CHAPTER 3

EMPIRICAL EVIDENCE FOR CALENDAR ANOMALIES

3.1 Findings from the Kolmogorov-Smirnov Test and Levene's Test

Table 1 presents the results of the Kolmogorov-Smirnov test and Levene's test for 30 finance stocks over the whole period of January 1992 to June 1999. The result of the Kolmogorov-Smirnov Z-Statistics indicates that the null hypothesis, that the returns of the stocks overall are distributed normally, is rejected at the 5% significance level. Thus, we can conclude that the daily returns in the sample are non-normally distributed. This means the assumption of the Parametric tests is not satisfied and the data should be subjected to a Nonparametric test.

The result of the Levene's test shows that for 27 of the 30 stocks (90%) the null hypothesis of equal variances is not rejected at the 5% significance level. The result indicates that the majority of stocks have equal variances. With this assumption, the results which are given by a parametric test such as the One-way ANOVA can be considered valid and reliable.

Table 1: Results of Kolmogorov-Smirnov Test and Levene's Test For Mean Returns For Whole Period

		Kolmogorov-Smirnov Test					Levene's Test
		Monday	Tuesday	Wednesday	Thursday	Friday	
SMALL COMPANIES							
1	HANCOCK	3.503	3.106	3.751	3.329	3.599	0.980
2	AMANAH	2.591	2.865	2.358	3.005	2.853	0.852
3	MBSB	2.383	3.320	2.769	2.038	2.573	1.218
4	APEX	2.280	2.378	2.088	2.435	1.841	0.186
5	K'HALL	2.724	2.461	2.259	3.722	2.850	0.592
6	IDRIS	2.516	3.370	2.374	3.012	3.053	1.672
7	MBF HLDG	2.711	2.982	2.650	1.882	2.758	2.552***
8	MBA	3.288	2.835	3.324	3.616	3.793	1.535
9	KAF	2.524	3.100	2.753	3.249	3.397	2.438***
10	MALPAC	2.090	2.672	3.095	2.246	2.996	1.028
11	OMEGA	1.820	2.691	2.401	2.353	2.688	1.702
12	P'GLOBAL	2.137	2.648	2.832	2.874	2.925	1.245
13	P'KALE	3.023	3.478	2.986	2.660	2.334	0.133
14	PENGCAP	2.637	3.214	1.737	2.861	2.268	0.665
15	MGIC	1.898	2.297	1.656	2.225	2.542	1.442
LARGE COMPANIES							
1	MAYBANK	2.265	2.521	2.084	2.236	1.797	0.799
2	COMMERZ	3.444	2.654	3.247	1.916	2.392	0.941
3	PBB	2.732	2.937	3.407	2.779	3.536	0.497
4	AMMB	2.948	2.324	2.062	1.517	1.990	0.545
5	S. BANK	2.528	2.190	1.928	2.349	2.567	2.605***
6	TA	2.931	2.087	2.464	2.598	2.777	0.746
7	HL CRED.	2.401	2.413	2.501	2.102	2.468	1.358
8	AFFIN	3.012	2.248	1.993	2.038	2.630	0.625
9	RHB	3.119	2.180	2.640	4.415	2.680	1.068
10	PACIFIC	2.811	3.065	2.657	2.473	3.620	0.621
11	BHL	3.222	3.680	3.131	3.733	3.987	0.752
12	OSK	2.736	2.256	2.418	2.951	2.527	0.640
13	HH BANK	2.837	2.793	2.644	2.158	2.548	2.115
14	MAA	3.209	2.191	2.526	2.190	2.986	1.643
15	MBF CAP	2.705	2.825	2.578	2.214	2.076	1.909

Note: (1) Z statistics of Kolmogorov-Smirnov Test are all significant at 5% level of significance
(2) For Levene's test, *** represents 1% significance level

3.2 Analysis On The Day-Of-The-Week Effect

3.2.1 Empirical Finding For The Day-Of-The-Week Effect For Whole Period

Table 2 contains descriptive statistics for the daily mean returns throughout a week. The charts presented in Figure 1 and Figure 2 refer to the daily mean returns for each stock in small and large companies, respectively. It is clearly seen that majority of stocks have negative mean returns on Monday: there are 11 stocks (73%) from small companies and 10 stocks (67%) from large companies.

From the results, the majority of stocks show positive mean returns on Wednesday and Friday. For small companies, 87% (13 stocks) of them have positive mean returns on Wednesday and all have positive mean returns on Friday. However for large companies, all stocks show positive returns on Wednesday and Friday except for one with negative returns on Wednesday and another on Friday. In general, the mean returns of stocks across the days of the week are clearly divided into two categories: low returns on Monday and Tuesday, high returns on Wednesday through Friday.

The various statistical results for entire sample period are summarized in Table 3. The significant *t*-statistics obtained for the overall period indicate that the mean returns are significantly different from zero on a given day. In general, about 50% of stocks show significant mean returns on Monday, Wednesday and Friday. However, only 3 stocks and 5 stocks indicate significant mean returns on Tuesday and Thursday, respectively.

Out of 15 stocks in small companies, 40% (6 stocks) had significantly negative returns on Monday, whilst 13% (2 stocks) had significantly positive returns.

About 33% (5 stocks) of small companies had significantly positive returns on Wednesday and all stocks except one had significantly positive returns on Friday. Less than 30% of small companies show significant returns either positive or negative on Tuesday and Thursday.

Among the 15 large companies, 20% (3 stocks) had significantly negative returns on Monday, whilst only one had significantly positive mean return. 33% of large companies show Wednesday returns are significantly positive and 86% (13 stocks) of them had significantly positive Friday returns. The majority of the large companies do not show a Tuesday effect or a Thursday effect.

The result implies that the Monday effect, Wednesday effect and Friday effect exist in the entire period. Evidently it can be concluded that the small companies have larger proportion showing Monday effect and Friday effect compared to large companies.

The *F*-statistics for one-way ANOVA in Table 3 are sufficient to confirm that at least one of the day's mean return differs significantly from another day's mean return in certain stocks, primarily from the small companies. The result revealed that about 10 stocks (67%) from small companies indicate the day-of-the-week effect, whilst only 5 stocks (31%) from the large company have similar results.

The Tukey's test is performed as further analysis to identify which day's mean return differs significantly from another day's mean returns. The result obtained from the Tukey's test for the overall period is presented in Table 3. We can deduce that Monday's return differs significantly from Friday's return for the majority of the stocks. Out of 15 small companies, 53% (8 stocks) indicate Monday's return differs

from Friday's return, while only 33% (5 stocks) from large companies give similar result. Nevertheless, the result also shows that Friday's return differs from Tuesday's, Wednesday's and Thursday's returns for certain stocks.

We can therefore summarize that Friday returns are higher than Monday returns for all stocks. In particular, small companies tend to have higher returns on Friday and lower returns on Monday.

If a stock is found not to satisfy the assumption of homoscedasticity, the stock will be further subjected to the Kruskal-Wallis test. As discussed in the previous part, there are three stocks which have violated the assumption of homoscedasticity. From the result reported in Table 3, at least one of the day's return differs significantly from another day's return for these 3 stocks.

In general, results obtained for overall period of 1992 to June 1999 confirmed that there is the day-of-the-week effect occurring in the Malaysian stock market, particularly on Finance stocks. From the result, it is obvious that among the negative mean returns on Monday, small companies have larger negative mean return as compared with large companies. In addition, the mean returns for small companies tend to show higher positive returns on Friday compared with large companies. Hence, there is an evidence of firm size effect on the mean returns of stocks across the day-of-the-week.

