SEASONAL ANOMALIES OF STOCKS ON THE KUALA LUMPUR STOCK EXCHANGE SECOND BOARD

Foo May Wand

Kok Kim Lian

INTRODUCTION

Over the past decades, various studies have been conducted to examine market anomalies in stock returns in markets ranging from developed stock markets such as U.S., U.K. and Japan, to recently emerging stock markets such as Malaysia, Singapore, Thailand, Philippines, Korea and Taiwan. Anomalies that are identified from previous studies comprise turn-of-the-year effect, January effect, end-of-the-month effect, day-of-the-week or weekend effect, pre-holiday and post holiday effects, size effect, etc. This study will only examine the day-of-the-week effect (including the factor of market environment, variation of the market risk and market stability) and pre-holiday effect.

Wong, Hui and Chan (1992) discovered that all of the small-sized stock markets i.e. Singapore, Malaysia, Hong Kong and Thailand, with the exception of Taiwan, exhibited the day-of-the-week effect. These four markets have negative mean returns on Monday or Tuesday and high positive returns on Friday. Further studies by them on four sub-periods of data revealed that the weekly seasonal patterns appear to be period specific. Interesting results were found by Lauterbach and Ungar (1992) in their research on the Israeli stock market. However, stock returns in Israel are higher following weekends which means higher returns on Sundays (the trading week of the Tel Aviv Stock Exchange is from Sunday to Thursday). This finding demonstrates that weekend returns do not have to be negative. Like other studies, low returns are found on Monday and Tuesday. Lauterbach and Ungar (1992) offered the suggestion that these relatively low returns are caused by the spillover effects of weak European, American and Asian stock markets on these days. Evidence of daily anomalies from an emerging stock market of a developing country, namely Turkey, was given by Balaban (1995). Lowest and negative average return, although insignificant, was observed on Tuesday while highest and significantly positive return was observed on Friday. Arsad and Coutts (1996) revealed the existence of a weekend effect in the London Stock Exchange, but this regularity is not persistent. Kok and Ho (1997) found that the most pronounced regularity in the Kuala Lumpur Stock Exchange (KLSE) Second Board Index during the 4-year period 1992-1995 is the

Friday effect while the Kuala Lumpur Stock Exchange Composite Index (KLCI) displayed Monday effect. In general, individual stocks in the KLSE Second Board exhibit low and negative returns at the beginning of the week and high and positive returns at the end of the week. For the indices, similar results as for the whole period (1992-1995) were obtained in the first sub-period (January 1992 –December 1993) while only the Friday effect for the Second Board Index is significant in the second sub-period (January 1994 – December 1995). Another study using the KLCI returns for the period from 1983 to 1993 was done by Clare, Ibrahim and Thomas (1998). They found that there is a strong day-of-the-week effect, with the lowest return occurring on Monday and the highest return occurring on Thursday. Results for individual years show that such seasonal anomaly is not persistent.

Clare, Ibrahim and Thomas (1998) also investigated the proposition that the day-of-the-week effect in the Malaysian stock market is due to seasonal variation in equity market risk by applying the GARCH models for the stock returns. Wednesday and Thursday effects are found to be caused by the daily variation in the return volatility of the market while the same cause cannot explain the Monday effect. Ng (1999) analysed the seasonality effects of finance stocks on the Main Board of the KLSE for the period January 1992 - June 1999. Day-of-the-week effect was discovered in the stocks for the entire sample period; Monday's returns are significantly negative whilst Friday's returns are positive. This is especially true for companies with small market capitalisation. On the results obtained for the sub-period analysis, Ng (1999) noted that the day-of-the-week effect exists in a stable market rather than in a rising or a declining market. Further study using the GARCH model revealed that majority of the stocks do not show seasonality in daily returns that is due to changes in volatility of stock returns.

Lauterbach and Ungar (1992) found that the Israeli market lacks the pre-holiday effect as stock returns were only slightly higher on pre-holiday trading days. A study on pre-holiday effect in developed stock markets of the U.S., U.K. and Japan was conducted by Kim and Park (1994). They reported abnormally high returns on trading days before holidays in all the major stock markets in the U.S.(NYSE, AMEX and NASDAQ), the U.K. and Japanese stock markets, even though each country has different holidays and institutional arrangements. The study by Clare, Ibrahim and Thomas (1998) supports the existence of pre-holiday effect in the KLSE while Ng (1999) found no evidence of the pre-holiday effect in the entire sample period for the finance stocks on the KLSE.

Further analysis on the day-of-the-week effect was performed by Arsad and Coutts (1996) by taking into account the market environment in which the stocks were traded. The returns of the FT 30 were partitioned into positive and negative returns, hence, the 'good' and 'bad' news market environments. They found that whilst the weekend effect holds for Mondays with negative returns, it fails to hold for Mondays which exhibit positive returns. Ng (1999) also found evidence of the existence of day-of-the-week effect in the 'bad' news market environment with the largest negative returns occurring on Monday. There is, however, no evidence of day-of-the-week effect in the 'good' news market environment.

The KLSE Second Board was launched in late 1988. Therefore, the study by Kok and Ho (1997) provided evidence of the day-of-the-week effect of Second Board stocks in the earlier years of the market. With the availability of more recent data, it would be interesting to examine whether such seasonal anomaly continues to exist. In addition, the study will also examine the day-of-the-week effect in a 'good' and 'bad' news market environments and the pre-holiday effect in the Second Board.

Results obtained on the existence of such calendar anomalies in the whole period would be compared to the results of tests performed for the sub-periods. Sub-period analysis will enable us to know the consistency of the day-of-the-week effect through different sub-periods. Besides that, a sub-study is done to investigate the persistency of the seasonal anomaly, if any, after the transfer of the stock from the Second Board to the Main Board of the KLSE.

Furthermore, this study also examines whether the day-of-the-week effect in the Second Board stocks is due to seasonal variation in the volatility of stock returns. The GARCH model is used for this purpose.

DATA AND METHODOLOGY

The data used in this study are the daily closing prices of 31 stocks selected from the KLSE Second Board. The whole period of this study, which covers seven and a half years, spans from 2 January 1992 to 30 June 1999. The list of selected stocks with their market capitalisation is given in *Appendix I*. The data for this study were obtained from the KLSE Daily Diary and the Sequencer. Adjustments for capital changes such as bonus and rights issues and dividends were made based on the information obtained from the Investors Digest.

Of the 31 companies, 7 of them have already been transferred to the Main Board. Six of them were transferred before the year 1998, rendering reasonably adequate data for the sub-study of investigating the existence and/or continuity of seasonal anomalies after their transfer to a relatively more stable environment. The remaining stock, TH Group, was only transferred towards the end of the period of study. Thus, it will be given the same treatment as the other 24 stocks which were not transferred. These stocks will be subjected to sub-period analysis where the first sub-period is from January 1992 to December 1995 and the second sub-period from January 1996 to June 1999. The KLSE Composite Index and the Second Board Index are also subjected to the whole period and sub-period analyses.

The daily stock returns are computed as follows:

$$R_t = \log\left(\frac{P_t}{P_{t-1}}\right) \text{ x } 100$$

where R_t is the return for day t; P_t is the daily closing price for day t; P_{t-1} t-1 .

