

CHAPTER 4

RESULTS AND ANALYSIS

4.1 Empirical Finding on Seasonality in Daily Stock Volatility

4.1.1 Findings from Descriptive Statistics, Kolmogorov-Smirnov and Levene Tests

The descriptive statistics of the daily volatility (SDs) as well as the results of the Kolmogorov-Smirnov and the Levene tests for all the stocks' SDs, including the Kuala Lumpur Stock Exchange Composite Index (KLSE CI), for the whole period of 3 July 1995 to 30 June 2000, are presented in *Table 1*.

For the whole period of the study, there is a total of 1236 trading days. Nevertheless, only 6 stocks (GHOPE, L&G, PACMAS, PBBANK, TA and MCSB) have equal number of trading days as the market. The rest of the stocks have trading days ranging from 1130 to 1235 with the exception of YCS, which has only a total of 837 trading days. The unmatched number of trading days between the individual stock and the market was due to no trading and/or the suspension of stock trading for various numbers of days during the period under study.

The results reflect a higher mean and standard deviation for the daily volatility (SDs) data of all the individual stocks, except MARUICH (for mean only), in comparing with the same statistics of the KLSE CI (mean of 0.0201 and standard

**Table 1 : Descriptive Statistics and Results of Kolmogorov-Smirnov and Levene Tests
for Daily Volatility (SDs) for Whole Period**

	Stock	No. of Obs.	Mean	Standard Deviation	Skewness	Kurtosis	KS Test	Sig.	Levene's Stats.	Sig.
Main Board Companies										
1	AFFIN	1234	0.0411	0.0407	3.461	20.082	6.342	0.000	1.152	0.331
2	AMFIN	1234	0.0369	0.0435	2.948	14.183	6.972	0.000	0.843	0.498
3	ASB	1230	0.0584	0.0539	3.069	15.471	5.136	0.000	0.547	0.702
4	BKATIL	1198	0.0394	0.0465	2.781	11.750	6.879	0.000	0.483	0.748
5	BAT	1234	0.0244	0.0237	4.258	39.932	5.783	0.000	0.492	0.742
6	BOLTON	1230	0.0449	0.0486	2.848	11.929	6.230	0.000	1.689	0.150
7	CMSB	1235	0.0354	0.0356	2.590	12.236	5.610	0.000	1.022	0.395
8	COMMERZ	1221	0.0403	0.0413	3.450	17.838	6.110	0.000	0.782	0.537
9	CRIMSON	1233	0.0590	0.0513	2.666	11.201	4.482	0.000	0.523	0.719
10	E&O	1177	0.0370	0.0408	2.710	10.061	6.246	0.000	2.191*	0.068
11	FABER	1233	0.0542	0.0554	2.890	13.307	5.768	0.000	0.238	0.917
12	GHOPE	1236	0.0313	0.0278	3.613	23.377	5.686	0.000	0.599	0.664
13	GKENT	1215	0.0422	0.4860	2.993	15.413	6.726	0.000	2.108*	0.078
14	GPLUS	1229	0.0544	0.0530	3.632	22.521	6.001	0.000	1.070	0.370
15	HLBANK	1235	0.0341	0.0330	3.143	16.091	6.080	0.000	0.303	0.876
16	KIANJOO	1224	0.0245	0.0273	3.660	22.221	6.493	0.000	1.045	0.383
17	L&G	1236	0.0593	0.0518	3.245	17.777	5.415	0.000	1.598	0.172
18	LITYAN	1216	0.0461	0.0462	2.605	10.863	5.556	0.000	0.273	0.896
19	MARUICH	1167	0.0191	0.0276	3.118	13.264	8.035	0.000	0.694	0.596
20	MUHIBAH	1175	0.0297	0.0421	4.146	33.681	8.225	0.000	0.901	0.463
21	MUIB	1234	0.0520	0.0444	2.751	15.111	4.870	0.000	0.857	0.489
22	OSK	1234	0.0400	0.0304	2.177	7.426	4.839	0.000	1.098	0.356
23	PPERAK	1230	0.0469	0.0427	2.375	10.656	4.773	0.000	0.663	0.618
24	PACMAS	1236	0.0353	0.0321	3.053	15.348	5.718	0.000	0.281	0.890
25	PALMCO	1227	0.0378	0.0394	3.520	21.936	5.932	0.000	0.888	0.470
26	PBBANK	1236	0.0318	0.0314	3.314	16.228	6.733	0.000	0.760	0.551
27	PJDEV	1228	0.0492	0.0446	2.296	7.346	5.200	0.000	1.775	0.131
28	SUNTECH	1177	0.0399	0.0464	2.405	8.880	6.693	0.000	0.280	0.891
29	TA	1236	0.0491	0.0411	3.111	16.644	5.507	0.000	0.210	0.933
30	TANJONG	1234	0.0343	0.0275	3.295	21.109	4.931	0.000	0.745	0.561
31	TENAGA	1235	0.0359	0.0291	3.126	16.265	5.329	0.000	0.281	0.890
32	UMG	1231	0.0452	0.0442	3.016	15.896	5.375	0.000	0.272	0.896
33	UMW	1235	0.0329	0.0362	3.810	22.214	6.430	0.000	1.122	0.344
Second Board Companies										
1	AYAMAS	1155	0.0351	0.0361	2.344	8.574	5.606	0.000	1.276	0.277
2	DPREP	1227	0.0689	0.0580	2.577	10.105	5.597	0.000	0.971	0.423
3	DENKO	1203	0.0761	0.0607	2.728	10.600	5.698	0.000	1.530	0.191
4	FFHB	1168	0.0520	0.0492	2.382	9.867	4.958	0.000	1.900	0.108
5	FOURSSN	1178	0.0562	0.0450	2.103	7.652	3.977	0.000	1.021	0.395
6	GEAHIN	1168	0.0499	0.0446	2.097	8.028	4.501	0.000	2.493**	0.042
7	HIRO	1130	0.0364	0.0365	2.450	10.663	5.360	0.000	1.147	0.333
8	MCSB	1236	0.0618	0.0543	2.717	12.608	5.106	0.000	1.105	0.353
9	PROMTO	1223	0.0571	0.0465	2.187	7.883	4.442	0.000	0.460	0.765
10	TGL	1183	0.0624	0.0563	2.368	8.371	4.788	0.000	2.613**	0.034
11	YCS	837	0.0716	0.0789	3.221	14.458	5.599	0.000	0.153	0.962
	KLSE CI	1236	0.0201	0.0189	4.929	44.866	6.324	0.000	0.703	0.59

Note : KS Test - Z statistics of Kolmogorov-Smirnov Test are all significant at 5% level of significance.

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

deviation of 0.0189). This implies that the daily volatility of most of the stocks under study is higher than the market volatility.

The skewness and kurtosis statistics provide information regarding the "shape" of the daily SD distributions. The skewness is a measure of the symmetry of the distribution while the kurtosis refers to the peakedness of a distribution compared with normal distribution. The skewness statistics for all the stocks, ranging between 2.097 and 4.258, and of 4.929 for KLSE CI, indicate that all the daily SD distributions have long right tail. In addition, the kurtosis statistics, which have large positive values (above 7) for all stocks and the KLSE CI, indicate that they are the tall (peaked) distributions. These two statistics show that the distributions of the daily SDs are leptokurtic.

The above two statistics have indicated that the distributions of the daily SDs are not normally distributed. The results of the Kolmogorov-Smirnov test confirmed that the daily SDs of all stocks and the KLSE CI are not normally distributed. As the distributions are not normally distributed, this implies that the parametric tests for the series may not be valid. Thus, the non-parametric tests are more relevant and accurate for any statistical analysis of the series.

The results of the Levene test show that the daily SDs of 42 stocks out of the 44 stocks (or 95.5%) and the KLSE CI have equal variances. Thus, for the 2 stocks

(GEAHIN and TGL, both are Second Board stocks) which do not have equal variances, they should be analysed using the non-parametric tests.

4.1.2 Analysis on the Day-of-the-Week Effect of Daily Stock Volatility

- (a) *Findings for Day-of-the-Week Effect for Whole Period (3 July 1995 to 30 June 2000)*

The descriptive statistics, namely the mean daily SDs, standard deviation and the number of observations across the days of the week for all the 44 stocks, and the KLSE CI, of the whole period are tabulated in *Table 2*. The days with the highest and lowest mean daily SDs for each stock across the days of the weeks are indicated in "blue" and "yellow" respectively. As the daily SDs is a measure of volatility, the day with the highest mean daily SDs implies that it is the day with the highest volatility. Similarly, the day with the lowest mean daily SDs would mean that it is the day with the lowest volatility.

From *Table 2*, it is very obvious that majority of the stocks, including the KLSE CI, have the aggregate highest mean daily SDs on Monday/Tuesday and the lowest mean daily SDs on Friday. The results indicate that 20 of the stocks have the highest mean daily SDs on Tuesday, followed by 11 stocks on Monday. This accounts for 70.5% of the total stocks under study. Of the 44 stocks, 25 stocks (or 56.8%) have the lowest mean daily SDs on Friday. From the results, 66.7% of the Main Board stocks and 81.8% of the Second Board stocks have the aggregated highest mean daily SDs on Monday/Tuesday, while 72.7% of both

Table 2 : Descriptive Statistics of Daily Volatility (SDs) Across The Day-of-the-Week for Whole Period

Main Board Companies	Stock	Monday			Tuesday			Wednesday			Thursday			Friday		
		Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n
1 AFFIN	0.0419	0.0411	236	0.0467	250	0.0411	0.0421	252	0.0400	0.0381	246	0.0394	0.0345	250		
2 AMFIN	0.0367	0.0445	236	0.0381	0.0445	250	0.0378	0.0433	252	0.0363	0.0458	246	0.0336	0.0394	250	
3 ASB	0.0591	0.0566	234	0.0603	0.0551	250	0.0502	0.0574	251	0.0555	0.0546	245	0.0522	0.0522	250	
4 BKATIL	0.0401	0.0484	231	0.0390	0.0450	243	0.0399	0.0465	245	0.0396	0.0446	238	0.0383	0.0484	241	
5 BAT	0.0257	0.0221	236	0.0220	0.0288	250	0.0240	0.0204	252	0.0252	0.0233	246	0.0251	0.0230	250	
6 BULTON	0.0491	0.0564	235	0.0447	0.0489	251	0.0414	0.0407	250	0.0445	0.0493	245	0.0451	0.0469	249	
7 CMSB	0.0361	0.0367	236	0.0372	0.0267	251	0.0368	0.0329	252	0.0323	0.0362	246	0.0345	0.0354	250	
8 COMMERZ	0.0410	0.0462	233	0.0409	0.0435	249	0.0421	0.0414	249	0.0394	0.0382	244	0.0379	0.0371	246	
9 CRIMSON	0.0571	0.0562	236	0.0575	0.0489	252	0.0539	0.0437	252	0.0561	0.0509	245	0.0548	0.0562	248	
10 E&O	0.0382	0.0401	224	0.0405	0.0444	242	0.0350	0.0380	243	0.0333	0.0340	233	0.0380	0.0460	235	
11 FABER	0.0545	0.0562	235	0.0547	0.0542	252	0.0556	0.0575	252	0.0527	0.0576	244	0.0528	0.0519	250	
12 GHOPE	0.0303	0.0255	236	0.0301	0.0321	252	0.0312	0.0244	252	0.0323	0.0265	246	0.0291	0.0295	250	
13 GKENT	0.0450	0.0586	228	0.0435	0.0535	251	0.0401	0.0418	249	0.0433	0.0450	243	0.0331	0.0428	244	
14 GPLUS	0.0537	0.0500	235	0.0587	0.0638	252	0.0565	0.0492	249	0.0517	0.0502	244	0.0515	0.0502	249	
15 HL BANK	0.0352	0.0370	236	0.0345	0.0357	252	0.0339	0.0286	252	0.0344	0.0317	246	0.0323	0.0316	249	
16 KIANJOO	0.0234	0.0235	230	0.0246	0.0355	250	0.0243	0.0257	251	0.0246	0.0251	245	0.0238	0.0247	248	
17 L&G	0.0602	0.0572	236	0.0620	0.0585	252	0.0597	0.0451	252	0.0592	0.0501	246	0.0556	0.0473	250	
18 LITIAN	0.0471	0.0491	232	0.0485	0.0448	246	0.0459	0.0437	249	0.0453	0.0461	243	0.0437	0.0476	246	
19 MARUICH	0.0199	0.0268	226	0.0208	0.0304	235	0.0179	0.0247	244	0.0183	0.0296	227	0.0185	0.0263	235	
20 MUHIBAH	0.0287	0.0315	222	0.0307	0.0392	241	0.0330	0.0557	237	0.0287	0.0411	238	0.0274	0.0333	237	
21 MUIB	0.0533	0.0479	236	0.0520	0.0486	252	0.0511	0.0390	252	0.0516	0.0418	245	0.0500	0.0446	249	
22 OSK	0.0399	0.0279	236	0.0424	0.0314	252	0.0390	0.0293	250	0.0404	0.0333	246	0.0385	0.0302	250	
23 PPERAK	0.0464	0.0417	235	0.0480	0.0454	250	0.0473	0.0395	251	0.0483	0.0469	245	0.0443	0.0400	249	
24 PACMAS	0.0372	0.0309	236	0.0351	0.0346	252	0.0358	0.0322	252	0.0343	0.0283	246	0.0339	0.0342	250	
25 PALMCO	0.0372	0.0385	233	0.0405	0.0475	250	0.0379	0.0362	250	0.0392	0.0406	246	0.0341	0.0325	248	
26 PBBANK	0.0323	0.0334	236	0.0320	0.0312	252	0.0333	0.0340	252	0.0313	0.0295	246	0.0301	0.0285	250	
27 PJDEV	0.0510	0.0478	236	0.0526	0.0507	251	0.0491	0.0404	251	0.0487	0.0426	243	0.0447	0.0407	247	
28 SUNTECH	0.0402	0.0507	223	0.0390	0.0431	236	0.0400	0.0451	242	0.0401	0.0472	238	0.0397	0.0463	238	
29 TA	0.0306	0.0409	236	0.0490	0.0447	252	0.0485	0.0370	252	0.0489	0.0435	246	0.0484	0.0394	250	
30 TANJONG	0.0340	0.0274	236	0.0345	0.0353	252	0.0333	0.0257	252	0.0341	0.0241	245	0.0346	0.0237	249	
31 TENAGA	0.0353	0.0292	236	0.0353	0.0314	251	0.0367	0.0270	252	0.0364	0.0298	246	0.0358	0.0283	250	
32 UMG	0.0460	0.0487	235	0.0466	0.0459	250	0.0454	0.0411	251	0.0452	0.0437	245	0.0427	0.0415	250	
33 UMW	0.0306	0.0328	235	0.0333	0.0406	252	0.0324	0.0329	252	0.0416	0.0416	246	0.0330	0.0316	250	

Note : "Blue" refers to day with highest mean, while "Yellow" refers to day with lowest mean.

Table 2 : Descriptive Statistics of Daily Volatility (SDs) Across The Day-of-the-Week for Whole Period

Stock	Monday			Tuesday			Wednesday			Thursday			Friday		
	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n
Second Board Companies															
1 AYAMAS	0.0395	2.19	0.0039	0.0311	2.34	0.0371	0.0382	2.35	0.0347	0.0353	2.33	0.0335	0.0360	2.34	
2 DPREP	0.0605	2.33	0.0726	0.0633	2.50	0.0678	0.0509	2.50	0.0679	0.0610	2.45	0.0651	0.0539	2.49	
3 DENKO	0.0638	2.29	0.0817	0.0652	2.46	0.0745	0.0570	2.46	0.0725	0.0592	2.40	0.0725	0.0581	2.42	
4 FFHB	0.0451	2.19	0.0577	0.0583	2.40	0.0486	0.0394	2.35	0.0504	0.0523	2.34	0.0491	0.0478	2.40	
5 FOURSSN	0.0450	2.26	0.0570	0.0449	2.38	0.0539	0.0399	2.36	0.0548	0.0466	2.34	0.0601	0.0480	2.42	
6 GEAHIN	0.0478	2.23	0.0536	0.0535	2.38	0.0475	0.0395	2.34	0.0471	0.0436	2.32	0.0454	0.0361	2.41	
7 HIRO	0.0411	2.15	0.0400	0.0379	2.33	0.0331	0.0322	2.29	0.0360	0.0342	2.21	0.0361	0.0365	2.32	
8 MCSB	0.0602	2.36	0.0614	0.0587	2.52	0.0611	0.0507	2.52	0.0597	0.0503	2.46	0.0600	0.0510	2.50	
9 PROMTO	0.0463	2.33	0.0506	0.0507	2.48	0.0558	0.0440	2.49	0.0579	0.0436	2.45	0.0540	0.0473	2.48	
10 TGL	0.0456	2.25	0.0652	0.0616	2.45	0.0622	0.0585	2.42	0.0636	0.0622	2.33	0.0602	0.0513	2.38	
11 YCS	0.0760	1.60	0.0771	0.0768	1.72	0.0683	0.0737	1.70	0.0711	0.0894	1.67	0.0695	0.0784	1.66	
KLSE CI	0.0204	0.0198	236	0.0213	0.0238	252	0.0201	0.0147	252	0.0207	0.0189	246	0.0186	0.0161	250

Note : "Blue" refers to day with highest mean, while "Yellow" refers to day with lowest mean.

the Main Board stocks and Second Board stocks have lowest mean daily SDs on Wednesday/Friday.

The results of the various statistical tests on mean daily SDs for all the stocks, and the KLSE CI, for the whole sample period are tabulated in *Table 3*. The relevant statistical tests are the F-statistics of ANOVA, the Kruskal-Wallis, Levene and the multiple comparison tests, namely the Scheffe and the Bonferroni tests.

Based on the F-statistics of the one-way ANOVA, the null hypothesis of equality of mean daily SDs cannot be rejected at 5% level of significance for all the stocks, including the KLSE CI, except for GEAHIN, a Second Board stock. This means that the mean daily SDs of all stocks, including KLSE CI, are not significantly different across the days of the week except for GEAHIN.

The Scheffe and Bonferroni's multiple comparison tests were conducted on GEAHIN to identify the pair of days in which the mean daily SDs are significantly different. The results show that the Scheffe's test does not identify the pair of days which have significantly different mean daily SDs. Nevertheless, the Bonferroni test shows that the mean daily SDs of GEAHIN stock are significantly different between Monday and Friday, at 10% level of significance. It appears that although the one-way ANOVA has identified GEAHIN as a stock which has

Table 3 : Results of ANOVA (F tests), Kruskal-Wallis, Levene and Multiple Comparison Tests of Daily Volatility (SDs) for Whole Period

	Stock	F-Stats.	Sig.	Kruskal Wallis	Sig.	Levene Test	Sig.	Scheffe Test	Bonferroni Test
Main Board Companies									
1	AFFIN	0.309	0.872	0.409	0.982	1.152	0.331		
2	AMFIN	0.548	0.700	2.601	0.627	0.843	0.498		
3	ASB	0.515	0.725	3.619	0.460	0.547	0.702		
4	BKATIL	0.055	0.994	0.312	0.989	0.483	0.748		
5	BAT	0.955	0.432	10.292**	0.036	0.492	0.742		
6	BOLTON	0.744	0.562	0.772	0.942	1.689	0.150		
7	CMSB	0.822	0.511	3.199	0.525	1.022	0.395		
8	COMMERZ	0.418	0.796	1.932	0.748	0.782	0.537		
9	CRIMSON	0.210	0.933	1.429	0.839	0.523	0.719		
10	E&O	1.168	0.323	2.844	0.584	2.191*	0.068		
11	FABER	0.182	0.948	1.359	0.851	0.238	0.917		
12	GHOPE	0.407	0.804	3.223	0.521	0.599	0.664		
13	GKENT	0.621	0.648	1.034	0.905	2.108*	0.078		
14	GPLUS	0.825	0.509	4.466	0.347	1.070	0.370		
15	HLBANK	0.224	0.925	2.286	0.587	0.303	0.876		
16	KIANJOO	0.183	0.947	5.308	0.257	1.045	0.383		
17	L&G	0.521	0.721	2.027	0.731	1.598	0.172		
18	LITYAN	0.383	0.821	3.177	0.529	0.273	0.896		
19	MARUICH	0.460	0.765	1.502	0.826	0.694	0.596		
20	MUHIBAH	0.632	0.640	1.149	0.886	0.901	0.463		
21	MUIB	0.327	0.860	1.508	0.825	0.857	0.489		
22	OSK	0.616	0.651	3.233	0.520	1.098	0.356		
23	PPERAK	0.374	0.828	1.384	0.847	0.663	0.618		
24	PACMAS	0.441	0.779	4.329	0.363	0.281	0.890		
25	PALMCO	0.943	0.438	5.427	0.246	0.888	0.470		
26	PBBANK	0.364	0.835	1.525	0.822	0.760	0.551		
27	PJDEV	1.092	0.359	4.428	0.351	1.775	0.131		
28	SUNTECH	0.039	0.997	0.518	0.972	0.280	0.891		
29	TA	0.112	0.978	0.931	0.920	0.210	0.933		
30	TANJONG	0.135	0.969	2.296	0.681	0.745	0.561		
31	TENAGA	0.110	0.979	1.449	0.836	0.281	0.890		
32	UMG	0.283	0.889	1.415	0.842	0.272	0.896		
33	UMW	0.462	0.763	1.436	0.838	1.122	0.344		
Second Board Companies									
1	AYAMAS	0.713	0.583	1.669	0.796	1.276	0.277		
2	DPREP	0.665	0.617	4.543	0.337	0.971	0.423		
3	DENKO	1.142	0.335	0.214	0.644	1.530	0.191		
4	FFHB	1.467	0.210	5.008	0.286	1.900	0.108		
5	FOURSSN	0.727	0.573	2.189	0.701	1.021	0.395		
6	GEAHIN	2.545**	0.038	7.956*	0.093	2.493**	0.042	1&5*	
7	HIRO	0.846	0.496	3.209	0.523	1.147	0.333		
8	MCSB	0.732	0.570	3.278	0.512	1.105	0.353		
9	PROMTO	0.818	0.514	5.778	0.216	0.460	0.765		
10	TGL	0.729	0.572	0.210	0.995	2.613**	0.034		
11	YCS	0.187	0.945	2.377	0.667	0.153	0.962		
	KLSE CI	0.569	0.685	4.052	0.399	0.703	0.59		

Note : 1, 2, 3, 4 & 5 refer to Monday, Tuesday, Wednesday, Thursday and Friday respectively.

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

unequal mean daily SDs, the difference may not be too obvious to be detected by the more stringent Scheffe test.

As the distributions of the mean daily SDs are not normally distributed and 2 of the stocks do not have equal variances across the days of the week, the parametric test of one-way ANOVA may not be valid. Thus, it is more appropriate to analyse the finding based on the result of the non-parametric test, i.e. the Kruskal-Wallis test.

From the Kruskal-Wallis test, the BAT stock of Main Board indicates a significantly different mean daily SDs across the days of the week.

In general, we may conclude that the mean daily SDs of most of the stocks are highest on Monday/Tuesday and lowest on Friday. This also implies that the daily volatility (or risk) is highest on Monday/Tuesday and lowest on Friday. Nevertheless, the difference in mean daily SDs is not very significant to be detected by the one-way ANOVA or the Kruskal-Wallis tests. Results show that only 1 out of 44 stocks has significantly different mean daily SDs across the days of the week. Thus, it appears that there is no seasonal variation in volatility or day-of-the-week effect in volatility of stocks in the KLSE for the whole period under study.

(b) *Findings for Day-of-the-Week Effect for Sub-Period 1 (3 July 1995 to 31 July 1997)*

The mean daily SDs, standard deviation and number of observations of all 44 stocks and the KLSE CI, across the days of the week for sub-period 1 i.e. from 3 July 1995 to 31 July 1997, are presented in *Table 4*. The information on the skewness and kurtosis for the whole sub-period is also included in the same table. This sub-period corresponds with a stable stock market performance and prior to the Asian financial crisis. The days with the highest and lowest mean daily SDs across the week for each stock are highlighted in "blue" and "yellow" respectively.

The results show that the mean daily SDs (or volatility) for more than half of the stocks (in aggregate) are highest on Monday/Tuesday and lowest on Tuesday/Friday. There is an aggregate of 27 out of 44 stocks (or 61.4%) having highest mean daily SDs on Monday/Tuesday and 26 out of the 44 stocks (or 59.1%) with lowest mean daily SDs on Tuesday/Friday.