Table 2: Descriptive Statitstics of Mean Returns Across The Day-Of-The-Week For Whole Period

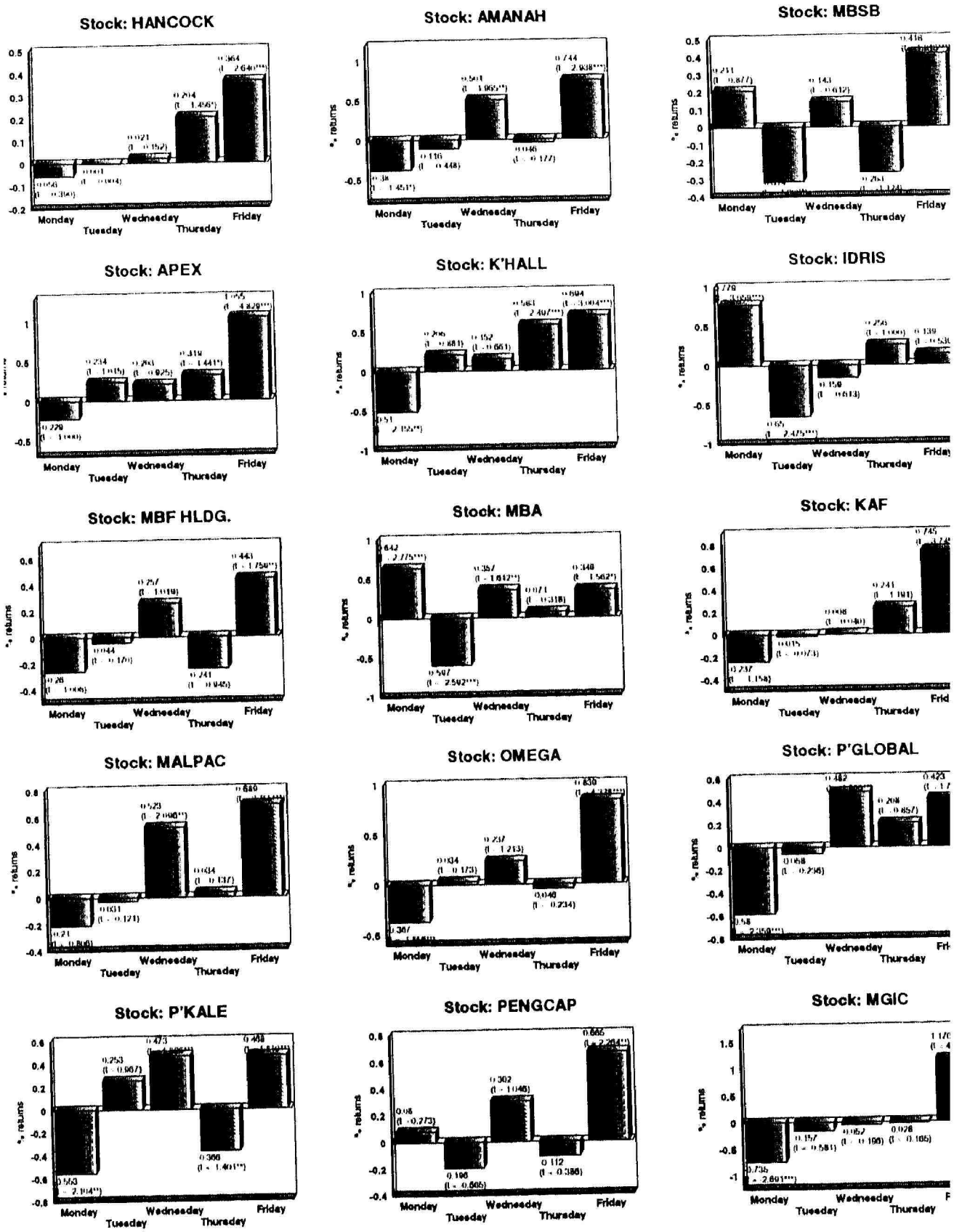
	Monday			Tuesday			Wednesday			Thursday			Friday			Total Observation
	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	
SMALL COMPANIES																
1 HANCOCK	-0.056	1.937	290	-0.001	2.414	302	0.021	2.445	315	0.204	2.881	307	0.364	2.444	316	1530
2 AMANAH	-0.380	4.898	306	-0.116	4.541	311	0.501	4.062	324	-0.046	5.149	315	0.744	4.203	328	1584
3 MBSB	0.211	3.428	249	-0.314	4.560	247	0.143	4.247	265	-0.263	3.534	263	0.418	3.030	271	1295
4 APEX	-0.229	3.479	224	0.234	3.517	221	0.203	3.517	243	0.319	3.342	239	1.055	3.258	246	1173
5 KHALL	-0.510	3.505	322	0.206	3.791	330	0.152	3.968	341	0.583	5.376	332	0.694	4.333	339	1664
6 IDRIS	0.779	4.146	347	-0.650	5.809	327	-0.159	3.861	334	0.256	4.720	245	0.139	4.985	339	1692
7 MBF HLDG	-0.260	5.745	319	-0.044	4.854	324	0.257	4.068	336	-0.241	3.736	330	0.443	4.482	337	1646
8 MBA	0.642	5.022	277	-0.597	3.456	279	0.357	3.483	303	0.071	3.894	296	0.349	3.200	297	1452
9 KAF	-0.237	3.494	327	-0.015	3.445	323	0.008	3.340	334	0.241	4.222	338	0.745	3.929	348	1670
10 MALPAC	-0.210	4.400	281	-0.031	4.593	285	0.523	4.876	307	0.034	3.793	306	0.689	4.124	305	1484
11 OMEGA	-0.367	3.263	285	0.034	3.156	289	0.237	3.340	294	-0.046	3.818	291	0.839	3.075	298	1457
12 P'GLOBAL	-0.580	4.856	331	-0.058	4.518	334	0.482	4.062	343	0.208	4.668	341	0.423	4.238	351	1700
13 P'KALE	-0.553	4.733	306	0.253	4.896	308	0.473	4.678	316	-0.366	4.733	310	0.468	3.888	317	1557
14 PENGCAP	0.060	5.509	292	-0.196	6.016	292	0.302	4.219	304	-0.112	4.575	302	0.665	4.698	303	1493
15 MGIC	-0.735	4.717	275	-0.157	4.246	279	-0.052	3.907	288	-0.028	5.044	285	1.176	4.644	296	1423
LARGE COMPANIES																
1 MAYBANK	0.192	2.571	356	0.068	3.112	335	0.059	2.597	343	0.302	2.623	353	-0.046	2.429	348	1735
2 COMMERZ	0.072	4.156	335	-0.056	3.838	343	0.341	4.538	354	0.009	2.952	349	0.446	3.664	354	1735
3 PBB	0.044	2.892	340	-0.086	2.693	347	-0.233	3.759	361	-0.053	2.769	354	0.422	2.769	361	1763
4 AMMB	0.104	3.973	338	0.006	3.645	341	0.151	3.608	356	0.109	3.145	351	0.093	3.253	358	1744
5 S. BANK	-0.305	3.115	330	0.053	2.522	341	0.257	2.409	358	-0.025	2.143	351	0.427	2.380	355	1735
6 TA	-0.158	4.579	341	-0.139	3.875	347	0.118	4.083	360	0.195	4.361	353	0.776	3.757	362	1763
7 HL CRED.	-0.183	2.612	332	-0.020	2.280	337	0.261	2.677	354	0.103	3.117	348	0.346	2.678	357	1728
8 AFFIN	-0.053	4.582	341	-0.225	3.655	345	0.333	3.599	358	0.124	3.464	353	0.361	3.767	362	1759
9 RHB	0.011	5.108	324	-0.318	4.019	334	0.310	4.964	345	0.202	8.327	338	0.603	3.633	344	1685
10 PACIFIC	-0.295	3.218	339	0.039	3.374	346	0.204	3.044	360	-0.126	2.859	351	0.650	3.366	359	1755
11 BHL	-0.011	3.056	296	0.102	3.269	300	0.033	2.533	309	-0.162	2.778	299	0.658	3.098	302	1506
12 OSK	-0.359	3.050	341	0.057	3.281	245	0.262	3.282	360	0.250	4.300	353	0.519	3.739	361	1760
13 HH BANK	-0.068	3.225	338	0.096	2.878	345	0.002	2.197	358	0.067	2.518	351	0.244	2.745	359	1751
14 MAA	-0.072	5.126	328	0.203	3.553	333	0.229	4.226	349	-0.016	3.995	343	0.493	4.745	352	1705
15 MBF CAP	-0.267	5.052	328	0.077	5.027	330	0.515	4.916	345	-0.153	4.309	339	0.343	3.743	349	1691