Two estimation models are used for testing whether seasonality exists in the daily returns of the Second Board stocks and both indices in this study: the Ordinary Least Square (OLS) regression model and the GARCH model for capturing the time dependence of volatility in the return series. More specifically, a very general GARCH (p,q)-M model will be used to investigate the seasonal variation of return volatility of each stock,

$$R_t = \alpha_0 + \alpha_1 h_t^{1/2} + \alpha_2 R_{t-1} + \sum_{m=1}^{d} \mu_m \delta_t^m + \xi_t$$

$$h_t = \beta_0 + \sum_{i=1}^{q} \beta_i \xi_{t-1}^2 + \sum_{j=1}^{p} \gamma_j h_{t-j} + \sum_{m=1}^{d} \mu_m^* \delta_t^m$$

where ξ_t is an error term with zero mean and conditional variance h_t; α_0 and β_0 are constants; α_1 is the reward to risk ratio; α_2, β_i, γ_j, μ_m and μ_m^* are coefficients; δ_t^m is the set of deterministic daily seasonal dummies; where the order of $p \geq 0, q \geq 0, p$ is the order of GARCH terms and q is the order of ARCH terms.

The Schwarz Information Criterion is used to determine the appropriate orders of p and q. To simplify the procedure of the selection of the most appropriate model, the same order is used simultaneously for both ARCH and GARCH. The highest order considered in this study is 5.

returns on particular days, in the form of daily dummies, that were found to be significant using the OLS method are identified and utilised as a part of the explanatory variables in the GARCH model. If the deterministic daily seasonal dummies remain significant in spite of the inclusion of the ARCH term, $h_t^{1/2}$, in the conditional mean, we can conclude that seasonality in the daily returns of the stocks and the market is not due to temporal variation in equity market risk as proxied by the ARCH model. Alternatively, if the inclusion of $h_t^{1/2}$ in the conditional mean renders the deterministic dummies in the mean equation insignificant, but significant in the equation for the conditional variance we can conclude that the seasonality in the returns is due to daily variation in equity market risk.

RESULTS

The results for the day-of-the-week effect for the whole period are summarised in Table 1. Only 4 stocks have significantly negative Monday mean returns while a few significantly negative mean returns are found on other days. Mean returns of all stocks on Friday are found to be significantly positive. The KLCI mean returns on Wednesday and Friday are significantly positive while the Second Board Index only has a highly significant Friday return. Thus, in general, only Friday effect is found for all the stocks and the indices.

The *F*-statistic results indicate that 65% of the stocks do not have equal means across the trading days of the week. Both the Main Board and the Second Board also exhibit day-of-the-week effect.

These findings are consistent with the findings of a similar study by Kok and Ho(1997) but are different from the findings reported by Ng(1999) in which many Main Board stocks showed significant Monday effect.

Next, the stocks are subjected to sub-period analysis: first sub-period from January 1992 to December 1995 and second sub-period from January 1996 to June 1999. Six stocks from the sample, namely, ACTACORP, DIJAENT, EPIC, KYM, PANTAI and TCAP, are utilised for a sub-analysis. These stocks are subjected to the same tests as the other 25 stocks but the analyses have a different bearing as the returns for the first sub-period indicate the returns of the stocks before their transfer to the Main Board while the returns for the second sub-period indicate the returns of the stocks after their transfer to the Main Board.

Results obtained for all stocks and the two indices for the first sub-period are given in Table 2. There are more stocks with significantly negative Monday returns and significantly positive Wednesday returns: 6 and 14 stocks, respectively. The Friday mean returns still give the most pronounced result with 77% of the sample stocks having significantly positive mean returns. For the indices, the KLCI now shows significant results with negative Monday mean returns and positive mean returns for both Wednesday and Friday, while the Second Board Index still has very significantly positive Friday mean returns. The day-of-the-week effect becomes clearer in this sub-period analysis.

Table 1: Summary Statistics For Mean Returns Across Day-Of-The-Week For Whole Period - June 1999

Companies	Mean					F-statistic
	Monday	Tuesday	Wednesday	Thursday	Friday	
ACTACORP	-0.8419**	-0.5100*	0.2479	-0.1712	1.1166***	6.731***
AUTOWAY	0.3207	-0.6918	0.1169	-0.0790	0.6539**	1.801
CFM	0.5178	-0.4560	0.0069	-0.1127	0.7848***	2.472**
CICB	0.1944	-0.4864*	0.3162	-0.1599	0.9010***	2.760**
CP BHD	-0.3762	-0.2721	0.0838	0.1174	0.7661**	1.899
DAIBOCI	0.0793	-0.0067	0.1165	-0.4989**	0.5078***	2.478**
DPREP	-0.5629	-0.0311	0.1991	-0.0531	0.6100**	1.933
DENKO	-0.3735	-0.1080	0.2952	-0.2013	0.8168***	1.889
DIJAENT	-0.0507	-0.0260	0.0110	-0.1856	0.6708***	2.007*
EPIC	0.1128	-0.2614	0.1823	-0.1423	0.5370**	1.815
GFB	-0.3851	-0.2012	0.2650	-0.0654	0.6214***	2.414**
JUTA	-0.7568**	-0.2931	0.3602	0.1934	0.5308**	3.100**
KFM	-0.1488	0.0242	0.0756	-0.3625	0.5146**	1.405
KYM	-0.2770	-0.4652**	0.5241**	0.0120	0.3862*	3.395***
LHUAT	-0.4353	-0.0011	0.2818	0.0073	0.6666**	1.814
MAYPAK	-0.5227	-0.2366	0.2748	-0.1545	0.6081**	2.578**
MERCURY	-0.0591	-0.2821	0.0586	-0.2787	0.8354***	2.639**
META	-0.1844	-0.2346	0.3060	-0.0326	0.6354***	2.572**
PANTAI	-0.0739	0.0568	0.3630	-0.0423	0.4748*	0.982
PRKCORP	0.1570	-0.0435	0.3245	0.1729	1.1110***	1.614
POLY	-0.4327	-0.0582	0.0354	-0.2215	0.6612**	1.902
PUBLIC	-0.2211	0.0151	0.2163	-0.2897	0.8490***	2.783**
RCI	-0.1121	0.2699	0.1097	-0.1209	0.7519***	1.098
REPCO	-0.1603	0.6134*	0.1623	-0.3645	1.0700***	2.653**
SANDA	-0.3983	-0.2369	0.1654	-0.1489	0.6443**	1.981*
SCKGB	0.1703	-0.3568	-0.4172	-0.2429	1.0690***	4.216***
SETEGAP	-0.4016	-0.1783	-0.0788	-0.1030	0.7857***	2.831**
TAJO	-0.6008**	-0.1412	0.0493	0.2836	0.5654***	2.854**
TCAP	-0.4056	-0.3306	0.2273	0.1000	0.5346**	1.985*
TH GROUP	-0.1987	-0.5408	0.0554	0.1963	0.8587***	2.383**
UCI	-0.5995**	-0.1418	0.3865	-0.4158*	0.3862***	5.052***
MAIN BOARD	-0.1682	-0.0452	0.1693*	-0.0692	0.1709**	2.354*
SECOND BOARD	-0.1693	-0.1251	0.0626	-0.0946	0.4147***	4.140***

***,**,* represent significance level of 1%, 5% and 10%, respectively.

Table 2: Summary Statistics For Mean Returns Across Day-Of-The-Week For Sub-Period January 1992 - December 1995