For the Main Board stocks, it is interesting to note that during this sub-period, the day with the highest mean daily SDs is Monday (11 out of 33 stocks), instead of Tuesday (5 stocks only). This is in contrast to the results obtained earlier for the whole period which show a total of 14 stocks with highest mean daily SDs on Tuesday compared with 8 stocks on Monday. The two days with significantly higher number of Main Board stocks having lowest mean daily SDs are Friday

Table 4 : Descriptive Statistics of Daily Volatility (SDs) Across The Day-of-the-Week for Sub-Period 1

Stock	Monday			Tuesday			Wednesday			Thursday			Friday			All Days	
	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Skewness	Kurtosis
Main Board Companies																	
1 AFFIN	0.0232	0.0169	100	0.0220	0.0143	107	0.0217	0.0139	103	0.0241	0.0178	102	0.0211	0.0170	516	1.731	4.084
2 AMFIN	0.0111	0.0169	100	0.0102	0.0103	107	0.0127	0.0128	103	0.0112	0.0119	102	0.0107	0.0132	516	2.228	6.668
3 ASB	0.0281	0.0190	100	0.0299	0.0229	107	0.0279	0.0199	103	0.0203	0.0211	102	0.0286	0.0205	516	1.075	1.560
4 BRAIL	0.0188	0.0276	100	0.0154	0.0230	107	0.0161	0.0294	103	0.0187	0.0263	102	0.0174	0.0221	104	0.0172	0.0257
5 BAT	0.0181	0.0152	100	0.0128	0.0102	107	0.0159	0.0116	103	0.0169	0.0145	102	0.0173	0.0155	104	0.0163	0.0136
6 BOLTON	0.0215	0.0181	100	0.0189	0.0184	107	0.0205	0.0393	103	0.0153	0.0158	102	0.0202	0.0202	104	0.0199	0.0239
7 CMSB	0.0179	0.0168	100	0.0149	0.0134	107	0.0187	0.0210	103	0.0153	0.0160	102	0.0179	0.0221	104	0.0169	0.0182
8 COMMERZ	0.0190	0.0129	100	0.0181	0.0135	107	0.0205	0.0159	103	0.0205	0.0013	102	0.0187	0.0136	104	0.0193	0.0138
9 CRIMSON	0.0116	0.0422	100	0.0339	0.0264	107	0.0349	0.0244	103	0.0385	0.0262	102	0.0343	0.0286	104	0.0348	0.0301
10 E&O	0.0279	0.0214	100	0.0180	0.0360	107	0.0270	0.0190	103	0.0272	0.0181	102	0.0267	0.0194	104	0.0280	0.0239
11 FABER	0.0257	0.0170	100	0.0252	0.0212	107	0.0291	0.0346	103	0.0243	0.0179	102	0.0233	0.0160	104	0.0255	0.0224
12 GHOPHE	0.0212	0.0171	100	0.0203	0.0129	107	0.0218	0.0145	103	0.0230	0.0141	102	0.0267	0.0208	104	0.0224	0.0162
13 GKEENT	0.0222	0.0343	100	0.0202	0.0298	107	0.0181	0.0183	103	0.0214	0.0232	102	0.0209	0.0238	104	0.0208	0.0264
14 GPLUS	0.0346	0.0191	100	0.0163	0.0320	107	0.0328	0.0216	103	0.0330	0.0251	102	0.0284	0.0161	104	0.0330	0.0235
15 HL BANK	0.0189	0.0124	100	0.0179	0.0113	107	0.0133	0.0160	103	0.0189	0.0140	102	0.0178	0.0135	104	0.0186	0.0135
16 KIANJOO	0.0180	0.0160	100	0.0157	0.0148	107	0.0180	0.0171	103	0.0200	0.0162	102	0.0199	0.0199	104	0.0186	0.0169
17 L&G	0.0305	0.0269	100	0.0309	0.0209	107	0.0332	0.0182	103	0.0333	0.0237	102	0.0240	0.0240	104	0.0324	0.0216
18 LITIAN	0.0288	0.0324	100	0.0335	0.0439	107	0.0268	0.0273	103	0.0256	0.0248	102	0.0281	0.0321	104	0.0289	0.0329
19 MARUICH	0.0060	0.0074	100	0.0083	0.0129	107	0.0066	0.0090	103	0.0074	0.0118	102	0.0070	0.0106	104	0.0071	0.0106
20 MUHIBAH	0.0076	0.0096	100	0.0095	0.0137	107	0.0123	0.0223	103	0.0103	0.0187	102	0.0106	0.0178	104	0.0102	0.0170
21 MUIB	0.0253	0.0159	100	0.0246	0.0166	107	0.0258	0.0171	103	0.0361	0.0254	102	0.0235	0.0163	104	0.0254	0.0186
22 OSK	0.0268	0.0159	100	0.0235	0.0204	107	0.0262	0.0188	103	0.0284	0.0188	102	0.0243	0.0135	104	0.0271	0.0176
23 PPERAK	0.0265	0.0239	100	0.0236	0.0199	107	0.0228	0.0219	103	0.0250	0.0280	102	0.0240	0.0232	104	0.0244	0.0235
24 PACMAS	0.0350	0.0265	100	0.0288	0.0242	107	0.0327	0.0271	103	0.0280	0.0235	102	0.0277	0.0220	104	0.0304	0.0248
25 PALMCO	0.0256	0.0198	100	0.0286	0.0221	107	0.0271	0.0207	103	0.0183	0.0251	102	0.0235	0.0184	104	0.0268	0.0214
26 PBBANK	0.0194	0.0206	100	0.0157	0.0147	107	0.0163	0.0124	103	0.0162	0.0078	102	0.0179	0.0179	104	0.0163	0.0163
27 PJDEV	0.0315	0.0352	100	0.0295	0.0258	107	0.0315	0.0220	103	0.0293	0.0203	102	0.0285	0.0214	104	0.0312	0.0256
28 SUNTECH	0.0124	0.0179	100	0.0183	0.0195	107	0.0171	0.0193	103	0.0172	0.0153	102	0.0163	0.0188	104	0.0175	0.0182
29 TA	0.0286	0.0162	100	0.0275	0.0145	107	0.0271	0.0149	103	0.0280	0.0188	102	0.0270	0.0144	104	0.0279	0.0158
30 TANJONG	0.0245	0.0153	100	0.0231	0.0164	107	0.0235	0.0162	103	0.0235	0.0135	102	0.0222	0.0148	104	0.0243	0.0153
31 TENAGA	0.0218	0.0111	100	0.0220	0.0129	107	0.0221	0.0144	103	0.0224	0.0116	102	0.0233	0.0149	104	0.0227	0.0130
32 UMG	0.0202	0.0160	100	0.0209	0.0158	107	0.0206	0.0174	103	0.0203	0.0149	102	0.0210	0.0178	104	0.0206	0.0163
33 UMW	0.0232	0.0204	100	0.0231	0.0170	107	0.0232	0.0157	103	0.0226	0.0150	102	0.0235	0.0198	104	0.0235	0.0177

Note : "Blue" refers to day with highest mean, while "Yellow" refers to day with lowest mean.

Table 4 : Descriptive Statistics of Daily Volatility (SDs) Across The Day-of-the-Week for Sub-Period 1

Stock	Mean	Std.	n	Monday			Tuesday			Wednesday			Thursday			Friday			All Days		
				Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n
Second Board Companies																					
1 AYAMAS	0.0350	0.0316	100	0.0217	0.0267	107	0.0367	0.0383	103	0.0319	0.0270	102	0.0336	0.0322	104	0.0342	0.0315	516	3.131	18.074	
2 DPREP	0.0504	0.0351	100	0.0561	0.0420	107	0.0502	0.0326	103	0.0479	0.0343	102	0.0449	0.0320	104	0.0501	0.0355	516	1.969	6.007	
3 DENKO	0.0605	0.0419	100	0.0612	0.0439	107	0.0558	0.0301	103	0.0645	0.0299	102	0.0602	0.0421	104	0.0585	0.0381	516	1.945	6.492	
4 FFIB	0.0592	0.0320	100	0.0483	0.0291	107	0.0453	0.0297	103	0.0446	0.0277	102	0.0472	0.0359	104	0.0470	0.0309	516	1.022	1.511	
5 FOURSSN	0.0547	0.0297	100	0.0563	0.0333	107	0.0534	0.0315	103	0.0525	0.0248	102	0.0534	0.0361	104	0.0541	0.0313	516	2.212	11.088	
6 GEAHIN	0.0500	0.0351	100	0.0485	0.0330	107	0.0470	0.0344	103	0.0452	0.0312	102	0.0464	0.0288	104	0.0475	0.0325	516	1.314	2.989	
7 HIRO	0.0325	0.0255	100	0.0348	0.0301	107	0.0366	0.0282	103	0.0374	0.0291	102	0.0364	0.0235	104	0.0363	0.0274	516	0.879	0.074	
8 MCSB	0.0541	0.0499	100	0.0465	0.0359	107	0.0534	0.0584	103	0.0466	0.0355	102	0.0487	0.0386	104	0.0498	0.0445	516	2.593	13.535	
9 PROMTO	0.0391	0.0253	100	0.0349	0.0281	107	0.0423	0.0292	103	0.0434	0.0237	102	0.0383	0.0199	104	0.0414	0.0255	516	1.001	1.382	
10 TGL	0.0464	0.0266	100	0.0491	0.0330	107	0.0454	0.0320	103	0.0456	0.0310	102	0.0422	0.0274	104	0.0458	0.0301	516	1.285	3.408	
11 YCS	0.0439	0.0318	100	0.0414	0.0348	107	0.0284	0.0284	103	0.0421	0.0339	102	0.0393	0.0309	104	0.0423	0.0321	516	0.859	1.012	
KLSE C	0.0056	100	0.0101	0.0057	107	0.0103	0.0052	103	0.0104	0.0069	102	0.0099	0.0070	104	0.0010	0.0061	516	1.976	5.796		

Note : "Blue" refers to day with highest mean, while "Yellow" refers to day with lowest mean.

(12 stocks) and Tuesday (10 stocks) in this sub-period, compared with 21 out of the 33 Main Board stocks with Friday as the lowest mean daily SDs for the whole period. For Second Board stocks, 7 out of 11 stocks (or 63.6%) have highest mean daily SDs on Monday.

The results of various statistical test, namely the F-statistics of one-way ANOVA, Kruskal-Wallis, Levene, Scheffe and Bonferroni tests for mean daily SDs of sub-period 1 are presented in *Table 5*.

From the F-statistics, it shows that the mean daily SDs of all the stocks, including the KLSE CI, are equal across the days of the week, except for BAT. The Scheffe and Bonferroni tests indicate that the mean daily SDs of BAT are significantly different between Monday and Tuesday.

Nevertheless, these results may not be reliable or accurate as the assumptions of normality and homoscedasticity of the series are not justified. From the skewness and kurtosis statistics given in *Table 4* earlier, which are significantly more than zero and three respectively, it appears that the series are not normally distributed. The results of Levene test in *Table 5* show that 22.7% of the stocks have the problem of heteroscedasticity in mean daily SDs. Thus, the results of the non-parametric test, namely the Kruskal-Wallis test, would be used for analysis. The results of the Kruskal-Wallis test show that the mean daily SDs of all stocks and the KLSE CI are equal across the days of the week.

Table 5 : Results of ANOVA (F tests), Kruskal-Wallis, Levene and Multiple Comparison Tests of Daily Volatility (SDs) for Sub-Period 1

	Stock	F-Stats.	Sig.	Kruskal Wallis	Sig.	Levene Test	Sig.	Scheffe Test	Bonferroni Test
Main Board Companies									
1	AFFIN	1.271	0.280	1.908	0.753	2.659**	0.032		
2	AMFIN	1.711	0.146	4.497	0.343	2.663**	0.032		
3	ASB	0.524	0.718	1.451	0.835	0.956	0.431		
4	BKATIL	0.358	0.838	4.073	0.396	1.084	0.364		
5	BAT	2.779**	0.026	9.341*	0.053	3.233**	0.012	1&2**	1&2**
6	BOLTON	0.189	0.944	2.666	0.615	0.281	0.890		
7	CMSB	0.961	0.428	2.369	0.668	1.278	0.277		
8	COMMERZ	0.663	0.618	3.795	0.435	0.638	0.635		
9	CRIMSON	0.271	0.897	0.869	0.929	0.356	0.840		
10	E&O	1.063	0.374	1.559	0.816	1.607	0.171		
11	FABER	1.067	0.372	2.299	0.681	1.622	0.167		
12	GHOPE	1.756	0.136	5.339	0.254	3.807***	0.005		
13	GKENT	0.228	0.923	0.963	0.915	0.801	0.525		
14	GPLUS	0.995	0.410	3.011	0.556	1.957	0.100		
15	HLBANK	0.264	0.901	1.683	0.794	0.372	0.829		
16	KIANJOO	0.787	0.534	3.891	0.421	0.494	0.740		
17	L&G	0.560	0.692	3.397	0.494	2.202*	0.068		
18	LITYAN	1.317	0.262	0.934	0.920	3.727***	0.005		
19	MARUICH	0.731	0.571	0.735	0.947	2.755**	0.027		
20	MUHIBAH	1.255	0.287	0.533	0.970	3.001**	0.018		
21	MUIB	0.853	0.492	1.540	0.819	3.366**	0.010		
22	OSK	1.555	0.185	3.015	0.555	2.375*	0.051		
23	PPERAK	0.367	0.832	2.652	0.618	0.847	0.496		
24	PACMAS	1.727	0.143	8.200*	0.085	1.463	0.212		
25	PALMCO	1.248	0.290	3.983	0.408	1.186	0.316		
26	PBBANK	0.884	0.473	7.749	0.101	2.295*	0.058		
27	PJDEV	2.084*	0.082	7.681	0.104	1.490	0.204		
28	SUNTECH	0.247	0.911	1.157	0.885	0.557	0.694		
29	TA	0.420	0.794	0.700	0.951	2.073*	0.083		
30	TANJONG	0.433	0.785	3.093	0.542	0.493	0.741		
31	TENAGA	0.571	0.684	1.248	0.870	2.356*	0.053		
32	UMG	0.044	0.996	0.708	0.950	1.040	0.386		
33	UMW	0.505	0.732	1.680	0.794	1.945	0.102		
Second Board Companies									
1	AYAMAS	0.756	0.554	1.568	0.815	1.626	0.166		
2	DPREP	1.589	0.176	5.399	0.254	1.763	0.135		
3	DENKO	0.661	0.619	0.520	0.971	3.020**	0.018		
4	FFHB	0.379	0.823	1.846	0.764	0.476	0.754		
5	FOURSSN	0.230	0.922	1.173	0.882	0.777	0.541		
6	GEAHIN	0.407	0.804	2.408	0.661	0.730	0.572		
7	HIRO	0.668	0.614	2.440	0.855	1.629	0.165		
8	MCSB	0.703	0.590	1.016	0.907	1.651	0.160		
9	PROMTO	1.025	0.394	4.288	0.368	3.422***	0.009		
10	TGL	0.763	0.550	3.080	0.545	1.264	0.283		
11	YCS	1.464	0.212	5.743	0.219	0.622	0.647		
	KLSE CI	0.287	0.886	5.576	0.233	0.927	0.448		

Note : 1, 2, 3, 4, & 5 refer to Monday, Tuesday, Wednesday, Thursday and Friday respectively.

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

In general, we can summarise that slightly more than half of the stocks in this sub-period, between 3 July 1995 to 31 July 1997, have highest mean daily SDs on Monday/Tuesday and the lowest mean daily SDs on Tuesday/Friday. Nevertheless, based on the statistical tests conducted, the mean daily SDs of most of the stocks do not differ significantly across the days of the week. Thus, we can conclude that there is no evidence of persistent seasonality or day-of-the-week effect in volatility for stocks in Malaysia during this sub-period.

(c) *Findings for Day-of-the-Week Effect for Sub-Period 2 (1 August 1997 to 31 August 1998)*

The descriptive statistics, namely the mean daily SDs, standard deviation and number of observations as well as the skewness and kurtosis statistics for each stock for sub-period 2 i.e. from 1 August 1997 to 31 August 1998 are tabulated in *Table 6*. This period coincides with the sharp downturn of the Malaysian economy as well as the sharp correction of the stock market due to the impact of Asian financial crisis. The days with the highest and lowest mean daily SDs for each stock across the days of the week are indicated in "blue" and "yellow" respectively.

The results of the descriptive statistics reflect a significant shift in the highest and lowest values of the mean daily SDs across the days of the week. During this period, 36.4% of the stocks have its highest mean daily SDs on Thursday,

Table 6 : Descriptive Statistics of Daily Volatility (SDs) Across The Day-of-the-Week for Sub-Period 2

Main Board Companies	Stock	Monday			Tuesday			Wednesday			Thursday			Friday			All Days			
		Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Skewness	Kurtosis		
1 AFFIN	0.0749	0.0509	52	0.0519	52	0.0746	0.0538	55	0.0738	0.0474	52	0.0670	0.0374	55	0.0743	0.0485	266	1.707	4.346	
2 AMFIN	0.0693	0.0588	52	0.0680	0.0492	52	0.0721	0.0618	55	0.0709	0.0678	52	0.0623	0.0485	55	0.0685	0.0573	266	2.193	7.477
3 ASB	0.0805	0.0583	51	0.0860	0.0641	52	0.0846	0.0632	54	0.0828	0.0776	51	0.0814	0.0625	55	0.0839	0.0650	263	1.999	4.818
4 BKATIL	0.0602	0.0580	47	0.0714	0.0595	44	0.0694	0.0522	48	0.0682	0.0648	44	0.0674	0.0669	47	0.0674	0.0596	230	2.242	6.723
5 BAT	0.0402	0.0281	52	0.0538	0.0241	53	0.0376	0.0247	55	0.0402	0.0303	52	0.0404	0.0286	55	0.0385	0.0272	267	1.545	3.018
6 BOLTON	0.0740	0.0768	51	0.0616	0.0601	53	0.0496	0.0364	54	0.0729	0.0816	52	0.0623	0.0555	54	0.0641	0.0640	264	2.185	6.057
7 CMSB	0.0517	0.0435	52	0.0526	0.0423	52	0.0569	0.0394	55	0.0533	0.0588	52	0.0492	0.0387	55	0.0542	0.0448	266	2.294	9.975
8 COMMERZ	0.0765	0.0617	50	0.0811	0.0538	51	0.0657	0.0595	53	0.0738	0.0486	51	0.0730	0.0529	52	0.0775	0.0552	257	2.528	8.337
9 CRIMSON	0.0606	0.0645	52	0.0686	0.0583	53	0.0582	0.0506	55	0.0659	0.0582	51	0.0633	0.0567	53	0.0639	0.0576	264	2.022	5.427
10 E&O	0.0605	0.0579	49	0.0705	0.0636	51	0.0557	0.0609	53	0.0571	0.0521	49	0.0615	0.0686	51	0.0600	0.0608	253	1.486	2.021
11 FABER	0.0656	0.0624	51	0.0622	0.0454	53	0.0681	0.0598	55	0.0698	0.0618	51	0.0622	0.0487	55	0.0676	0.0556	265	1.815	4.608
12 GHOPRE	0.0397	0.0214	52	0.0387	0.0282	53	0.0420	0.0295	55	0.0481	0.0339	52	0.0500	0.0442	55	0.0433	0.0326	267	2.100	8.031
13 GKENT	0.0594	0.0833	47	0.0567	0.0516	53	0.0467	0.0428	54	0.0601	0.0562	51	0.0489	0.0538	51	0.0542	0.0583	256	2.696	13.011
14 GPLUS	0.0554	0.0659	52	0.0635	0.0431	53	0.0731	0.0638	55	0.0698	0.0716	52	0.0639	0.0508	54	0.0651	0.0598	266	2.725	11.630
15 HLBANK	0.0515	0.0435	52	0.0516	0.0404	53	0.0500	0.0368	55	0.0507	0.0428	52	0.0556	0.0408	54	0.0520	0.0407	266	1.799	3.749
16 KUANJO	0.0319	0.0302	51	0.0359	0.0507	53	0.0352	0.0359	54	0.0392	0.0379	52	0.0345	0.0337	55	0.0348	0.0381	265	2.705	11.248
17 L&G	0.0818	0.0614	52	0.0877	0.0624	53	0.0844	0.0580	55	0.0839	0.0589	52	0.0795	0.0546	55	0.0835	0.0587	267	2.204	6.488
18 LITIAN	0.0559	0.0611	48	0.0564	0.0464	47	0.0639	0.0652	52	0.0657	0.0732	49	0.0551	0.0607	51	0.0591	0.0618	247	2.489	7.978
19 MARUICH	0.0350	0.0394	48	0.0358	0.0465	45	0.0276	0.0352	48	0.0377	0.0547	44	0.0401	0.0428	46	0.0353	0.0438	231	1.979	4.125
20 MUHIBAH	0.0365	0.0544	40	0.0423	0.0531	42	0.0495	0.1120	42	0.0443	0.0659	46	0.0355	0.0382	45	0.0447	0.0694	215	3.750	19.957
21 MUJIB	0.0745	0.0486	52	0.0780	0.0387	53	0.0711	0.0416	55	0.0778	0.0525	51	0.0844	0.0630	54	0.0771	0.0497	265	1.782	5.156
22 OSK	0.0501	0.0273	52	0.0586	0.0379	53	0.0550	0.0365	55	0.0594	0.0504	52	0.0510	0.0436	55	0.0570	0.0398	267	1.664	3.936
23 PPERAK	0.0691	0.0369	52	0.0587	0.0395	53	0.0220	0.0434	55	0.0609	0.0554	52	0.0589	0.0473	55	0.0580	0.0449	267	1.570	2.827
24 PACMAS	0.0459	0.0377	52	0.0479	0.0484	53	0.0498	0.0445	55	0.0495	0.0401	52	0.0510	0.0542	55	0.0487	0.0452	267	2.693	10.131
25 PALMCO	0.0459	0.0480	50	0.0605	0.0712	51	0.0553	0.0548	54	0.0661	0.0553	52	0.0483	0.0448	53	0.0544	0.0554	260	2.223	7.649
26 PBBANK	0.0476	0.0430	52	0.0521	0.0343	53	0.0500	0.0512	55	0.0566	0.0408	52	0.0490	0.0350	55	0.0531	0.0413	267	2.347	8.142
27 PJDEV	0.0633	0.0560	52	0.0702	0.0702	53	0.0643	0.0449	54	0.0743	0.0558	52	0.0584	0.0467	54	0.0676	0.0554	265	1.606	2.777
28 SUNTECH	0.0302	0.0756	43	0.0628	0.0434	41	0.0703	0.0613	49	0.0702	0.0716	47	0.0700	0.0686	48	0.0684	0.0651	228	1.552	2.512
29 TA	0.0704	0.0449	52	0.0661	0.0535	53	0.0636	0.0453	55	0.0724	0.0694	52	0.0697	0.0520	55	0.0684	0.0534	267	2.384	8.805
30 TANJONG	0.0452	0.0357	52	0.0407	0.0391	53	0.0495	0.0333	55	0.0459	0.0291	51	0.0468	0.0319	54	0.0475	0.0342	265	1.855	5.265
31 TENAGA	0.0598	0.0367	52	0.0592	0.0336	52	0.0627	0.0312	55	0.0637	0.0347	52	0.0587	0.0330	55	0.0608	0.0336	266	1.531	3.400
32 UMG	0.0524	0.0432	51	0.0637	0.0425	52	0.0661	0.0565	54	0.0690	0.0680	51	0.0663	0.0538	55	0.0655	0.0514	263	1.828	3.611
33 UMW	0.0460	0.0485	51	0.0531	0.0561	53	0.0558	0.0498	55	0.0625	0.0654	52	0.0490	0.0409	55	0.0532	0.0526	266	2.234	6.636

Note : "Blue" refers to day with highest mean, while "Yellow" refers to day with lowest mean.

Table 6 : Descriptive Statistics of Daily Volatility (SDs) Across The Day-of-the-Week for Sub-Period 2

	Stock	Monday			Tuesday			Wednesday			Thursday			Friday			All Days			
		Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Skewness	Kurtosis		
Second Board Companies																				
1 AYAMAS	0.0433	0.0541	46	0.0389	0.0400	47	0.0430	0.0392	49	0.0419	0.0484	47	0.0371	0.0444	50	0.0420	0.0452	239	1.888	4.263
2 DPREP	0.0416	0.0744	49	0.0880	0.0822	51	0.0630	0.0694	53	0.0855	0.0828	51	0.0858	0.0756	54	0.0866	0.0765	258	1.762	3.567
3 DENKO	0.0360	0.0718	50	0.1015	0.0698	51	0.1002	0.0879	53	0.1013	0.0866	50	0.0998	0.0849	52	0.0999	0.0800	256	1.971	4.468
4 FFHB	0.0597	0.0606	49	0.0681	0.0733	51	0.0619	0.0438	51	0.0711	0.0878	51	0.0566	0.0627	53	0.0615	0.0671	255	2.312	3.697
5 FOURSSN	0.0654	0.0629	51	0.0684	0.0619	51	0.0653	0.0435	52	0.0712	0.0789	50	0.0717	0.0716	54	0.0716	0.0648	258	1.663	3.399
6 GEAHN	0.0611	0.0620	46	0.0551	0.0823	49	0.0580	0.0470	50	0.0633	0.0641	48	0.0519	0.0459	52	0.0598	0.0612	245	2.169	6.877
7 HIRO	0.0402	0.0621	44	0.0592	0.0553	46	0.0413	0.0495	48	0.0472	0.0538	40	0.0434	0.0581	53	0.0442	0.0556	231	2.275	6.280
8 MCSB	0.0408	0.0585	52	0.0716	0.0826	53	0.0732	0.0567	55	0.0752	0.0716	52	0.0701	0.0751	55	0.0741	0.0691	267	2.194	7.768
9 PROMTO	0.0688	0.0608	49	0.0736	0.0697	50	0.0747	0.0611	54	0.0761	0.0656	52	0.0736	0.0701	53	0.0735	0.0651	258	1.744	3.880
10 TGL	0.0663	0.0524	45	0.0845	0.0698	48	0.0875	0.0909	53	0.0994	0.0887	48	0.0927	0.0748	51	0.0865	0.0796	245	1.717	3.289
11 YCS	0.1079	0.0930	46	0.0991	0.0694	48	0.1135	0.1036	50	0.1265	0.1286	48	0.1258	0.1121	47	0.1146	0.1030	239	2.172	5.615
KLSE CI	0.0369	0.0200	52	0.0325	0.0182	53	0.0330	0.0148	55	0.0322	0.0247	52	0.0312	0.0179	55	0.0328	0.0193	267	1.740	4.108

Note : "Blue" refers to day with highest mean, while "Yellow" refers to day with lowest mean.

followed by 22.7% on Tuesday and 20.5% on Friday. The results also show that 47.7% of the stocks have the lowest mean daily SDs on Monday and 25% on Friday. These account for 72.7% of the total stocks under study. The mean daily SDs of KLSE CI is highest on Thursday and lowest on Monday. These results are significantly different from the findings obtained for the whole period as well as for the sub-period 1.

The results of various statistical tests, namely the F-statistics, the Kruskal-Wallis and Levene tests are presented in *Table 7*. The results of the Levene test indicate that 4 out of 44 stocks have unequal variances in the mean daily SDs in this sub-period. Nevertheless, the F-statistics of one-way ANOVA and the Kruskal-Wallis test show that the mean daily SDs of all the stocks, including the KLSE CI, are not significantly different across the days of the week. This implies that there is no seasonal variation in the mean daily SDs during this sub-period.

In summary, it appears that there is a shift in the highest and the lowest mean daily SDs during this sub-period compared with the whole period or the sub-period 1. However, based on the various statistical analyses, they reflect that there is no evidence to imply the existence of day-of-the-week effect of mean daily SDs during this sub-period for all the stocks, including the market.

Table 7 : Results of ANOVA (F tests), Kruskal-Wallis, Levene and Multiple Comparison Tests of Daily Volatility (SDs) for Sub-Period 2

	Stock	F-Stats.	Sig.	Kruskal Wallis	Sig.	Levene Test	Sig.	Scheffe Test	Bonferroni Test
Main Board Companies									
1	AFFIN	0.625	0.645	1.727	0.786	1.213	0.306		
2	AMFIN	0.239	0.916	1.078	0.898	0.140	0.967		
3	ASB	0.149	0.963	1.874	0.759	0.254	0.907		
4	BKATIL	0.243	0.914	2.482	0.648	0.063	0.993		
5	BAT	0.587	0.673	2.621	0.623	0.541	0.706		
6	BOLTON	1.353	0.251	1.180	0.771	3.101**	0.016		
7	CMSB	0.439	0.780	3.110	0.540	0.178	0.949		
8	COMMERZ	0.343	0.848	2.905	0.574	0.248	0.911		
9	CRIMSON	0.377	0.825	2.252	0.690	0.424	0.791		
10	E&O	0.679	0.607	2.670	0.615	0.857	0.491		
11	FABER	0.247	0.911	2.803	0.591	0.507	0.731		
12	GHOPE	1.733	0.143	4.200	0.380	3.661***	0.006		
13	GKENT	0.573	0.683	3.068	0.546	2.217*	0.068		
14	GPLUS	0.761	0.552	5.356	0.253	0.711	0.585		
15	HLBANK	0.192	0.942	0.705	0.951	0.344	0.848		
16	KIANJOO	0.108	0.980	1.241	0.871	0.695	0.596		
17	L&G	0.145	0.965	1.160	0.885	0.180	0.949		
18	LITYAN	0.374	0.827	0.981	0.913	0.929	0.448		
19	MARUICH	0.594	0.667	2.876	0.579	1.441	0.221		
20	MUHIBAH	1.322	0.263	1.864	0.761	3.435**	0.010		
21	MUIB	0.498	0.737	1.955	0.744	1.249	0.291		
22	OSK	0.696	0.595	1.449	0.836	2.380*	0.052		
23	PPERAK	0.688	0.601	3.325	0.505	1.588	0.178		
24	PACMAS	0.136	0.969	0.844	0.932	0.130	0.971		
25	PALMCO	0.844	0.498	4.115	0.391	0.727	0.574		
26	PBBANK	0.843	0.499	4.896	0.298	0.882	0.475		
27	PJDEV	1.146	0.335	3.514	0.476	2.276*	0.062		
28	SUNTECH	0.464	0.762	4.971	0.290	1.204	0.310		
29	TA	0.232	0.920	1.716	0.788	0.828	0.508		
30	TANJONG	0.211	0.932	0.687	0.953	0.460	0.765		
31	TENAGA	0.232	0.920	1.447	0.836	0.710	0.586		
32	UMG	0.144	0.965	0.110	0.999	1.054	0.380		
33	UMW	0.746	0.562	2.138	0.710	1.376	0.243		
Second Board Companies									
1	AYAMAS	0.414	0.799	2.383	0.666	0.508	0.730		
2	DPREP	0.125	0.973	2.640	0.620	0.451	0.772		
3	DENKO	0.041	0.997	1.183	0.881	0.405	0.805		
4	FFHB	0.738	0.567	0.522	0.971	2.338*	0.056		
5	FOURSSN	1.020	0.397	4.549	0.337	2.215*	0.068		
6	GEAHIN	0.362	0.836	0.571	0.966	1.255	0.288		
7	HIRO	0.213	0.931	3.086	0.544	0.022	0.999		
8	MCSB	0.127	0.973	1.352	0.853	0.788	0.534		
9	PROMTO	0.094	0.984	0.870	0.929	0.221	0.927		
10	TGL	1.136	0.340	3.773	0.438	3.036**	0.018		
11	YCS	0.619	0.649	1.128	0.890	1.634	0.167		
	KLSE CI	0.739	0.566	2.725	0.605	2.164*	0.073		

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

(d) *Findings for Day-of-the-Week Effect for Sub-Period 3 (1 September 1998 to 30 June 2000)*

The descriptive statistics across the days of the week for all the 44 stocks and the KLSE CI of sub-period 3 i.e. from 1 September 1998 to 30 June 2000 are shown in *Table 8*. The days with the highest and lowest mean daily SDs for each stock across the days of the weeks are again indicated in "blue" and "yellow" respectively. This period corresponds with the day selective capital controls were introduced by Malaysia to contend with the financial crisis, and the recovery of the economy as well as the stock market.