Table 3: Summary Statistics For Mean Returns Across Day-Of-The-Week For Whole Period

		t-statistic					Krustal-Wallis	F-statistic	Tukey's Test
		Monday	Tuesday	Wednesday	Thursday	Friday			
SMALL COMPANIES									
1	HANCOCK	-0.390	-0.004	0.152	1.456*	2.640***	9.684***	1.596	
2	AMANAH	-1.451*	-0.448	1.965**	-0.177	2.938***	22.653*	3.278**	5 & 1
3	MBSB	0.877	-1.303*	0.612	-1.124	1.813***	5.400	1.806	
4	APEX	-1.000	1.015	0.925	1.441*	4.829***	28.997***	4.354**	5 & 1; 5 & 3
5	K'HALL	-2.155**	0.881	0.661	2.497***	3.004***	22.825***	4.057**	4 & 1; 5 & 1
6	IDRIS	3.059***	-2.475***	-0.613	1.000	0.539	49.761***	4.168**	1 & 2
7	MBF HLDG	-1.006	-0.170	1.019	-0.945	1.759**	20.345***	1.440	
8	MBA	2.775***	-2.592***	1.612**	0.318	1.562*	18.672***	4.196**	1 & 2; 3 & 2; 5 & 2
9	KAF	-1.158	-0.073	0.040	1.191	3.745***	12.365***	3.417**	5 & 1
10	MALPAC	-0.806	-0.121	2.096**	0.137	2.755***	8.468	2.300	
11	OMEGA	-1.856**	0.173	1.213	-0.234	4.328***	23.043***	5.197**	5 & 1; 5 & 2; 5 & 4
12	P'GLOBAL	-2.359***	-0.236	1.900**	0.857	1.766**	20.101***	3.189**	3 & 1; 5 & 1
13	P'KALE	-2.104**	0.967	1.826**	-1.401**	1.810**	29.045***	3.475**	3 & 1; 5 & 1
14	PENGCAP	0.273	-0.665	1.046	-0.386	2.264**	24.660***	1.520	
15	MGIC	-2.691***	-0.581	-0.196	-0.165	4.470***	38.729***	6.849**	5 & 1; 5 & 2; 5 & 3; 5 & 4
LARGE COMPANIES									
1	MAYBANK	1.355*	0.469	0.409	2.123**	-0.321	3.584	0.891	
2	COMMERZ	0.341	-0.267	1.656**	0.044	2.168**	8.111	1.135	
3	PBB	0.269	-0.530	-0.147	-0.329	2.662***	4.330	1.698	
4	AMMB	0.539	0.034	0.800	0.575	0.495	1.661	0.077	
5	S. BANK	-2.191**	0.389	1.922**	-0.181	3.184***	23.349***	4.134**	3 & 1; 5 & 1
6	TA	-0.705	-0.624	0.540	0.883	3.562***	22.094	2.963**	5 & 1; 5 & 2
7	HL CRED.	-1.237	-0.139	1.825**	0.715	2.426***	14.560***	2.126	
8	AFFIN	-0.258	-1.097	1.651**	0.609	1.797**	10.925***	1.518	
9	RHB	0.036	-1.063	1.051	0.678	2.044**	17.878***	1.322	
10	PACIFIC	-1.706**	0.229	1.216	-0.744	3.871***	25.426***	4.570**	5 & 1; 5 & 4
11	BHL	-0.065	0.599	0.195	-0.948	3.864***	9.436***	3.381**	5 & 1; 5 & 4
12	OSK	-1.861**	0.299	1.392*	1.316*	2.766***	24.748***	2.885**	5 & 1
13	HH BANK	-0.458	0.656	0.011	0.458	1.690**	9.078	0.670	
14	MAA	-0.298	0.849	0.978	-0.066	2.117**	13.656***	0.881	
15	MBF CAP	-1.045	0.303	2.065**	-0.606	1.384***	14.233***	1.659	

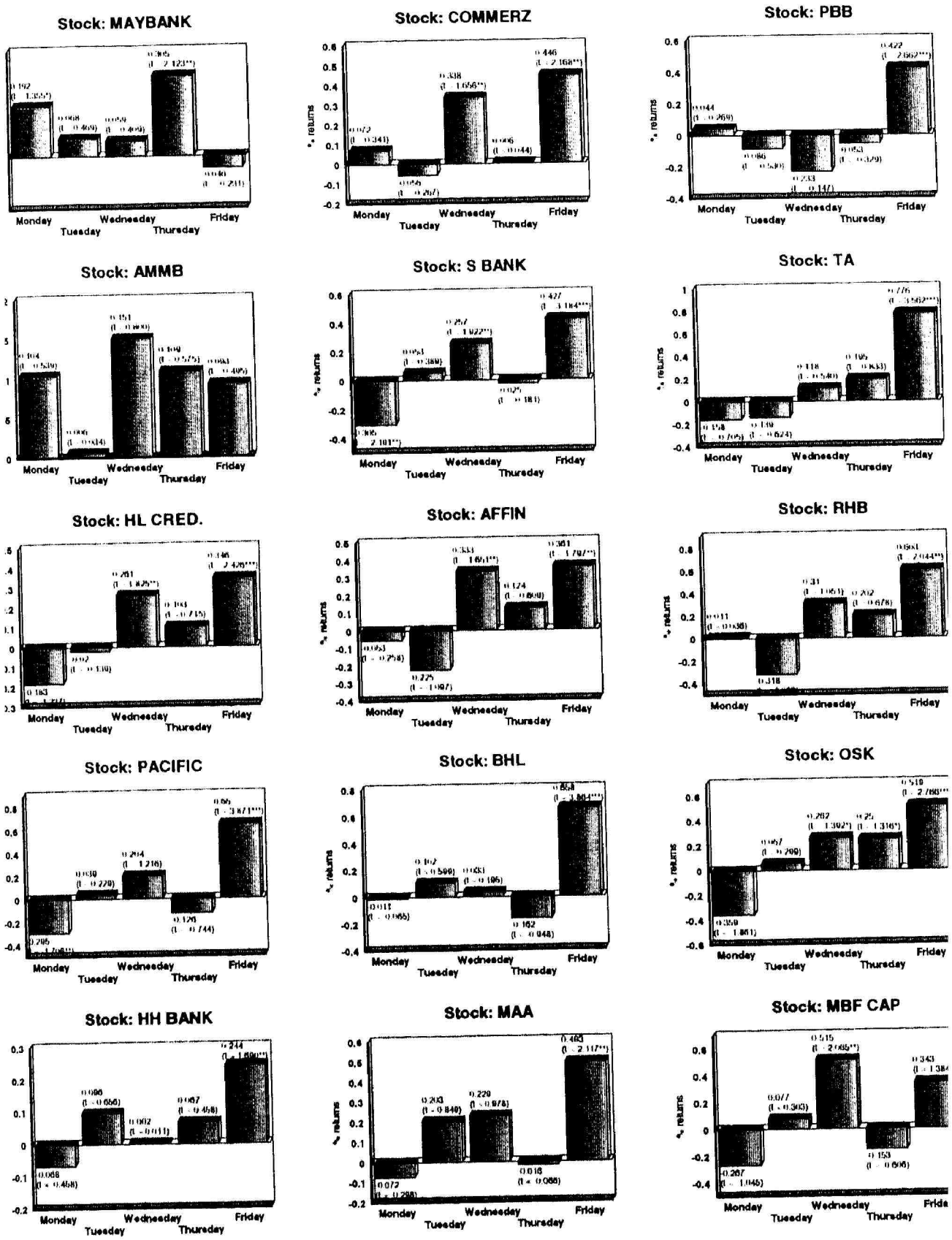
***, **, * represent significance level of 1%, 5% and 10%, respectively.

