive effect is possibly due to active buying on Monday because of the drop in price. However, the results of the Tuesday returns contradict almost all of the previous findings. The results indicate that information processed over weekends has affected the return of Kuala Lumpur Composite Index not only during the opening on Monday but also the following days. Thus, we suggest that information will decay only after a few days. The other possible explanation is that by using a more robust estimation on the turbulent sample period data do produce different results from the previous study. We also divide the full sample into two sub samples, we find no evident of the day of the week effect for both four years rolling samples (January 1999 until December 2002 and January 2003 until December 2006). The results of the whole sample seem to be consistent with the previous findings particularly on the Monday returns.

Keywords: Bursa Malaysia, day of the week, robustness, OLS.

JEL classification: G15, F30

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1. INTRODUCTION

The presence of calendar anomalies particularly on day of the week effect has extensively been discussed in literature for the last two decades. The questions such as what influence do calendar events have on return distribution (for instance, the January effect, the Monday effect) and whether there is a need to have knowledge regarding this phenomenon of calendar anomalies. It is very important for the investors to know whether there is variation in means stock returns of a particular day in a week and as a result it make investment much easier based on both returns and risks.

The day of the week patterns of stock returns had been investigated widely in different markets across regions and countries. The most commonly studied are the US market (see Cross 1973; French 1980; Keim and Stambaugh 1984; Rogalski 1984; Hakan and Halil, 2001), the developed market excluding the US (see Solnik and Bousquet, 1990; Barone, 1990; Jaffe and Westerfield, 1985), the emerging market excluding Malaysia (see Aggarwal and Rivoli 1989; Balaban, 1995; Wong, Hui and .Chan, 1992); and the Malaysian market (see Marashdeh, 1994; Mansor, 1997).

Calendar effect is a theory which claims that certain days of the week, weeks of the month, and months of the year are more likely to produce rises or falls in stock prices than others while day of the week effect is a theory when average return on Monday is significantly less than the average return over the other days of the week. The day of the week regularity is not limited to the U.S equity market. It has been documented that the day of the week regularity is present in other international equity markets (Jaffe and Westerfield, 1985; Solnik and Bousquet, 1990; Barone, 1990; among others). Previous studies showed variety of results and researchers continue to debate among them about the existence of the effect. However, a study by Abraham and Ikenberry, (1994) shows that the effect does exist. Between 1982 and 1991, for instance, the prices of shares on the New York Stock Exchange and its smaller rival, the American Stock Exchange, fell on Mondays by an average of 0.11%; they typically rose during the rest of the week. Seven of the 15 worst trading days since 1964 are Mondays. This finding goes against the theory of efficient markets. Share price should, in theory, reflect all available information, moving only when relevant new facts emerge. Some efficient marketers admitted that temporary inefficiencies could arise.

For the Malaysian market, empirical analyses on the day of the week effect are quite scared. Study by Wong et al. (1992) noted that the day of the week effect for Malaysian markets was similar to that in the US and Canadian markets. It shows that that the Malaysian market had negative average returns on Monday and high positive returns on Thursday and Friday. Mansor, (1997) substantiated the presence of the day of the week effect found by Wong et al. (1992). On the other hand studies by Marashdeh(1994) and

Davidson and Peker (1996) conclude that there is no day of the week effect in the Malaysian stock market.

These findings need not be viewed as contradicting as they utilized different set of sample periods as well as different methodology. It could possibly mean that the Malaysian stock market had been increasingly informationally efficient. This may explain the absence of the effect in Marashdeh's (1994) study, which used the observations from a more recent period. Moreover, he examines the effect only for a very short period of two years.

The purpose of this paper is to empirically analyze the existence of day of week effect in Malaysian stock market proxies by Kuala Lumpur Composite Index. The study will focus on the effect of the day of the week returns for a period immediate after the currency crisis and also during the recovery period. Specifically, we examine whether the crisis does has some impact on the day of week stock returns. The main idea for this study is to investigate whether the information processed over weekends will affect the index return of Kuala Lumpur Composite Index during and after the opening on Monday. This study tries to relate to elements of the efficient market hypothesis (EMH). Substantial evidence supporting the EMH has been documented over the years. EMH states that security prices fully reflect all available information and will immediately adjust to the arrival of new information. However, the market is closed on both Saturday and Sunday so supposedly investors cannot transact with the market even though they get some information during the weekend.

Thus, this study contributes to the empirical analyses of this seasonal anomaly in several important ways. First, this study utilized the daily indexes traded in Kuala Lumpur Composite Index (KLCI) from January 1999 to December 2006. Therefore, the study actually extended the data sample immediately after the financial crisis to the most recent years. The analysis by Mansor, (1997), for example, covers the periods only up to December 1996. Meanwhile, the work of Omar, (1994) is only limited to the period from 1990 until 1992. Secondly, this study uses the method of Ordinary Least Square (OLS), similar to that of Mansor, (1997). However, we include the lag values of the return variable as exogenous variable in the equation to eliminate the possibility of having autocorrelated errors.