The distributions of the highest and the lowest mean daily SDs are very similar to the distributions for the whole period i.e. with majority of the stocks, including the KLSE CI, having the highest mean daily SDs on Monday/Tuesday and the lowest mean daily SDs on Friday. The results show that 93.2% of the stocks have their highest mean daily SDs on Monday (47.7%) and Tuesday (45.5%). Of the 44 stocks, 26 stocks (or 59.1%) and 10 stocks (or 22.7%) have the lowest mean daily SDs on Friday and Thursday respectively.

From the results, 31 out of 33 Main Board stocks (or 93.3%) have the highest mean daily SDs on Monday/Tuesday, while 29 out of 33 Main Board stocks (or 87.9%) have the lowest mean daily SDs on Friday/Thursday. The KLSE CI has its highest mean daily SDs on Tuesday and the lowest on Friday.

Table 8 : Descriptive Statistics of Daily Volatility (SDs) Across The Day-of-the-Week for SubPeriod 3

Stock	Monday			Tuesday			Wednesday			Thursday			Friday			All Days		
	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Skewness	Kurtosis	
Main Board Companies																		
1 AFIN	0.0436	0.0418	84	0.0455	0.0536	91	0.0428	0.0425	94	0.0387	0.0370	92	0.0376	0.0358	91	0.0416	0.0425	452
2 AMFIN	0.0488	0.0418	84	0.0559	0.0478	91	0.0452	0.0350	94	0.0446	0.0381	92	0.0424	0.0389	91	0.0469	0.0405	452
3 ASB	0.0531	0.0674	83	0.0812	0.0593	91	0.0801	0.0450	94	0.0735	0.0549	92	0.070	0.0565	91	0.0776	0.0568	451
4 BKATIL	0.0542	0.0537	84	0.0507	0.0421	92	0.0507	0.0463	94	0.0490	0.0381	92	0.0474	0.0490	90	0.0504	0.0458	452
5 BAT	0.0250	0.0207	84	0.0259	0.0407	90	0.0248	0.0210	94	0.0258	0.0224	92	0.0247	0.0221	91	0.0252	0.0264	451
6 BOLTON	0.0462	0.0580	84	0.0651	0.0528	91	0.0598	0.0336	93	0.0570	0.0341	91	0.0634	0.0504	91	0.0622	0.0465	450
7 CMSB	0.0482	0.0400	84	0.0510	0.0376	92	0.0448	0.0295	94	0.0393	0.0260	92	0.0446	0.0382	91	0.0455	0.0347	453
8 COMMERZ	0.0453	0.0466	83	0.0451	0.0427	91	0.0434	0.0292	93	0.0414	0.0368	91	0.0389	0.0287	90	0.0432	0.0372	448
9 CRIMSON	0.0782	0.0578	84	0.0752	0.0518	92	0.0723	0.0475	94	0.0738	0.0573	92	0.0732	0.0708	91	0.0751	0.0573	453
10 E&O	0.0372	0.0398	75	0.0352	0.0305	84	0.0318	0.0324	87	0.0299	0.0322	82	0.0359	0.0474	80	0.0341	0.0368	408
11 FABER	0.0241	0.0561	84	0.0790	0.0677	92	0.0790	0.0642	94	0.075	0.0700	91	0.0807	0.0624	91	0.0792	0.0659	452
12 GHOPE	0.0370	0.0322	84	0.0368	0.0446	92	0.0351	0.0263	94	0.0339	0.0281	92	0.0297	0.0220	91	0.0344	0.0316	453
13 GKEET	0.0445	0.0562	81	0.0631	0.0652	91	0.0598	0.0491	92	0.0587	0.0466	90	0.0543	0.0452	89	0.0601	0.0528	443
14 GPLUS	0.0762	0.0552	83	0.0622	0.0880	92	0.0732	0.0509	91	0.0623	0.0502	90	0.0693	0.0644	91	0.0726	0.0636	447
15 HL BANK	0.0441	0.0434	88	0.0435	0.0422	96	0.0415	0.0284	98	0.0436	0.0338	96	0.0362	0.0309	95	0.0418	0.0361	473
16 KANJOO	0.0248	0.0249	79	0.0256	0.0400	90	0.0250	0.0246	94	0.0246	0.0223	91	0.0263	0.0215	89	0.0253	0.0275	443
17 L&G	0.0821	0.0677	84	0.0633	0.0686	92	0.0744	0.0426	94	0.0738	0.0537	92	0.0657	0.0524	91	0.0758	0.0577	453
18 LITIAN	0.0530	0.0509	84	0.0601	0.0413	92	0.0569	0.0352	94	0.0562	0.0369	92	0.055	0.0494	91	0.0585	0.0430	453
19 MARUICH	0.0285	0.0247	78	0.0285	0.0295	83	0.0255	0.0253	93	0.0216	0.0178	81	0.0204	0.0191	85	0.0250	0.0238	420
20 MUHIBAH	0.0407	0.0350	82	0.0499	0.0401	92	0.0406	0.0287	92	0.0417	0.0350	90	0.0434	0.0355	88	0.0452	0.0351	444
21 MUJIB	0.0736	0.0548	84	0.0597	0.0748	92	0.0670	0.0398	94	0.0632	0.0363	92	0.0602	0.0349	91	0.0675	0.0462	453
22 OSK	0.0493	0.0329	84	0.0476	0.0322	92	0.0438	0.0287	92	0.0431	0.0281	92	0.0406	0.0244	91	0.0448	0.0294	451
23 PFERAK	0.0686	0.0493	83	0.0755	0.0550	90	0.0656	0.0382	93	0.0673	0.0477	91	0.0598	0.0405	90	0.0684	0.0464	447
24 PACMAS	0.0355	0.0308	84	0.0352	0.0338	92	0.0312	0.0263	94	0.0326	0.0216	92	0.0303	0.0262	91	0.0330	0.0279	453
25 PALMCO	0.0460	0.0453	83	0.0453	0.0492	92	0.0397	0.0320	93	0.0374	0.0404	92	0.0379	0.0330	91	0.0408	0.0404	451
26 PBANK	0.0380	0.0338	84	0.0382	0.0341	92	0.0365	0.0259	94	0.0337	0.0265	92	0.0327	0.0235	91	0.0360	0.0290	453
27 PJDEV	0.0596	0.0517	84	0.0630	0.0484	91	0.0597	0.0459	94	0.0561	0.0427	89	0.0553	0.0472	89	0.0592	0.0471	447
28 SUNTECH	0.0567	0.0518	80	0.0529	0.0520	88	0.0511	0.0426	90	0.0504	0.0430	89	0.0477	0.0379	86	0.0516	0.0456	433
29 TA	0.0415	0.0464	84	0.0642	0.0519	92	0.0632	0.0373	94	0.0573	0.0344	92	0.0600	0.0386	91	0.0618	0.0420	453
30 TANJONG	0.0382	0.0292	84	0.0387	0.0431	92	0.0385	0.0244	94	0.0352	0.0255	92	0.0226	0.0198	91	0.0380	0.0298	453
31 TENAGA	0.0383	0.0290	84	0.0371	0.0366	92	0.0353	0.0246	94	0.0364	0.0305	92	0.0362	0.0285	91	0.0363	0.0299	453
32 UMG	0.0410	0.0622	84	0.0600	0.0559	91	0.0606	0.0350	94	0.0598	0.0409	92	0.0528	0.0408	91	0.0614	0.0478	452
33 UMW	0.0299	0.0302	84	0.0338	0.0455	92	0.0289	0.0278	94	0.0334	0.0317	92	0.0317	0.0329	91	0.0315	0.0353	453

Note : "Blue" refers to day with highest mean, while "Yellow" refers to day with lowest mean.

Table 8 : Descriptive Statistics of Daily Volatility (SDs) Across The Day-of-the-Week for Sub-Period 3

Stock	Monday			Tuesday			Wednesday			Thursday			Friday			All Days		
	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Skewness	Kurtosis	
Second Board Companies																		
1 AYAMAS	0.0344	0.0354	73	0.0318	0.0341	80	0.0375	0.0341	83	0.0307	0.0341	84	0.0309	0.0338	80	0.0322	0.0349	400
2 DPREP	0.0578	0.0826	92	0.0733	0.0488	94	0.0802	0.0642	92	0.0758	0.0613	91	0.0802	0.0605	453	2.729	11.813	
3 DENKO	0.0936	0.0747	79	0.0770	0.0809	88	0.0504	0.0765	90	0.0591	0.0705	88	0.0831	0.0634	431	2.833	11.301	
4 FFFHB	0.0577	0.0484	70	0.0735	0.0506	82	0.0468	0.0442	81	0.0426	0.0468	81	0.0524	0.0538	397	1.810	5.814	
5 FOURSSN	0.0486	0.0467	75	0.0507	0.0449	80	0.0471	0.0456	81	0.0476	0.0387	82	0.0491	0.0420	402	1.408	3.574	
6 GEAHN	0.0699	0.0520	77	0.0535	0.0532	82	0.0415	0.0396	81	0.0400	0.0402	82	0.0469	0.0453	407	1.526	2.780	
7 HIRO	0.0440	0.0426	71	0.0344	0.0343	80	0.0285	0.0190	78	0.0284	0.0250	79	0.0303	0.0308	75	0.0317	0.0317	383
8 MCSB	0.0691	0.0593	84	0.0727	0.0605	92	0.0625	0.0342	94	0.0654	0.0467	92	0.0612	0.0416	91	0.0682	0.0519	453
9 PROMTO	0.0699	0.0496	84	0.0535	0.0535	91	0.0600	0.0414	92	0.0634	0.0401	91	0.0656	0.0469	449	1.599	4.805	
10 TGL	0.0694	0.0560	80	0.0731	0.0771	90	0.0666	0.0517	86	0.0713	0.0545	83	0.0688	0.0584	422	1.858	5.690	
11 YCS	0.1557	0.1219	14	0.1760	0.1566	17	0.1183	0.0666	17	0.1177	0.1018	17	0.0986	0.0757	17	0.1312	0.1095	82
KOSE CI	0.0254	0.0249	84	0.0265	0.0330	92	0.0234	0.0146	94	0.0232	0.0171	92	0.0209	0.0168	91	0.0239	0.0223	453
																	56.173	

Note : "Blue" refers to day with highest mean, while "Yellow" refers to day with lowest mean.

The results of the F-statistics of one-way ANOVA, the Kruskal-Wallis, Levene and multiple comparison tests, namely Scheffe and Bonferroni tests, for all the 44 stocks and the KLSE CI for sub-period 3 are shown in *Table 9*.

From the F-statistics, it shows that the mean daily SDs of all the stocks in the Main Board, including the KLSE CI, are not significantly different across the days of the week. Nevertheless, 2 out of 11 stocks in the Second Board, namely the GEAHIN and HIRO have unequal mean daily SDs across the days of the week.

The results of Scheffe test indicate that Monday's mean daily SDs of HIRO is significantly different from its mean daily SDs on Wednesday. Nevertheless, the Bonferroni test shows that its Monday's mean daily SDs is significantly different from mean daily SDs of Wednesday and Thursday. The Bonferroni test indicates that the Monday's mean daily SDs of GEAHIN is significantly different from that of Thursday and Friday.

From the skewness and kurtosis statistics as tabulated in *Table 8* earlier, the series in this sub-period have long tail at right and thus, not normally distributed. In addition, the results of the Levene test show that 18.2% of the stocks (or 8 out of 44 stocks), including GEAHIN and HIRO, do not have homoscedasticity of mean daily SDs across the days of the week. Thus, the parametric test of one-way ANOVA may not be accurate or reliable. The results of the Kruskal-Wallis test should be relied upon to determine the findings.

Table 9 : Results of ANOVA (F tests), Kruskal-Wallis, Levene and Multiple Comparison Tests of Daily Volatility (SDs) for Sub-Period 3

	Stock	F-Stats.	Sig.	Kruskal Wallis	Sig.	Levene Test	Sig.	Scheffe Test	Bonferroni Test
Main Board Companies									
1	AFFIN	0.565	0.688	4.489	0.344	0.825	0.510		
2	AMFIN	1.106	0.353	4.330	0.363	0.939	0.441		
3	ASB	0.870	0.482	6.751	0.150	0.821	0.512		
4	BKATIL	0.259	0.904	0.915	0.922	0.616	0.652		
5	BAT	0.041	0.997	1.283	0.864	0.415	0.798		
6	BOLTON	0.602	0.661	1.099	0.894	4.072***	0.003		
7	CMSB	1.475	0.209	4.361	0.359	1.761	0.136		
8	COMMERZ	0.440	0.780	2.102	0.717	0.728	0.573		
9	CRIMSON	0.236	0.918	4.008	0.405	0.645	0.630		
10	E&O	0.875	0.479	2.054	0.726	2.136*	0.076		
11	FABER	0.142	0.967	2.822	0.588	0.106	0.980		
12	GHOPE	0.795	0.529	4.034	0.401	1.106	0.353		
13	GKENT	0.447	0.774	2.120	0.714	1.026	0.393		
14	GPLUS	1.252	0.288	7.347	0.119	1.950	0.101		
15	HLBANK	0.772	0.544	5.200	0.267	0.651	0.626		
16	KIANJOO	0.305	0.875	1.693	0.792	1.565	0.183		
17	L&G	1.403	0.232	5.406	0.248	1.840	0.120		
18	LITYAN	0.751	0.558	4.676	0.322	1.033	0.390		
19	MARUICH	2.186	0.700	8.178*	0.085	1.980*	0.097		
20	MUHIBAH	1.561	0.184	6.477	0.166	2.018*	0.091		
21	MUIB	1.639	0.163	4.859	0.302	2.600**	0.036		
22	OSK	1.267	0.282	4.489	0.344	0.896	0.466		
23	PPERAK	0.935	0.444	5.039	0.283	0.809	0.520		
24	PACMAS	0.556	0.695	3.910	0.418	0.571	0.684		
25	PALMCO	0.731	0.571	5.253	0.262	0.945	0.438		
26	PBBANK	0.836	0.503	2.809	0.625	1.427	0.224		
27	PJDEV	0.590	0.670	2.873	0.579	0.223	0.926		
28	SUNTECH	0.496	0.740	1.230	0.873	0.615	0.652		
29	TA	0.496	0.739	2.008	0.734	0.858	0.489		
30	TANJONG	0.282	0.890	2.578	0.631	0.193	0.942		
31	TENAGA	0.059	0.993	0.275	0.991	0.415	0.798		
32	UMG	1.352	0.250	6.152	0.188	1.525	0.194		
33	UMW	0.333	0.856	1.207	0.877	0.786	0.535		
Second Board Companies									
1	AYAMAS	0.162	0.958	0.806	0.938	0.163	0.957		
2	DPREP	1.012	0.401	3.735	0.443	0.992	0.412		
3	DENKO	2.340*	0.054	10.129**	0.038	2.481**	0.043		
4	FFHB	1.757	0.137	5.024	0.285	3.233**	0.013		
5	FOURSSN	0.157	0.960	2.607	0.626	1.606	0.172		
6	GEAHIN	3.486***	0.008	11.051**	0.026	2.585**	0.037	1&4*, 1&5*	1&4**, 1&5**, 1&3*
7	HIRO	4.098***	0.003	8.124*	0.087	7.223***	0.000	1&3***, 1&4*	1&3***, 1&4**
8	MCSB	2.056*	0.086	5.035	0.284	3.508***	0.008		
9	PROMTO	1.662	0.158	6.668	0.154	0.872	0.481		
10	TGL	0.454	0.770	1.004	0.909	2.999**	0.018		
11	YCS	1.217	0.311	4.38	0.357	2.131*	0.085		
	KLSECI	0.863	0.486	5.949	0.203	1.321	0.261		

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

From the results of the Kruskal-Wallis test, only DENKO and GEAHIN do not have equal mean daily SDs across the days of the week.

In general, we may conclude that the mean daily SDs of most of the stocks are highest on Monday/Tuesday and lowest on Friday during this sub-period starting 1 September 1998 to 30 June 2000. This also implies that the daily volatility (or risk) appears to be highest on Monday/Tuesday and lowest on Friday. Nevertheless, the difference in mean daily SDs may not be very significant and thus, is unable to be detected by the one-way ANOVA or the Kruskal-Wallis tests. Of the 44 stocks, only 2 stocks (both from the Second Board) have shown significant seasonal variation in volatility or day-of-the-week effect in volatility. Based on this finding, we may conclude that there is no evidence of persistent seasonal variation in volatility across the days of the week for stock market in Malaysia in this sub-period.

4.2 Empirical Finding on Seasonality in Daily Stock Trading Returns

4.2.1 Findings from Descriptive Statistics, Kolmogorov-Smirnov and Levene Tests

Table 10 presents the descriptive statistics of the daily trading returns as well as the results of the Kolmogorov-Smirnov and Levene tests for all the 44 stocks, including the KLSE CI, for the whole period of 3 July 1995 to 30 June 2000.

Table 10 : Descriptive Statistics and Results of Kolmogorov-Smirnov and Levene Tests for Daily Trading Returns (TRs) for Whole Period

	Stock	No. of Obs.	Mean	Standard Deviation	Skewness	Kurtosis	KS Test	Sig.	Levene Test	Sig.
Main Board Companies										
1	AFFIN	1234	-0.0006	0.0385	0.308	17.782	4.486	0.000	1.439	0.219
2	AMFIN	1234	-0.0012	0.0385	-1.061	18.175	5.628	0.000	0.725	0.575
3	ASB	1230	-0.0042	0.0523	1.401	12.678	4.708	0.000	1.790	0.128
4	BKATIL	1198	0.0047	0.0406	1.584	14.964	6.216	0.000	0.342	0.849
5	BAT	1234	0.0006	0.0232	-1.947	38.591	5.350	0.000	2.120*	0.076
6	BOLTON	1230	-0.0003	0.0447	1.064	11.596	5.127	0.000	0.868	0.483
7	CMSB	1235	-0.0019	0.0349	0.280	13.876	4.992	0.000	1.534	0.190
8	COMMERZ	1221	-0.0001	0.0383	0.218	12.620	4.009	0.000	1.216	0.302
9	CRIMSON	1233	-0.0021	0.0532	1.219	9.574	4.536	0.000	0.116	0.977
10	E&O	1177	0.0060	0.0382	0.413	8.961	4.693	0.000	1.188	0.314
11	FABER	1233	-0.0003	0.0526	0.185	15.830	5.024	0.000	0.387	0.818
12	GHOPE	1236	0.0012	0.0284	-0.122	13.625	3.979	0.000	0.257	0.905
13	GKENT	1215	0.0027	0.0444	0.907	12.397	6.117	0.000	1.092	0.359
14	GPLUS	1229	-0.0001	0.0565	0.274	21.549	4.932	0.000	0.638	0.635
15	HLBANK	1235	-0.0011	0.0308	-0.050	8.709	4.300	0.000	1.699	0.148
16	KIANJOO	1224	0.0005	0.0251	1.291	19.715	5.399	0.000	0.562	0.690
17	L&G	1236	-0.0029	0.0526	0.945	13.624	4.898	0.000	1.240	0.292
18	LITYAN	1216	-0.0013	0.0436	1.403	9.768	4.729	0.000	1.719	0.143
19	MARUICH	1167	0.0006	0.0255	-0.932	16.274	6.711	0.000	0.446	0.775
20	MUHIBAH	1175	0.0000	0.0378	-2.098	38.596	6.855	0.000	0.520	0.721
21	MUIB	1234	-0.0022	0.0444	-0.404	14.423	4.091	0.000	2.398**	0.048
22	OSK	1234	0.0012	0.0313	0.591	6.144	3.349	0.000	2.396**	0.049
23	PPERAK	1230	-0.0031	0.0409	0.418	7.572	5.291	0.000	0.959	0.429
24	PACMAS	1236	-0.0017	0.0328	0.394	12.724	4.421	0.000	0.597	0.665
25	PALMCO	1227	-0.0016	0.0387	-1.301	18.621	4.237	0.000	0.851	0.473
26	PBBANK	1236	-0.0005	0.0269	0.143	12.230	5.122	0.000	0.376	0.826
27	PJDEV	1228	-0.0004	0.0455	0.826	6.051	4.501	0.000	1.316	0.261
28	SUNTECH	1177	0.0008	0.0430	0.330	9.773	5.232	0.000	0.157	0.960
29	TA	1238	-0.0036	0.0427	0.348	13.016	4.307	0.000	0.668	0.614
30	TANJONG	1234	0.0011	0.0304	0.701	13.950	3.410	0.000	0.026	0.999
31	TENAGA	1235	0.0882	0.0309	0.217	13.777	4.204	0.000	0.397	0.811
32	UMG	1231	-0.0032	0.0426	0.284	11.299	4.758	0.000	2.041*	0.087
33	UMW	1235	0.0017	0.0355	0.335	17.441	4.623	0.000	0.240	0.916
Second Board Companies										
1	AYAMAS	1165	0.0000	0.0342	0.703	6.733	4.853	0.000	1.156	0.329
2	DPREP	1227	-0.0030	0.0638	1.260	9.773	4.301	0.000	3.047**	0.016
3	DENKO	1203	-0.0004	0.0667	0.605	5.427	3.840	0.000	3.409***	0.009
4	FFHB	1168	-0.0019	0.0543	0.387	10.548	4.343	0.000	1.173	0.321
5	FOURSSN	1178	0.0018	0.0505	0.584	3.942	3.455	0.000	0.599	0.664
6	GEAHIN	1168	-0.0019	0.0475	0.177	4.171	4.037	0.000	3.997***	0.003
7	HIRO	1130	-0.0015	0.0383	-0.389	8.707	4.265	0.000	1.223	0.299
8	MCSB	1236	-0.0023	0.0573	1.179	9.231	4.555	0.000	1.776	0.131
9	PROMTO	1223	-0.0022	0.0509	-0.013	5.902	3.201	0.000	0.675	0.609
10	TGL	1183	-0.0019	0.0556	-0.145	4.293	3.221	0.000	0.938	0.441
11	YCS	837	-0.0014	0.0733	0.346	10.502	4.050	0.000	0.688	0.600
KLSE CI		1236	-0.0007	0.0202	-1.190	32.266	4.152	0.000	1.073	0.369

Note : KS Test - Z statistics of Kolmogorov-Smirnov Test are all significant at 5% level of significance.

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

The results reflect that 65.9% of the stocks and the KLSE CI recorded negative mean trading returns during the whole sample period.

The skewness statistics, ranging from -2.098 to 2.313 for all the individual stocks, and of -1.190 for KLSE CI indicate that the distributions of the daily trading returns could either have a long left (for negative skewness) or right (for positive skewness) tail. The kurtosis statistics, which have large positive (above 4 and majority exceeds 10) for all stocks and the KLSE CI, indicate that they are the peaked distributions. These two statistics show that the distributions of the daily trading returns are leptokurtic, consistent with most of the findings previously as well as in other stock markets.

The results of the Kolmogorov-Smirnov test for all the stocks and the KLSE CI confirmed that the daily trading returns are not normally distributed. This means that statistical analysis using parametric tests will not be appropriate as the results may not be valid. Thus, the non-parametric tests should be used to conduct the statistical analysis of the trading return series.

The results of the Levene test show that only 5 stocks out of 44 stocks do not have equal variances for daily trading returns. It implies that there is presence of seasonal variations in stock trading return variances of these 5 stocks, namely MUIB, OSK, DPREP, DENKO and GEAHIN. Thus, for these stocks with daily

trading returns that do not comply with the equal variances' assumption, non-parametric tests are more correct and reliable for the analysis.

4.2.2 Analysis on Day-of-the Week Effect of Daily Stock Trading Returns

- (a) *Findings for Day-of-the-Week Effect for Whole Period (3 July 1995 to 30 June 2000)*

The mean daily trading returns, standard deviation and the number of observations across the days of the week are presented in *Table 11*. The days with the lowest (or most negative) and highest (or least negative) mean daily trading return are indicated in "blue" and "yellow" respectively in the table.

Table 11 shows that majority of the stocks have their lowest mean daily trading returns on Monday and the highest mean daily trading returns on Friday. Of the 44 stocks, 27 stocks (or 61.4%) have their lowest mean daily trading returns on Monday, followed by 9 stocks (or 20.5%) on Tuesday. There are 40 out of 44 stocks (or 90.9%) having their highest means on Friday. It is interesting to note that Friday is the only day for all the stocks to have positive mean daily trading returns. Most of the stocks have negative mean daily trading returns on other days. The results in *Table 11* show that 81.8% of the stocks have negative mean daily trading returns on Monday; followed by 75% on Tuesday, 56.8% on Wednesday and 72.7% on Thursday. The Second Board stocks show 100% (all the 11 stocks) positive mean daily trading returns on Friday; and 90.1% (10 out of 11 stocks) negative mean daily trading returns on both Monday and Tuesday.