Figure 1: Mean Returns Across Day-Of-The Week Of Small Companies
January 1992 to June 1999



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

Figure 2: Mean Returns Across Day-Of-The Week Of Large Companies
January 1992 to June 1999



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

3.1.2 Empirical Finding For The Day-Of-The-Week Effect For The Sub-Period: Jan 1992 to Dec 1993

The descriptive statistics of the mean returns for all stocks in the first sub-period are summarized in Table 4. Overall views of the mean returns for both small and large companies are presented in Figure 3 and Figure 4, respectively. In general, we deduced that the majority of stocks indicate daily positive returns during the period of 1992 to 1993.

Only a minority of stocks have negative mean returns on Monday, both from small and large companies. From the result, 10 stocks (33%) out of 30 stocks have negative mean returns on Monday, whilst all stocks show positive mean returns on Thursday and Friday. 13 stocks (43%) show negative mean returns on Tuesday, whilst 90% of stocks have positive mean returns on Wednesday. It is interesting to note further that, among the negative mean returns for all stocks, mean returns on Tuesday indicate larger negative returns as compared with the mean returns on Monday.

In particular, the result shows that 10 stocks (about 33%), namely 5 stocks from small companies and another 5 stocks from large companies, indicate negative returns on Monday, whilst the remaining stocks indicate positive returns on that day. This result is in contradiction with the findings in the overall period analysis in which the majority of the stocks indicate negative mean returns on Monday.

In this sub-period 1992 to 1993, all stocks excluding two from small companies and one from large companies, indicate a strong positive mean returns on

Wednesday through Friday. In fact, certain stocks show all positive mean returns across the day-of-the-week.

However, these results cannot be firmly deduced without statistical evidence. The statistical results obtained for all stocks during the first sub-period from January 1992 to December 1993 are presented in Table 5. From the *t*-statistics results, there are no stocks showing significant negative returns on Monday. In fact, 33% (5 stocks) of small companies and 27% (4 stocks) of large companies show significant positive mean returns on Monday. In general, we deduce that the Monday effect is not persistent in this period as compared with the overall period. This phenomenon can be explained because of the good market performance in the KLSE during the period of year 1992 through 1993.

In general, the majority of stocks, both from small and large companies, indicate significant positive mean returns on Wednesday through Friday. For small companies, 67% (10 stocks) of them show positive mean returns on Wednesday, 53% (8 stocks) have positive mean returns on Thursday and 80% (12 stocks) have positive mean returns on Friday.

As compared with small companies, out of 15 stocks in large companies 53% (8 stocks) have positive Wednesday returns, 47% (7 stocks) have positive Thursday returns and 73% (11 stocks) have positive Friday returns. Hence, we deduce that small companies have larger proportion showing positive returns from Wednesday through Friday.

The Levene's test in Table 5 shows that the majority of stocks do not indicate significant result as the null hypothesis of equal variance is not rejected. Only 5

stocks from small companies and 3 stocks from large companies have unequal variances in their daily returns. Thus, these stocks will be subjected to the Kruskal-Wallis test for testing the difference among daily mean returns. The failure to reject the null hypothesis of homogeneity for those stocks allows us to conduct the One-way ANOVA F test for testing the equality of mean returns across days of the week

The *F*-statistics for one-way ANOVA in Table 5 obtained for the sub-period from 1992 to 1993 is not sufficient to reject the null hypothesis that the daily mean returns are significantly different. Only 4 stocks, namely 1 stock from small companies and 3 stocks from large companies, indicate at least one day's mean return is significantly different from another day's mean return. This can be further confirmed by the Tukey's test in Table 5 that Monday's return differs significantly from Tuesday's, Wednesday's and Friday's return.

In general, there is no strong day-of-the-week effect in the finance stocks during the period of 1992 to 1993. Furthermore, certain stocks both from small and large companies indicate all positive mean returns for five trading days and exhibited no day-of-the-week effect. Thus, there is no evidence of a firm size effect on the mean returns of stocks across the day-of-the-week during the period of 1992 to 1993.

Table 4: Descriptive Statitstics of Daily Mean Returns Across The Day-Of-The-Week For Sub-period Jan 1992 to Dec 1993