The remainder of this paper is organized as follows. In Section II, we discuss the data and empirical framework, while results are presented in Section Ill. Finally, in Section IV we present our summary and conclusions.

II. DATA AND EMPIRICAL FRAMEWORK

The daily Composite Indexes are used in the study which start from 4th January (Monday) 1999 until 29th December (Friday) 2006 and is obtained through Datastream. There are all together 2085 sample observations.

The study also divides the sample into two subsamples i.e. from January 1999 until December 2002, represents period immediately after financial crisis and from January

2003 until December 2006, and represents the recovery period. The Kuala Lumpur Composite Index is chosen as the source of data because it served as an acceptable benchmark index for the performance of Malaysian stock market.

The daily returns are calculated using the log-difference of the index, as follows;

$$r_t = \ln\left(\frac{P_t}{P_{t-1}}\right) \times 100$$

where, *r* is the daily returns index, P_t is the closing price at time t and P_{t-1} is the closing price at time t-1.

Summary Statistics

Table 1 reports summary statistics of the returns series for the entire study period shown in second column (all days) and the return for each day of the week in column three through column seven. The mean returns results for each day of the week show that Friday has highest return of 0.00106, while Monday has a lowest mean return of negative 0.00134. The signs of the findings (negative Monday mean return and positive high Friday mean return) are in line with day of the week effect literature such as Cross (1973) French (1980), Gibbons and Hess (1981), Hakan and Halil (2001).

Table 1: Summary statistic of daily market returns

Statistic	All days	Monday	Tuesday	Wednesday	Thursday	Friday
Observations	2085	417	417	417	417	417
Mean	0.00336	-0.00134	0.001	0.00033	0.00057	0.00106
Standard Deviation	0.13901	0.01558	0.00933	0.00992	0.0095	0.01009
Skewness	-0.13243	-1.296	1.0113	-0.29262	1.1302	0.12419
Kurtosis	6.3727	6.6748	3.4379	5.9362	5.7458	6.4791
Min	-0.06342	-0.0623	-0.02876	-0.06342	-0.03841	-0.05014
Max	0.0585	0.04086	0.04104	0.04503	0.0571	0.0585

Test for Stationarity based on Dickey-Fuller.

Before doing further analysis, the study tests for the stationarity of the data based on the Dickey-Fuller (1979) and the equation and is as follows;

$$Y_t = Y_{t-1} + u_t$$

where, u_t *is* the stochastic error term that followed the classical assumptions, namely, it had zero mean, constant variance and is unautocorrelated. The results of the stationarity test show that the series is not stationary at level but stationary at the first different at the 5 percent critical value.

Regression

The present study investigating the day of the week effect in returns apply the standard OLS methodology by regressing the lag return and all five daily dummy variables in the return equation. The equation applies the framework of Halil and Hakan (2001) as shown below:

$$\text{Return}_t = C_M\ D_{Mt} + C_T\ D_{Tt} + C_W\ D_{Wt} + C_H\ D_{Ht} + C_F\ D_{Ft} + \sum_{i=1}^{p} \text{Return}_{t-i} + \varepsilon_t$$

where, $D_{Mt}, D_{Tt}, D_{Wt}, D_{Ht}$ and D_{Ft} are the dummy variables for Monday, Tuesday, Wednesday, Thursday and Friday. The $\sum_{i=1}^{p}$ is the lag values of the return variable from *i* is equal to 1 until *p* and is included into the equation to eliminate the possibility of having autocorrelated residuals. This is important to make sure that the model fits the data well.

III. RESULTS

Full Sample

Table 2 reports the present of the day of the week effect in the Malaysian stock market but only for Monday and Tuesday. The Monday shows negative effect while Tuesday reports positive effect. The study also performed the L-jung Box Q test using one lag returns. Based on the L-jung Box Q test, for 12 lags LB (12), we find that, the model fit the data well for all cases. The value for Monday, Tuesday, Wednesday, Thursday and Friday are, 25.02, 28, 30.1, 30.35 and 28.86, respectively. The lag one day returns (yesterday returns) show significant positive effect on today's returns. This suggests that yesterday returns has significant information and thus can be used to estimate today's returns.

The findings of Monday negative effect is similar with that of Mansor (1997) and many other researcher. However, the finding of the significant positive Tuesday effect is a quite interesting because it is quite new. No other studies have found with similar results. One possible explanation to the effect is that investors will buy more shares following a drop in price on Monday since they expect the price will be back to normal the next day. Thus, the increase in demand will lead to a higher price next day which result in positive returns, *i.e* on Tuesday. The results show that information processed over weekends has affected the return of Kuala Lumpur Composite Index not only during the opening on Monday but also the following days. Thus, we suggest that information have decay only after a few days. The study also indicates that by using more robust estimations on the sample data period during unstable economic conditions will produce different results from the previous study.