Table 11 : Descriptive Statistics of Daily Trading Returns (TRs) Across The Day-of-the-Week for Whole Period

	Stock	Monday			Tuesday			Wednesday			Thursday			Friday		
		Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n
Main Board Companies																
1 AFFIN	-0.0014	0.0433	236	0.0013	0.0439	250	-0.0003	0.0360	252	-0.0015	0.0351	246	0.0038	0.0332	250	
2 AMFIN	0.0052	0.0375	236	-0.0024	0.0414	250	0.0007	0.0363	252	-0.0022	0.0421	246	0.0031	0.0346	250	
3 ASB	0.0153	0.0572	234	-0.0039	0.0522	250	-0.0048	0.0484	251	-0.0015	0.0553	245	0.0020	0.0474	250	
4 BKATIL	0.0032	0.0422	231	0.0036	0.0357	243	0.0028	0.0375	245	0.0045	0.0439	238	0.0093	0.0432	241	
5 BAT	0.0001	0.0227	236	-0.0020	0.0269	250	0.0023	0.0179	252	0.0004	0.0215	246	0.0022	0.0259	250	
6 BOLTON	-0.0031	0.0499	235	0.0016	0.0420	251	-0.0019	0.0410	250	-0.0007	0.0439	245	0.0077	0.0456	249	
7 CMSB	0.0037	0.0335	236	-0.0015	0.0383	251	0.0017	0.0347	252	-0.0026	0.0339	246	0.0020	0.0337	250	
8 COMMERZ	-0.0007	0.0396	233	-0.0020	0.0441	249	0.0017	0.0394	249	0.0017	0.0316	244	0.0041	0.0351	246	
9 CRIMSON	0.0010	0.0588	236	-0.0031	0.0472	252	-0.0004	0.0508	252	-0.0008	0.0510	245	0.0036	0.0570	248	
10 E&O	0.0044	0.0375	224	0.0078	0.0393	242	0.0048	0.0356	243	0.0049	0.0354	233	0.0080	0.0429	235	
11 FABER	0.0083	0.0535	235	-0.0023	0.0572	252	0.0018	0.0519	252	0.0042	0.0503	244	0.0003	0.0496	250	
12 GHOPHE	0.0021	0.0274	236	0.0010	0.0330	252	0.0012	0.0259	252	0.0010	0.0278	246	0.0031	0.0272	250	
13 GKENT	0.0007	0.0484	228	0.0011	0.0514	251	0.0065	0.0423	249	0.0029	0.0426	243	0.0037	0.0359	244	
14 GPLUS	0.0067	0.0595	235	-0.0032	0.0628	252	0.0029	0.0512	249	-0.0009	0.0477	244	0.0081	0.0537	249	
15 HL BANK	0.0024	0.0342	236	-0.0006	0.0329	252	-0.0007	0.0267	252	-0.0033	0.0334	246	0.0024	0.0257	249	
16 KIANJOO	0.0011	0.0228	230	0.0019	0.0301	250	0.0016	0.0222	251	-0.0012	0.0253	245	0.0005	0.0251	248	
17 L&G	0.0039	0.0569	236	-0.0032	0.0608	252	-0.0001	0.0490	252	-0.0035	0.0496	246	0.0016	0.0450	250	
18 LITIAN	-0.0027	0.0514	232	0.0007	0.0436	246	-0.0033	0.0380	249	-0.0013	0.0400	243	0.0051	0.0439	246	
19 MARUICH	-0.0012	0.0240	226	0.0010	0.0292	235	0.0018	0.0221	244	0.0001	0.0285	227	0.0026	0.0229	235	
20 MUHIBAH	0.0059	0.0356	222	0.0031	0.0353	241	-0.0012	0.0522	237	-0.0016	0.0329	238	0.0025	0.0289	237	
21 MUJB	-0.0027	0.0482	236	-0.0031	0.0554	252	-0.0017	0.0392	252	-0.0034	0.0409	245	0.0016	0.0358	249	
22 OSK	0.0040	0.0306	236	0.0016	0.0329	252	0.0016	0.0283	250	0.0018	0.0375	246	0.0046	0.0259	250	
23 PPERAK	0.0088	0.0422	235	-0.0029	0.0427	250	-0.0041	0.0396	251	-0.0012	0.0422	245	0.0011	0.0372	249	
24 PACMAS	0.0056	0.0325	236	-0.0026	0.0337	252	0.0006	0.0320	252	-0.0040	0.0302	246	0.0030	0.0351	250	
25 PALMCO	0.0060	0.0380	233	-0.0024	0.0475	250	-0.0046	0.0354	250	0.0043	0.0386	246	0.0044	0.0315	248	
26 PBBANK	-0.0023	0.0255	236	-0.0004	0.0300	252	-0.0014	0.0255	252	-0.0027	0.0263	246	0.0040	0.0266	250	
27 PJDEV	0.0002	0.0475	236	0.0016	0.0521	251	0.0005	0.0424	251	-0.0019	0.0440	243	0.0034	0.0402	247	
28 SUNTECH	-0.0012	0.0429	223	-0.0004	0.0435	236	0.0016	0.0433	242	0.0051	0.0409	238	0.0021	0.0444	238	
29 TA	0.0101	0.0429	236	-0.0032	0.0459	252	-0.0033	0.0404	252	-0.0028	0.0476	246	0.0013	0.0352	250	
30 TANJONG	-0.0002	0.0313	236	0.0011	0.0357	252	0.0020	0.0282	252	-0.0011	0.0276	245	0.0062	0.0277	249	
31 TENAGA	0.0009	0.0319	236	0.0007	0.0334	251	0.0004	0.0318	252	0.0003	0.0292	246	0.0009	0.0282	250	
32 UMG	-0.0002	0.0492	235	-0.0043	0.0463	250	-0.0020	0.0355	251	-0.0020	0.043	245	0.0002	0.0375	250	
33 UMW	0.0011	0.0340	235	0.0001	0.0395	252	0.0019	0.0326	252	0.0009	0.0363	246	0.0037	0.0347	250	

Note : "Blue" refers to day with lowest mean, while "Yellow" refer to day with highest mean.

Table 11 : Descriptive Statistics of Daily Trading Returns (TRs) Across The Day-of-the-Week for Whole Period

Stock	Second Board Companies	Monday			Tuesday			Wednesday			Thursday			Friday		
		Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n
1 AYAMAS	0.0035	0.0325	219	-0.0030	0.0294	234	0.0036	0.0377	235	-0.0016	0.0344	233	0.0045	0.0358	234	
2 DPREP	-0.0110	0.0726	233	-0.0020	0.0722	250	0.0024	0.0557	250	0.0002	0.0640	245	0.0009	0.0526	249	
3 DENKO	0.0030	0.0770	229	-0.0026	0.0747	246	-0.0069	0.0602	246	-0.0016	0.0550	240	0.0030	0.0640	242	
4 FFHB	-0.0038	0.0545	219	-0.0028	0.0619	240	-0.0033	0.0444	235	0.0002	0.0566	234	0.0045	0.0521	240	
5 FOURSSN	0.0087	0.0509	226	0.0012	0.0492	238	0.0011	0.0468	236	-0.0030	0.0475	234	0.0174	0.0540	242	
6 GEAHIN	-0.0039	0.0558	223	-0.0028	0.0525	238	0.0001	0.0445	234	0.0006	0.0460	232	0.0027	0.0370	241	
7 HIRO	0.0061	0.0405	215	-0.0019	0.0398	233	-0.0003	0.0354	229	-0.0040	0.0335	221	0.0044	0.0410	232	
8 MCSB	0.0099	0.0680	236	-0.0049	0.0549	252	-0.0012	0.0559	252	-0.0029	0.0544	246	0.0068	0.0518	250	
9 PROMTO	-0.0084	0.0519	233	-0.0034	0.0556	248	-0.0060	0.0462	249	-0.0008	0.0492	245	0.0077	0.0501	248	
10 TGL	0.0032	0.0542	225	-0.0006	0.0610	245	-0.0032	0.0555	242	-0.0030	0.0563	233	0.0054	0.0500	238	
11 YCS	-0.0110	0.0859	160	0.0010	0.0730	172	0.0022	0.0728	170	-0.0036	0.0648	167	0.0087	0.0686	168	
KLSE CI	0.0023	0.0208	236	-0.0013	0.0254	252	0.0002	0.0177	252	-0.0013	0.0186	246	0.0011	0.0171	250	

Note : "Blue" refers to day with lowest mean, while "Yellow" refer to day with highest mean.

The KLSE CI has its lowest mean daily trading returns on Monday and highest mean daily trading returns on Friday. It has positive mean daily trading returns on Wednesday and Friday, while the rest of the days are with negative mean returns.

The results of F-tests, Kruskal-Wallis, Levene and multiple comparison tests are tabulated as per *Table 12*. The F-statistics of one-way ANOVA revealed that 13 out of the 44 stocks do not have equal mean daily trading returns across the days of the week. The results of Scheffe and Bonferroni tests on these 13 stocks confirmed that most of these stocks (10 stocks or 76.9%) have Monday's mean returns which are significantly different from mean returns of Friday. In addition, 2 of the stocks (BOLTON and TANJONG) have Tuesday's mean daily trading returns which are significantly different from mean returns of Friday. The results also show that Friday's mean returns are significantly different from Wednesday and Thursday's mean returns for some of the stocks.

As the daily trading returns are not normally distributed as concluded by the Kolmogorov-Smirnov test and 5 out of the 44 stocks have problem of heteroscedasticity in mean daily trading returns across the days of the week as confirmed by the Levene test, the results from the F-statistics may not reliable for the analysis. Thus, the non-parametric test i.e. Kruskal-Wallis test to test for equality of means across the days of the week is also performed on the series. The results of the Kruskal-Wallis test confirmed the findings from the one-way

Table 12 : Results of ANOVA (F tests), Kruskal-Wallis, Levene and Multiple Comparison Tests of Daily Trading Returns (TRs) for Whole Period

	Stock	F-Stats.	Sig.	Kruskal Wallis	Sig.	Levene Test	Sig.	Scheffe Test	Bonferroni Test
Main Board Companies									
1	AFFIN	1.192	0.312	7.276	0.122	1.439	0.219		
2	AMFIN	1.646	0.160	6.298	0.178	0.725	0.575		
3	ASB	2.857**	0.023	27.962***	0.000	1.790	0.128	1&5**	1&5**
4	BKATIL	1.026	0.392	4.121	0.390	0.342	0.849		
5	BAT	1.423	0.224	1.965	0.742	2.12*	0.076		
6	BOLTON	2.684**	0.030	8.306*	0.081	0.868	0.483	2&5*	2&5**
7	CMSB	1.157	0.328	5.240	0.263	1.534	0.190		
8	COMMERZ	1.577	0.178	11.301**	0.023	1.216	0.302		
9	CRIMSON	2.283*	0.058	15.335***	0.004	0.116	0.977	1&5*	1&5**
10	E&O	0.484	0.747	4.256	0.372	1.188	0.314		
11	FABER	1.216	0.302	8.181*	0.085	0.387	0.818		
12	GHOPE	0.882	0.474	5.620	0.229	0.257	0.905		
13	GKENT	0.902	0.462	9.631**	0.047	1.092	0.359		
14	GPLUS	3.004**	0.018	20.409***	0.000	0.638	0.635	1&5**	1&5**
15	HLBANK	1.448	0.216	13.36**	0.010	1.699	0.148		
16	KIANJOO	1.321	0.260	3.977	0.409	0.562	0.690		
17	L&G	1.682	0.152	16.467***	0.002	1.240	0.292		
18	LITYAN	1.836	0.120	10.626**	0.031	1.719	0.143		
19	MARUICH	1.149	0.332	7.106	0.130	0.446	0.775		
20	MUHIBAH	1.189	0.314	5.344	0.254	0.520	0.721		
21	MUIB	0.724	0.575	5.526	0.237	2.398**	0.048		
22	OSK	2.399**	0.048	16.587***	0.002	2.396**	0.049	1&5*	1&5**
23	PPERAK	2.002*	0.092	15.944***	0.003	0.959	0.429		1&5*
24	PACMAS	2.789**	0.025	20.877***	0.000	0.597	0.665	1&5*	1&5**
25	PALMCO	2.831**	0.024	12.987**	0.011	0.851	0.473	1&5*	1&5**
26	PBBANK	2.489**	0.042	12.84**	0.012	0.376	0.826		4&5*
27	PJDEV	1.562	0.182	11.250**	0.024	1.318	0.281		
28	SUNTECH	1.003	0.405	7.467	0.113	0.157	0.960		
29	TA	2.378*	0.050	19.431***	0.001	0.668	0.614	1&5*	1&5**
30	TANJONG	2.658**	0.032	11.097**	0.025	0.026	0.999	2&5*	2&5*
31	TENAGA	0.330	0.858	6.365	0.174	0.397	0.811		
32	UMG	1.357	0.247	9.889**	0.042	2.041*	0.087		
33	UMW	0.301	0.877	3.289	0.511	0.240	0.916		
Second Board Companies									
1	AYAMAS	2.805**	0.025	12.147**	0.016	1.156	0.329		
2	DPREP	1.300	0.268	18.812**	0.020	3.047**	0.016		
3	DENKO	1.979*	0.095	7.577***	0.006	3.409***	0.009		1&5*
4	FFHD	1.864	0.115	12.807**	0.012	1.173	0.321		
5	FOURSSN	9.002***	0.000	37.818***	0.000	0.599	0.664	1,4&5***, 2,3&5**	1,2,3,4&5***
6	GEAHIN	1.225	0.298	12.67**	0.013	3.997***	0.003		
7	HIRO	2.435**	0.046	17.579***	0.001	1.223	0.299	1&5*	1&5**
8	MCSB	2.829**	0.024	23.752***	0.000	1.776	0.131	1&5**	1&5**
9	PROMTO	3.806***	0.004	17.037***	0.002	0.675	0.609	1&5**; 3&5*	1&5***; 3&5**
10	TGL	1.871	0.113	18.348***	0.001	0.938	0.441		
11	YCS	1.611	0.170	7.473	0.113	0.688	0.600		
KLSE CI		1.237	0.293	11.671**	0.020	1.073	0.369		

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

ANOVA that there is presence of day-of-the-week effect in mean trading returns in the Malaysian stock market. The Kruskal-Wallis test shows that 61.4% of the stocks (or 27 out of 44 stocks) do not have equal mean trading returns across the days of the week. Among these 27 stocks, 12 of the stocks are the same stocks rejected by the F-tests earlier. Of the 27 stocks, 17 stocks are the Main Board stocks (or 51.5% of the Main Board stocks) while 10 stocks are from the Second Board (or 90.9% of the Second Board stocks).

The results of Kruskal-Wallis test also show unequal mean daily trading returns across the days of the week for KLSE CI. This finding is consistent with the findings for the individual stocks.

In summary, the results confirmed the moderate existence of the day-of-the-week effect in mean daily trading returns for the Malaysian stock market for the whole sample period. From the results, most of the stocks have positive mean returns on Friday, while majority of the stocks have negative mean returns on the other days especially Monday, Tuesday and Thursday. The results also show that the mean returns of Monday are significantly different from Friday for most of the stocks.

(b) *Findings from the Day-of-the-Week Effect for Sub-Period 1 (3 July 1995 to 31 July 1997)*

Table 13 contains the mean daily trading returns, standard deviation and number of observations for all the stocks and the KLSE CI for sub-period 1 starting from 3 July 1995 to 31 July 1997. The days with the lowest and highest mean daily trading returns are indicated in "blue" and "yellow" respectively in the table.

The results continue to show that majority of the stocks have the lowest mean daily returns on Monday i.e. 31 out of 44 stocks or 70.5% of the stocks, as shown in the whole period. Nevertheless, the trend of having highest mean returns on Friday for most of the stocks for the whole period was not reflected in this sub-period since only 50% of stocks have their highest means on Friday in this sub-period. Wednesday appears to be another day which has a significant number of stocks with highest mean returns i.e. 13 stocks out of 44 stocks or 29.5%.

From the results of *Table 13*, we observe that most of the stocks have negative mean daily trading returns on Monday (81.8%), Tuesday (61.4%) and Thursday (59.1%). However, the positive mean daily trading returns are observed mostly on Friday (86.4%) and Wednesday (72.7%). The distributions of highest or lowest mean returns and positive or negative mean returns are quite consistent between the Main and Second Boards.

Table 13 : Descriptive Statistics of Daily Trading Returns (TRs) Across The Day-of-the-Week for Sub-Period 1

	Stock	Monday			Tuesday			Wednesday			Thursday			Friday			All Days		
		Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n
Main Board Companies																			
1 AFFIN	0.0000	0.0198	100	0.0035	0.0177	107	0.0034	0.0190	103	-0.0016	0.0211	102	0.0013	0.0241	104	0.0008	0.0205	516	
2 AMFIN	0.0003	0.0175	100	0.0001	0.0111	107	0.0028	0.0148	103	-0.0008	0.0108	102	0.0012	0.0116	104	0.0007	0.0134	516	
3 ASB	0.0000	0.0209	100	-0.0018	0.0253	107	-0.0025	0.0227	103	-0.0010	0.0258	102	-0.0022	0.0183	104	-0.0031	0.0228	516	
4 BKATIL	0.0037	0.0192	100	0.0022	0.0186	107	0.0040	0.0210	103	0.0013	0.0275	102	0.0060	0.0188	104	0.0034	0.0212	516	
5 BAT	0.0000	0.0164	100	0.0001	0.0098	107	0.0013	0.0130	103	0.0025	0.0141	102	0.0017	0.0154	104	0.0010	0.0139	516	
6 BOLTON	0.0019	0.0203	100	0.0012	0.0197	107	0.0052	0.0393	103	0.0023	0.0180	102	0.0031	0.0188	104	0.0024	0.0246	516	
7 CMSB	-0.0005	0.0134	100	0.0012	0.0152	107	0.0009	0.0154	103	-0.0001	0.0131	102	0.0025	0.0174	104	0.0003	0.0150	516	
8 COMMERZ	0.0000	0.0166	100	-0.0003	0.0153	107	0.0005	0.0145	103	0.0053	0.0171	102	0.0023	0.0146	104	0.0001	0.0157	516	
9 CRIMSON	-0.0014	0.0480	100	0.0041	0.0279	107	-0.0006	0.0286	103	-0.0007	0.0251	102	0.0016	0.0278	104	-0.0010	0.0324	516	
10 E&O	0.0000	0.0263	100	0.0053	0.0267	107	0.0061	0.0218	103	0.0033	0.0213	102	0.0036	0.0186	104	0.0038	0.0230	516	
11 FABER	0.0001	0.0198	100	-0.0014	0.0235	107	0.0038	0.0244	103	0.0000	0.0192	102	0.0007	0.0186	104	-0.0003	0.0214	516	
12 GHOPC	0.0011	0.0176	100	-0.0001	0.0188	107	0.0028	0.0170	103	0.0014	0.0203	102	0.0035	0.0224	104	0.0012	0.0194	516	
13 GKENT	0.0011	0.0189	100	0.0002	0.0306	107	0.0019	0.0183	103	0.0013	0.0228	102	0.0023	0.0195	104	0.0009	0.0225	516	
14 GPLUS	0.0004	0.0241	100	-0.0054	0.0277	107	0.0012	0.0279	103	-0.0013	0.0218	102	-0.0004	0.0251	104	-0.0010	0.0324	516	
15 HL BANK	-0.0032	0.0140	100	0.0017	0.0158	107	-0.0004	0.0152	103	0.0032	0.0162	102	0.0011	0.0150	104	-0.0009	0.0153	516	
16 KUAN JOO	0.0011	0.0196	100	-0.00062	0.0163	107	-0.0011	0.0170	103	0.0001	0.0171	102	0.0029	0.0186	104	-0.0000	0.0177	516	
17 L&G	0.0004	0.0229	100	-0.0027	0.0225	107	0.0018	0.0231	103	-0.0035	0.0292	102	-0.0011	0.0257	104	-0.0028	0.0249	516	
18 LITIAN	0.0000	0.0290	100	0.0037	0.0383	107	0.0030	0.0252	103	0.0049	0.0237	102	0.0049	0.0298	104	0.0006	0.0249	516	
19 MARUICH	0.0000	0.0085	100	0.0033	0.0116	107	0.0004	0.0090	103	0.0024	0.0112	102	0.0022	0.0109	104	0.0017	0.0104	516	
20 MUHIBAH	0.0004	0.0090	100	0.0021	0.0136	107	0.0020	0.0150	103	0.0012	0.0195	102	0.0042	0.0184	104	0.0019	0.0156	516	
21 MUIB	0.0023	0.0225	100	0.0016	0.0187	107	-0.0012	0.0205	103	-0.0008	0.0228	102	0.0013	0.0183	104	-0.0010	0.0207	516	
22 OSK	0.0004	0.0205	100	0.0028	0.0247	107	-0.0006	0.0200	103	-0.0001	0.0221	102	0.0030	0.0168	104	-0.0001	0.0212	516	
23 PPERAK	0.0037	0.0241	100	-0.0041	0.0188	107	-0.0018	0.0192	103	-0.0016	0.0234	102	-0.0013	0.0209	104	-0.0029	0.0213	516	
24 PACMAS	0.0003	0.0280	100	-0.0025	0.0261	107	0.0029	0.0301	103	-0.0038	0.0240	102	0.0050	0.0218	104	-0.0015	0.0265	516	
25 PALMCO	0.0031	0.0256	100	0.0001	0.0239	107	0.0044	0.0244	103	0.0015	0.0288	102	0.0022	0.0210	104	0.0009	0.0249	516	
26 PBBANK	-0.0017	0.0153	100	0.0015	0.0105	107	0.0000	0.0118	103	0.0022	0.0105	102	0.0044	0.0222	104	0.0005	0.0149	516	
27 PJDEV	0.0002	0.0381	100	-0.0038	0.0234	107	0.0031	0.0250	103	-0.0026	0.0224	102	0.0043	0.0239	104	0.0043	0.0239	516	
28 SUNTECH	0.0000	0.0201	100	0.0022	0.0186	107	0.0024	0.0197	103	0.0023	0.0166	102	0.0039	0.0205	104	0.0021	0.0191	516	
29 TA	0.0032	0.0212	100	-0.0031	0.0203	107	-0.0030	0.0193	103	-0.0028	0.0229	102	0.0009	0.0193	104	-0.0035	0.0208	516	
30 TANJONG	-0.0005	0.0192	100	0.0010	0.0186	107	0.0014	0.0193	103	0.0017	0.0194	102	0.0053	0.0189	104	0.0009	0.0191	516	
31 TENAGA	0.0000	0.0142	100	0.0015	0.0162	107	0.0016	0.0194	103	0.0001	0.0151	102	0.0001	0.0173	104	0.0005	0.0165	516	
32 UMG	-0.0035	0.0177	100	-0.0012	0.0171	107	0.0009	0.0185	103	-0.0025	0.0151	102	-0.0009	0.0199	104	-0.0014	0.0177	516	
33 UMW	0.0022	0.0214	100	0.0000	0.0196	107	-0.0001	0.0193	103	0.0023	0.0193	102	0.0008	0.0211	104	0.0009	0.0202	516	

Note : "Blue" refers to day with the lowest mean, while "Yellow" refers to day with highest mean.

Table 13 : Descriptive Statistics of Daily Trading Returns (TRs) Across The Day-of-the-Week for Sub-Period 1

	Stock	Monday			Tuesday			Wednesday			Thursday			Friday			All Days			
		Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Skewness	Kurtosis		
Second Board Companies																				
1 AYAMAS	-0.0001	0.0311	100	-0.0009	0.0259	107	0.0016	0.0336	103	-0.0008	0.0248	102	0.0020	0.0341	104	-0.0012	0.0302	516	1.931	11619
2 DPREP	-0.0155	0.0392	100	0.0003	0.0486	107	0.0082	0.0394	103	0.0004	0.0385	102	-0.0014	0.0345	104	-0.0027	0.0407	516	1.239	4.778
3 DENKO	-0.0125	0.0540	100	-0.0004	0.0562	107	-0.0027	0.0381	103	-0.0036	0.0369	102	0.0086	0.0517	104	-0.0020	0.0484	516	1.273	6.676
4 FFHB	-0.0130	0.0404	100	-0.0056	0.0364	107	0.0080	0.0374	103	-0.0040	0.0343	102	0.0021	0.0387	104	-0.0034	0.0378	516	0.525	1.354
5 FOURSSN	-0.0176	0.0428	100	0.0002	0.0429	107	-0.0012	0.0385	103	-0.0080	0.0377	102	0.0045	0.0424	104	-0.0041	0.0414	516	0.841	3.914
6 GEAHIN	-0.00683	0.0448	100	-0.0023	0.0380	107	0.0039	0.0417	103	0.0039	0.0389	102	0.0011	0.0344	104	-0.0026	0.0398	516	0.941	2.856
7 HIRO	-0.00395	0.0270	100	-0.0013	0.0304	107	0.0053	0.0312	103	-0.0041	0.0293	102	0.0010	0.0270	104	-0.0014	0.0293	516	0.253	1.261
8 MCSB	-0.0136	0.0542	100	-0.0024	0.0387	107	0.0086	0.0618	103	-0.0035	0.0394	102	0.0026	0.0404	104	-0.0013	0.0481	516	2.062	13.629
9 PROMTO	-0.0066	0.0318	100	-0.0041	0.0339	107	-0.0043	0.0327	103	-0.0011	0.0340	102	0.0008	0.0283	104	-0.0031	0.0318	516	0.290	1.939
10 TGL	-0.0120	0.0363	100	-0.0043	0.0402	107	0.0033	0.0324	103	0.0010	0.0378	102	0.0060	0.0301	104	-0.0012	0.0360	516	0.470	1.298
11 YCS	-0.0058	0.0394	100	-0.0008	0.0413	107	0.0028	0.0319	103	0.0061	0.0340	102	0.0030	0.0319	104	0.0015	0.0359	516	0.535	2.418
KLSE CI	0.0013	0.0089	100	-0.0005	0.0084	107	0.0017	0.0085	103	-0.0005	0.0093	102	0.0006	0.0077	104	-0.0001	0.0086	516	-0.112	1.274

Note : "Blue" refers to day with the lowest mean, while "Yellow" refers to day with highest mean.

The KLSE CI has its lowest mean daily trading returns on Monday and the highest mean returns on Wednesday. Its mean returns are negative on Monday, Tuesday and Thursday, while the positive mean returns fall on Wednesday and Friday. This trend is again consistent with the trend of individual stocks under study during this sub-period.

The results of the F-tests, Kruskal-Wallis, Levene and multiple comparison tests for daily trading returns across the week for sub-period 1 are presented in *Table 14*.

The results of the F-test indicate that 29.5% of the stocks (or 13 stocks) have unequal mean daily trading returns across the days of the week. Of the 13 stocks, 6 stocks are from the Main Board and 7 stocks are from the Second Board. These results are significantly consistent with the results obtained for the whole period. The Scheffe and Bonferroni tests on the 13 stocks concluded that the Monday's mean returns of 9 stocks are significantly different from Wednesday's mean returns. The results of the same tests also reflected that 9 stocks have Monday's mean returns which are significantly different from Friday's. The other pairs of days which have significantly different means such as Monday and Tuesday or Thursday and Friday, were observed only in a few stocks.