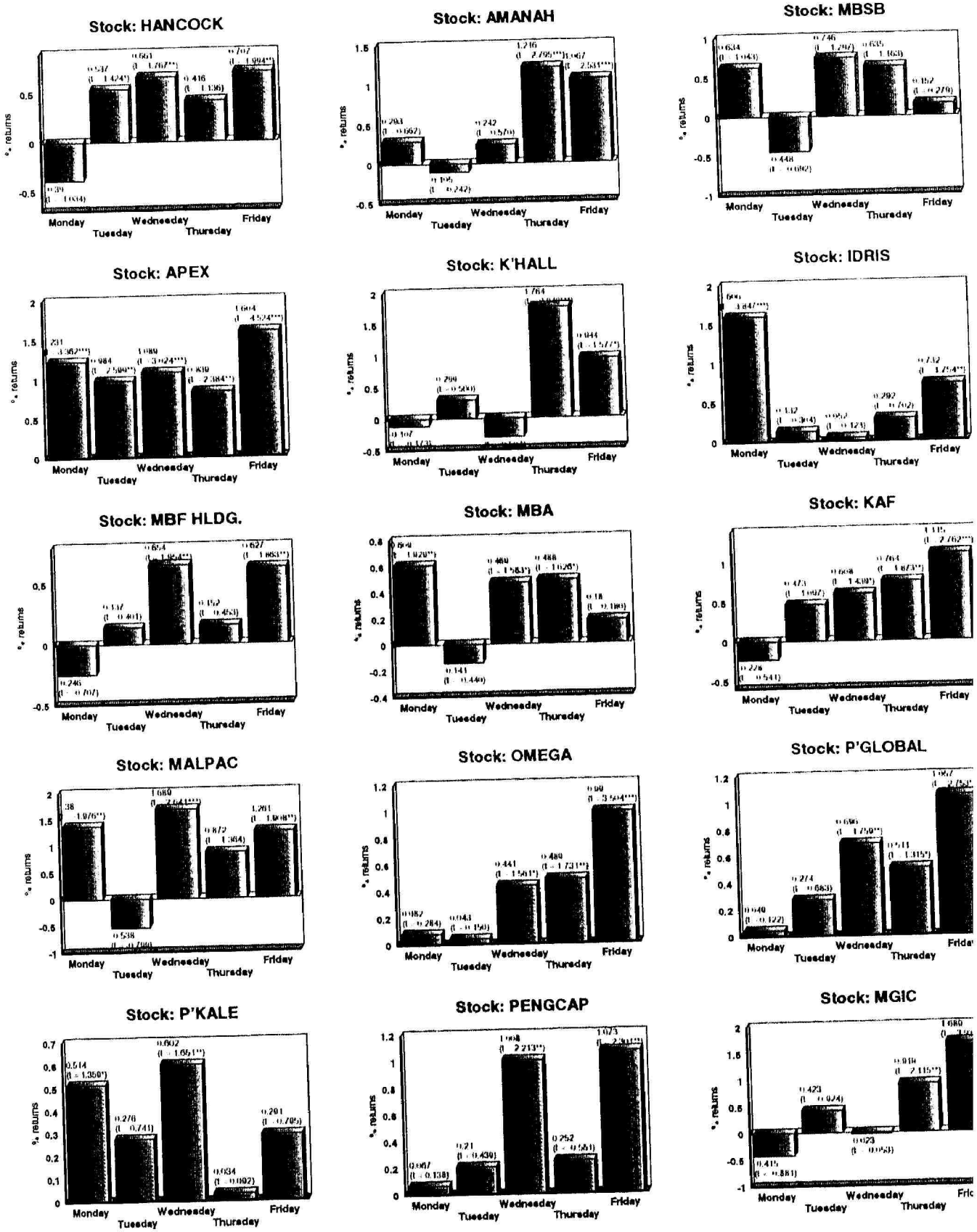
		Monday			Tuesday			Wednesday			Thursday			Friday			Total Observation
		Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	
SMALL COMPANIES																	
1	HANCOCK	-0.390	1.563	70	0.537	2.611	70	0.661	3.071	71	0.416	4.185	75	0.707	3.539	80	366
2	AMANAH	0.293	3.105	59	-0.105	2.743	61	0.242	2.571	64	1.216	4.529	61	1.087	3.677	65	310
3	MBSB	0.634	2.524	25	-0.448	1.742	22	0.746	3.942	28	0.635	3.628	31	0.152	2.519	31	137
4	APEX	1.231	3.112	61	0.984	2.630	57	1.089	3.122	63	0.839	2.521	66	1.604	2.868	66	313
5	K'HALL	-0.107	3.788	73	0.299	3.180	79	-0.294	4.917	84	1.764	8.964	80	0.944	3.347	80	396
6	IDRIS	1.606	4.559	96	0.132	4.245	89	0.052	2.267	94	0.292	4.281	98	0.732	4.600	97	474
7	MBF HLDG	-0.246	3.359	90	0.137	2.455	93	0.654	3.660	98	0.152	3.690	97	0.627	3.134	97	475
8	MBA	0.609	2.625	65	-0.141	2.838	63	0.469	2.655	74	0.488	2.273	73	0.180	2.342	71	346
9	KAF	-0.228	3.479	83	0.473	4.692	79	0.608	3.284	83	0.764	3.889	89	1.115	3.708	91	425
10	MALPAC	1.380	3.768	52	-0.538	5.184	56	1.689	7.329	62	0.872	3.685	62	1.261	4.009	58	290
11	OMEGA	0.082	2.828	90	0.043	2.529	92	0.441	2.773	96	0.489	2.952	98	0.990	2.672	96	470
12	P'GLOBAL	0.049	3.208	80	0.274	3.097	81	0.696	3.577	84	0.511	3.964	87	1.057	3.977	89	421
13	P'KALE	0.514	4.756	90	0.276	3.403	93	0.602	3.347	96	0.034	3.195	97	0.291	3.079	97	475
14	PENGCAP	0.067	4.591	80	0.210	5.221	81	1.008	3.919	89	0.252	3.943	89	1.073	3.121	86	425
15	MGIC	-0.415	4.316	69	0.423	3.809	73	-0.023	2.901	79	0.919	4.784	81	1.689	3.519	83	385
LARGE COMPANIES																	
1	MAYBANK	0.377	2.030	96	-0.076	2.152	89	0.131	1.645	94	0.583	1.899	98	0.372	2.277	97	474
2	COMMERZ	-0.084	2.145	88	-0.219	4.144	91	0.600	5.187	95	0.641	2.090	96	0.451	2.415	95	465
3	PBB	0.217	2.553	89	-0.080	2.082	92	0.313	2.514	98	0.365	2.910	97	0.689	2.729	97	473
4	AMMB	0.259	2.148	87	0.205	2.176	88	0.723	2.614	94	0.305	2.355	94	0.173	2.576	94	457
5	S. BANK	-0.110	2.313	83	-0.076	1.862	88	0.353	2.078	96	0.238	1.645	94	0.547	1.965	93	454
6	TA	0.279	3.518	89	0.097	3.008	92	0.430	2.919	97	0.842	3.229	96	1.025	3.051	97	471
7	HL CRED.	0.105	2.273	89	0.152	1.781	91	0.661	2.850	96	0.562	2.564	96	0.752	2.104	96	468
8	AFFIN	-0.074	2.529	89	-0.215	1.970	92	0.669	3.463	97	0.356	2.468	96	0.714	3.200	97	471
9	RHB	0.254	2.708	90	-0.254	2.073	92	0.651	2.540	97	0.156	3.265	97	0.977	3.656	97	473
10	PACIFIC	-0.134	1.564	87	0.306	2.665	91	0.200	2.401	97	0.105	1.774	94	0.822	4.259	94	463
11	BHL	0.011	1.896	85	-0.003	1.581	88	-0.120	1.962	96	0.319	2.041	93	0.702	2.216	93	455
12	OSK	-0.036	2.175	89	-0.069	2.610	92	0.520	2.819	98	0.842	2.754	96	1.473	4.327	96	471
13	HH BANK	0.675	4.016	89	0.097	2.634	92	0.178	1.891	98	0.269	1.834	97	0.076	3.236	97	473
14	MAA	0.598	5.319	82	0.175	3.407	84	0.565	3.453	92	0.491	4.446	92	0.486	3.098	94	444
15	MBF CAP	0.505	2.851	86	-0.056	2.426	86	0.310	2.920	91	0.079	2.868	90	0.586	2.548	92	445

Table 5: Summary Statistics For Mean Returns Across The Day-Of-The-Week For Sub-period Jan 1992-Dec 1993