Table 2: Day of the Week Effect and L-Jung Box - Q test.

Variables \ Day	Monday	Tuesday	Wednesday	Thursday	Friday
Lag return	0.1450 (6.7)*	0.1476 (6.76)*	0.1433 (6.37)*	0.1413 (6.51)*	0.1413 (6.51)*
Dummy	-0.5519 (-4.08)*	0.7885 (1.92)**	-0.0141 (-0.03)	0.1489 (0.36)	0.1174 (1.03)
LB-Q (12)	25.02 [1]	28 [1]	30.1[1]	30.53 [1]	29.86 [1]

* indicates the level of significance at 5 percent level. T statistics are in the parentheses. The number of lags returns used in the equation are shown in the bracket.

Subsamples

The study divides the whole sample into two sub samples which comprises of four years for each sample. The first sample covers a period from January 1999 till December 2002, a period immediately after the financial crisis. Second sample covers the period during January 2003 until December 2006 which is considered as recovery period.

Table 3 shows the results of descriptive statistics for both sub samples. For the first sample (1999-2002), the lowest mean return is on Monday (-0.00271) and the highest mean return is on Tuesday (0.00176). Monday also has the highest standard deviation compared to other days of the week. The findings show a similar pattern to those of the full sample.

As for the second subsample, the results are similar to those of the first subsample. Monday has the lowest mean return (-0.00018) while the highest mean returns is on Friday. Once again, the findings were in line with the finding for the full subsample. However, for volatility measured by standard deviation, Wednesday receives the highest score (0.00681) while Friday has the lowest score (0.00506).

Table 3: Mean, standard deviation of returns of two subsamples

	All days	Monday	Tuesday	Wednesday	Thursday	Friday
1999-2002 (subsample 1)						
Observation	1042	209	209	208	208	208
Mean	0.00013	-0.00271	0.00176	-0.0002	0.0007	0.00093
Standard deviation	0.01298	0.01534	0.01177	0.01227	0.01178	0.01337
2003-2006 (subsample 2)						
Observation	1043	208	208	209	209	209
Mean	0.00671	-0.00018	0.00025	0.00087	0.00045	0.00113
Standard deviation	0.20045	0.00614	0.00586	0.00681	0.00651	0.00506

Table 4 shows the results of the day of the week effect. In both subsample the T-statistics and F value are insignificant, rejecting the present of the day of the week effect. The finding is similar with the study of Omar (1994) where he applies a very short period data from 1990 until 1992 as his sample. However this findings need not be viewed as contradicting the results of full sample as the sample taken is shorter.

Table 4: The Dummy Estimations

	Lag return	Monday	Tuesday	Wednesday	Thursday	Friday
1999-2002						
Coefficient	-0.00089	-1.0665	0.925	-1.008	0.969	0.968
T-statistics	(-0.03)	(-1.19)	(0.8)	(-0.9)	(0.84)	(0.95)
F-value	(0.75)					
2003-2006						
Coefficient	-0.00134	-1.03	0.954	-0.883	0.912	0.733
T-statistics	(-0.04)	(-0.45)	(0.4)	(-0.43)	(0.42)	(0.27)
F-value	(0.14)					

V. SUMMARY AND CONCLUSIONS

The study tests for the presence of day of the week effect in stock market return on the Kuala Lumpur Composite Index (KLCI) for the period from January 1999 through December. Applying the Ordinary Least Square (OLS) method and framework due to Hakan and Halil (2001), the study finds that the day of the week effect is present in the Malaysian Bourse market. The results obtained consistent with those of Mansor (1997), and other researchers from different markets such as Hakan and Halil (2001) and Balaban (1995). The results also indicate that Monday has the lowest mean returns compare to other days.

The study further repeats the analysis to investigate the day of the week effect in stock market return for two subperiods.; 1999 until 2002 and 2003 until 2006. We find no significant day of the week effect in both periods. The results suggest that shorter sample period is the possible reason even with more robust estimations applied. It can be agreed that by dividing the sample into two subsample periods immediately after the financial crisis and during the recovery period do not have any effect since they behave similarly.

Looking at the day returns, the study noted some interesting patterns in the day of the week effect for the Malaysian market. First, the Monday average returns are always negative regardless the number of sample being tested and the period used. However,

longer period will lead to a significant effect compare to shorter one. Second, by dividing the samples into two shorter sub periods after the financial crisis period and recovery period does do not produce any significant effect. The results suggest that the period of unstable economic condition in this contact should not be seen as an opportunity to gain or threat to lose but should be look as efficient investment environment.

In view of the above, a real challenge for the policymakers such as Security Commission would be to consistency monitor the activities of the market particularly during the unstable period of the economy. Investors and fund managers alike need efficient macro – microeconomic environment to continuing access to high quality and reliable information, thus, enhancing and improving their returns.

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