Table 14 : Results of ANOVA (F test), Kruskal-Wallis, Levene and Multiple Comparison Tests of Daily Trading Returns (TRs) for Sub-Period 1

	Stock	F-Stats.	Sig.	Kruskal Wallis	Sig.	Levene Test	Sig.	Scheffe Test	Bonferroni Test
Main Board Companies									
1	AFFIN	2.186*	0.069	11.185**	0.025	0.607	0.658		
2	AMFIN	1.091	0.360	3.001	0.558	2.055*	0.086		
3	ASB	1.681	0.153	6.995	0.136	1.529	0.192		
4	BKATIL	0.745	0.561	6.994	0.136	0.559	0.692		
5	BAT	0.767	0.547	3.005	0.557	3.939***	0.004		
6	BOLTON	0.652	0.626	0.751	0.945	0.341	0.850		
7	CMSB	0.961	0.429	5.443	0.245	0.598	0.664		
8	COMMERZ	1.724	0.143	6.434	0.169	0.664	0.617		
9	CRIMSON	0.460	0.765	3.895	0.420	0.922	0.451		
10	E&O	1.010	0.402	7.070	0.132	2.215*	0.066		
11	FABER	2.281*	0.060	7.611	0.107	1.288	0.274	1&3*	1&3**
12	GHOPE	1.222	0.300	3.701	0.448	0.844	0.498		
13	GKENT	0.497	0.738	3.629	0.459	0.153	0.962		
14	GPLUS	3.229**	0.012	14.881***	0.005	0.901	0.463	1&3**	1&3**, 1&5*
15	HLBANK	2.295*	0.058	8.832*	0.065	0.392	0.814		
16	KIANJOO	0.946	0.437	2.311	0.679	0.910	0.458		
17	L&G	2.480**	0.043	10.667**	0.031	1.883	0.112	1&3*	1&3**
18	LITYAN	1.337	0.255	3.033	0.552	2.333*	0.056		
19	MARUCHI	1.749	0.138	6.271	0.180	1.414	0.228		
20	MUHIBAH	1.124	0.344	6.705	0.152	1.831	0.121		
21	MUIB	2.279*	0.060	7.196	0.126	0.698	0.594		1&2*
22	OSK	2.832**	0.024	14.714***	0.005	2.077*	0.083	1&2.5*	1&2.5**
23	PPERAK	0.803	0.524	4.172	0.383	1.166	0.325		
24	PACMAS	4.648***	0.001	20.483***	0.000	1.585	0.182	1&5***, 1&3**	1&5***, 1&3**
25	PALMCO	1.524	0.194	5.233	0.264	0.701	0.592		
26	PBBANK	3.254**	0.012	9.331*	0.053	1.545	0.188	4&5**, 1&5*	1&4&5**
27	PJDEV	2.280*	0.060	15.265***	0.004	1.601	0.173		
28	SUNTECH	0.671	0.812	2.086	0.720	0.306	0.874		
29	TA	3.755***	0.005	15.863***	0.003	0.681	0.605	1&5***	1&5***
30	TANJONG	1.067	0.372	8.977*	0.062	0.354	0.842		
31	TENAGA	0.401	0.808	3.324	0.505	1.426	0.224		
32	UMG	0.918	0.453	3.359	0.500	0.444	0.777		
33	UMW	0.467	0.760	1.878	0.758	0.063	0.993		
Second Board Companies									
1	AYAMAS	1.838	0.120	11.322**	0.023	0.669	0.614		
2	DPREP	3.307**	0.011	3.339	0.254	2.230*	0.065	1&3** 1&2*	1&3** 1&2*
3	DENKO	2.469**	0.044	15.218***	0.004	1.599	0.173	1&5**	1&5**
4	FFHB	3.032**	0.017	11.404**	0.022	0.531	0.713	1&3.5*	1&3.5**
5	FOURSSN	4.107***	0.003	18.810***	0.001	0.705	0.589	1&5** 1&2*	1&2.5**, 1&3*
6	GEAHIN	1.796	0.128	8.660*	0.070	0.655	0.624		
7	HIRO	3.640***	0.006	12.646**	0.013	0.660	0.820	1&3**	1&3***
8	MCSB	3.128**	0.015	13.684***	0.008	1.805	0.127	1&3**	1&3***
9	PROMTO	0.847	0.496	3.349	0.501	1.321	0.261		
10	TGL	4.111***	0.003	21.112***	0.000	1.278	0.278	1&5**, 1&3*	1&5***, 1&3**
11	YCS	1.154	0.330	5.297	0.258	1.966*	0.098		
KLSE CI									
		1.265	0.283	5.095	0.278	0.920	0.452		

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

The Levene test for homoscedasticity of mean daily trading returns across the days of the week revealed that only one stock (BAT) has unequal variances across the days of the week. The results of Kruskal-Wallis test on equality of means show that 31.8% of the stocks have means which are significantly different across the days of the week. This result is consistent with the findings from F-tests. Nevertheless, the F-test and the Kruskal-Wallis test show that KLSE CI has equal mean trading returns across the days of the week.

In summary, we conclude that the existence of day-of-the-week effect on daily trading returns during this sub-period is not as persistent as the whole period. There are only 29.5% and 31.8% of the stocks rejected by the F-test and Kruskal-Wallis test respectively for equality of means across the week. In addition, we noticed that the trend in day-of-the-week effect for the stocks in the Malaysian stock market during this sub-period is different from that of the whole period. In this sub-period, the difference between mean returns of Monday and Wednesday appeared significant statistically although this was not observed in the analysis of the whole period.

(c) *Findings for Day-of-the-Week Effect for Sub-Period 2 (1 August 1997 to 31 August 1998)*

Table 15 contains the relevant descriptive statistics of daily trading returns for all the 44 stocks and the KLSE CI for sub-period 2 i.e. 1 August 1997 to 31 August

Table 15 : Descriptive Statistics of Daily Trading Returns (TRs) Across The Day-of-the-Week for Sub-Period 2

	Stock	Monday			Tuesday			Wednesday			Thursday			Friday			All Days		
		Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	Kurtosis
Main Board Companies																			
1 AAFIN	0.0016	0.0657	52	-0.0210	0.0597	52	-0.0110	0.0572	55	-0.0086	0.0554	52	0.0041	0.0448	55	-0.0068	0.0571	266	
2 AMFIN	-0.0160	0.0597	52	-0.0110	0.0572	52	-0.0053	0.0607	55	-0.0130	0.0759	52	0.0024	0.0496	55	-0.0110	0.0608	286	
3 ASB	0.0150	0.0668	51	-0.0120	0.0593	52	-0.0110	0.0657	54	-0.0085	0.0805	51	0.0025	0.0561	55	-0.0083	0.0658	263	
4 BKATIL	0.0141	0.0578	47	0.0100	0.0573	44	0.0189	0.0569	48	0.0177	0.0750	44	0.0206	0.0527	47	0.0163	0.0598	230	
5 BAT	0.0020	0.0356	52	-0.0051	0.0224	53	0.0016	0.0264	55	-0.0048	0.0313	52	0.0040	0.0383	55	-0.0004	0.0313	267	
6 BOLTON	0.0110	0.0686	51	0.0110	0.0459	53	-0.0043	0.0451	54	-0.0100	0.0686	52	0.0105	0.0570	54	-0.0050	0.0579	264	
7 CMSB	-0.0076	0.0431	52	-0.0045	0.0487	52	0.0180	0.0496	55	-0.0059	0.0582	52	-0.0004	0.0359	55	-0.0067	0.0475	286	
8 COMMERZ	-0.0070	0.0678	50	-0.0130	0.0691	51	-0.0077	0.0691	53	-0.0100	0.0479	51	0.0016	0.0604	52	-0.0078	0.0631	257	
9 CRIMSON	-0.0120	0.0625	52	0.0110	0.0466	53	-0.0027	0.0663	55	-0.0094	0.0649	51	-0.0040	0.0575	53	-0.0085	0.0597	264	
10 E&O	0.0276	0.0511	49	0.0190	0.0624	51	0.0046	0.0527	53	0.0107	0.0538	49	0.0179	0.0650	51	0.0150	0.0576	253	
11 FABER	0.0039	0.0544	51	0.0073	0.0526	53	-0.0008	0.0614	55	0.0043	0.0620	51	0.0105	0.0571	55	0.0022	0.0571	265	
12 GHOPE	0.0018	0.0285	52	0.0056	0.0361	53	0.0026	0.0315	55	0.0100	0.0342	52	0.0084	0.0374	55	0.0018	0.0341	267	
13 GKENT	0.0136	0.0716	47	0.0084	0.0575	53	0.0063	0.0492	54	0.0011	0.0589	51	0.0048	0.0459	51	0.0033	0.0570	256	
14 GPLUS	-0.0012	0.0771	52	-0.0077	0.0472	53	-0.0001	0.0711	55	-0.0012	0.0656	52	0.0111	0.0602	54	0.0002	0.0648	266	
15 HL BANK	-0.0088	0.0454	52	-0.0097	0.0419	53	-0.0077	0.0374	55	-0.0150	0.0499	52	0.0022	0.0384	54	0.0077	0.0430	266	
16 KIANJOO	0.0092	0.0315	51	0.0065	0.0510	53	-0.0061	0.0315	54	-0.0110	0.0374	52	-0.0010	0.0326	55	-0.0006	0.0380	285	
17 L&G	-0.0089	0.0721	52	-0.0110	0.0688	53	0.0044	0.0667	55	-0.0120	0.0626	52	-0.0030	0.0478	55	-0.0060	0.0639	267	
18 LITIAN	-0.0043	0.0715	48	0.0077	0.0488	47	0.0022	0.0520	52	-0.0061	0.0512	49	0.0052	0.0484	51	-0.0039	0.0543	247	
19 MARUICH	-0.0049	0.0349	48	-0.0032	0.0481	45	-0.0029	0.0333	48	0.0120	0.0571	44	0.0070	0.0433	46	-0.0031	0.0439	231	
20 MUHIBAH	0.0168	0.0541	49	0.0061	0.0510	42	-0.0055	0.0439	48	-0.0052	0.0321	45	-0.0023	0.0321	215	-0.0023	0.0367	215	
21 MUIB	0.0110	0.0580	52	-0.0094	0.0613	53	0.0075	0.0522	53	0.0110	0.0570	51	0.0034	0.0506	54	0.0004	0.0562	265	
22 OSK	0.0045	0.0336	52	0.0077	0.0420	53	-0.0007	0.0318	55	0.0024	0.0581	52	0.0090	0.0355	55	0.0022	0.0412	267	
23 PPERAK	0.0100	0.0376	52	0.0110	0.0401	53	-0.0079	0.0483	55	0.0110	0.0577	52	-0.0029	0.0337	55	-0.0086	0.0443	267	
24 PACMAS	-0.0023	0.0425	52	-0.0022	0.0494	53	-0.0012	0.0441	55	0.0070	0.0454	52	-0.0018	0.0378	55	-0.0031	0.0479	267	
25 PALMCO	-0.0055	0.0520	50	-0.0140	0.0723	51	-0.0170	0.0463	54	-0.0088	0.0524	52	0.0022	0.0433	53	-0.0086	0.0541	260	
26 PBBANK	-0.0056	0.0352	52	-0.0110	0.0371	53	-0.0070	0.0403	55	0.0120	0.0453	52	0.0047	0.0349	55	-0.0060	0.0389	267	
27 PJDEV	-0.0017	0.0587	52	0.0061	0.0763	53	-0.0046	0.0475	54	0.0057	0.0688	52	-0.0006	0.0541	54	0.0013	0.0615	265	
28 SURETECH	0.0110	0.0673	43	0.0070	0.0433	41	-0.0053	0.0677	49	0.0034	0.0605	47	-0.0054	0.0807	48	-0.0008	0.0654	228	
29 TA	0.0095	0.0556	52	-0.0069	0.0587	53	-0.0028	0.0538	55	-0.0110	0.0820	52	0.0004	0.0424	55	-0.0058	0.0594	267	
30 TANJONG	0.0055	0.0464	52	-0.0006	0.0434	53	-0.0004	0.0394	55	0.0093	0.0311	51	0.0000	0.0364	54	0.0008	0.0399	265	
31 TENAGA	0.0100	0.0512	52	-0.0043	0.0469	52	-0.0070	0.0510	55	0.0100	0.0453	52	0.0016	0.0373	55	-0.0059	0.0464	266	
32 UMG	-0.0084	0.0558	51	0.0100	0.0524	52	-0.0033	0.0434	54	-0.0048	0.0684	51	-0.0042	0.0524	55	-0.0074	0.0547	263	
33 UMW	-0.0054	0.0488	51	0.0023	0.0632	53	-0.0058	0.0509	53	0.0100	0.0598	52	-0.0080	0.0492	55	-0.0050	0.0544	266	

Note : "Blue" refers to day with lowest mean, while "Yellow" refers to day with highest mean.

Table 15 : Descriptive Statistics of Daily Trading Returns (TRs) Across The Day-of-the-Week for Sub-Period 2

Stock	Monday			Tuesday			Wednesday			Thursday			Friday			All Days		
	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n
Second Board Companies																		
1 AYAMAS	0.0600	0.0366	46	0.0360	0.0384	47	-0.0054	0.0444	49	-0.0059	0.0444	47	0.0099	0.0449	50	-0.0026	0.0407	239
2 DPREP	-0.0120	0.0965	49	-0.0060	0.0792	51	0.0056	0.0763	53	-0.0053	0.0879	51	0.0109	0.0626	54	-0.0055	0.0809	258
3 DENKO	0.0973	0.0933	50	0.0933	0.0802	51	-0.0160	0.0890	53	-0.0072	0.0761	50	-0.0039	0.0888	52	-0.0100	0.0862	256
4 FFHB	-0.0028	0.0671	49	0.0021	0.0747	51	0.0462	0.0462	51	0.0019	0.0941	51	0.0102	0.0682	53	-0.0114	0.0718	255
5 FOURSSN	-0.0030	0.0697	51	-0.0071	0.0622	51	-0.0076	0.0565	52	0.0156	0.0652	50	0.0310	0.0770	54	0.0007	0.0690	258
6 GEAHIN	0.0117	0.0605	46	0.0101	0.0631	49	0.0011	0.0557	50	-0.0056	0.0609	48	0.0085	0.0393	52	0.0016	0.0664	245
7 HIRO	0.0075	0.0553	44	-0.0099	0.0566	46	0.0010	0.0532	48	-0.0170	0.0455	40	0.0077	0.0636	53	-0.0055	0.0563	231
8 MCSB	0.0109	0.0718	52	-0.0100	0.0658	53	-0.0100	0.0583	55	-0.0074	0.0723	52	0.0148	0.0717	55	-0.0060	0.0685	267
9 PROMTO	-0.0002	0.0703	49	-0.0009	0.0692	50	0.0007	0.0621	54	-0.0025	0.0666	52	0.0240	0.0699	53	0.0009	0.0679	258
10 TGL	0.0031	0.0598	45	-0.0061	0.0789	48	-0.0100	0.0852	53	0.0020	0.0697	48	0.0013	0.0668	51	-0.0050	0.0727	245
11 YCS	0.0120	0.1213	46	-0.0050	0.0791	48	-0.0078	0.1125	50	-0.0190	0.1022	48	0.0136	0.1086	47	-0.0100	0.1058	239
KOSEI	-0.0073	0.0275	52	-0.0052	0.0271	53	-0.0031	0.0261	55	0.0077	0.0288	52	-0.0012	0.0234	55	-0.0049	0.0265	267

Note : "Blue" refers to day with lowest mean; while "Yellow" refers to day with highest mean.

1998. The days with the lowest and highest mean daily trading return are indicated in "blue" and "yellow" respectively in the table.

From the table, we observed that the days with the most number of stocks having the lowest mean daily trading returns are Tuesday and Thursday i.e. 36.4% of the stocks. This pattern appears to be significantly different from the results obtained for the whole period as well as the sub-period 1. Most of the stocks (70.5%) have highest mean returns (or lowest negative mean returns) on Friday.

The results from *Table 15* show that most of the stocks have negative mean daily trading returns on Monday (27 stocks or 61.4%), Tuesday (36 stocks or 81.8%), Wednesday (36 stocks or 81.8%) and Thursday (37 stocks or 84.1%). However, the positive mean daily trading returns are most significant on Friday (31 stocks or 70.5%).

The KLSE CI has its lowest mean returns on Thursday and highest (or lowest negative) mean returns on Friday. The KLSE CI shows all negative mean trading returns across the days of the week during this period. This finding is not surprising as this sub-period corresponds with the sharp downturn of the stock market as a result of the Asian financial crisis which affected Malaysia.

Table 16 presents the results of the F-tests, Kruskal-Wallis, Levene and multiple comparison tests for sub-period 2 from 1 August 1997 to 31 August 1998. From

Table 16 : Results of ANOVA (F tests), Kruskal-Wallis, Levene and Multiple Comparisons Tests of Daily Trading Returns (TRs) for Sub-Period 2

	Stock	F-Stats.	Sig.	Kruskal Wallis	Sig.	Levene Test	Sig.	Scheffe Test	Bonferroni Test
Main Board Companies									
1	AFFIN	1.687	0.153	8.822*	0.066	1.747	0.140		
2	AMFIN	0.667	0.615	5.757	0.218	0.387	0.818		
3	ASB	0.564	0.689	7.731	0.102	0.908	0.460		
4	BKATIL	0.227	0.923	2.553	0.635	0.112	0.978		
5	BAT	0.956	0.432	3.314	0.507	2.563**	0.039		
6	BOLTON	1.341	0.255	3.993	0.407	0.927	0.449		
7	CMSB	0.701	0.592	3.299	0.509	0.738	0.566		
8	COMMERZ	0.471	0.757	2.743	0.602	1.188	0.316		
9	CRIMSON	0.398	0.810	1.793	0.774	0.341	0.850		
10	E&O	1.609	0.173	4.626	0.328	1.308	0.268		
11	FABER	0.726	0.575	5.305	0.257	0.062	0.993		
12	GHOPE	2.291*	0.060	11.094**	0.026	1.008	0.404	4&5*	4&5*
13	GKENT	1.007	0.404	10.691**	0.030	0.913	0.457		
14	GPLUS	0.585	0.674	4.660	0.324	0.524	0.718		
15	HLBANK	1.087	0.363	5.612	0.230	0.276	0.893		
16	KIANJOO	2.654**	0.034	7.188	0.126	0.112	0.978		1&4*
17	L&G	0.619	0.649	5.009	0.286	0.946	0.438		
18	LITYAN	0.470	0.758	4.966	0.291	0.384	0.820		
19	MARUICH	1.046	0.384	2.165	0.705	1.312	0.286		
20	MUHIBAH	1.166	0.327	5.321	0.256	2.361*	0.054		
21	MUIB	1.682	0.154	5.089	0.278	0.576	0.680		
22	OSK	0.934	0.445	4.424	0.352	1.661	0.160		
23	PPERAK	0.330	0.858	3.042	0.551	1.123	0.346		
24	PACMAS	0.171	0.953	0.710	0.960	0.021	0.999		
25	PALMCO	1.017	0.399	5.195	0.268	0.322	0.863		
26	PBBANK	1.549	0.189	6.470	0.167	0.815	0.518		
27	PJDEV	0.299	0.879	0.728	0.948	1.515	0.198		
28	SUNTECH	0.600	0.663	3.038	0.552	1.205	0.309		
29	TA	0.328	0.859	2.809	0.590	1.057	0.379		
30	TANJONG	1.723	0.145	6.382	0.172	0.538	0.708		
31	TENAGA	0.588	0.672	3.384	0.499	1.352	0.251		
32	UMG	0.639	0.635	6.007	0.199	1.252	0.290		
33	UMW	0.364	0.834	0.905	0.924	0.597	0.665		
Second Board Companies									
1	AYAMAS	2.038*	0.090	5.515	0.238	0.414	0.798		2&5*
2	DREP	0.864	0.486	8.749*	0.068	0.446	0.775		
3	DENKO	0.423	0.792	5.299	0.258	0.297	0.880		
4	FFHB	1.188	0.317	6.789	0.147	0.416	0.797		
5	FOURSSN	5.76***	0.000	20.127***	0.000	0.549	0.700	4&5***, 1, 2, 3&5**	2, 3, 4&5***, 1&5**
6	GEAHIN	1.090	0.362	5.129	0.274	1.137	0.340		
7	HIRO	2.446**	0.047	12.217**	0.016	0.139	0.968		
8	MCSB	1.761	0.137	7.711	0.103	0.205	0.936		
9	PROMTO	1.563	0.185	6.734	0.151	0.146	0.965		
10	TGL	0.424	0.792	1.812	0.770	0.428	0.788		
11	YCS	1.267	0.284	4.517	0.341	0.430	0.787		
	KLSE CI	0.584	0.675	4.398	0.355	0.546	0.702		

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

the F-statistics, it shows that only 3 stocks out of 44 stocks have unequal mean trading returns across the days of the week. The results of Scheffe and Bonferroni tests indicate that Friday's mean return of FOURSSN is significantly different from the rest of the days.

The results of Levene test show that all the stocks, except BAT, have homoscedasticity of mean trading returns across the days of the week. Nevertheless, based on the Kruskal-Wallis test, 4 stocks out of 44 stocks imply significantly different mean trading returns across the days of the week. In addition, the F-test and the Kruskal-Wallis test indicate that the mean trading returns of KLSE CI are equal across the days of the week. From the results of the F-test and Kruskal-Wallis test, it appears that the existence of the day-of-the-week effect is not very strong or persistent during this sub-period.

In summary, it appears that there is no strong evidence for the presence of day-of-the-week effect for mean trading returns during this sub-period from 1 August 1997 to 31 August 1998. In addition, most of the stocks, including the KLSE CI, recorded negative mean daily trading returns in most of the days across the week during the period. This finding is in line with the sharp correction of the Malaysian stock market during this period, influenced by the Asian financial crisis.

(d) *Findings for Day-of-the-Week for Sub-Period 3 (1 September 1998 to 30 June 2000)*

The descriptive statistics, namely the mean trading returns, standard deviation and number of observations across the days of the week for all 44 stocks and the KLSE CI for sub-period 3 is presented in *Table 17*. The days with the lowest and highest mean daily trading return are again indicated in "blue" and "yellow" respectively in the table.

Table 17 shows that majority of the stocks have their lowest mean daily trading returns on Monday and the highest mean daily trading returns on Friday, a pattern which is quite similar to that of the whole period. Of the 44 stocks, 29 stocks (or 65.9%) have its lowest mean daily trading returns on Monday. There are also 28 stocks (or 63.6%) having their highest means on Friday. In addition, Friday is the only day that almost all the stocks (41 out of 44 stocks or 93.2%) have positive mean daily trading returns; followed by Thursday (35 stocks or 79.5%). The results in *Table 17* reflect that 81.8% of the stocks have negative mean trading returns on Monday; followed by 45.5% of the stocks each on Tuesday and Wednesday. Results show that 10 out of the 11 stocks in Second Board have positive mean daily trading returns on Friday; and 9 out of 11 stocks have negative mean daily trading returns on Monday.

Table 17 : Descriptive Statistics of Daily Trading Returns (TRs) Across The Day-of-the-Week for Sub-Period 3

	Stock	Monday			Tuesday			Wednesday			Thursday			Friday			All Days			
		Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Skewness	Kurtosis		
Main Board Companies																				
1 AFFIN	-0.0012	0.0467	84	0.0013	0.0519	91	0.0016	0.0334	94	0.0026	0.0327	92	0.0064	0.0342	91	0.0017	0.0403	452	-0.047	33.289
2 AMFIN	0.0044	0.0363	84	0.0035	0.0507	91	0.0018	0.0339	94	0.0024	0.0364	92	0.0086	0.0411	91	0.0024	0.0402	452	-0.064	11.986
3 ASB	-0.0190	0.0774	83	-0.0017	0.0688	91	0.0031	0.0570	94	0.0007	0.0624	92	0.0065	0.0624	91	-0.0031	0.0659	451	1.403	9.994
4 BKATIL	-0.0034	0.0502	84	0.0023	0.0315	92	0.0066	0.0367	94	0.0017	0.0377	92	0.0072	0.0556	90	0.0002	0.0441	452	2.734	17.315
5 BAT	-0.0004	0.0189	84	0.0025	0.0400	90	0.0037	0.0165	94	0.0010	0.0212	92	0.0016	0.0265	91	0.0007	0.0260	451	-4.085	63.627
6 BOLTON	-0.0046	0.0603	84	-0.0033	0.0564	91	0.0043	0.0395	93	0.0016	0.0462	91	0.0114	0.0580	91	-0.0006	0.0527	450	1.085	5.711
7 CMSB	0.0059	0.0424	84	-0.0003	0.0491	92	-0.0022	0.0381	94	-0.0036	0.0314	92	0.0030	0.0450	91	-0.0016	0.0415	453	1.101	8.349
8 COMMERZ	0.0023	0.0363	83	0.0020	0.0486	91	0.0083	0.0339	93	0.0007	0.0319	91	0.0068	0.0324	90	0.0041	0.0371	448	-1.009	16.040
9 CRIMSON	0.0020	0.0666	84	0.0050	0.0620	92	0.0011	0.0593	94	0.0038	0.025	92	0.0100	0.0776	91	0.0003	0.0664	453	1.024	5.588
10 E&O	-0.0271	0.0339	75	0.0043	0.0335	84	0.0054	0.0360	87	0.0033	0.0359	82	0.0073	0.0474	80	0.0032	0.0377	408	1.194	7.110
11 FABER	0.0174	0.0756	84	-0.0005	0.0823	92	0.0010	0.0664	94	0.0089	0.0661	91	-0.0065	0.0659	91	-0.0016	0.0715	452	0.035	10.810
12 GHOPE	0.0088	0.0349	84	-0.0004	0.0428	92	0.0012	0.0301	94	0.0002	0.0302	92	-0.0005	0.0244	91	0.0008	0.0330	453	-0.432	18.041
13 GKENT	-0.0040	0.0559	81	0.0037	0.0653	91	0.0119	0.0551	92	0.0057	0.0489	90	0.0045	0.0439	89	0.0045	0.0543	443	-0.084	8.475
14 GPLUS	0.0000	0.0752	83	0.0019	0.0931	92	0.0067	0.0574	91	-0.0004	0.0567	90	0.0161	0.0719	91	0.0030	0.0724	447	-0.564	15.451
15 HL BANK	0.0086	0.0417	88	0.0015	0.0400	96	0.0025	0.0303	98	0.0017	0.0351	96	0.0004	0.0265	95	0.0017	0.0349	473	-0.064	6.685
16 KIANJOO	0.0110	0.0187	79	0.0022	0.0260	90	0.0005	0.0208	94	0.0031	0.0233	91	0.0045	0.0235	89	0.0019	0.0227	443	0.376	8.412
17 L&G	0.0150	0.0730	84	0.0009	0.0829	92	-0.0048	0.0572	94	0.0013	0.0584	92	0.0015	0.0585	91	-0.0012	0.0667	453	0.619	11.548
18 LITIYAN	-0.0049	0.0586	84	-0.0037	0.0470	92	0.0011	0.0398	94	0.0009	0.0473	92	0.0054	0.0551	91	-0.0021	0.0498	453	1.540	6.405
19 MARUICH	-0.0008	0.0289	78	0.0003	0.0315	83	0.0058	0.0246	93	-0.0005	0.0174	81	0.0006	0.0173	85	0.0012	0.0246	420	-0.438	6.385
20 MUHIBAH	-0.0184	0.0417	82	0.0023	0.0435	92	0.0022	0.0351	92	-0.0028	0.0381	90	0.0046	0.0361	88	-0.0010	0.0019	444	0.585	2.810
21 MUIB	0.0736	0.0549	84	0.0743	0.0597	92	0.0670	0.0398	94	0.0632	0.0363	92	0.0349	0.0349	91	0.0676	0.0462	453	-0.823	14.239
22 OSK	0.0012	0.0372	84	0.0038	0.0352	92	0.0055	0.0335	92	0.0037	0.0368	92	0.0034	0.0275	91	0.0020	0.0343	451	0.714	5.154
23 PPERAK	0.0000	0.0589	83	0.0032	0.0605	90	-0.0043	0.0490	93	0.0051	0.0471	91	0.0084	0.0511	90	-0.0001	0.0536	447	0.200	4.593
24 PACMAS	0.0035	0.0301	84	0.0050	0.0306	92	-0.0010	0.0251	94	-0.0021	0.0255	92	0.0056	0.0290	91	-0.0012	0.0281	453	-0.482	6.428
25 PALMCO	0.0008	0.0409	83	0.0012	0.0505	92	-0.0075	0.0381	93	0.0045	0.0384	92	0.0065	0.0333	91	-0.0004	0.0406	451	0.872	16.696
26 PBANK	-0.0058	0.0282	84	0.0037	0.0385	92	0.0004	0.0252	94	0.0017	0.0228	92	0.0032	0.0256	91	0.0016	0.0285	453	-0.519	13.567
27 PJDEV	-0.0169	0.06009	84	0.0052	0.0590	91	0.0005	0.0532	94	0.0013	0.0445	89	0.0050	0.0456	89	0.0004	0.0509	447	0.286	3.511
28 SUNTECH	-0.0027	0.0459	80	-0.0005	0.0617	88	-0.0041	0.0460	90	0.0093	0.0473	89	0.0041	0.0367	86	0.0002	0.0485	433	0.311	5.268
29 TA	-0.0120	0.0528	84	-0.0013	0.0578	92	-0.0038	0.0481	94	0.0018	0.0411	92	0.0022	0.0439	91	-0.0024	0.0491	453	-0.223	8.893
30 TANJONG	-0.0058	0.0315	84	-0.0017	0.0452	92	0.0041	0.0287	94	0.0008	0.0322	92	0.0077	0.0302	91	0.0016	0.0342	453	-2.027	17.120
31 TENAGA	0.0018	0.0313	84	0.0027	0.0387	92	0.0034	0.0277	94	0.0062	0.0283	92	0.0070	0.0319	91	0.0031	0.0317	453	0.242	24.688
32 UMG	0.0010	0.0672	84	-0.0004	0.0625	91	-0.0045	0.0439	94	0.0001	0.0484	92	0.0046	0.0421	91	-0.0028	0.0532	452	0.225	8.906
33 UMW	0.0037	0.0353	84	0.0016	0.0387	92	0.0086	0.0293	94	0.0056	0.0322	92	0.0129	0.0349	91	0.0065	0.0345	453	0.744	20.610

Note : "Blue" refers to day with lowest mean, while "Yellow" refers to day with highest mean.