		t-statistic					Levene Test	F-statistic	Kruskal-Wallis	Tukey's Test
		Monday	Tuesday	Wednesday	Thursday	Friday				
SMALL COMPANIES										
1	HANCOCK	-1.034	1.424*	1.767**	1.136	1.994**	0.964	1.466	6.820	
2	AMANAH	0.662	-0.242	0.570	2.795***	2.531***	1.565	1.745	3.865	
3	MBSB	1.043	-0.692	1.297	1.163	0.279	2.156*	0.651	4.385	
4	APEX	3.362***	2.599**	3.024***	2.384**	4.524***	0.990	0.635	4.776	
5	K'HALL	-0.173	0.500	-0.504	2.949***	1.577*	2.588**	1.897	6.551	
6	IDRIS	3.847***	0.304	0.123	0.702	1.754**	3.027**	2.387	11.664**	
7	MBF HLDG	-0.707	0.401	1.954**	0.453	1.863**	2.308*	1.153	5.453	
8	MBA	1.929**	-0.440	1.583*	1.626*	0.180	0.235	0.925	8.057	
9	KAF	-0.541	1.097	1.439*	1.873**	2.762***	0.112	1.379	7.842	
10	MALPAC	1.976**	-0.799	2.641***	1.364	1.908**	0.713	1.710	5.117	
11	OMEGA	0.284	0.150	1.561*	1.731**	3.504***	0.693	1.743	11.166**	
12	P'GLOBAL	0.122	0.683	1.759**	1.315*	2.753***	0.605	1.114	4.003	
13	P'KALE	1.359*	0.741	1.651**	0.092	0.795	0.490	0.319	2.913	
14	PENGCAP	0.138	0.439	2.213**	0.551	2.301**	0.254	1.201	14.965***	
15	MGIC	-0.881	0.924	-0.053	2.115**	3.935***	2.813**	3.434***	11.883**	5 & 1; 5 & 3
LARGE COMPANIES										
1	MAYBANK	1.834**	-0.355	0.626	2.825***	1.809**	1.548	1.513	5.473	
2	COMMERZ	-0.230	-0.607	1.693**	1.816**	1.273	0.614	1.228	5.508	
3	PBB	0.796	-0.299	1.195	1.389*	2.620***	1.084	1.070	3.532	
4	AMMB	1.010	0.806	2.919*	1.231	0.700	0.693	0.762	1.874	
5	S. BANK	-0.506	-0.359	1.739**	1.163	2.653***	0.519	1.703	9.522**	
6	TA	0.836	0.296	1.339*	2.610***	3.193***	0.332	1.401	8.337	
7	HL CRED.	0.423	0.617	2.743	2.331**	3.117***	1.198	1.455	5.567	
8	AFFIN	-0.250	-0.740	2.349**	1.245	2.505***	2.941**	2.127	10.352**	
9	RHB	0.834	-0.845	2.208**	0.529	3.316***	1.053	2.456**	10.834**	5 & 2
10	PACIFIC	-0.458	1.075	0.723	0.373	2.916***	0.885	1.559	7.963	
11	BHL	0.050	-0.017	-0.599	0.319*	0.702***	1.439	2.611**	12.560**	5 & 3
12	OSK	-0.111	-0.218	1.688**	2.701***	4.726***	4.255***	3.968***	17.193***	5 & 1; 5 & 2
13	HH BANK	2.258**	0.331	0.622	0.933	0.263	1.366	0.662	4.440	
14	MAA	1.352*	0.400	1.347*	1.171	1.172	2.657**	0.152	2.687	
15	MBF CAP	1.715**	-0.189	1.079	0.274	2.049**	0.829	0.806	3.105	

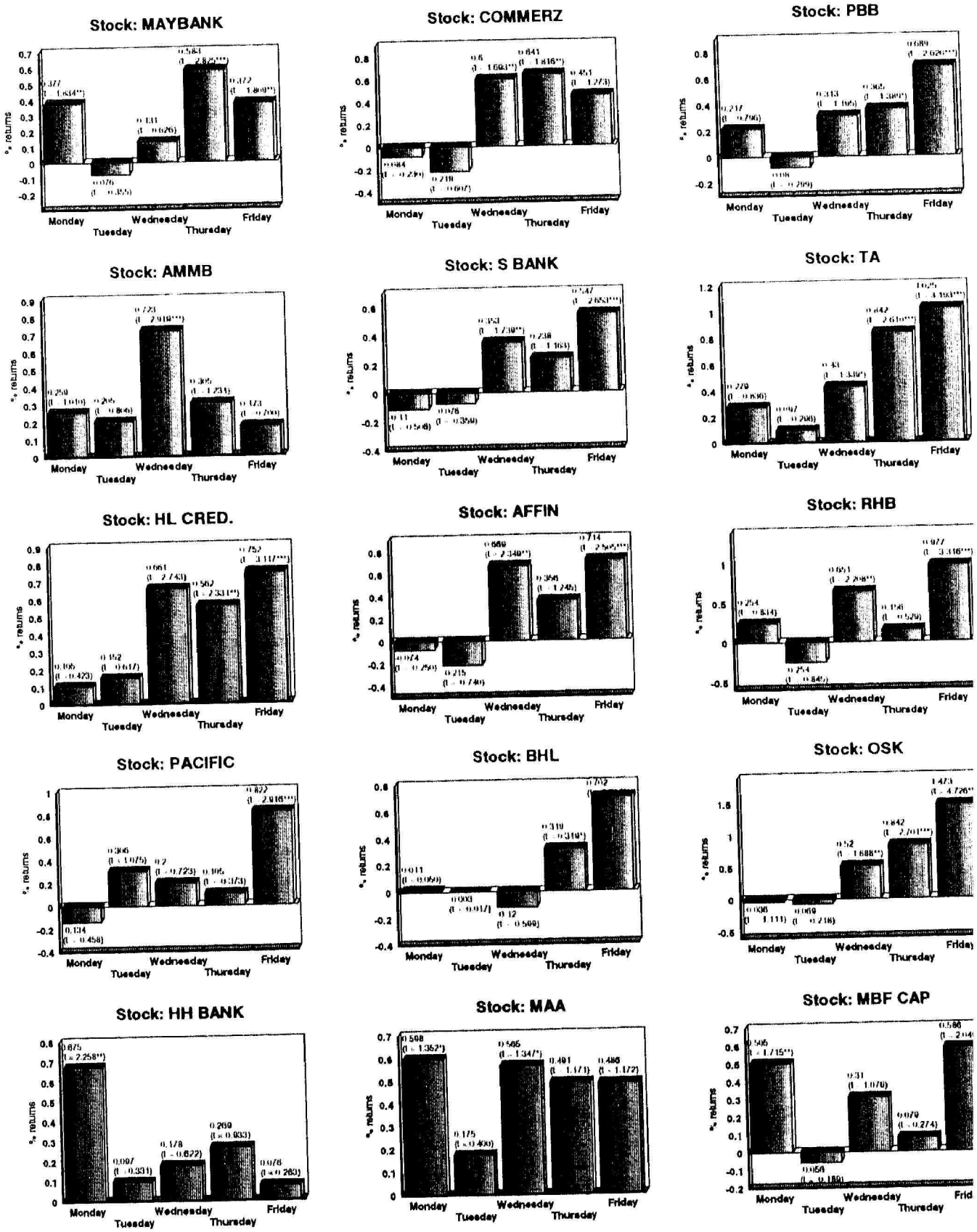
***, **, * represent significance level of 1%, 5% and 10%, respectively.

Figure 3: Mean Returns Across Day-Of-The Week Of Small Companies
January 1992 to December 1993



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

Figure 4: Mean Returns Across Day-Of-The Week Of Large Companies
January 1992 to December 1993



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

3.1.3 Empirical Finding For The Day-Of-The-Week Effect For The Sub-Period Jan 1994 to Dec 1996

Table 6 contains descriptive statistics for daily mean returns for each day of the week during the period of 1994 to 1996. The graphs in Figures 5 and 6 summarize the mean returns for each stock for small and large companies, respectively. In general, the majority of stocks exhibited negative Monday's return and positive Friday's returns.

From the results, 80% (12 stocks) of small companies have negative returns on Monday. About 67% (10 stocks) of them have negative Thursday returns. 93% (14 stocks) of the small companies have positive returns on Wednesday and Friday. For large companies, 80% (12 stocks) of them have negative Monday returns. 80% (12 stocks) of stocks have positive Wednesday returns and 93% (14 stocks) of them have positive Friday returns. Thus, it appears that in the stable market during the period of 1994 to 1996, both small and large companies have same proportion showing negative returns on Monday and positive returns on Friday.

The *t*-statistics that are obtained from the OLS estimation and other test statistics results are presented in Table 7. From the *t*-statistics result, about 67% (10 stocks) of small companies have Monday returns significantly different from zero. Among these stocks, 8 of them have negative Monday returns. Furthermore, 40% (6 stocks) of large companies indicate a similar result, in which the Monday returns are significantly negative. The significant *t*-statistics for these stocks confirm that the Monday effect occurs during this period.