Companies	Mean					F-statistic
	Monday	Tuesday	Wednesday	Thursday	Friday	
AUTOWAY	0.6233	-0.3225	0.5672	-0.0449	0.8088	0.774
CFM	-0.0668	-0.0015	0.4840	0.1274	0.7357*	0.732
CICB	0.3123	-0.0043	0.8413**	-0.2459	0.7744**	1.649
CP	-0.2475	-0.0450	0.3104	0.5944*	0.5403	1.134
DAIBOCI	0.0001	0.2349	0.3386	-0.2519	0.5501**	1.243
DPREP	-0.5892*	-0.0020	0.5882*	-0.2298	0.6107**	3.221**
DENKO	-0.4672	-0.0892	0.7482**	-0.3727	0.7461**	3.182**
GFB	-0.7698**	-0.0500	0.6636*	0.1377	0.6970**	3.508***
JUTA	-0.9985***	0.1122	0.7612**	0.2385	0.4680	4.210***
KFM	0.0224	0.3660	0.3963	-0.1925	0.5667*	0.803
LHUAT	-0.3747	0.1940	0.5533*	-0.1882	0.8343***	2.559**
MAYPAK	-0.2973	-0.3638	0.6123**	0.1207	0.3366	2.041*
MERCURY	0.0127	0.0069	0.2892	-0.3341	0.6756**	1.499
META	-0.1567	-0.1365	0.4172	0.3090	0.7481***	1.394
PRKCORP	0.2414	0.7854	0.9752**	0.4371	1.0650***	0.569
POLY	-0.3777	0.1647	0.2209	-0.2443	0.4430*	1.670
PUBLIC	-0.2287	0.1576	0.2244	0.1013	0.7178*	1.024
RCI	0.3053	0.1561	0.3636	-0.1929	0.7132*	0.516
REPCO	-0.0892	0.7949*	0.6534*	-0.3831	1.0750***	2.765**
SANDA	-0.5542	-0.3247	0.5362*	0.1285	0.6506**	2.531**
SCKGB	0.5426	-0.1650	0.0213	0.0445	1.2280***	2.619**
SETEGAP	-0.4151	-0.1512	0.4100	-0.3888*	0.9036***	4.894***
TAJO	-0.5783**	-0.1972	0.5276*	0.4262	0.4938**	3.175**
TH GROUP	-0.0600	-0.4422	0.2598	0.4462	0.9820**	1.472
UCI	-0.5667*	0.2105	0.8442**	-0.2051	0.4153	3.331**
Before Transfer						
ACTACORP	-0.2869	-0.3239	0.4756	-0.1897	0.1034***	3.306**
DIJAENT	0.1554	0.1478	-0.0041	0.0884	0.5806**	0.967
EPIC	0.2765	-0.0826	0.6577*	-0.0959	0.4203	0.878
KYM	-0.1327	-0.3352	0.6143**	0.3142	0.3814	1.743
ANTAI	-0.3291	0.3532	0.3184	-0.0018	0.3956*	1.568
TCAP	-0.4992*	0.0881	0.3558	0.1136	0.5972**	2.319*
MAIN BOARD	-0.2117**	0.0222	0.2505***	-0.0179	0.2086**	4.555***
SECOND BOARD	-0.1572	-0.0309	0.1982*	-0.0087	0.4130***	4.252***

***,**,* represent significance level of 1%, 5% and 10%, respectively.

The *F*-statistic results are less supportive of the inequality of daily means across the week. Only 48% of the 25 stocks have day-of-the-week effect. For the 6 stocks that were subsequently transferred to the Main Board, only 2 have day-of-the-week effect while they were still listed on the Second Board. Both the Main Board and the Second Board also exhibit day-of-the-week effect.

Generally, day-of-the-week effect is found to exist in this sub-period. Monday, Wednesday and Friday effects are found on the Main Board while Wednesday and Friday effects are found on the Second Board. These results are consistent with the findings of Kok and Ho(1997) for the Second Board and Ng(1999) for the Main Board.

Results of statistical tests performed on stocks and indices for the second sub-period are presented in Table 3. Friday effect persists with 58% of the stocks having significantly positive mean returns. A few significant mean returns are found on other days. Day-of-the-week effect does not exist for the KLCI while the Second Board Index only displays significantly positive mean returns for Friday.

From the results of the *F*-statistic, only 16% of the stocks have unequal mean returns across the week. For the sub-analysis, only 1 out of 6 stocks has significantly different mean returns across the week after their transfer to the Main Board. Both indices do not display any significantly different mean returns.

Overall, the results imply that while the day-of-the-week effect and Friday effect do persist in this second sub-period, they are much weaker compared to those in the first sub-period. However, for the sub-analysis, the results indicate that all six stocks have day-of-the-week effect even after they were transferred to the Main Board.

Table 3: Summary Statistics For Mean Returns Across The Day-Of-The-Week For Sub-period January 1996 - June 1999

Companies	Mean					F-statistic
	Monday	Tuesday	Wednesday	Thursday	Friday	
AUTOWAY	0.1124	-0.9753	-0.2299	-0.1071	0.5357	1.170
CFM	0.9945*	-0.8230	-0.3550	-0.3142	0.8263**	2.824**
CICB	0.0958	-0.9052**	-0.1246	-0.0794	1.0220**	2.018*
CP	-0.4899	-0.4906	-0.1209	-0.3181	0.9712**	1.300
DAIBOCI	0.1557	-0.2352	-0.0880	-0.7374**	0.4626	1.520
DPREP	-0.5337	-0.0642	-0.2245	0.1419	0.6091	0.579
DENKO	-0.2689	0.3395	-0.2117	-0.0036	0.8951	0.621
GFB	0.0270	-0.3678	-0.1504	-0.2873	0.5380	0.777
JUTA	-0.5197	-0.7140	-0.0481	0.1461	0.5933	1.093
KFM	-0.3166	-0.3177	-0.2210	-0.5304	0.4622	0.785
LHUAT	-0.4966	-0.2099	0.0136	0.2075	0.4929	0.533
MAYPAK	-0.7317	-0.1122	-0.0433	-0.4634	0.8738**	1.663
MERCURY	-0.1464	-0.6409	-0.2136	-0.2107	1.0430**	1.533
META	-0.2142	-0.3427	0.1928	-0.3928	0.5144**	1.476
PRKCORP	0.1134	-0.4635	0.0176	0.0372	1.1370***	1.489
POLY	-0.4859	-0.2768	-0.1425	-0.1988	0.8780*	1.000
PUBLIC	-0.2126	-0.1325	0.2079	-0.7146	0.9913**	2.060*
RCI	-0.4592	0.3824	-0.1256	-0.0543	0.7861*	0.928
REPCO	-0.2575	0.3622	-0.5145	-0.3374	1.0630	0.902
SANDA	-0.2282	-0.1368	-0.2344	-0.4624	0.6370	0.738
SCKGB	-0.2365	-0.5873	-0.9355**	-0.6133	0.8671*	1.840
SETEGAP	-0.3876	-0.2073	-0.5675	0.1967	0.6587*	1.037
TAJO	-0.6259	-0.0760	-0.4663	0.1243	0.6477*	1.225
TH GROUP	-0.3448	-0.6499	-0.1616	-0.0771	0.7223*	0.966
UCI	-0.6361	-0.5631	-0.1337	-0.6655*	1.2310***	3.467***
After Promotion						
ACTACORP	-1.4087***	-0.7051	0.0142	-0.1515	1.2021***	3.874***
DIJAENT	-0.2034	-0.1578	0.0217	-0.3990	0.7390**	1.339
EPIC	-0.0124	-0.4056	-0.1479	-0.1766	0.6289**	1.564
KYM	-0.4020	-0.5858*	0.4490	-0.2496	0.3901	1.915
PANTAI	1.1860	-1.3470*	0.5444	-0.2155	0.8624	1.305
TCAP	-0.2317	-1.1120*	0.0061	0.0759	0.4163	0.855
MAIN BOARD	-0.1181	-0.1231	0.0792	-0.1282	0.1264	0.444
SECOND BOARD	-0.1832	-0.2339	-0.0878	-0.1935	0.4167**	1.509