Table 17 : Descriptive Statistics of Daily Trading Returns (TRs) Across The Day-of-the-Week for Sub-Period 3

Stock	Monday			Tuesday			Wednesday			Thursday			Friday			All Days		
	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Skewness	Kurtosis	
Second Board Companies																		
1 AYAMAS	0.0007	0.0312	73	0.0153	0.0288	80	0.0153	0.0408	83	-0.0001	0.0382	84	0.0043	0.0316	80	0.0032	0.0347	400
2 DPREP	0.006	0.0862	84	-0.0025	0.0896	92	-0.0034	0.0565	94	0.0086	0.0710	92	-0.0025	0.0623	91	-0.0019	0.0737	453
3 DENKO	-0.0093	0.0873	79	-0.0049	0.0903	88	-0.0063	0.0602	90	0.0039	0.0583	86	0.0004	0.0596	86	-0.0031	0.0721	431
4 FFHB	-0.007	0.0621	70	-0.0023	0.0782	82	-0.0013	0.0492	81	0.0043	0.0475	81	0.0038	0.0552	83	-0.0003	0.0593	397
5 FOURSSN	-0.002	0.0447	75	0.0079	0.0476	80	0.0095	0.0489	81	0.0130	0.0410	82	0.0201	0.0443	84	0.0099	0.0457	402
6 GEAHIN	-0.0091	0.0641	77	-0.0006	0.0617	82	-0.0051	0.0401	81	-0.0028	0.0444	82	0.0010	0.0386	85	-0.0033	0.0506	407
7 HIRO	0.0116	0.0443	71	0.0021	0.0391	80	0.0022	0.0210	78	0.0029	0.0296	79	0.0067	0.0368	75	0.0098	0.0352	383
8 MCSB	-0.0013	0.0794	84	-0.0048	0.0638	92	0.001	0.0453	94	0.0002	0.0573	92	0.0070	0.0490	91	-0.0013	0.0597	453
9 PROMTO	-0.0100	0.0579	84	-0.0039	0.0673	91	-0.0046	0.0483	92	0.0007	0.0523	91	0.0085	0.0550	91	-0.0030	0.0570	449
10 TGL	0.0100	0.0677	80	0.0069	0.0701	90	-0.0065	0.0541	86	-0.0028	0.0659	83	0.0073	0.0579	83	-0.0009	0.0636	422
11 YCS	0.0151	0.1567	14	0.0200	0.1642	17	0.0278	0.0985	17	0.0101	0.0636	17	0.0285	0.0893	17	0.0068	0.1185	82
KLSE CI	0.0011	0.0253	84	-0.0001	0.0356	92	0.0013	0.0191	94	0.0015	0.0184	92	0.0030	0.0201	91	0.0010	0.0245	453
																-1.949	38.575	

Note : "Blue" refers to day with lowest mean, while "Yellow" refers to day with highest mean.

The KLSE CI has the lowest mean returns on Monday and highest mean returns on Friday. It also shows negative mean trading returns on Monday and Tuesday, while the rest of the days are with positive mean returns.

The results of F-tests, Kruskal-Wallis, Levene and multiple comparison tests are summarised in *Table 18*. The F-statistics of one-way ANOVA revealed that only 11.4% of the stocks have unequal mean trading returns across the days of the week. The results of Scheffe and Bonferroni tests on these 5 stocks confirmed that all these stocks have Monday's mean returns which are significantly different from mean returns of Friday. In addition, 2 of these stocks also show mean differences between Monday and Tuesday or Wednesday.

The Levene test shows that only 13.6% of the stocks do not have equal variances across the days of the week. The results of non-parametric test, Kruskal-Wallis test, show that 25% of the stocks do not have equal mean trading returns across the days of the week. The F-test and Kruskal-Wallis test show that the mean trading returns of KLSE CI are equal across the days of the week.

In general, we notice that most of the stocks have their lowest mean trading returns on Monday and the highest means on Friday in this sub-period. Nevertheless, the statistical tests, namely F-test and Kruskal-Wallis test have confirmed that only 11.4% and 25% of the stocks respectively have pairs of days which are significantly different. Generally, there is no strong evidence to confirm

Table 18 : Results of ANOVA (F tests), Kruskal-Wallis, Levene and Multiple Comparison Tests of Daily Trading Returns (TRs) for Sub-Period 3

	Stock	F-Stats.	Sig.	Kruskal Wallis	Sig.	Levene Test	Sig.	Scheffe Test	Bonferroni Test
Main Board Companies									
1	AFFIN	0.552	0.697	6.585	0.160	0.781	0.538		
2	AMFIN	1.250	0.289	5.280	0.260	0.995	0.410		
3	ASB	1.727	0.143	14.380***	0.006	1.326	0.259		
4	BKATIL	1.360	0.247	8.273**	0.082	0.755	0.555		
5	BAT	0.743	0.563	3.415	0.491	0.674	0.610		
6	BOLTON	1.913	0.107	8.727*	0.068	1.030	0.391		
7	CMSB	0.489	0.744	2.938	0.568	1.544	0.189		
8	COMMERZ	0.730	0.572	5.013	0.286	0.968	0.425		
9	CRIMSON	2.740**	0.028	12.915**	0.012	0.219	0.928	1&5*	1&5**
10	E&O	1.246	0.291	6.598	0.159	0.508	0.730		
11	FABER	1.068	0.372	5.353	0.253	0.203	0.937		
12	GHOPE	0.849	0.495	3.500	0.478	0.967	0.425		
13	GKENT	0.937	0.443	5.759	0.218	1.037	0.388		
14	GPLUS	1.592	0.175	7.028	0.134	1.434	0.222		
15	HLBANK	0.186	0.946	4.470	0.346	1.723	0.144		
16	KIANJOO	0.728	0.574	3.247	0.517	0.841	0.500		
17	L&G	1.034	0.389	7.671	0.104	1.423	0.225		
18	LITYAN	1.006	0.404	9.707**	0.046	1.744	0.139		
19	MARUICH	1.077	0.368	4.567	0.335	3.555***	0.007		
20	MUHIBAH	2.795**	0.026	7.580	0.108	1.075	0.368	1&5*	1&5**, 1&2*
21	MUIB	0.806	0.522	4.888	0.299	2.480**	0.043		
22	OSK	1.928	0.105	7.465	0.113	0.954	0.433		
23	PPERAK	1.760	0.136	9.999**	0.040	1.073	0.369		
24	PACMAS	0.935	0.443	8.335*	0.080	0.323	0.863		
25	PALMCO	3.022**	0.018	12.755**	0.013	0.855	0.491		1,3&5*
26	PBBANK	0.397	0.811	5.323	0.256	1.585	0.183		
27	PJDEV	1.438	0.220	4.874	0.300	1.093	0.359		
28	SUNTECH	1.783	0.131	6.790	0.147	1.173	0.322		
29	TA	1.139	0.337	9.861**	0.043	0.315	0.868		
30	TANJONG	1.550	0.187	6.518	0.164	0.147	0.964		
31	TENAGA	0.332	0.857	4.251	0.373	0.209	0.934		
32	UMG	1.347	0.251	9.636**	0.047	2.259*	0.062		
33	UMW	1.505	0.200	9.328*	0.053	0.091	0.985		
Second Board Companies									
1	AYAMAS	1.670	0.156	4.496	0.343	1.000	0.408		
2	DREP	0.194	0.942	1.698	0.791	2.211*	0.067		
3	DENKO	0.460	0.765	6.379	0.173	3.153**	0.014		
4	FFHB	0.478	0.752	3.262	0.515	1.508	0.199		
5	FOURSSN	2.507**	0.042	13.494***	0.009	0.492	0.742	1&5*	1&5**
6	GEAHIN	0.516	0.724	4.199	0.380	3.788***	0.005		
7	HIRO	2.550**	0.039	8.120*	0.087	4.123***	0.003	1&5*	1&5**
8	MCSB	0.801	0.525	10.170**	0.038	2.626**	0.034		
9	PROMTO	2.246*	0.063	11.333**	0.023	1.542	0.189	1&5*	1&5**
10	TGL	1.279	0.278	8.009*	0.091	1.020	0.397		
11	YCS	0.685	0.605	4.594	0.332	2.364*	0.060		
	KLSE(Cl)	0.353	0.842	4.761	0.313	1.184	0.317		

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

the persistent presence of day-of-the-week effect of stocks' trading returns in Malaysia during this sub-period.

4.3 Analysis of Day-of-the-Week Effect on Volatility Using Different Statistical Methodologies

The results of F-test and Kruskal-Wallis test on the estimated daily standard deviation (derived using the Parkinson extreme value method) and the results of the Levene test on equality in variances of trading returns can be compared to facilitate analysis of the two methodologies in testing the presence of seasonal variation in stock volatility across the week. This comparison for the whole period and the 3 sub-periods is presented in *Table 19*.

From *Table 19*, Levene test identifies 5 stocks with unequal mean volatility across the days of the week for whole period while the F-test and Kruskal-Wallis test indicate 1 stock and 2 stocks respectively for unequal mean volatility across the days of the week. Of the total 3 stocks identified by the F-test and Kruskal-Wallis tests, namely GEAHIN, BAT and PJDEV, GEAHIN is also one of the stocks indicated by Levene test for unequal variances across the days of the week.

For sub-period 1, Levene test identifies 1 stock (BAT) with significant unequal mean volatility and F-test has also indicated the same stock as having unequal mean volatility across the days of the week. The Kruskal-Wallis test indicates 1

Table 19 : Comparison of Results of ANOVA (F tests) and Kruskal-Wallis with Levene Tests on Seasonality of Volatility

Stock	Whole Period			Sub-Period 1			Sub-Period 2			Sub-Period 3		
	Est. SDs		Returns									
	F-Test	Kruskal-Wallis	Levene Test									
Main Board Companies												
1 AFFIN	0.309	0.409	1.439	1.271	1.908	0.607	0.625	1.727	1.747	0.565	4.489	0.781
2 AMFIN	0.548	2.601	0.725	1.711	4.497	2.055*	0.239	1.078	0.387	1.106	4.330	0.995
3 ASB	0.515	3.619	1.790	0.524	1.451	1.529	0.149	1.874	0.908	0.870	6.751	1.326
4 BKATIL	0.055	0.312	0.342	0.358	4.073	0.559	0.243	2.482	0.112	0.259	0.915	0.755
5 BAT	0.955	10.292**	2.120*	2.779**	9.341*	3.939**	0.587	2.621	2.563**	0.041	1.283	0.674
6 BOLTON	0.744	0.772	0.868	0.189	2.666	0.341	1.363	1.180	0.927	0.602	1.099	1.030
7 CMSB	0.822	3.199	1.534	0.961	2.369	0.598	0.439	3.110	0.738	1.475	4.361	1.544
8 COMMERZ	0.418	1.932	1.216	0.663	3.795	0.664	0.343	2.905	1.188	0.440	2.102	0.968
9 CRIMSON	0.210	1.429	0.116	0.271	0.869	0.922	0.377	2.252	0.341	0.236	4.008	0.219
10 E&O	1.168	2.844	1.188	1.063	1.559	2.215*	0.679	2.670	1.308	0.875	2.054	0.508
11 FABER	0.182	1.359	0.387	1.067	2.299	1.288	0.247	2.803	0.062	0.142	2.822	0.203
12 GHOPE	0.407	3.223	0.257	1.756	5.339	0.844	1.733	4.200	1.008	0.795	4.034	0.967
13 GKENT	0.621	1.034	1.092	0.228	0.963	0.153	0.573	3.068	0.913	0.447	2.120	1.037
14 GPLUS	0.825	4.466	0.638	0.995	3.011	0.901	0.761	5.358	0.524	1.252	7.347	1.434
15 HLBANK	0.224	2.286	1.699	0.264	1.683	0.392	0.192	0.705	0.276	0.772	5.200	1.723
16 KIANJOO	0.183	5.308	0.562	0.787	3.891	0.910	0.108	1.241	0.112	0.305	1.693	0.841
17 L&G	0.521	2.027	1.240	0.560	3.397	1.883	0.145	1.160	0.946	1.403	5.406	1.423
18 LITYAN	0.383	3.177	1.719	1.317	0.934	2.333*	0.374	0.981	0.384	0.751	4.676	1.744
19 MARUICH	0.460	1.502	0.446	0.731	0.735	1.414	0.594	2.876	1.312	2.186	8.178*	3.555***
20 MUHIBAH	0.632	1.149	0.520	1.255	0.533	1.831	1.322	1.864	2.361*	1.561	6.477	1.075
21 MUIB	0.327	1.508	2.398**	0.853	1.540	0.698	0.498	1.955	0.576	1.639	4.859	2.480**
22 OSK	0.616	3.233	2.396**	1.555	3.015	2.077	0.696	1.449	1.661	1.267	4.489	0.954
23 PPERAK	0.374	1.384	0.959	0.367	2.652	1.166	0.688	3.325	1.123	0.935	5.039	1.073
24 PACMAS	0.441	4.329	0.597	1.727	8.200*	1.565	0.136	0.844	0.021	0.556	3.910	0.323
25 PALMCO	0.943	5.427	0.851	1.248	3.963	0.701	0.844	4.115	0.322	0.731	5.253	0.855
26 PBBANK	0.364	1.525	0.376	0.884	7.749	1.545	0.843	4.896	0.815	0.836	2.609	1.566
27 PJDEV	1.562	11.250**	1.318	2.280*	15.265***	1.601	0.299	0.729	1.515	1.438	4.874	1.093
28 SUNTECH	0.039	0.518	0.157	0.247	1.157	0.306	0.464	4.971	1.205	0.495	1.230	1.173
29 TA	0.112	0.931	0.688	0.420	0.700	0.681	0.232	1.716	1.057	0.496	2.008	0.315
30 TANJONG	0.135	2.296	0.026	0.433	3.093	0.354	0.211	0.687	0.538	0.282	2.578	0.147
31 TENAGA	0.110	1.449	0.397	0.571	1.248	1.426	0.232	1.447	1.352	0.059	0.275	0.209
32 UMG	0.283	1.415	2.041*	0.044	0.708	0.444	0.144	0.110	1.252	1.352	6.152	2.259*
33 UMW	0.462	1.436	0.240	0.505	1.680	0.063	0.746	2.138	0.597	0.333	1.207	0.091
Second Board Companies												
1 AYAMAS	0.713	1.669	1.156	0.756	1.568	0.669	0.414	2.383	0.414	0.162	0.806	1.000
2 DPREP	0.665	4.543	3.047**	1.589	5.399	2.230*	0.125	2.640	0.446	1.012	3.735	2.211*
3 DENKO	1.142	0.214	3.409***	0.661	0.520	1.599	0.041	1.183	0.297	2.340*	10.129**	3.153**
4 FFHB	1.467	5.008	1.173	0.379	1.846	0.531	0.738	0.522	0.416	1.757	5.024	1.508
5 FOURSSN	0.727	2.189	0.599	0.230	1.173	0.705	1.020	4.549	0.549	0.157	2.607	0.492
6 GEAHIN	2.545*	7.956*	3.997***	0.407	2.408	0.656	0.362	0.571	1.137	3.486***	11.051**	3.788***
7 HIRO	0.846	3.209	1.223	0.668	2.440	0.660	0.213	3.086	0.139	4.098***	8.124*	4.123***
8 MCSB	0.732	3.278	1.776	0.703	1.016	1.805	0.127	1.352	0.205	2.056*	5.035	2.626**
9 PROMTO	0.818	5.778	0.875	1.025	4.288	1.321	0.094	0.670	0.146	1.662	6.668	1.542
10 TGL	0.729	0.210	0.938	0.763	3.080	1.278	1.136	3.773	0.428	0.454	1.004	1.020
11 YCS	0.187	2.377	0.688	1.464	5.743	1.968*	0.619	1.128	0.430	1.217	4.38	2.364*
KLSE CI	0.569	4.052	1.073	0.287	5.576	0.920	0.739	2.725	0.546	0.863	5.949	1.184

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

stock (PJDEV) with significant unequal mean volatility for the same sub-period. The F-test and Kruskal-Wallis test do not indicate any stock with significant unequal mean daily volatility although Levene test indicated one stock (BAT) with unequal means for sub-period 2. In sub-period 3, the results of the F-test and Kruskal-Wallis test show that 2 of the Second Board stocks do not have equal mean volatility across the days of the week. Nevertheless, Levene test identified 6 stocks (2 from the Main Board and 4 from the Second Board) with unequal mean volatility across the days of the week. The stocks which are commonly identified by the F-test and/or Kruskal-Wallis test and the Levene test for having unequal mean volatility across the days of the week in this sub-period are DENKO, GEAHIN and HIRO.

Based on the above results, we may conclude that the test for seasonal variation in stock volatility using Parkinson extreme value method does provide reasonably consistent results with analysis using the Levene test on the trading returns. As the numbers of stocks identified by the Parkinson's method using the F-tests and the Kruskal-Wallis test are consistently lesser than the Levene test, it appears that the Parkinson extreme value method is less sensitive in identifying the stocks which have significant unequal mean volatility across the days of the week.

4.4 Empirical Finding on Relationship between Stock Volatility and Trading Return

The findings from the highest and lowest mean daily SDs (as per *Tables 2, 4, 6 and 8*) as well the mean trading returns (as per *Tables 11, 13, 15 and 17*) are used to analyse the relationship between risk (or volatility) and trading return of stocks.

Table 2, which shows generally a higher risk on Monday and Tuesday and a significantly low risk on Friday, is compared with *Table 11*, which shows generally low mean daily trading returns on Monday and high mean returns on Friday, for the whole period. From the comparison, it implies that the higher risk on Monday provided a lower return on Monday; while a lower risk on Friday gives investors in fact a higher return on the day. This is not in line with the general investment principle of higher risk with higher return.

In sub-period 1, the days with most numbers of the highest risk are Monday and Thursday while Tuesday and Friday are the days with most numbers of lowest risk (as per *Table 4*). Nevertheless, Monday remained the day with most numbers of lowest returns while Wednesday and Friday are two days with most numbers of highest returns in this sub-period (refer *Table 13*). This finding is moderately consistent with the finding for the whole period i.e. higher risk on Monday although the mean returns are low and lower risk on Friday although the mean returns are high. The risk-return relationship in sub-period 2 cannot be

clearly established and does not exhibit the same pattern as for the whole period and sub-period 1. The results of the sub-period 3 do provide consistent findings with that of whole period and sub-period 1 i.e. high risk with low returns and low risk with high returns.

Generally, we can conclude that the mean daily trading returns of stocks in Malaysia are not consistent with the risk involved. In most of the stocks under study, it shows that the low daily risk on Friday are not accompanied by lower returns, but instead, rewarded with a higher mean trading returns on the same day.

4.5 Empirical Findings on Causal Relationship between Daily Volatility, Trading Returns and Trading Volume

4.5.1 *Findings from Stationarity Tests*

The results of the stationarity test using ADF test for daily SDs, trading returns and trading volume series are presented in *Tables 20, 21 and 22* respectively. The results are obtained with 5 lags of change of daily SDs, trading returns and trading volume separately in the equation to ensure that the residuals are not autocorrelated.

Based on the critical value of -3.4385 , -2.8643 and -2.5683 at 1%, 5% and 10% significance level respectively, the null hypothesis of presence of a unit root for

Table 20 : Results of Unit Root Test (ADF Test) on Daily Volatility (SDs) for Whole Period

ADF Test Statistics						
Stock	Lag 1	Lag 2	Lag 3	Lag 4	Lag 5	
Main Board Companies						
1 AFFIN	-12.47140	-9.73864	-8.93690	-8.29754	-7.11628	
2 AMFIN	-11.22082	-9.83063	-8.24374	-7.17674	-5.97452	
3 ASB	-10.84675	-8.84218	-7.69270	-6.95908	-6.43050	
4 BKATIL	-13.13866	-10.77785	-10.00160	-9.07680	-8.19311	
5 BAT	-14.46354	-11.48665	-9.56560	-8.51952	-7.78995	
6 BOLTON	-13.98823	-11.46123	-10.59353	-9.15604	-7.89241	
7 CMSB	-12.97383	-11.33119	-9.39011	-8.37419	-7.15243	
8 COMMERZ	-10.94321	-8.91703	-8.37153	-7.86947	-7.36512	
9 CRIMSON	-13.10518	-10.70665	-9.31258	-8.94808	-8.03945	
10 E&O	-15.35786	-12.42685	-11.18204	-9.88215	-8.84679	
11 FABER	-12.38117	-9.98173	-8.85995	-8.05610	-7.31977	
12 GHOPE	-15.54946	-12.51288	-10.60142	-9.11155	-8.56525	
13 GKENT	-13.75143	-11.01146	-9.81686	-8.83553	-7.85069	
14 GPLUS	-15.23803	-12.20337	-11.02101	-8.47561	-8.21867	
15 HLBANK	-13.07079	-10.03376	-8.86123	-8.40379	-7.80211	
16 KIANJOO	-16.12139	-12.17166	-10.61595	-9.19785	-8.69974	
17 L&G	-12.40225	-10.95550	-9.03435	-8.03496	-7.25971	
18 LITYAN	-13.88599	-11.80685	-10.01934	-9.30148	-8.41494	
19 MARUICH	-14.30270	-11.07815	-9.34193	-8.39375	-6.65350	
20 MUHIBAH	-14.98568	-12.33181	-10.86522	-9.68491	-8.58984	
21 MUIB	-12.17854	-9.87384	-8.72048	-7.68029	-6.71112	
22 OSK	-13.25294	-11.21112	-9.49562	-8.52101	-7.67126	
23 PPERAK	-12.59487	-10.57613	-9.74825	-8.28135	-7.35771	
24 PACMAS	-13.35342	-11.94869	-10.31364	-9.43102	-9.18356	
25 PALMCO	-15.12463	-12.37260	-9.51195	-8.95467	-8.27324	
26 PBBANK	-13.04484	-11.14895	-9.18764	-8.43746	-7.70273	
27 PJDEV	-13.29355	-11.95039	-9.78667	-8.43199	-7.82506	
28 SUNTECH	-13.55646	-10.88720	-9.05172	-8.07238	-7.76872	
29 TA	-11.58660	-9.93868	-9.02704	-7.71352	-6.87045	
30 TANJONG	-14.81023	-11.25345	-9.52656	-8.11256	-7.96495	
31 TENAGA	-10.41305	-8.93895	-8.00480	7.360879	-6.88780	
32 UMG	-11.22163	-9.86291	-8.63284	-7.56244	-6.92890	
33 UMW	-13.19136	-11.26942	-10.22558	-9.50359	-8.29739	
Second Board Companies						
1 AYAMAS	-14.60281	-12.34786	-11.21825	-10.62303	-10.08676	
2 DPREP	-13.22673	-11.62081	-10.40692	-9.47537	-8.49788	
3 DENKO	-14.07077	-12.40389	-10.57049	-9.45731	-8.37202	
4 FFHB	-15.61716	-12.94656	-11.16868	-9.95615	-9.09986	
5 FOURSSN	-15.52719	-12.36166	-10.15225	-9.64372	-8.67573	
6 GEAHIN	-16.86923	-13.10100	-11.85484	-9.91035	-9.13113	
7 HIRO	-13.33326	-10.69139	-8.944267	-8.06554	-7.19417	
8 MCSB	-13.81683	-11.29162	-9.84558	-8.96836	-8.62571	
9 PROMTO	-13.67724	-11.24431	-9.33734	-8.31139	-7.58846	
10 TGL	-14.46046	-12.41944	-11.77093	-10.52596	-9.26807	
11 YCS	-10.20504	-8.52701	-7.49065	-6.85637	-6.03721	
KLSE CI	-10.25275	-8.91004	-7.74800	-7.19201	-7.33869	

Note : All are significant at 1% level of significant

Table 21 : Results of Unit Root Test (ADF Test) on Daily Trading Returns (TRs) for Whole Period

		ADF Statistics				
	Stock	Lag 1	Lag 2	Lag 3	Lag 4	Lag 5
Main Board Companies						
1	AFFIN	-22.65191	-20.19528	-17.42574	-15.49809	-15.68321
2	AMFIN	-23.79078	-19.00101	-16.73494	-15.53166	-15.85518
3	ASB	-23.80516	-23.80516	-18.57840	-17.44036	-15.44659
4	BKATIL	-21.15601	-17.58465	15.75412	-13.44048	-12.47853
5	BAT	-27.50681	-24.64726	-21.37238	-17.81570	-15.27436
6	BOLTON	-25.79941	-21.64210	-18.41980	-15.00388	-14.36456
7	CMSB	-22.72605	-18.84444	-16.78704	-15.42736	-15.22107
8	COMMERZ	-5.91264	-3.392919**	-4.33363	-3.63832	-2.666084*
9	CRIMSON	-24.81027	-20.49794	-18.33142	-15.52106	-15.74950
10	E&O	-22.24680	-17.17734	-14.66586	-13.02518	-12.17830
11	FABER	-23.45124	-20.20144	-18.15798	-14.50146	-14.00891
12	GHOPE	-25.28571	21.89733	-19.68922	-15.47822	-13.78500
13	GKENT	-24.95384	19.88890	-17.40098	-14.78086	-13.79817
14	GPLUS	-25.71607	-20.56777	-18.10740	-15.03109	-14.68427
15	HLBANK	-22.31478	-18.75995	-17.88561	-15.04562	-14.71475
16	KIANJOO	-26.65890	-22.73809	-19.61626	-15.95281	-14.26250
17	L&G	-25.77893	-20.23180	-18.42851	-15.97523	-15.50637
18	LITYAN	-26.38278	-20.43677	-18.04490	-15.71674	-14.54434
19	MARUCHI	-22.61075	-19.30389	-15.37057	-14.41539	-12.92209
20	MUHIBAH	-25.28808	-20.76322	-18.42248	-15.64327	-15.27397
21	MUIB	-26.19665	-20.51746	-18.77264	-15.74436	-14.95459
22	OSK	-22.19164	-18.52427	-16.09444	-13.26207	-12.72410
23	PPERAK	-25.28218	-20.30395	-17.94116	-14.88500	-14.50805
24	PACMAS	-24.50449	-20.29175	-19.51851	-16.24086	-15.30806
25	PALMCO	-25.41344	-20.32708	-17.43486	-15.05002	-14.89420
26	PBBANK	-23.45431	-18.33586	-17.52665	-16.31888	-15.60883
27	PJDEV	-25.49843	-20.44071	-17.18711	-14.34186	-13.82433
28	SUNTECH	-25.70576	-20.04474	-18.30965	-16.16025	-15.31302
29	TA	-26.48097	-19.35651	-17.56316	-15.09197	-15.44042
30	TANJONG	-24.85864	-21.47378	-19.61410	-15.19663	-14.44663
31	TENAGA	-24.55625	-20.50754	-19.25079	-16.09431	-14.25762
32	UMG	-24.46395	-19.49139	-17.05576	-14.18880	-13.67617
33	UMW	-22.48687	-18.48289	-16.45318	-14.59990	-12.44871
Second Board Companies						
1	AYAMAS	-23.32304	-18.93344	-16.40496	-14.22128	-13.36240
2	DPREP	-24.45068	-20.72159	-17.54890	-15.20784	-14.71820
3	DENKO	-26.60202	-20.94337	-17.27879	-16.29342	-15.01815
4	FFHB	-24.65684	-20.24583	-16.21614	-14.38114	-13.18195
5	FOURSSN	-23.31134	-18.52767	-14.59084	-12.83265	-12.22119
6	GEAHIN	-23.91442	-20.37804	-16.91545	-15.57736	-14.88848
7	HIRO	-23.96123	-18.64713	-15.48175	-14.50444	-13.39473
8	MCSB	-24.13987	-19.84740	-16.47959	-14.22121	-13.59556
9	PROMTO	-25.67389	-21.55573	-18.73227	-16.30724	-15.22990
10	TGL	-23.51662	-18.83268	-16.00793	-13.73719	-13.12103
11	YCS	-20.91149	-16.83017	14.07183	-12.75518	-11.72215
	KLSE(Cl)	-24.28152	-20.65781	-20.09242	-15.64821	-15.04011

Note : All are significant at 1% significance level, except for COMMERZ.