The result prevailed that only a minority of stocks, which include both small and large companies show mean returns that are significantly different from zero on Tuesday, Wednesday and Thursday. Thus, we can deduce that there is no strong Tuesday, Wednesday and Thursday effect for the stocks during the period of 1994 to 1996.

However, the majority of *t*-statistics for mean returns on Fridays exhibit significant positive returns. About 73% (11 stocks) from small companies indicate a strong Friday effect in which their mean returns are significantly greater than zero. This is in contrast to the large companies, of which only about 33% (5 stocks) have significant positive Friday returns. It appears that the Friday effect occurs more with the small companies than with large companies.

From the Levene's test result obtained for this period of 1994 to 1996, the failure to reject the homogeneity in variances allows us to apply the one-way ANOVA to test for the equality of mean returns across the days of the week. Hence, the Kruskal-Wallis test need not be used to test for the rejection of equality of mean returns. However, the result given by Kruskal-Wallis test is consistent with those from the one-way ANOVA F test.

The *F*-statistics for one-way ANOVA in Table 7 further confirm that there are 14 stocks, namely 10 stocks from small companies and 4 stocks from large companies, which indicate at least one pair of the mean difference between two trading days is significantly different from zero. From the result, we can deduce that small companies have larger proportion showing significance in their mean differences between trading days as compared to the large companies.

A further analysis by Tukey's test shows that about 73% (11 stocks) of the stocks indicate Friday's return differs from Monday's return. In addition, in certain stocks the test also indicates that Monday's return is significantly different from Tuesday's and Wednesday's return.

In general, the mean returns of these stocks during the period of 1994 to 1996 show evidence of the day-of-the-week effect. Moreover, the day-of-the-week effect is more obviously found in small companies as compared to large companies. As a result, there is a firm size effect occuring during this period.

3.1.4 Empirical Finding For The Day-Of-The-Week Effect For The Sub-Period Jan 1997 to Oct 1998

The descriptive statistics of daily mean returns for stocks in the sub-period 1997 to October 1998 are provided in Table 8. The graphical summary of the mean returns for both small and large companies is presented in Figures 7 and 8, respectively. In general, the majority of stocks, both from small and large companies, indicate negative mean returns across the days of the week. About 67% (10 stocks) of small companies and 73% (11 stocks) of large companies have negative returns on Monday. Some stocks indicate negative mean returns from Monday through Thursday, whilst certain stocks have negative returns for all five trading days. In general, during the period of 1997 to October 1998, the majority of stocks indicate larger negative Tuesday returns compared with the Monday returns.

Table 6: Descriptive Statitstics of Daily Mean Returns Across The Day-Of-The-Week For Sub-period Jan 1994 to Dec 1996

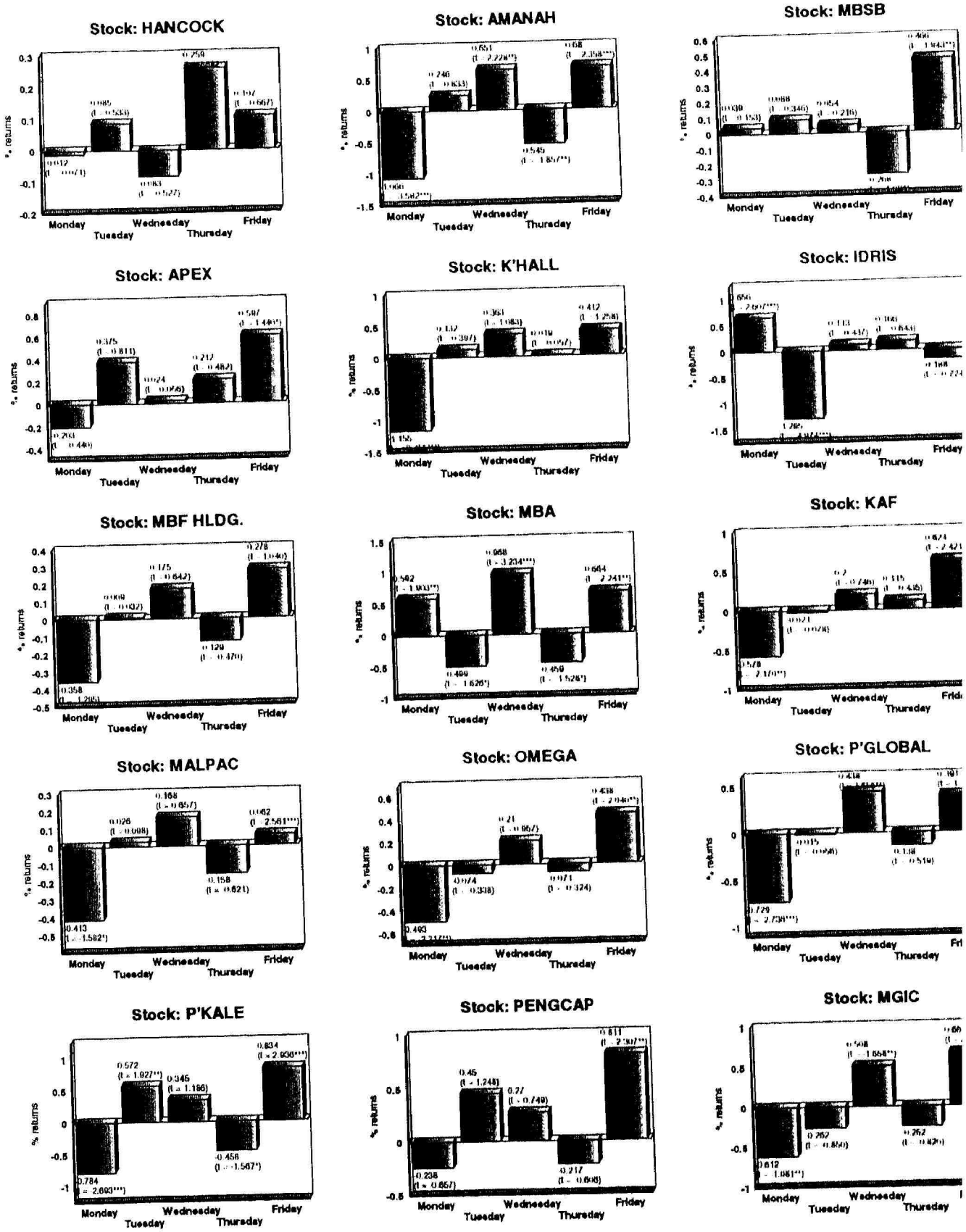
	Monday			Tuesday			Wednesday			Thursday			Friday			Total
	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Observation
SMALL COMPANIES																
1 HANCOCK	-0.012	1.382	106	0.085	1.799	117	-0.083	1.679	121	0.259	1.968	114	0.107	1.768	118	576
2 AMANAH	-1.066	3.681	135	0.246	3.595	137	0.651	3.515	140	-0.545	3.328	139	0.680	3.162	147	698
3 MBSB	0.039	2.616	110	0.088	2.596	110	0.054	3.295	114	-0.268	2.323	114	0.466	2.310	122	570
4 APEX	-0.203	2.270	50	0.375	4.999	50	0.024	2.479	57	0.212	3.349	55	0.597	2.688	62	274
5 K'HALL	-1.155	3.292	135	0.132	3.243	136	0.363	3.289	134	0.019	3.449	134	0.412	5.537	141	680
6 IDRIS	0.656	2.876	148	-1.295	3.051	138	0.113	3.095	139	0.166	2.942	140	-0.188	3.323	139	704
7 MBF HLDG	-0.358	3.607	137	0.009	3.074	139	0.175	2.910	140	-0.129	2.997	138	0.278	3.501	146	700
8 MBA	0.592	3.637	98	-0.499	2.643	101	0.968	3.834	106	-0.459	2.356	105	0.664	2.675	108	518
9 KAF	-0.578	3.143	131	-0.021	2.880	131	0.200	2.584	129	0.115	3.574	132	0.624	2.970	140	663
10 MALPAC	-0.413	3.279	127	0.026	3.097	125	0.168	2.587	132	-0.158	2.810	134	0.062	2.925	140	658
11 OMEGA	-0.493	3.791	136	-0.074	2.456	139	0.210	2.657	139	-0.071	2.538	139	0.438	2.524	146	699
12 P'GLOBAL	-0.729	3.634	138	-0.015	3.067	140	0.438	3.006	140	-0.138	2.707	139	0.391	3.166	147	704
13 P'KALE	-0.784	3.296	137	0.572	4.696	138	0.345	2.966	137	-0.458	2.763	136	0.834	2.969	144	692
14 PENGCAP	-0.238	3.739	133	0.450	6.184	134	0.270	3.643	134	-0.217	3.056	136	0.811	3.544	141	678
15 MGIC	-0.612	4.161	137	-0.262	2.811	138	0.508	3.445	139	-0.252	3.719	138	0.667	3.792	147	699
LARGE COMPANIES																
1 MAYBANK	0.139	2.135	142	-0.054	1.821	132	0.170	1.940	133	0.135	1.947	133	0.013	1.687	133	673
2 COMMERZ	0.009	2.272	138	0.085	2.336	140	0.167	2.282	140	-0.099	2.175	138	0.222	2.555	146	702
3 PBB	-0.136	2.176	137	0.011	2.002	140	-0.357	4.497	140	-0.134	1.901	139	0.293	2.372	146	702
4 AMMB	-0.029	2.321	137	0.282	2.882	138	-0.067	2.856	139	0.279	2.485	139	-0.155	2.340	146	699
5 S. BANK	-0.393	2.847	133	-0.023	1.882	138	0.398	1.913	139	-0.137	1.831	139	0.412	2.156	144	693
6 TA	-0.324	3.490	138	-0.085	3.109	140	0.125	3.291	140	-0.067	2.601	139	0.602	2.870	147	704
7 HL CRED.	-0.377	2.192	129	-0.138	2.439	131	0.220	2.637	135	0.241	2.560	134	0.224	2.214	143	672
8 AFFIN	-0.200	2.347	138	0.061	2.369	140	0.332	2.187	140	0.061	2.268	139	0.199	2.481	147	704
9 RHB	-0.470	2.940	132	0.049	3.932	135	-0.082	5.781	134	0.824	12.288	133	0.536	2.771	141	675
10 PACIFIC	-0.328	3.067	138	0.027	3.637	140	0.538	3.183	140	-0.154	2.720	139	0.707	2.824	147	704
11 BHL	0.156	2.999	97	-0.090	3.348	97	0.346	2.357	90	0.077	2.692	88	1.008	3.497	91	483
12 OSK	-0.734	2.792	138	0.156	3.336	138	0.282	3.421	139	0.089	4.811	139	0.212	3.798	147	701
13 HH BANK	-0.167	2.396	135	0.111	2.584	138	0.164	1.837	138	0.101	2.091	136	0.140	2.306	144	691
14 MAA	-0.442	2.881	138	0.487	2.750	140	0.186	2.579	140	0.479	2.590	139	0.479	2.578	147	704
15 MBF CAP	-0.588	3.796	138	0.133	3.131	140	0.930	5.276	140	-0.249	4.001	139	0.218	2.959	147	704