***,**,* represent significance level of 1%, 5% and 10%, respectively.

Table 4: Summary Statistics For Mean Returns Of Pre-holiday Effects For Whole Period

Companies	Pre-holiday		Ordinary Days		t-Test
	Mean	n	Mean	n	
ACTACORP	1.890	59	-0.094	1445	2.935***
AUTOWAY	0.427	49	0.054	1131	0.448
CFM	1.760	42	0.089	1194	2.142**
CICB	0.800	49	0.133	1137	0.967
CP BHD	0.764	59	0.043	1478	0.952
DAIBOCI	0.247	53	0.037	1393	0.383
DPREP	0.214	66	0.033	1660	0.253
DENKO	-0.290	64	0.151	1579	-0.566
DIJAENT	0.042	58	0.093	1418	-0.091
EPIC	0.738	57	0.064	1444	1.238
GFB	0.334	66	0.043	1606	0.492
JUTA	0.852	63	-0.014	1554	1.266
KFM	0.365	56	0.012	1462	0.536
KYM	0.095	57	0.042	1450	0.099
LHUAT	0.561	64	0.094	1583	0.670
MAYPAK	0.400	51	-0.017	1309	0.634
MERCURY	0.703	63	0.035	1542	1.012
META	1.470	66	0.046	1608	2.706***
PANTAI	-0.100	40	0.174	982	-0.475
PERAK	-0.270	37	0.352	1106	-0.091
POLY	0.245	63	-0.008	1560	0.366
PUBLIC	0.461	56	0.106	1391	0.553
RCI	-0.590	30	0.208	866	-0.936
REPCO	0.661	59	0.252	1311	0.513
SANDA	-0.073	67	0.014	1622	-0.130
SCKB	-0.270	48	0.059	1139	-0.478
SETEGAP	0.770	66	-0.018	1612	1.253
TAJO	0.130	38	0.034	1668	0.122
TCAP	0.743	57	0.003	1469	1.126
TH	0.353	69	0.073	1561	0.373
UCI	0.246	65	0.004	1622	0.403
MAIN BOARD	0.375	71	-0.001	1704	1.658*
SECOND BOARD	0.363	71	0.007	1704	1.316

***,**,* represent significance level of 1%, 5% and 10%, respectively

The findings for the pre-holiday effect are reported in Table 4. In general, the mean returns on pre-holidays are higher than the mean returns on ordinary days. 77% of the stocks have higher mean returns on a day prior to a holiday. However, the results of the *t*-test shows that only about 10% of the stocks have significantly higher mean returns on pre-holidays compared to other days. Casual observation on the indices shows that mean returns on pre-holidays are higher than mean returns on ordinary days although they are not significant. Thus, the findings do not show much evidence of a pre-holiday effect in the overall period for stocks on the Second Board. These findings are consistent with those obtained by Ng(1999) on the Main Board stocks but are contradictory to those obtained by Clare, Ibrahim and Thomas(1998), Kim and Park(1994) and Lauterbach and Ungar(1992).

The day-of-the-week effect for the entire sample period fails to take into account the market environment in which the stocks were traded. In this section, an analysis is performed to examine the existence and persistency of the day-of-the-week effect in both the good and bad news market environments.

Summary statistics for the daily mean returns in the good news market environment for the entire sample period are given in Table 5. 87% of the stocks have highest returns on Monday while only 2 stocks have highest returns on Thursday and Friday. The indices also indicate that the highest mean returns are on Monday.

About 40% of the stocks have Monday mean returns that are significantly different from the mean returns of other days combined. For the Second Board Index, only the Monday mean return is significantly different from the mean return of other days combined while no significant results are obtained for the KLCI. The results of the *F* test disclosed that 32% of the stocks have significantly different mean returns across the week. For the indices, only the Second Board Index has significantly different mean returns. Thus, there is some evidence of day-of-the-week effect in stock returns in the good news market environment. Contrary to the results for the normal market environment, highest returns are found on Monday instead of Friday. This indicates that more good news occur during the weekends and these are reflected in the Monday returns.

The results obtained here are consistent with the results on the Main Board stocks obtained by Ng(1999). Arsad and Coutts(1996) also gave similar results to the extent that the seasonal effect is found to exist but the regularity has not been persistent in the good news market environment. The difference is that the regularity in those studies is the weekend effect instead of Friday effect.

Negative mean returns are assumed to be associated with the bad news market environment in which more bad news seem to arrive on Monday compared to other days. Table 6 contains the summary statistics for the mean returns in bad news market environment for the whole period.

The results of the *t* test show that 55% of the stocks have Monday mean return that is significantly different from the mean return of all other days, while 71% of the stocks have Friday mean return that is significantly different from the mean return of all other days combined. The results of the *F* test show that the Second Board Index and 48% of the stocks have significantly different mean returns across the week. These results indicate that the day-of-the-week effect is much stronger in the bad news market environment with consistently lower mean returns for Monday and higher mean returns for Friday. Earlier studies by Ng(1999) and Arsad and Coutts(1996) also show similar results for the bad news market environment. Thus, our results confirm that more news, whether good or bad, are present on Monday than on any other days of the week.

Table 5: Summary Statistics For 'Good' News Market Environment For Whole Period

Companies	Mean					F-statistic
	Monday	Tuesday	Wednesday	Thursday	Friday	
ACTA	0.044	0.035 [c]	0.043	0.042	0.042	0.572
AUTOWAY	0.045	0.039	0.040	0.040	0.042	0.232
CFM	0.050	0.042	0.041	0.036 [b]	0.043	1.426
CICB	0.045	0.037	0.037	0.038	0.042	0.655
CP BHD	0.052	0.038 [b]	0.050	0.044	0.045	1.265
DAIBOCI	0.042 [b]	0.031	0.031	0.029	0.032	2.825**
DPREP	0.062 [b]	0.046	0.049	0.045	0.041 [b]	2.431**
DENKO	0.063 [c]	0.053	0.047	0.045	0.048	1.671
DIJAENT	0.037	0.034	0.032	0.030	0.039	1.030
EPIC	0.038	0.030	0.032	0.031	0.035	1.131
GFB	0.044	0.037	0.041	0.036	0.037	0.770
JUTA	0.053 [b]	0.040	0.043	0.042	0.039	1.720
KFM	0.050 [b]	0.038	0.040	0.036	0.039	2.155*
KYM	0.039	0.027 [a]	0.036	0.032	0.033	1.631
LHUAT	0.053 [c]	0.044	0.043	0.044	0.042	1.039
MAYPAK	0.045 [c]	0.039	0.030 [a]	0.038	0.038	1.838
MERCURY	0.054 [b]	0.039	0.039	0.035 [b]	0.043	2.994**
META	0.037	0.026[c]	0.035	0.032	0.028	2.373*
PANTAI	0.034	0.029	0.033	0.030	0.034	0.300
PRKCORP	0.059 [c]	0.044	0.044	0.035 [b]	0.040	2.448**
POLY	0.050	0.045	0.039	0.043	0.038	1.010
PUBLIC	0.044	0.038	0.037	0.037	0.039	0.552
RCI	0.036	0.042	0.036	0.043	0.037	0.588
REPCO	0.052	0.050	0.044	0.040	0.041	0.939
SANDA	0.052	0.036 [a]	0.047	0.044	0.046	1.944
SCKGB	0.040	0.037	0.034	0.039	0.042	0.533
SETEGAP	0.053 [b]	0.037	0.040	0.040	0.035 [c]	2.911**
TAJO	0.049 [c]	0.042	0.035 [b]	0.043	0.035	2.498**
TCAP	0.041	0.040	0.037	0.042	0.039	0.253
TH GROUP	0.065 [b]	0.043 [b]	0.050	0.049	0.046	2.600**
UCI	0.047 [c]	0.038	0.043	0.032 [a]	0.039	2.282*
MAIN BOARD	0.013	0.011	0.012	0.011	0.011	0.892
SECOND BOARD	0.020 [b]	0.014	0.015	0.014	0.014	3.087**