** and * represent 5% and 10% significance level respectively.

Table 22 : Results of Unit Root Test (ADF Test) on LN Daily Trading Volume for Whole Period

Stock	ADF Statistics				
	Lag 1	Lag 2	Lag 3	Lag 4	Lag 5
Main Board Companies					
1 AFFIN	-12.28485	-9.79732	-8.87077	-7.99659	-6.95768
2 AMFIN	-8.61117	-7.45036	-6.31758	-5.22298	-4.07167
3 ASB	-7.94355	-6.67771	-5.77783	-5.26770	-4.73465
4 BKATIL	-9.06800	-7.13269	-5.73501	-4.63351	-4.44724
5 BAT	-16.06974	-13.16018	-10.78778	-9.41271	-7.95014
6 BOLTON	-9.99907	-8.50082	-7.16715	-6.29512	-5.34720
7 CMSB	-11.66192	-9.26581	-7.56951	-6.63340	-6.15796
8 COMMERZ	-9.17163	-7.34295	-6.12458	-5.50938	-4.70055
9 CRIMSON	-7.65896	-6.25323	-5.51353	-4.84522	-4.20828
10 E&O	-9.68241	-7.75294	-6.69260	-5.75889	-5.22727
11 FABER	-8.06683	-6.67018	-5.85270	-4.95891	-4.60592
12 GHOPE	-14.28267	-11.30630	-10.15347	-8.59971	-7.88941
13 GKENT	-10.08019	-8.06786	-6.64605	-6.10305	-5.46743
14 GPLUS	-8.03849	-6.72382	-5.45129	-4.66999	-4.24935
15 HL BANK	-12.21895	-10.15735	-9.29770	-8.48145	-7.75265
16 KIANJOO	-15.48611	-12.37657	-11.14968	-9.77777	-8.76862
17 L&G	-11.04384	-8.92553	-7.71348	-6.74186	-5.94095
18 LITYAN	-8.49454	-7.05052	-6.00640	-5.50756	-5.07656
19 MARUICH	-12.09069	-9.77264	-7.78955	-6.92653	-6.04707
20 MUHIBAH	-9.04937	-6.96814	-5.67757	-4.46358	-4.04120
21 MUIB	-8.43652	-6.74957	-5.78043	-4.90400	-4.23028
22 OSK	-8.73592	-7.32098	-6.66689	-5.96011	-5.30649
23 PPERAK	-8.72498	-7.32886	-5.92951	-4.86952	-4.23995
24 PACMAS	-7.80710	-6.82824	-6.21144	-5.09596	-4.45267
25 PALMCO	-10.23252	-8.17407	-7.21230	-6.15886	-5.77050
26 PBBANK	-10.76159	-8.81912	-7.80624	-6.86049	-6.09262
27 PJDEV	-9.00917	-7.52695	-6.32187	-5.85002	-5.36106
28 SUNTECH	-10.41982	-8.63357	-6.82729	-5.94643	-5.49262
29 TA	-9.29077	-7.93328	-7.02313	-6.14873	-5.38973
30 TANJONG	-15.50437	-13.04341	-11.11397	-9.75553	-8.66721
31 TENAGA	-12.03893	-9.52121	-8.85248	-7.41039	-6.86369
32 UMG	-8.81347	-7.65899	-6.48309	-5.87305	-5.83996
33 UMW	-14.44630	-12.32060	-11.28458	-10.12365	-9.01455
Second Board Companies					
1 AYAMAS	-8.16586	-6.33611	-5.29384	-4.60571	-4.60571
2 DPREP	-7.30340	-5.67871	-4.90469	-4.51194	-3.74995
3 DENKO	-8.73636	-6.93695	-5.78708	-4.82520	-4.11926
4 FFHB	-8.46252	-6.42545	-5.32145	-4.54950	-4.03279
5 FOURSSN	-6.94825	-5.26786	-4.64708	-4.08880	-3.48492
6 GEAHIN	-6.90016	-5.55144	-4.53190	-3.80283	-3.115153**
7 HIRO	-7.39018	-5.97778	-5.32834	-4.47338	-4.11098
8 MCSB	-7.53580	-6.21267	-5.38293	-5.16457	-4.43936
9 PROMTO	-7.49338	-6.02526	-4.99397	-4.43838	-4.37234
10 TGL	-7.65332	-6.20134	-5.16639	-4.59708	-4.28254
11 YCS	-5.65428	-4.42311	-4.16708	-3.77748	-3.51527

Note : All are significant at 1% significance level, except for GEAHIN.

** and * represent 5% and 10% significant respectively.

all series was rejected at 5% significance level. Thus, we can conclude that the daily SDs, trading returns and trading volume series are all stationary at all lags.

4.5.2 Findings on Causal Relationship between Daily Volatility and Trading Returns

The relationship between the daily SDs and trading return are examined after the stationarity of the two series for each stock is established. In this study, the Vector Autoregressive (VAR) models of the two variables i.e. SDs and trading returns, for 5 lags are constructed. The model which has the lowest Bayesian Schwarz Criterion (SIC) are used to study the causal relationship between the two variables.

Table 23 and *Table 24* present the Akaike Information Criterion (AIC) and SIC of the VAR models of daily SDs and trading returns as well as daily SDs and trading volume respectively using lag 1 to lag 5. The lag with the lowest SIC is highlighted and identified as the appropriate model to study the relationship between the two variables.

Table 25 presents the VAR models on daily SDs with optimal lag length (i.e. lowest SIC) for each stock and the KLSE CI. A significant t-statistic of the lag variables implies that the daily SDs could be explained by its own lag variables or the lag variables of the other variable i.e daily trading returns.

Table 23 : AIC and SIC Statistics of VAR Models on Daily Volatility and Trading Returns

Main Board Companies	Stock	AIC and SIC at Lag 1 to 5									
		Lag 1		Lag 2		Lag 3		Lag 4		Lag 5	
		AIC	SIC	AIC	SIC	AIC	SIC	AIC	SIC	AIC	SIC
1 AFFIN	-7.834247	-7.809346	-7.854929	-7.813400	-7.889461	-7.831282	-7.889027	-7.814177	-7.883695	-7.792152	
2 AMFIN	-7.721132	-7.696231	-7.766369	-7.724840	-7.768794	-7.710615	-7.782256	-7.707405	-7.790103	-7.698559	
3 ASB	-6.835154	-6.810188	-6.877382	-6.835745	-6.928290	-6.858959	-6.925841	-6.850794	-6.926257	-6.834473	
4 BKATIL	-7.413013	-7.387511	-7.449469	-7.406938	-7.463557	-7.403974	-7.465857	-7.389198	-7.472229	-7.378472	
5 BAT	-9.606425	-9.581524	-9.652988	-9.611459	-9.699207	-9.641028	-9.722647	-9.647796	-9.745669	-9.654125	
6 BOLTON	-6.888909	-6.863943	-6.939815	-6.898177	-6.950035	-6.891704	-6.951892	-6.876845	-6.973335	-6.881551	
7 CMSB	-8.122983	-8.098098	-8.176884	-8.135382	-8.177275	-8.119134	-8.188529	-8.113728	-8.187047	-8.095564	
8 COMMERZ	-9.807099	-9.750296	-9.911404	-9.775581	-10.18539	-9.920763	-10.85533	-10.41088	-10.97376	-10.28348	
9 CRIMSON	-6.603913	-6.578995	-6.652976	-6.611420	-6.682511	-6.624294	-6.687212	-6.612313	-6.684852	-6.593248	
10 E&O	-7.478109	-7.452242	-7.518089	-7.474948	-7.532038	-7.471599	-7.527607	-7.449847	-7.534711	-7.439607	
11 FABER	-6.443593	-6.418676	-6.510630	-6.469074	-6.543162	-6.484846	-6.548076	-6.473177	-6.563407	-6.471803	
12 GHOPE	-8.873063	-8.848194	-8.886005	-8.844530	-8.898844	-8.840741	-8.909130	-8.834377	-8.929554	-8.838130	
13 GKENT	-6.984796	-6.959581	-7.037543	-6.995492	-7.059631	-7.00720	-7.058064	-6.982271	-7.063194	-6.970496	
14 GPLUS	-6.283025	-6.258043	-6.311366	-6.269701	-6.326223	-6.267853	-6.325856	-6.250761	-6.408780	-6.316936	
15 HL BANK	-8.532612	-8.507727	-8.580735	-8.539233	-8.617509	-8.559368	-8.630938	-8.556137	-8.628443	-8.536960	
16 KIANJOO	-9.129882	-9.104817	-9.166191	-9.124388	-9.196331	-9.137669	-9.199451	-9.124108	-9.214862	-9.122715	
17 L&G	-6.790410	-6.765541	-6.817519	-6.776044	-6.819863	-6.761760	-6.842702	-6.767949	-6.846310	-6.754886	
18 LI TIAN YAN	-7.248039	-7.222841	-7.261128	-7.219105	-7.272788	-7.213916	-7.279357	-7.203614	-7.273183	-7.180547	
19 MARUICH	-9.020523	-8.994478	-9.090530	-9.047092	-9.114090	-9.053235	-9.129550	-9.051255	-9.127777	-9.032017	
20 MUHIBAH	-7.461000	-7.435098	-7.496513	-7.453314	-7.501564	-7.441043	-7.501351	-7.423486	-7.498748	-7.403513	
21 MUIB	-7.355417	-7.330515	-7.396972	-7.355443	-7.422174	-7.363895	-7.428879	-7.354028	-7.433369	-7.341825	
22 OSK	-8.612218	-8.587318	-8.663889	-8.622358	-8.669684	-8.611615	-8.676861	-8.602011	-8.683473	-8.591930	
23 PPERAK	-7.495036	-7.470069	-7.544278	-7.502640	-7.558699	-7.500368	-7.554091	-7.479044	-7.585468	-7.493684	
24 PACMAS	-8.381055	-8.356186	-8.437189	-8.395714	-8.444681	-8.386578	-8.465093	-8.390340	-8.468336	-8.376912	
25 PALMCO	-7.556087	-7.531071	-7.590445	-7.548725	-7.596293	-7.531847	-7.656318	-7.581123	-7.650704	-7.558739	
26 PBBANK	-8.876385	-8.851516	-8.920882	-8.879407	-8.934404	-8.876301	-8.962170	-8.887417	-8.961509	-8.870085	
27 PJDEV	-7.16383	-7.138831	-7.220181	-7.178488	-7.23308	-7.174672	-7.250124	-7.174978	-7.26173	-7.16825	
28 SUNTECH	-7.113797	-7.087931	-7.162841	-7.119700	-7.178878	-7.118440	-7.195341	-7.117581	-7.196181	-7.101076	
29 TA	-7.600449	-7.575580	-7.646738	-7.605263	-7.663446	-7.605343	-7.668353	-7.593601	-7.682822	-7.591399	
30 TANJONG	-8.788821	-8.763920	-8.816703	-8.775174	-8.852123	-8.789394	-8.884045	-8.809195	-8.910393	-8.818850	
31 TENAGA	-9.018321	-8.993436	-9.086904	-9.045402	-9.100276	-9.042135	-9.113715	-9.038914	-9.113908	-9.022424	
32 UMG	-7.518670	-7.493720	-7.561653	-7.520043	-7.570732	-7.512439	-7.576596	-7.501599	-7.585529	-7.493805	
33 UMW	-8.064560	-8.039675	-8.104207	-8.062705	-8.114174	-8.056033	-8.12801	-8.037999	-8.110693	-8.019209	

Note : Highlighted box refers to last with lowest SIC.

Table 23 : AIC and SIC Statistics of VAR Models on Daily Volatility and Trading Returns

Stock	Lag 1			Lag 2			Lag 3			Lag 4			Lag 5		
	AIC	SIC	AIC	SIC	AIC	SIC	AIC								
Second Board Companies															
1 AYAMAS	-7.951904	-7.925643	-7.986369	-7.942569	-7.987322	-7.925959	-7.980889	-7.901939	-7.985412	-7.888851					
2 DPREP	-5.974242	-5.949227	-6.029784	-5.988062	-6.033872	-5.975426	-6.029643	-5.954448	-6.029621	-5.937655					
3 DENKO	-5.775942	-5.750526	-5.788198	-5.745809	-5.785973	-5.726589	-5.789538	-5.713136	-5.795230	-5.701787					
4 FFHB	-6.369989	-6.343963	-6.395386	-6.351978	-6.397007	-6.402044	-6.323803	-6.323803	-6.408071	-6.312376					
5 FOURSSN	-6.773711	-6.747826	-6.793571	-6.750401	-6.817411	-6.756932	-6.839602	-6.761789	-6.840847	-6.745678					
6 GEAHIN	-6.799445	-6.773419	-6.807880	-6.764472	-6.6829065	-6.6829252	-6.823919	-6.745677	-6.839330	-6.743635					
7 HIRO	-7.822668	-7.795941	-7.809395	-7.872130	-7.809679	-7.883470	-7.803118	-7.887900	-7.789623						
8 MCSB	-6.349483	-6.324615	-6.369030	-6.327555	-6.387410	-6.329308	-6.390189	-6.315437	-6.389354	-6.297930					
9 PROMTO	-6.763157	-6.738075	-6.804150	-6.762320	-6.818210	-6.759509	-6.830214	-6.754821	-6.834647	-6.742439					
10 TGL	-6.127536	-6.101775	-6.167009	-6.124044	-6.168253	-6.108062	-6.161044	-6.083602	-6.158148	-6.063433					
11 YCS	-5.175076	-5.141139	-5.201374	-5.144758	-5.209823	-5.130486	-5.206511	-5.104410	-5.236693	-5.111784					
KLSE CI	-10.814520	-10.789650	-10.868100	-10.826620	-10.879200	-10.821100	-10.912570	-10.837810	-10.942300	-10.850870					

Note : *Highlighted box refers to lag with lowest SIC.*

Table 24 : AIC and SIC Statistics of VAR Models on Daily Volatility and Trading Volume

Main Board Companies	Stock	AIC and SIC at Lag 1 to 5									
		Lag 1		Lag 2		Lag 3		Lag 4		Lag 5	
		AIC	SIC	AIC	SIC	AIC	SIC	AIC	SIC	AIC	SIC
1 AFFIN	-1.764884	-1.739983	-1.834352	-1.792823	-1.894061	-1.8835883	-1.896181	-1.821330	-1.897852	-1.806308	
2 AMFIN	-1.446369	-1.420730	-1.545528	-1.502239	-1.566863	-1.505344	-1.599937	-1.520265	-1.615776	-1.517359	
3 ASB	-1.880208	-1.854534	-1.961395	-1.918547	-2.014581	-1.954513	-2.033816	-1.956480	-2.043443	-1.948792	
4 BKATIL	-1.014545	-0.984933	-1.137721	-1.086771	-1.197336	-1.124173	-1.214798	-1.119004	-1.237743	-1.118779	
5 BAT	-2.340815	-2.315816	-2.395597	-2.353822	-2.415563	-2.356924	-2.445897	-2.370324	-2.449226	-2.356713	
6 BOLTON	-0.618643	-0.593107	-0.695911	-0.653034	-0.734460	-0.673880	-0.745015	-0.666665	-0.764385	-0.667891	
7 CMSB	-1.553094	-1.527779	-1.657102	-1.614599	-1.689330	-1.629383	-1.752631	-1.674978	-1.754655	-1.659027	
8 COMMERZ	-1.849096	-1.8223982	-1.967190	-1.925305	-2.024472	-1.965794	-2.044041	-1.968549	-2.046260	-1.953930	
9 CRIMSON	-1.063312	-1.038357	-1.155972	-1.114197	-1.209242	-1.150642	-1.228751	-1.153259	-1.232973	-1.140521	
10 E&O	-0.678045	-0.651910	-0.811860	-0.768061	-0.863200	-0.801351	-0.862048	-0.782378	-0.875516	-0.777656	
11 FABER	-0.981644	-0.955853	-1.160601	-1.117724	-1.213336	-1.153227	-1.235650	-1.158461	-1.252093	-1.157378	
12 GHOPÉ	-2.324650	-2.299781	-2.370145	-2.328670	-2.402942	-2.344840	-2.409149	-2.334396	-2.427664	-2.336240	
13 GKENT	-0.547075	-0.521013	-0.647476	-0.603524	-0.692897	-0.630755	-0.725538	-0.644899	-0.736547	-0.637279	
14 GPLUS	-0.758082	-0.733099	-0.892626	-0.850961	-0.931039	-0.872669	-0.966972	-0.891876	-1.036272	-0.947428	
15 HLBANK	-2.085202	-2.060317	-2.159752	-2.118250	-2.217500	-2.158359	-2.22933	-2.148132	-2.193800	-2.127896	
16 KIANJOO	-1.4468867	-1.421669	-1.486332	-1.444225	-1.528155	-1.469048	-1.526089	-1.449891	-1.535917	-1.442536	
17 L&G	-1.548977	-1.524008	-1.619968	-1.578493	-1.651070	-1.592967	-1.683971	-1.609218	-1.696106	-1.604682	
18 LITIAN	-1.194362	-1.167617	-1.308117	-1.262898	-1.334590	-1.270728	-1.362439	-1.279667	-1.378177	-1.276184	
19 MARUICH	-1.219023	-1.190217	-1.308067	-1.258436	-1.327319	-1.255810	-1.333429	-1.230939	-1.356124	-1.238109	
20 MUHIBAH	-0.615840	-0.587409	-0.691537	-0.642270	-0.720513	-0.650635	-0.743353	-0.657719	-0.759893	-0.645901	
21 MUJB	-1.826716	-1.801519	-1.916293	-1.814046	-1.961706	-1.902242	-1.988537	-1.911671	-2.007456	-1.912998	
22 OSK	-2.260375	-2.235441	-2.395722	-2.354112	-2.430085	-2.371754	-2.459822	-2.384726	-2.472607	-2.380702	
23 PPERAK	-1.571060	-1.545711	-1.701018	-1.658458	-1.734961	-1.675055	-1.768162	-1.690720	-1.845603	-1.750433	
24 PACMAS	-2.553259	-2.528358	-2.677239	-2.6358683	-2.696312	-2.638957	-2.718114	-2.643117	-2.737719	-2.645935	
25 PALMCO	-1.125245	-1.099981	-1.240977	-1.198673	-1.276247	-1.216143	-1.320942	-1.244076	-1.339933	-1.245600	
26 PBANK	-2.613008	-2.588139	-2.700839	-2.659364	-2.734516	-2.676413	-2.761083	-2.686330	-2.766721	-2.675197	
27 PDEV	-1.344330	-1.319282	-1.457585	-1.415783	-1.483230	-1.424630	-1.521324	-1.45881	-1.533463	-1.441133	
28 SUNTECH	-0.569563	-0.542722	-0.658966	-0.613714	-0.693844	-0.629889	-0.735945	-0.652928	-0.737183	-0.634732	
29 TA	-2.378740	-2.353872	-2.470095	-2.428620	-2.507370	-2.449267	-2.521641	-2.446888	-2.546968	-2.455544	
30 TANJONG	-2.497572	-2.472638	-2.535649	-2.494038	-2.567146	-2.508815	-2.581699	-2.506803	-2.601128	-2.509223	
31 TENAGA	-3.302563	-3.277678	-3.397544	-3.356042	-3.431380	-3.373239	-3.432075	-3.357273	-3.443508	-3.352024	
32 UMG	-1.903261	-1.877622	-2.006757	-1.9638938	-2.022799	-1.962730	-2.037490	-1.960101	-2.044980	-1.950200	
33 UMW	-1.390675	-1.365790	-1.480956	-1.339454	-1.492813	-1.434672	-1.488880	-1.414079	-1.488884	-1.397100	

Note : **Highlighted box** refers to lag with lowest SIC.

Table 24 : AIC and SIC Statistics of VAR Models on Daily Volatility and Trading Volume

Second Board Companies	AIC and SIC at Lag 1 to 5									
	Lag 1		Lag 2		Lag 3		Lag 4		Lag 5	
	AIC	SIC	AIC	SIC	AIC	SIC	AIC	SIC	AIC	SIC
1 AYAMAS	-1.443184	-1.416608	-1.561103	-1.517284	-1.622554	-1.560192	-1.650766	-1.570357	-1.658208	-1.559650
2 DPREP	-1.163288	-1.138141	-1.271743	-1.229719	-1.325103	-1.266113	-1.342211	-1.266165	-1.358478	-1.265285
3 DENKO	-1.028051	-1.002272	-1.093683	-1.050572	-1.141721	-1.081159	-1.185842	-1.107709	-1.198041	-1.102215
4 FFHB	-0.700090	-0.673681	-0.803876	-0.759614	-0.859874	-0.797644	-0.898825	-0.818473	-0.902971	-0.804342
5 FOURSSN	-1.107191	-1.081271	-1.208386	-1.165127	-1.277307	-1.216661	-1.301283	-1.2233203	-1.318868	-1.223305
6 GEAHIN	-1.151134	-1.124445	-1.267227	-1.222395	-1.310268	-1.247097	-1.330060	-1.248429	-1.363928	-1.262648
7 HIRO	-1.464920	-1.437866	-1.577181	-1.531863	-1.627559	-1.563791	-1.635597	-1.553309	-1.654775	-1.553832
8 MCSB	-1.247146	-1.221713	-1.344252	-1.301548	-1.407976	-1.347866	-1.425818	-1.348218	-1.434532	-1.339298
9 PROMTO	-1.241746	-1.216581	-1.381433	-1.338902	-1.428464	-1.368599	-1.464042	-1.386706	-1.479093	-1.384119
10 TGL	-0.587667	-0.561729	-0.718035	-0.674627	-0.758365	-0.697342	-0.770057	-0.691272	-0.772457	-0.675828
11 YCS	-0.420114	-0.383797	-0.520890	-0.459736	-0.567507	-0.481176	-0.563701	-0.451884	-0.571258	-0.433575
KISETCI	-10.814520	-10.789650	-10.868100	-10.826620	-10.879200	-10.821100	-10.972570	-10.837810	-10.942300	-10.850870

Note : *Highlighted box* refers to lag with lowest SIC.

Table 25 : VAR Models for Daily Volatility (SDs) and Daily Trading Returns (TRs) for Whole Period

	Stock	Constant	SD(-1)	SD(-2)	SD(-3)	SD(-4)	SD(-5)	TR(-1)	TR(-2)	TR(-3)	TR(-4)	TR(-5)	CONCLUSION
Main Board Companies													
1 AFFIN	0.009781**	0.546445**	0.030203	0.186169**	-	-	0.060853**	-0.001359	-0.011095	-	-	-	Yes
2 AMFIN	0.009248**	0.526823**	0.225323**	-	-	-	0.059483**	0.021786	-	-	-	-	Yes
3 ASB	0.011037**	0.532447**	0.110823**	0.168827**	-	-	0.059096**	-0.013570	-0.058945**	-	-	-	Yes
4 BKATIL	0.013490**	0.460389**	0.201464**	-	-	-	0.000234	-0.021765	-	-	-	-	-
5 BAT	0.007440**	0.317496**	0.101613**	0.087792**	0.110508**	0.087628**	-0.007012	-0.060204**	-0.088687**	-0.050528**	-0.104202**	-	Yes
6 BOLTON	0.017575**	0.384547**	0.224896**	-	-	-	0.024353	-0.012588	-	-	-	-	-
7 CMSSB	0.011611**	0.464301**	0.207561**	-	-	-	0.020527	-0.062186**	-	-	-	-	Yes
8 COMMERZ	0.011753**	0.409020**	0.190309	0.238575	-0.006438	-	-0.057969	-0.19734	0.130750	-0.136202	-	-	-
9 CRIMSON	0.015259**	0.426341**	0.147317**	0.152638**	-	-	0.046367**	-0.030130	-0.077942**	-	-	-	Yes
10 E&O	0.018077**	0.284347**	0.214478**	-	-	-	0.083093	-0.02147	-	-	-	-	Yes
11 FABER	0.015194**	0.395746**	0.163009**	0.0633379**	-	-	0.074911**	0.057714**	0.051596**	-	-	-	Yes
12 GHORPE	0.016359**	0.477115**	-	-	-	-	0.0333318	-	-	-	-	-	-
13 GKENT	0.014063**	0.356103**	0.158673**	0.151995**	-	-	-0.011934	0.040985	0.001315	-	-	-	-
14 GPIUS	0.014899**	0.308513**	0.106735**	0.099679**	-0.003963	0.215858**	0.114122**	-0.006190	-0.027137	-0.048472**	-0.082954**	-	Yes
15 HL BANK	0.009482**	0.425399**	0.099408**	0.200738**	-	-	0.06166**	0.084166**	0.030516	0.010989	-	-	Yes
16 KIANLIOO	0.009754**	0.342416**	0.083089**	0.178222**	-	-	-0.019141	-0.024962	0.002473	-	-	-	-
17 L&G	0.016926**	0.549776**	0.165821**	-	-	-	0.032235	-0.038313	-	-	-	-	-
18 LUTYAN	0.018336**	0.602603**	-	-	-	-	-0.01680	-	-	-	-	-	-
19 MARBICH	0.007001**	0.204891**	0.173880**	-	-	-	-0.032361	-	0.031068	-	-	-	-
20 MUHIBAH	0.013280**	0.374803**	0.179408**	-	-	-	-0.026539	0.055841	-	-	-	-	-
21 MUIB	0.012891**	0.473322**	0.135803**	0.146472**	-	-	0.070185**	-0.021056	-0.006578	-	-	-	-
22 OSK	0.014098**	0.429985**	0.220945**	-	-	-	-0.047286**	0.006491	-	-	-	-	Yes
23 PPERAK	0.015147**	0.456783**	0.225494**	-	-	-	0.056525**	-0.013145	-	-	-	-	Yes
24 PACMAS	0.012952**	0.404689**	0.231934**	-	-	-	0.042152	0.038506	-	-	-	-	-
25 PALMCO	0.011696**	0.334456**	0.116108**	0.063816**	0.175106**	-	0.101215**	-0.008187	0.001262	-0.131589**	-	-	Yes
26 PBBANK	0.008223**	0.413153**	0.147587**	0.027739	0.153743**	-	0.041693	0.010683	0.022176	0.082632**	-	-	Yes
27 PIDEV	0.017687**	0.423776**	0.217644**	-	-	-	0.022163	0.023995	-	-	-	-	-
28 SUNTECH	0.014749**	0.444830**	0.187601**	-	-	-	0.018615	-0.091040**	-	-	-	-	Yes
29 TA	0.012459**	0.483057**	0.168153**	0.101947**	-	-	0.072962**	-0.016632	0.027129	-	-	-	Yes
30 TANJONG	0.008859**	0.363259**	0.089428	0.138037**	0.073742**	0.118390**	0.019039	-0.049577	0.036164	-0.069983**	-0.055417**	-	Yes
31 TENAGA	0.008202**	0.507059**	0.285377**	-	-	-	0.036640**	0.006913	-	-	-	-	Yes
32 UMG	0.011423**	0.538019**	0.210961**	-	-	-	0.043966**	-0.012473	-	-	-	-	Yes
33 UMW	0.011376**	0.454097**	0.199204**	-	-	-	0.087429**	-0.063505**	-	-	-	-	Yes

Note : "Yes" refers to the rejection of null hypothesis and implies that TR does Granger-cause SD.

Table 25 : VAR Models for Daily Volatility (SDs) and Daily Trading Returns (TRs) for Whole Period

Stock	Constant	Coefficients of						CONCLUSION	
		SD(-1)	SD(-2)	SD(-3)	SD(-4)	SD(-5)	TR(-1)	TR(-2)	TR(-3)
Second Board Companies									
1 AYAMAS	0.015495**	0.358611**	0.200785**	-	-	-	-0.006943	-0.025687	-
2 DPREP	0.023070**	0.461302**	0.203577**	-	-	-	0.011078	-0.034483	-
3 DENKO	0.031904**	0.580316**	-	-	-	-0.009554	-	-	-
4 FFHB	0.023497**	0.310456**	0.142692**	0.099374**	-	-	0.056014**	0.032364	-0.001525
5 FOURSSN	0.019597**	0.362594**	0.070547**	0.088984**	0.128581**	-	0.014754	-0.000143	0.013452
6 GEAHIN	0.031402**	0.374334**	-	-	-	-	0.102689**	-	-
7 HIRO	0.011774**	0.411198**	0.126268**	0.142848**	-	-	0.095490**	0.037375	0.005077
8 MCSB	0.018854**	0.460959**	0.090540**	0.143941**	-	-	0.014586	0.007289	-0.043664**
9 PROMTO	0.021486**	0.416034**	0.211872**	-	-	-	0.081550**	0.032020	-
10 TGL	0.025940**	0.396167**	0.185688**	-	-	-	0.006374	-0.050803**	-
11 YCS	0.021394**	0.538979**	0.165056**	-	-	-	0.007640	0.036168	-
KLSE CI	0.003206**	0.498311**	0.169864**	0.036237	0.098370**	0.037292	0.090686**	-0.007225	-0.024385
									-0.058613**
									-0.048182**
									Yes

Note : "Yes" refers to the rejection of null hypothesis and implies that TR does Granger-cause SD.

The results of *Table 25* indicate that the daily SDs of all stocks, including the KLSE CI, is significantly explained by its own lag variables. The results also show that the daily trading return of 61.4% of the stocks and the KLSE CI does Granger-cause the daily SDs. This also implies that the daily SDs of these stocks can be explained by the lag variables of daily trading returns. The results revealed that the daily SDs of 63.6% of the stocks on the Main Board and 54.5% of the stocks on the Second Board are Granger-caused by the daily trading returns.

The relationship between the daily trading returns and its own lag variables and the lag variables of daily SDs is presented in *Table 26*. The result shows that the daily trading returns of 65.9% of the stocks and the KLSE CI is explained by its own lag variables. The results also show that the daily SDs of 52.3% of the stocks and the KLSE CI does Granger-cause the daily trading returns. This implies that the daily trading returns of these stocks and the KLSE CI can be explained by the lag variables of daily SDs. The results indicate that the daily trading returns of 60.6% of the Main Board stocks and 27.3% of the Second Board is Granger-caused by the daily SDs.

Among these stocks, 16 stocks and the KLSE CI have bidirectional relationship or feedback relationship i.e. the daily trading returns Granger-causes the daily SDs and vice versa.

Table 26 : VAR Models for Daily Volatility (SDs) and Daily Trading Returns (TRs) for Whole Period

Stock	Constant	Coefficients of					CONCLUSION			
		SD(-1)	SD(-2)	SD(-3)	SD(-4)	SD(-5)	TR(-1)	TR(-2)	TR(-3)	TR(-4)
Main Board Companies										
1 AFFIN	-0.001464	0.039169	0.036680	-0.050935	-	-	-0.015384	0.093654**	-0.062354**	-
2 AMFIN	0.000544	-0.007028	-0.037285	-	-	-	0.041535	0.017244	-	-
3 ASB	-0.007273**	0.182536**	-0.028821	-0.099482**	-	-	-0.080148**	0.044642	0.060005**	-
4 BKATIL	0.003695**	-	-0.004112	-0.004187	-	-	0.171038**	0.044877	-	Yes
5 BAT	0.001733	-0.029860	0.035562	0.124266**	-0.058608	-0.110576**	-0.029876	-0.092952**	-0.120093**	0.022921
6 BOLTON	-0.000283	0.040541	-0.040905	-	-	-	0.001149	-0.042029	-	Yes
7 CMSB	0.000494	0.011444	-0.073957**	-	-	-	0.016577	0.078376**	-	-
8 COMMERZ	0.006433**	0.349598**	0.107129	0.184834	0.123656	-	-0.182649	-0.394526**	-0.028175	-0.102445
9 CRIMSON	-0.0008892	0.097941**	-0.050877	-0.071399	-	-	-0.046245	0.010297	0.001096	-
10 E&O	0.004871**	-0.003512	0.012475	-	-	-	0.113175**	0.018737	-	Yes
11 FABER	0.001585	0.071430**	-0.036382	-0.070235	-	-	-0.031443	0.062268**	-0.032650	-
12 GHOPE	0.001483	-0.008033	-	-	-	-	-0.031325	-	-	Yes
13 GKENT	0.002802	0.049112	-0.009020	-0.039090	-	-	-0.080024**	0.016126	0.024581	-
14 GPLUS	0.002205	0.018689	0.059107	-0.018288	0.032735	-0.136050**	-0.062697**	-0.026956	-0.001583	0.082497**
15 HL BANK	0.001000	0.071058**	-0.025363	-0.045960	-	-	-0.023345	0.0112303**	0.002891	-
16 KIAN JOO	0.000393	0.023465	-0.044338	0.028998	-	-	0.119237**	-0.121697**	-0.075755**	-
17 L&G	-0.008078**	0.132669**	-0.052183	-	-	-	-0.109676**	-0.013237	-	Yes
18 LITIAN	-0.001581	0.004101	-	-	-	-	-0.084531**	-	-	-
19 MARUICH	0.001036	-0.692230**	0.036663	0.006673	-	-	-0.029604	0.076961**	-0.021810	-
20 MUHIBAH	0.001610	-0.079468**	-	-	-	-	0.079581**	-0.090380**	-	Yes
21 MUIB	0.002550	-0.055950	0.065100	-0.105445**	-	-	-0.124411**	0.018101	0.022617	-
22 OSK	0.000079	-0.004533	0.028991	-	-	-	0.018197	0.095603**	-	-
23 PPERAK	-0.002550	0.021761	-0.038576	-	-	-	-0.076712**	0.014947	-	-
24 PACMAS	-0.000354	0.010154	-0.045870	-	-	-	0.066181**	-0.018578	-	-
25 PALMCO	0.006587**	-0.083140**	-0.061164	0.008371	-0.085222**	-	-0.060133**	-0.031216	-0.004591	0.014793
26 PBBANK	-0.000479	0.049981	0.052960	-0.082137**	-0.021950	-	-0.032658	0.071260**	-0.060932**	-0.073675**
27 PJDEV	0.002897	-0.001143	-0.069014	-	-	-	-0.068242	0.014907	-	-
28 SUNTECH	0.000419	-0.061065	0.071672**	-	-	-	0.093692**	-0.103728**	-	-
29 TA	-0.005395**	0.112985**	0.016009	-0.096855**	-	-	-0.131969**	-0.006304	0.084911**	-
30 TANJONG	0.001378	-0.018674	0.028135	-0.019722	0.157783**	-0.076089**	-0.000467	0.004842	-0.058081**	0.107416**
31 TENAGA	-0.002014	0.098181**	-0.039872	-	-	-	-0.000476	0.000191	-	Yes
32 UMG	-0.004983**	0.078719**	-0.042161	-	-	-	-0.084748**	0.047596	-	Yes
33 UMW	-0.002730	0.128526**	-0.001538	-	-	-	0.126227**	0.009545	-	Yes

Note : "Yes" refers to the rejection of null hypothesis and implies that SD does Granger-cause TR.

Table 26 : VAR Models for Daily Volatility (SDs) and Daily Trading Returns (TRs) for Whole Period

Second Board Companies	Stock	Constant	Coefficients of						CONCLUSION	
			SD(-1)	SD(-2)	SD(-3)	SD(-4)	SD(-5)	TR(-1)	TR(-2)	TR(-3)
1 AYAMAS	-0.000382	0.013535	-0.001144	-	-	-	-	-0.017160	0.034625	-
2 DPRP	-0.004316	0.152561**	-0.132884**	-	-	-	-	-0.015422	0.016332	-
3 DENKO	-0.006196*	0.023549	-	-	-	-	-	-0.060347**	-	-
4 FFHB	0.001378	-0.065674	-0.018777	0.019534	-	-	-	-0.032985	0.002648	-0.010308
5 FOURSSN	0.005257	0.042074	-0.048485	-0.126221**	0.064887	-	-	-0.018011	0.043856	0.060169**
6 GEAHIN	0.000004	-0.038270	-	-	-	-	-	0.018911	-	-
7 HIRO	-0.001860	-0.025310	-0.023706	0.060257	-	-	-	-0.009798	0.049120	-
8 MCSB	-0.001201	0.008894	0.018016	-0.044306	-	-	-	-0.005160	0.024082	0.007670
9 PROMTO	0.000039	0.049683	0.0088920	-	-	-	-	-0.026725	-0.021701	-
10 TGL	0.003592	-0.037905	-0.047654	-	-	-	-	0.049309	0.006752	-
11 YCIS	-0.003698	0.099423**	-0.067159	-	-	-	-	0.032071	-0.044359	-
KISEC	-0.000610	0.084638	0.097052	-0.118483**	0.148252**	-0.220322**	0.013223	0.021036	-0.052558	-0.101356**
										0.094860**
										Yes

Note : "Yes" refers to the rejection of null hypothesis and implies that SD does Granger-cause TR.

In summary, we conclude that most of the stocks' daily volatility and trading returns can be explained by their own lag variables. The results also revealed the strong presence of causal relationship between daily volatility and daily trading returns in the Malaysian stock market.

4.5.3 Findings on Causal Relationship between Daily Volatility and Trading

Volume

The relevant VAR models on daily SDs and trading volume are presented in *Tables 27 and 28*.

The results in *Table 27* reflect that the daily SDs of all stocks is explained by its own lag variables. This finding is consistent with the finding in the VAR models of daily SDs and trading returns. The results also show that the daily SDs of 68.2% of the stocks (or 30 out of 44 stocks) is explained by the lag variables of daily trading volume. This implies that the daily trading volume of these stocks Granger-cause their daily SDs. The results revealed that the daily SDs of 69.7% of the stocks on the Main Board and 63.6% of the stocks on the Second Board are Granger-caused by the daily trading volume.

Table 28 indicates that the daily trading volume of all stocks is explained by its own lag variables. The results also show that the daily SDs Granger-causes the daily trading volume of 63.6% of the stocks (or 28 out of 44 stocks). The results indicate that the daily trading volume of 57.6% of the Main Board stocks and

Table 27 : VAR Models for Daily Volatility (SDs) and Daily Trading Volume (TVs) for Whole Period

	Stock	Constant	Coefficients of					CONCLUSION
			SD(-1)	SD(-2)	SD(-3)	SD(-4)	SD(-5)	
Main Board Companies								
1 AFFIN	0.013498**	0.536808**	0.036875	0.193959**	-	-	0.001466	-0.001175
2 AMFIN	-0.006287	0.455435**	0.138408*	0.109693***	-	-	0.003022**	-0.001218
3 ASB	0.008329	0.500457**	0.116317**	0.085268**	0.109950***	-	0.004250**	-0.003972
4 BKATIL	0.011185**	0.402042**	0.109164**	0.110844***	-	-	0.002127	0.000457
5 BAT	0.003373	0.324146**	0.112774**	0.105093***	0.131643***	-	0.001278	-0.000832
6 BOLTON	0.007757	0.323149**	0.017604**	0.111946**	-	-	0.003376**	-0.001651
7 CMSB	0.000910	0.442282**	0.136653**	0.006582	0.110396**	-	0.000638	-0.000015
8 COMMERZ	-0.006176	0.411677**	0.171768**	0.156811**	0.011156	-	0.004106**	-0.001348
9 CRIMSON	0.009344**	0.373292**	0.117755**	0.115661**	0.108742**	-	0.005961**	-0.000504
10 E&O	0.016267**	0.272968**	0.189596**	0.114505**	-	-	0.001235	-0.002157
11 FABER	0.018387**	0.374552**	0.159106**	0.127221**	0.101155**	-	0.0064173	-0.001772
12 GHOPA	-0.000705	0.384704**	0.078244**	0.130542**	-	-	0.002529**	-0.001457
13 GKENT	0.007971**	0.315211**	0.149156**	0.123275**	0.056420	-	0.002838**	-0.002011
14 GPLUS	0.023360**	0.310736**	0.098202**	0.103409**	-0.0208693	0.220900**	0.004284**	-0.001151
15 HI BANK	0.001811	0.391062**	0.108260**	0.213716**	-	-	0.004062**	-0.001207
16 KIANJOO	0.008905**	0.345028**	0.067584**	0.181826**	-	-	0.000769	-0.000114
17 L&G	0.022448**	0.555395**	0.086739**	-0.012218	0.150237**	-	0.001638	-0.000306
18 LITIAN	0.013306**	0.432531**	0.094688**	0.028464	0.105735**	-	0.004448**	-0.002892
19 MARUICH	0.007653**	0.282793**	0.227742**	-	-	0.000213	0.000774	-
20 MUHIBAH	0.006998**	0.324109**	0.111083**	0.074078**	0.008675	-	0.001486	-0.001162
21 MUIB	0.005131	0.429587**	0.091430**	0.089045**	0.081901**	0.089386**	0.004911**	0.000153
22 OSK	0.0011892**	0.357522**	0.161542**	0.054958	0.144782**	-	0.002180**	-0.000150
23 PPERAK	0.0067783	0.379532**	0.153218**	0.096336**	-0.006075	0.100385**	0.005141**	-0.002319
24 PACMAS	0.004571	0.336769**	0.173101**	0.028110	0.098504**	0.045246	0.005601**	-0.001044
25 PALMCO	0.009087**	0.299605**	0.110099**	0.036041	0.217922**	0.021372	0.002143	-0.000120
26 PBBANK	0.003807	0.361826**	0.159781**	0.055902	0.150623**	-	0.005428**	-0.001463
27 PJDEV	0.010878**	0.376541**	0.167049**	-0.066213	0.164956**	-	0.003922**	-0.000256
28 SUNTECH	0.012477**	0.357907**	0.103371**	0.114861**	0.130003**	-	0.003415**	-0.000155
29 TA	0.011254	0.430725**	0.151792**	0.052916	0.025706	0.144500**	0.004334**	-0.000364
30 TANJONG	0.011604	0.342345**	0.057310	0.138927**	0.088238**	0.123359**	0.001475	-0.000660
31 TENAGA	-0.004130	0.477621**	0.186868**	0.106189**	-	0.000276	0.001493	-0.000118
32 UMG	-0.003403	0.480112**	0.211740**	-	-	0.005958**	-0.002757**	-
33 UMW	0.015342**	0.445916**	0.218408**	-	-	-0.000441	-0.000345	-

Note : "Yes" refers to the rejection of null hypothesis and implies that TV does Granger-cause SD.

Table 27 : VAR Models for Daily Volatility (SDs) and Daily Trading Volume (TVs) for Whole Period

Stock	Constant	Coefficients of						CONCLUSION			
		SD(-1)	SD(-2)	SD(-3)	SD(-4)	SD(-5)	TV(-1)	TV(-2)	TV(-3)	TV(-4)	TV(-5)
Second Board Companies											
1 AYAMAS	0.009210**	0.303387**	0.125569**	0.075686**	0.034346	-	0.001718	0.002067	-0.001133	-0.000497	-
2 DPREP	0.017229**	0.390839**	0.170212**	0.066117	0.562200	-	0.008011**	-0.005017**	-0.003377	0.001387	-
3 DENKO	0.024135**	0.470870**	0.088568**	0.026774	0.099831**	-	0.003168	-0.000798	-0.004369	0.002030	-
4 FFHB	0.016814**	0.274530**	0.144945**	0.077095**	0.060372	-	0.003298**	-0.002208	-0.000811	0.001610	-
5 FOURSSN	0.016526**	0.319235**	0.081581**	0.056781	0.141633**	0.032593	0.004193**	-0.001795	0.002618	-0.001490	-0.002450
6 GEAHIN	0.016446**	0.275788**	0.039139	0.163827**	-0.028246	0.100602**	0.003767**	-0.000758	-0.003894**	0.000785	0.001954
7 HIRO	0.006494**	0.372760**	0.101959**	0.117777**	-	-	0.001681	0.000354	0.000562	-	
8 MCSB	0.012704**	0.368936**	0.078767**	0.113244**	-	-	0.009745**	-0.003917	-0.002464	-0.001399	-
9 PROMTO	0.015144**	0.330289**	0.156694**	0.078158**	0.150488**	-	0.006516**	-0.004647**	-0.000012	-0.001547	-
10 TGL	0.027511**	0.341215**	0.194492**	0.077286**	-	0.005534**	-0.005934**	-0.000370	-	-	
11 YCS	0.014829	0.505877**	0.105013**	0.099692**	-	0.003047	-0.002219	0.000577	-	-	

Note : "Yes" refers to the rejection of null hypothesis and implies that TV does Granger-cause SD.

Table 28 : VAR Models for Daily Volatility (SDs) and Daily Trading Volume (TVs) for Whole Period

	Stock	Constant	Coefficients of				CONCLUSION				
			SD(-1)	SD(-2)	SD(-3)	SD(-4)	TV(-5)	TV(-4)	TV(-3)	TV(-2)	TV(-1)
Main Board Companies											
1 AFFIN	1.436909**	2.443256**	-2.577355**	0.716779	-	-	0.450200**	0.137488**	0.161716**	-	-
2 AMFIN	0.720220**	2.890998**	-0.028290	-0.845746	0.549240	-	0.431444**	0.188769**	0.068317**	0.132818**	-
3 ASB	0.6468871**	0.5311978	-0.083753	-0.254269	0.089228	-	0.619382**	0.080843**	0.074528**	0.124308**	-
4 BKATIL	0.720301**	2.465103**	-1.405562	-1.375543	-	-	0.381462**	0.2253375**	0.215083**	-	Yes
5 BAT	1.982301**	1.6541287	1.467038	0.451275	0.680563	-	0.3135588**	0.091579**	0.044445	0.127794**	-
6 BOLTON	0.9361188**	1.1686701	-0.351279	-0.122882	-	-	0.5535556**	0.082161**	0.174151**	-	-
7 CMSB	1.017696**	4.772835**	1.35871	-1.808392	0.591444	-	0.374685**	0.167854**	0.094442**	0.140370**	-
8 COMMERZ	0.986755**	2.548047**	0.313071	-0.966847	0.229858	-	0.4423927**	0.124143**	0.115785**	0.156841**	-
9 CRIMSON	0.424410**	1.644141**	-1.626344**	-0.268936	-0.419810	-	0.622264**	0.091577**	0.099528**	0.111381**	-
10 E&O	0.684405**	0.263956	-0.122991	-1.350280	-	-	0.452219**	0.190358**	0.192032**	-	-
11 FABER	0.546026**	1.329685**	-1.113581	-0.964734	-0.874737	-	0.506669**	0.172785**	0.110837**	0.116271**	-
12 GHOPE	2.099804**	1.148247	-0.141101	1.098272	-	-	0.355589**	0.134661**	0.141081**	-	-
13 GKENT	0.571650**	0.382165	-0.765231	-0.002985	-1.023617	-	0.449498**	0.142741**	0.078180**	0.173541**	-
14 GPLUS	0.421868**	0.442200	-1.246542**	-0.383047	-0.705931	-0.278874	0.497613**	0.151802**	0.009478	0.117452**	0.150296**
15 HL BANK	1.558197**	1.804757*	-1.367647	-0.286260	-	-	0.492092**	0.124263	0.132092**	-	-
16 KIANJOO	1.789850**	1.399158	-0.229582	-1.044050	-	-	0.322438**	0.135514**	0.129276**	-	-
17 L&G	1.187962**	1.458238**	-0.947650	-0.371927	-0.525541	-	0.480906**	0.111749**	0.113654**	0.126153**	-
18 LITIAN	0.522806**	2.396507**	-1.158440	-2.230606**	0.303406	-	0.511795**	0.171036**	0.087742**	0.1119875**	-
19 MARUICH	1.108267**	1.738004	-0.625394	-	-	-	0.365781**	0.262264**	-	-	-
20 MUHIBAH	0.438378**	1.733837	-0.520324	0.957367	-1.863499	-	0.446862**	0.123242**	0.104529**	0.192799**	-
21 MUIB	0.563005**	0.705495	-1.592758**	0.021717	1.006375	0.217408	0.567519**	0.091620**	0.081886**	0.024371	0.144573**
22 OSK	0.699184**	1.348090	-0.803919	-1.247809	-1.863567**	-	0.511015**	0.1725358**	0.081151**	-	Yes
23 PPERAK	0.424395**	1.764866**	-1.929967	-0.571668	-0.091453	-0.578510	0.514712**	0.165544**	0.009698	0.029091	0.194773**
24 PACMAS	0.365204**	1.187762	-1.010224	-0.584593	-1.536356	-0.151181	0.595660**	0.138148**	0.050542	-0.02394	0.158716**
25 PALMCO	0.604571**	1.441048	-1.873219**	-1.495616	0.903534	-0.353493	0.430797**	0.167084**	0.116443**	-0.014498**	0.164210**
26 PBANK	1.144077**	0.156487	-0.971954	0.731151	0.081665	-	0.565848**	0.086758**	0.085628**	0.090980**	-
27 PJDEV	0.550254**	1.115774	-2.339680**	-1.593009	-1.04439	-	0.601449**	0.103864**	0.068881	0.130596**	-
28 SUNTECH	0.683395**	0.049581	-1.148628	0.296616	0.233258	-	0.487484**	0.125201**	0.047499	0.171355**	-
29 TA	0.748760**	0.775510	-0.318946	-1.667481**	-0.173716	0.535408	0.616117**	0.068245	0.084895**	0.026106	0.102436**
30 TANJONG	2.219149**	3.278825**	-1.477985	1.658040	0.762121	-1.059770	0.083162**	0.0376373**	0.012669	0.046242	0.093145**
31 TENAGA	2.271466**	3.329122**	-0.443436	0.503560	-	-	0.418332**	0.104116**	0.159347**	-	Yes
32 UMG	0.903195**	0.879910	-0.811103	-	-	-	0.600897**	0.235010**	-	-	-
33 UMW	2.292716**	1.353677	0.081746	-	-	-	0.218524**	0.1352718**	-	-	-

Note : "Yes" refers to the rejection of null hypothesis and implies that SD does Granger-cause TV.

Table 28 : VAR Models for Daily Volatility (SDs) and Daily Trading Volume (TVs) for Whole Period

Stock	Constant	Coefficients of						CONCLUSION		
		SD(-1)	SD(-2)	SD(-3)	SD(-4)	SD(-5)	TV(-1)	TV(-2)	TV(-3)	TV(-4)
Second Board Companies										
1 YAMAS	0.349312**	0.758396	-0.662756	-1.137736	-2.167572**	-	0.440773**	0.168918	0.148226**	0.171821**
2 DPRP	0.343213**	1.518195**	-0.672927	-1.285941**	-0.665432	-	0.653073**	0.020337	0.125620**	0.146663**
3 DENKO	0.525800**	1.945370**	-0.910843	-0.515517	-1.676392***	-	0.607609**	0.021555	0.100973**	0.192626**
4 FFHB	0.3969861***	-0.000918	-1.6222382**	0.339677	-1.270755	-	0.521766**	0.114905**	0.110750**	0.178112**
5 FOURSSN	0.3228787**	-1.284922	-1.681404**	-0.116327	0.998948	-1.044312	0.549739**	0.106248**	0.167038**	0.129303**
6 GEAHN	0.274607**	0.753470	1.591702**	0.500958	-1.595066***	-0.6777149	0.488478**	0.165749**	0.028535	0.112213**
7 HIRO	0.353440**	0.248194	-1.174592	-0.992481	-	-	0.515724**	0.182439**	0.216012**	-
8 MCSB	0.361023**	1.682590**	-1.951255**	-0.877113	0.108826	-	0.623329**	0.117989**	0.105685**	0.091294**
9 PROMTO	0.412389***	0.139021	-0.680587	-1.138039	-0.5339846	-	0.556338**	0.115100**	0.126767**	0.139450**
10 TGL	0.495528**	0.056489	-0.742121	-1.499690***	-	-	0.595621**	0.121452**	0.196121**	-
11 YCS	0.424756**	1.385286**	-0.566209	-1.188595**	-	-	0.620822**	0.087322	0.225892**	-

Note : "Yes" refers to the rejection of null hypothesis and implies that SD does Granger-cause TV.

81.8% of the Second Board is Granger-caused by the daily SDs. Among these stocks, 20 stocks have bidirectional relationship or feedback relationship i.e. the daily trading volume Granger-causes the daily SDs and vice versa. The summary of bidirectional relationship for daily SDs and daily trading returns as well as the daily SDs and daily trading volume is tabulated in *Table 29*.

In general, we conclude that most of the stocks' trading volume can be explained by their own lag variables. There is also strong evidence to indicate that the daily volatility of stocks in Malaysia can be explained by the lag variables of trading volume. In addition, there is evidence to indicate the presence of feedback relationship between the daily volatility and trading volume.

Table 29 : Summary of Results of Granger Causality Test

	Stock	SD and TR		SD and TV	
		TR G-causes SD	SD G-causes TR	TV G-causes SD	SD G-causes TV
Main Board Companies					
1	AFFIN	Yes			Yes
2	AMFIN	Yes		Yes	Yes
3	ASB	Yes	Yes	Yes	Yes
4	BKATIL				
5	BAT	Yes	Yes		Yes
6	BOLTON			Yes	
7	CMSB	Yes	Yes	Yes	Yes
8	COMMERZ		Yes	Yes	Yes
9	CRIMSON	Yes	Yes	Yes	Yes
10	E&O	Yes			
11	FABER	Yes	Yes	Yes	Yes
12	GHOPE			Yes	
13	GKENT			Yes	
14	GPLUS	Yes	Yes	Yes	Yes
15	HLBANK	Yes	Yes	Yes	Yes
16	KIANJOO				
17	L&G		Yes		Yes
18	LITYAN			Yes	Yes
19	MARUICH		Yes		
20	MUHIBAH		Yes	Yes	
21	MUIB	Yes	Yes	Yes	Yes
22	OSK	Yes		Yes	Yes
23	PPERAK	Yes		Yes	Yes
24	PACMAS			Yes	
25	PALMCO	Yes	Yes	Yes	Yes
26	PBBANK	Yes	Yes	Yes	
27	PJDEV			Yes	Yes
28	SUNTECH	Yes	Yes	Yes	
29	TA	Yes	Yes	Yes	Yes
30	TANJONG	Yes	Yes		Yes
31	TENAGA	Yes	Yes		Yes
32	UMG	Yes	Yes	Yes	
33	UMW	Yes	Yes		
Second Board Companies					
1	AYAMAS				Yes
2	DPREP		Yes	Yes	Yes
3	DENKO				Yes
4	FFHB	Yes		Yes	Yes
5	FOURSSN		Yes	Yes	Yes
6	GEAHIN	Yes		Yes	Yes
7	HIRO	Yes			
8	MCSB	Yes		Yes	Yes
9	PROMTO	Yes		Yes	
10	TGL	Yes		Yes	Yes
11	YCS		Yes		Yes
	KLSE CI	Yes	Yes		