***,**,* represent significance level of 1%, 5% and 10%, respectively

[a],[b] or [c] for the mean return of a particular day means that day's mean return is significantly different from the mean return of all other days combined at 1%, 5% or 10%, respectively.

Table 6: Summary Statistics For 'Bad' News Market Environment For Whole Period

Companies	Mean					F-statistic
	Monday	Tuesday	Wednesday	Thursday	Friday	
ACTA	-0.040 [a]	-0.035	-0.030	-0.035	-0.025 [a]	3.884***
AUTOWAY	-0.038	-0.043	-0.037	-0.034	-0.027 [a]	1.544
CFM	-0.034	-0.039	-0.038	-0.033	-0.026 [a]	2.326*
CICB	-0.035	-0.037	-0.029	-0.033	-0.026	1.051
CP BHD	-0.042 [c]	-0.037	-0.034	-0.037	-0.032	1.411
DAIBOCI	-0.031	-0.030	-0.028	-0.029	-0.023 [a]	1.920
DPREP	-0.040 [b]	-0.038	-0.034	-0.032	-0.028 [a]	3.228**
DENKO	-0.042 [b]	-0.037	-0.035	-0.034	-0.034	1.518
DUAENT	-0.030	-0.031	-0.028	-0.028	-0.027	0.279
EPIC	-0.033 [c]	-0.028	-0.025	-0.030	-0.024 [c]	2.026*
GFB	-0.035 [c]	-0.031	-0.032	-0.030	-0.027 [a]	1.451
JUTA	-0.040 [b]	-0.037	-0.031	-0.032	-0.029 [c]	2.562**
KFM	-0.040 [b]	-0.036	-0.032	-0.036	-0.027 [a]	3.195**
KYM	-0.028	-0.029	-0.023 [c]	-0.031	-0.025	1.953
LHUAT	-0.041 [b]	-0.036	-0.034	-0.038	-0.030 [b]	2.665**
MAYPAK	-0.036	-0.036	-0.027 [c]	-0.032	-0.027 [b]	2.069*
MERCURY	-0.036	-0.037	-0.031	-0.038	-0.026 [a]	3.092**
META	-0.029	-0.028	-0.029	-0.028	-0.023	0.562
PANTAI	-0.026	-0.024	-0.021	-0.028	-0.022	1.454
PRKCORP	-0.036	-0.040 [c]	-0.037	-0.033	-0.023 [a]	2.799**
POLY	-0.039 [b]	-0.033	-0.033	-0.033	-0.028 [b]	1.773
PUBLIC	-0.039 [b]	-0.034	-0.032	-0.037	-0.025 [a]	3.458***
RCI	-0.033	-0.028	-0.037	-0.035	-0.026 [c]	1.100
REPCO	-0.045 [b]	-0.029 [b]	-0.036	-0.036	-0.029	3.113**
SANDA	-0.038 [c]	-0.036	-0.035	-0.035	-0.029 [b]	1.820
SCKGB	-0.028	-0.032	-0.030	-0.033	-0.024 [b]	1.467
SETEGAP	-0.038 [b]	-0.034	-0.032	-0.030	-0.028	1.782
TAJO	-0.035	-0.032	-0.033	-0.033	-0.026 [a]	1.882
TCAP	-0.038 [b]	-0.034	-0.029	-0.036	-0.028 [c]	2.411**
TH GROUP	-0.042 [b]	-0.042	-0.035	-0.037	-0.028 [a]	3.895***
UCI	-0.038 [b]	-0.037	-0.032	-0.032	-0.028 [a]	2.828**
MAIN BOARD	-0.011	-0.011	-0.011	-0.012	-0.010	0.463
SECOND BOARD	-0.016 [b]	-0.015	-0.013	-0.013	-0.011 [a]	2.623**

***,**,* represent significance level of 1%, 5% and 10%, respectively

[a],[b] or [c] for the mean return of a particular day means that day's mean return is significantly different from the mean return of all other days combined at 1%, 5% or 10%, respectively.

The results obtained so far are based on the OLS method. Changing volatility of the market needs to be modeled in order to give a clearer picture on the seasonality in stock returns. The days with significant mean returns are identified through the OLS method and these are then used as part of the explanatory variables in the GARCH model. GARCH analysis is performed to determine whether the day-of-the-week effect in the market is due to seasonal variation in equity market volatility.

Summary statistics for the conditional mean returns and conditional variance equation of mean returns under GARCH model are presented in Tables 7 and 8, respectively. The significant first lag in stock returns R_{t-1}, which indicates the existence of a strong first-order autoregressive process in the daily returns, is found in both indices and in 16% of the stocks.

If the deterministic daily seasonal dummies remain significant in spite of the inclusion of the ARCH term, h_t, in the conditional mean, it will indicate that seasonality in the daily returns is not due to the temporal variation in return volatility. Results from Table 7 reveal that 65% of the stocks still have Friday effect compared to 100% using OLS method. Generally, days with significant mean effects by the OLS method also have significant conditional mean effects.

If the inclusion of h_t in the conditional mean renders the deterministic dummies in the mean equation insignificant, but significant in the equation for the conditional variance, it can be concluded that seasonality in the daily mean returns is due to variation in the variance of the stock/market returns. 50% of the stocks with Tuesday effect and 23% of the stocks with Friday effect fit the above description. Thus the Friday effect is very pronounced in these stocks and cannot be explained by the changes in return volatility.

Table 7: Conditional Mean Returns Of GARCH Model For Whole Period

Companies	α_0	$h_t^{1/2}$	R_{t-1}	δ_1	δ_2	δ_3	δ_4	δ_5
ACTA	0.0001 (0.0219)	0.0005 (0.0095)	-0.0245 (-0.7476)	-0.0071 (-2.63)***	-0.0059 (-2.3369)**			0.0078 (2.5935)***
AUTOWAY	-0.0035 (-0.9827)	0.0640 (0.7048)	-0.0213 (-0.5405)					0.0026 (1.0413)
BM	-0.0034 (-0.9256)	0.0864 (1.0019)	-0.0478 (-1.252)					0.0070 (2.4048)**
CB	0.0035 (1.2253)	-0.0877 (-1.662)	0.0713 (1.7824)*		-0.0052 (-2.1578)**			0.0055 (2.0388)**
P BHD	-0.0029 (-0.9407)	0.0879 (1.2093)	-0.0226 (-0.7124)					0.0062 (2.4297) **
MBOCI	0.0040 (1.5679)	-0.0852 (-1.3471)	0.0155 (0.4463)				-0.0045 (-2.3013)**	0.0011 (0.4883)
PREP	-0.0055 (-2.652)***	0.1147 (2.1260)**	-0.0169 (-0.4733)					0.0058 (3.0544)***
ENKO	-0.0044 (-1.8333)*	0.0936 (1.6473)*	-0.0115 (-0.3231)					0.0043 (1.5626)
IAENT	0.0037 (1.8273)*	-0.1464 (-1.9125)*	0.0022 (0.0612)					0.0058 (2.7890)***
MC	0.0049 (1.4538)	-0.1395 (-1.3889)	0.0148 (0.4442)					0.0024 (0.1217)
FB	-0.0007 (-0.2955)	-0.0307 (-0.4817)	-0.0141 (-0.3645)					0.0047 (1.8987)*
ITA	-0.0006 (0.1603)	0.0513 (0.6251)	-0.0353 (-1.1089)	-0.0086 (-2.8789)***				0.0016 (0.6482)
PM	-0.0066 (-1.2797)	0.1371 (1.1872)	-0.1182 (-3.3143)***					0.0039 (1.3847)
YM	0.0061 (1.3062)	-0.1761 (-1.5467)	0.0000 (-0.001)		-0.00337 (-1.2683)	0.0075 (2.1926)**		0.0014 (0.5452)
HUAT	-0.0005 (-0.1596)	-0.0076 (-0.1101)	-0.01223 (-0.3999)					0.0053 (2.0813)**
AYPAK	-0.0008 (-0.4599)	0.0343 (0.6733)	-0.0008 (-0.0193)					0.0029 (0.6621)
ERCURY	-0.0022 (-1.1298)	0.0225 (0.4471)	-0.0303 (-0.8734)					0.0078 (4.0559)***
ETA	-0.0049 (-2.2224)**	0.1385 (1.8868)*	0.1083 (2.4010)**					0.0055 (3.6069)***
ANTAI	0.0021 (0.6428)	-0.0600 (-0.568)	-0.0041 (-0.0978)					0.0028 (1.1888)
RKCORP	-0.0010 (-0.5994)	0.0625 (1.3570)	0.0836 (1.9476)*					0.0075 (2.4219)**
OLY	-0.0004 (-0.1744)	0.0028 (0.0494)	0.0028 (0.0828)					0.0039 (1.9279)*
UBLIC	0.0043 (1.3709)	-0.0780 (-1.0619)	0.0167 (0.5392)					0.0025 (1.0027)
CI	-0.0022 (-1.038)	0.0903 (1.6350)	0.0494 (1.6186)					0.0040 (1.8636)*
EPCO	-0.0031 (-1.2738)	0.1306 (2.2854)**	0.0462 (0.9838)		0.0022 (0.7816)			0.0055 (2.1026) **
ANDA	-0.0006 (-0.2591)	-0.0009 (-0.0151)	0.0211 (0.6486)					0.0029 (0.7776)
CKGB	-0.0010 (-0.2772)	0.0021 (0.0227)	0.0853 (1.9998)**					0.0076 (2.8091)***
ETEGAP	-0.0041 (-2.043)**	0.0563 (1.0420)	0.0339 (1.1901)					0.0106 (5.3438)***
AJO	0.0009 (0.4683)	-0.0067 (-0.118)	0.0311 (1.2556)	-0.0063 (-3.0299)***				0.0031 (1.6851)*
CAP	0.0000 (0.0497)	0.0024 (0.0638)	-0.0540 (-1.5979)					0.0043 (2.7924)***
H GROUP	-0.0046 (-1.2465)	0.0645 (0.8500)	-0.0232 (-1.7527)					0.0052 (1.8685)*
UCI	0.0006 (0.2692)	0.0231 (0.4160)	0.0189 (0.6546)	-0.0059 (-2.2391)**			-0.0048 (-2.1755)**	0.0045 (1.8213) *
MAIN BOARD	-0.0005 (-0.7835)	0.0303 (0.4802)	0.1682 (6.2495)***			0.0017 (2.9315)***		0.0016 (2.5809)***
SECOND BOARD	-0.0004 (-0.7921)	0.0167 (0.4149)	0.1421 (5.1402)***					0.0026 (3.3004)***

***,**,* represent significance level of 1%, 5% and 10%, respectively
Value in the parenthesis shows the z-value for the estimate

Table 8: Variance Equation Of Mean Returns Of GARCH Model For Whole Period Of 1992 - June 1999

Companies	β_0	ξ^2_{t-1}	ξ^2_{t-2}	ξ^2_{t-3}	ξ^2_{t-4}	ξ^2_{t-5}
ACTACORP	0.0001 (0.8236)	0.4060 (2.1460)**	0.5647 (4.6420)***	-0.0937 (-1.5857)		
AUTOWAY	0.0004 (1.7563)*	-0.4629 (-4.2348)***	0.6683 (5.3134)***	0.6457 13.5067 ***	-0.2507 (-3.6184)***	
CFM	0.0001 (2.9739)***	-0.4076 (-2.3053)**	1.2657 (11.1526)***	0.4014 (2.5231)**	-0.3276 (-3.3164)***	
CICB	0.0001 (4.3948)***	0.5991 (2.9276)***	0.3082 (1.4540)	0.2293 (1.1858)	-0.1808 (-1.7148)*	
CP BHD	0.0004 (3.1002)***	0.8640 (23.3857)***	-1.0672 (-274.2538)***	0.7769 (20.7019)***		
DAIBOCI	0.0005 (3.9681)***	-0.5135 (-10.7898)***	-0.0835 (-1.3865)	-0.0050 (-0.0863)	0.0756 (1.2046)	0.5724 (9.5129)***
DPREP	0.0003 (3.2083)***	0.5700 (3.5534)***	-0.5778 (-3.5623)***	0.2681 (1.4490)	0.3471 (2.6526)***	
DENKO	0.0008 (4.5478)***	0.0972 (2.4258)**	-0.4050 (-3.57)***	-0.1947 (-2.7587)***	0.5114 (4.4580)***	0.0906 (3.4569)***
DIJAENT	0.0001 (2.6843)***	-0.1236 (-1.2601)	-0.0052 (-0.0855)	0.5709 (6.6055)***		
EPIC	0.0000 (0.2822)	1.2380 (4.9082)***	-0.3167 (-1.4875)			
GFB	-0.0001 (-1.5913)	1.0319 (5.0309)***	-0.2036 (-0.7645)	0.1101 (1.4726)		
JUTA	0.0008 (3.3537)***	0.5093 (10.2151)***	-0.8373 (-53.6403)***	0.6786 (15.8451)***		
KFM	0.0015 (5.4108)***	-0.4424 (-5.2185)***	0.3021 (5.6082)***			
KYM	0.0008 (3.6738)***	0.4201 (5.6754)***				
LHUAT	0.0000 (-0.3368)	1.1289 (6.9577)***	-0.1877 (-1.405)			
MAYPAK	0.0000 (-0.1649)	0.8367 (8.3190)***	-0.1206 (-0.5797)	0.1536 (1.0745)		
MERCURY	0.0001 (3.9272)***	0.4210 (2.9604)***	-0.0874 (-1.9306)*	-0.3327 (-19.1089)***	0.9449 (17.9422)***	-0.1151 (-0.8804)
META	0.0003 (4.1380)***	0.3510 (4.4421)***	0.2368 (2.5376)**	-0.4842 (-10.7584)***	0.3981 (3.6828)***	
PANTAI	0.0002 (2.2433)**	0.5967 (6.1392)***				
PRKCORP	-0.0001 (-4.1314)***	1.4766 (18.7134)***	-1.0394 (-12.555)***	0.4222 (14.3744***		
POLY	0.0003 (2.5944)***	-0.6957 (-13.7787)***	0.2785 (7.2385)***	0.7266 (18.8362)***		
PUBLIC	0.0006 (3.8178)***	-0.4708 (-4.5219)***	0.4144 (6.2778)***	0.5085 (5.6146)***		
RCI	0.0003 (4.1525)***	-0.1757 (3.5289)***	0.6941 (24.1106)***			
REPCO	0.0002 (4.7757)***	0.7850 (26.7398)***				
SANDA	-0.0001 (-1.0534)	0.5269 (2.8041)***	0.0904 (0.3040)	0.5441 (2.0638)**	-0.2307 (-2.1595)**	
SCKGB	0.0000 (0.5710)	1.2476 (5.3894)***	-0.2718 (-1.2417)			
SETEGAP	0.0002 (3.3876)***	0.4507 (13.7315)***	-0.1789 (-4.7145)***	-0.4979 (-13.0305)***	0.7568 (24.4264)***	
TAJO	0.0000 (2.3088)**	-0.8401 (-4.2205)***	0.8469 (10.9892)***	1.0345 (3.8328)***	-0.0818 (-0.767)	-0.0947 (-0.6766)
TCAP	0.0003 (3.4584)***	-0.4626 (-4.8172)***	-0.6718 (-9.2113)***	0.2007 (2.5018)**	0.3740 (4.8144)***	0.4759 (5.6262)***
TH GROUP	0.0001 (1.6235)	1.0143 (8.3687)***	-0.0775 (-0.7646)			
UCI	0.0002 (2.7623)***	0.4817 (9.7396)***	-0.4878 (-8.7569)***	0.7205 (14.6332)***		
MAIN BOARD	0.0000 (-2.6501)***	0.8137 (36.7523)***				
SECOND BOARD	0.0000 (1.2621)	0.5103 (2.1156)**				

Table 8: Variance Equation Of Mean Returns Of GARCH Model For Whole Period Of 1992 - June 1999 (Continue)

Companies	h_{t-1}	h_{t-2}	h_{t-3}	h_{t-4}	h_{t-5}	δ_1^*	δ_2^*	δ_3^*	δ_4^*	δ_5^*
ACTACORP	0.3888 (4.3768)***	0.0995 (0.1240)	-0.3514 (-6.4989)***			0.0001 (0.6145)	-0.0002 (-1.0774)			-0.0002 (-0.8048)
AUTOWAY	0.4562 (5.6614)***	0.3573 (11.3931)***	-0.1652 (-1.5322)	-0.3281 (-3.2031)***						-0.0002 (-2.6114)***
CPM	0.3460 (4.7246)***	0.2472 (3.0944)***	-0.3054 (-4.2532)***	-0.2323 (-3.1997)***						-0.0003 (-4.1896)***
CSCB	0.2708 (3.5922)***	0.0526 (0.7206)	-0.0326 (-0.4436)	-0.2534 (-5.5328)***			-0.0004 (-4.8351)***			0.0000 (-0.3557)
CP BHD	0.1611 (4.6903)***	-0.0101 (-3.1562)***	0.1614 (4.6948)***							-0.0002 (-2.5578)**
DAIBOCI	0.2272 (5.7807)***	0.2288 (5.2770)***	0.0840 (2.9529)***	0.0646 (1.9832)**	0.1028 (3.3072)***				-0.0002 (-4.8716)***	-0.0003 (-4.6238)***
DPREP	0.3089 (5.1461)***	-0.1408 (-2.0057)**	0.2550 (3.9059)***	-0.0749 (-1.277)						-0.0004 (-4.1916)***
DENKO	0.4787 (5.4302)***	0.0847 (1.0803)	0.2128 (3.5834)***	0.2475 (4.6117)***	-0.1956 (-2.3455)**					-0.0002 (-2.8512)***
DIAENT	0.3315 (4.6392)***	0.1988 (2.1082)**	0.0502 (0.8814)							0.0002 (1.6479)*
EPIC	0.2458 (3.9607)***	-0.1902 (-3.0291)***								0.0001 (1.2876)
GFB	0.2387 (3.3681)***	0.6869 (0.0400)	-0.1897 (-1.9333)							0.0004 (1.5950)
JUTA	0.1721 (4.0512)***	0.0381 (4.8931)***	0.1799 (4.4627)***			0.0001 (0.4822)				-0.0004 (-3.1461)***
KFM	0.3520 (7.8274)***	0.2298 (7.0378)***								-0.0007 (-2.6483)***
KYM	0.2985 (4.1366)***						-0.0007 (-2.6263)***	0.0001 (0.1801)		-0.0007 (-2.2372)**
LHUAT	0.3570 (4.2035)***	-0.3046 (-3.659)***								0.0002 (1.0972)
MAYPAK	0.2980 (2.7670)***	0.2238 (0.5523)	-0.3497 (-1.0808)							0.0001 (0.9434)
MERCURY	0.3353 (5.1297)***	-0.0413 (-1.6639)*	0.0233 (1.8147)*	0.1455 (5.5874)***	-0.3023 (-5.01)***					-0.0001 (-4.1121)***
META	0.4245 (1.9794)**	0.0223 (0.2920)	-0.1245 (-1.0401)	0.1617 (1.4569)						-0.0041 (-3.6949)***
PANTAI	0.3244 (3.3592)***									0.0000 (-0.0163)
PRKCORP	0.2095 (3.2864)***	-0.0660 (-0.5095)	-0.0102 (-0.1397)							0.0008 (4.3242)***
POLY	0.1930 (6.4813)***	0.2750 (6.4819)***	0.1749 (5.7460)***							-0.0004 (-2.0104)**
PUBLIC	0.2220 (4.8413)***	0.1658 (3.5323)***	-0.0531 (-1.6249)							-0.0004 (-2.9884)***
RCI	0.2492 (6.0119)***	0.1307 (2.7930)***								-0.0002 (-4.8934)***
REPCO	0.2686 (5.3707)***						-0.0003 (-4.5808)***			-0.0004 (-4.9789)***
SANDA	0.2820 (4.5646)***	0.0069 (0.1590)	0.0096 (0.2090)	-0.2304 (-4.7234)***						0.0005 (1.4485)
SCKGB	0.2182 (3.8766)***	-0.1973 (-3.66)***								-0.0001 (-0.4375)
SETEGAP	0.2016 (5.6264)***	-0.0018 (-0.0521)	0.1517 (4.0444)***	0.0973 (3.0160)***						0.0000 (-2.6691)***
TAJO	0.3312 (5.9949)***	0.3927 (8.4495)***	-0.1329 (-1.2844)	-0.3642 (-8.6019)***	-0.0950 (-1.2362)	0.0000 (-2.2885)**				0.0000 (-0.0596)
TCAP	0.3420 (4.9671)***	0.2717 (4.4289)***	0.3446 (5.0621)***	0.2244 (3.8732)***	-0.0217 (-0.3848)					-0.0002 (-5.1252)***
TH GROUP	0.3809 (5.5034)***	-0.3331 (-4.9093)***								-0.0003 (-1.2194)
UCI	0.2016 (5.3053)***	0.0232 (0.5670)	0.0505 (1.6601)*			-0.0002 (-1.1417)			-0.0004 (-4.0471)***	0.0001 (0.6727)
MAIN BOARD	0.1723 (6.9050)***							0.000029 (3.0008)***		0.00003 (2.8796)***
SECOND BOARD	0.3451 (5.8350)***	0.0262 (0.3488)	-0.2147 (-3.2669)***							-0.00001 (-0.5408)

***,**,* represent significance level of 1%, 5% and 10%, respectively

Value in the parenthesis shows the z-value for the estimate

Results from test on the indices reveal that Wednesday and Friday effects for KLCI and Friday effect for the Second Board are significant in the conditional mean. Significance of the Wednesday and Friday effects in the conditional variance for the KLCI indicates significant seasonal variation in the volatility of the Main Board stock returns while insignificant result is found for the Second Board Index. Thus, the day-of-the-week effect found in both indices is not due to seasonal variation in risk.

From the results obtained, we can summarise that the majority of the stocks have significant Friday effect. A few stocks have other day-of-the-week effects which are not caused by the market return volatility. This shows that seasonality in the daily returns persists even after the variation in return volatility has been taken into account.

The results are consistent with those obtained by Ng(1999) on the smaller companies in the Finance sector of the Main Board and those obtained by Clare, Ibrahim and Thomas(1998) on the KLCI.

CONCLUSION

Empirical results reveal that the day-of-the-week effect does exist in the Second Board stocks and in both indices. Consistent with previous studies, especially the one reported by Kok and Ho (1997), the most pronounced seasonality found in the whole-period study is the Friday effect. Majority of the stocks do not display other day effects. The KLCI exhibits Wednesday and Friday effects while the Second Board Index only exhibits the Friday effect. In general, negative returns occur on Monday, Tuesday and Thursday while positive returns occur on Wednesday and Friday. Lowest mean return in a week is found on Monday while highest mean return is found on Friday.

Sub-period analysis performed on 25 sample stocks (after the exclusion of 6 stocks used for the sub-study) to examine the persistency of the day-of-the-week effect shows that Friday effect exists in both sub-periods. The sub-period analysis also uncovered some results that were previously 'hidden'. In the first sub-period (1992 – 1995), in addition to Friday effect, the KLCI exhibits Monday (or weekend) and Wednesday effects while the Second Board Index exhibits Wednesday effect. The results for the second sub-period (1996 – mid 1999) are similar to those for the whole period although the trend of the returns is different; mean returns for all other days, except Friday, are negative.

The sub-study conducted on the 6 Second Board stocks transferred to the Main Board shows that the day-of-the-week effect persists after the stocks were transferred.

Contrary to all past studies except Ng(1999), there is no pre-holiday effect in the Second Board. That is, there is little support of higher returns for Second Board stocks on the day prior to a public holiday.

This study also examines the existence of the day-of-the-week effect in different market environments: 'good' and 'bad' news. Consistently lower returns for Monday and higher returns for Friday are found in the bad news market environment while there is little evidence of the day-of-the-week effect in the good news market environment. In the good news environment, Monday returns are found to be the highest compared to those for other trading days. Overall results indicate that returns on Mondays are affected by both market environments (either good or bad news). As more announcements seem to be made over the weekend when there is no trading, these are then reflected in the prices on the first day of the trading week.

This study also examines whether the day-of-the-week effect in the sample stocks and both indices is due to seasonal variation in equity market risk. The findings from the GARCH model reveal that the most prominent anomaly, the Friday effect, still exists after the changes in market volatility are taken into account. This implies that the Friday effect cannot be explained by the changes in return volatility.

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APPENDIX I : SUMMARY OF THE SELECTED SECOND BOARD STOCKS AND THEIR MARKET CAPITALISATION

NO	CODE	NAME	SHARE	MARKET CAPITALISATION AS AT 30 JUNE 1999 (RM'000)
1	8036	PANTAI HOLDINGS BHD[a]	PANTAI	680,684
2	8109	TH GROUP[b]	TH GROUP	663,395
3	8389	META CORP BHD	META	357,608
4	8346	PERAK CORP BHD	PRK CORP	341,600
5	8214	CHASE PERDANA BHD	CP BHD	203,953
6	8265	EASTERN PACIFIC INDUSTRIAL CORP BHD[c]	EPIC	195,980
7	8257	TENGGARA CAPITAL BHD[d]	TCAP	109,976
8	8117	POLY GLASS FIBRE BHD	POLY	103,508
9	8222	REPCO HOLDINGS BHD	REPCO	101,203
10	8044	COMPUTER FORMS BHD	CFM	91,840
11	8176	DENKO INDUSTRIES CORP BHD	DENKO	87,712
12	8001	DIJAYA ENTERPRISE BHD[e]	DIJAENT	84,104
13	8338	DATAPREP HOLDINGS BHD	DPREP	73,575
14	8087	ROCK CHEMICAL INDUSTRIES BHD	RCI	72,012
15	8192	MERCURY INDUSTRIES BHD	MERCURY	72,002
16	8052	CENTRAL INDUSTRIAL CORP BHD	CICB	70,855
17	8184	SETEGAP BHD	SETEGAP	70,786
18	8168	ACTACORP HOLDINGS BHD[f]	ACTACORP	69,784
19	8362	KYM HOLDINGS BHD[g]	KYM	68,385
20	8273	PUBLIC PACKAGES HOLDINGS BHD	PUBLIC	60,923
21	8079	LONG HUAT GROUP BHD	LHUAT	60,497
22	8125	DAIBOCHI PLASTIC & PACKAGING INDUSTRIES BHD	DAIBOCI	59,127
23	8281	GOLDEN FRONTIER BHD	GFB	54,786
24	8354	JUTAJAYA HOLDING BHD	JUTA	50,348
25	8311	TAJO BHD	TAJO	46,332
26	8095	MALAYSIA PACKAGING INDUSTRY BHD	MAYPAK	43,304
27	8141	UNITED CHEMICAL INDUSTRIES BHD	UCI	42,920
28	8303	KUANTAN FLOUR MILLS BHD	KFM	42,134
29	8249	SCK GROUP BHD	SCKGB	37,763
30	8028	AUTOWAYS HOLDINGS BHD	AUTOWAY	32,857
31	8206	SANDA INDUSTRIES BHD	SANDA	26,070

[a] Transferred to Main Board on 17.9.1997
[b] Transferred to Main Board on 1.3.1999
[c] Transferred to Main Board on 11.8.1995
[d] Transferred to Main Board on 26.2.1997
[e] Transferred to Main Board on 8.2.1995
[f] Transferred to Main Board on 23.1.1996
[g] Transferred to Main Board on 8.8.1995