Table 7: Summary Statistics For Mean Returns Across The Day-Of-The-Week For Sub-period Jan 1994 to Dec 1996

		t-statistic					Levene Test	F-statistic	Kruskal-Wallis	Tukey's Test
		Monday	Tuesday	Wednesday	Thursday	Friday				
SMALL COMPANIES										
1	HANCOCK	-0.071	0.533	-0.527	1.592*	0.667	0.549	0.647	3.802	
2	AMANAH	-3.582***	0.833	2.228**	-1.857**	2.358***	1.276	5.527**	33.778**	1&2; 1&3; 1&5; 3&4; 4&5
3	MBSB	0.153	0.346	0.216	-1.081	1.943**	1.145	1.150	2.777	
4	APEX	-0.440	0.811	0.056	0.482	1.440*	1.120	0.496	6.510	
5	K'HALL	-3.455***	0.397	1.083	0.057	1.258	0.646	3.693**	23.411**	1&2; 1&3; 1&5
6	IDRIS	2.607***	-4.974***	0.437	0.643	-0.724	0.030	7.988**	45.276**	1&2; 2&3; 2&4; 2&5
7	MBF HLDG	-1.295	0.032	0.642	-0.470	1.040	1.382	0.849	9.673**	
8	MBA	1.903**	-1.626*	3.234***	-1.528*	2.241**	2.166*	5.111**	22.369**	2&3; 3&4
9	KAF	-2.170**	-0.078	0.746	0.435	2.421***	0.862	2.725**	10.964**	1&5
10	MALPAC	-1.582*	0.098	0.657	-0.621	2.561***	0.854	2.398**	10.379**	1&5
11	OMEGA	-2.217**	-0.338	0.957	-0.324	2.040**	1.692	2.552**	10.238**	1&5
12	P'GLOBAL	-2.736***	-0.056	1.656**	-0.519	1.156*	1.930	3.199**	15.720**	1&3; 1&5
13	P'KALE	-2.693***	1.927**	1.186	-1.567*	2.936***	0.734	5.723**	33.296**	1&2; 1&3; 1&5; 4&5
14	PENGCAP	-0.657	1.248	0.749	-0.606	2.307**	0.849	1.585	8.787**	
15	MGIC	-1.981**	-0.850	1.658**	-0.820	2.235**	1.479	3.261**	26.680**	1&5
LARGE COMPANIES										
1	MAYBANK	0.868	-0.326	1.024	0.810	0.077	0.235	0.338	0.853	
2	COMMERZ	0.004	0.434	0.849	-0.499	1.153	0.293	0.428	4.266	
3	PBB	-0.577	0.048	-1.527*	-0.571	1.282	0.749	1.075	4.296	
4	AMMB	-0.131	1.283	-0.304	1.273	-0.726	0.586	0.882	3.182	
5	S. BANK	-2.107**	-0.123	2.179**	-0.749	2.294**	0.664	3.632**	11.489**	1&3; 1&5
6	TA	-1.235	-0.328	0.479	-0.258	2.367***	1.319	1.824	9.481	
7	HL CRED.	-1.772**	-0.655	1.057	1.156	1.109	0.528	1.766	7.429	
8	AFFIN	-1.008	0.308	1.683**	0.310	1.031	0.541	1.000	5.291	
9	RHB	-0.825	0.087	-0.145	1.453	0.973	1.255	0.820	10.913**	
10	PACIFIC	-1.298*	0.108	2.144**	-0.612	2.887***	1.021	3.205**	17.679**	1&5
11	BHL	0.509	-0.294	1.088	0.239	3.186***	0.935	1.837	4.376	
12	OSK	-2.334**	0.497	0.899	0.284	0.696	0.739	1.768	21.452**	
13	HH BANK	-0.857	0.578	0.854	0.519	0.743	0.783	0.483	1.878	
14	MAA	-1.942**	2.154**	0.823	-0.387	2.168**	0.765	3.071**	9.800**	1&2; 1&5
15	MBF CAP	-1.765**	0.404	2.818***	-0.751	0.676	1.406	2.953**	19.513**	1&3

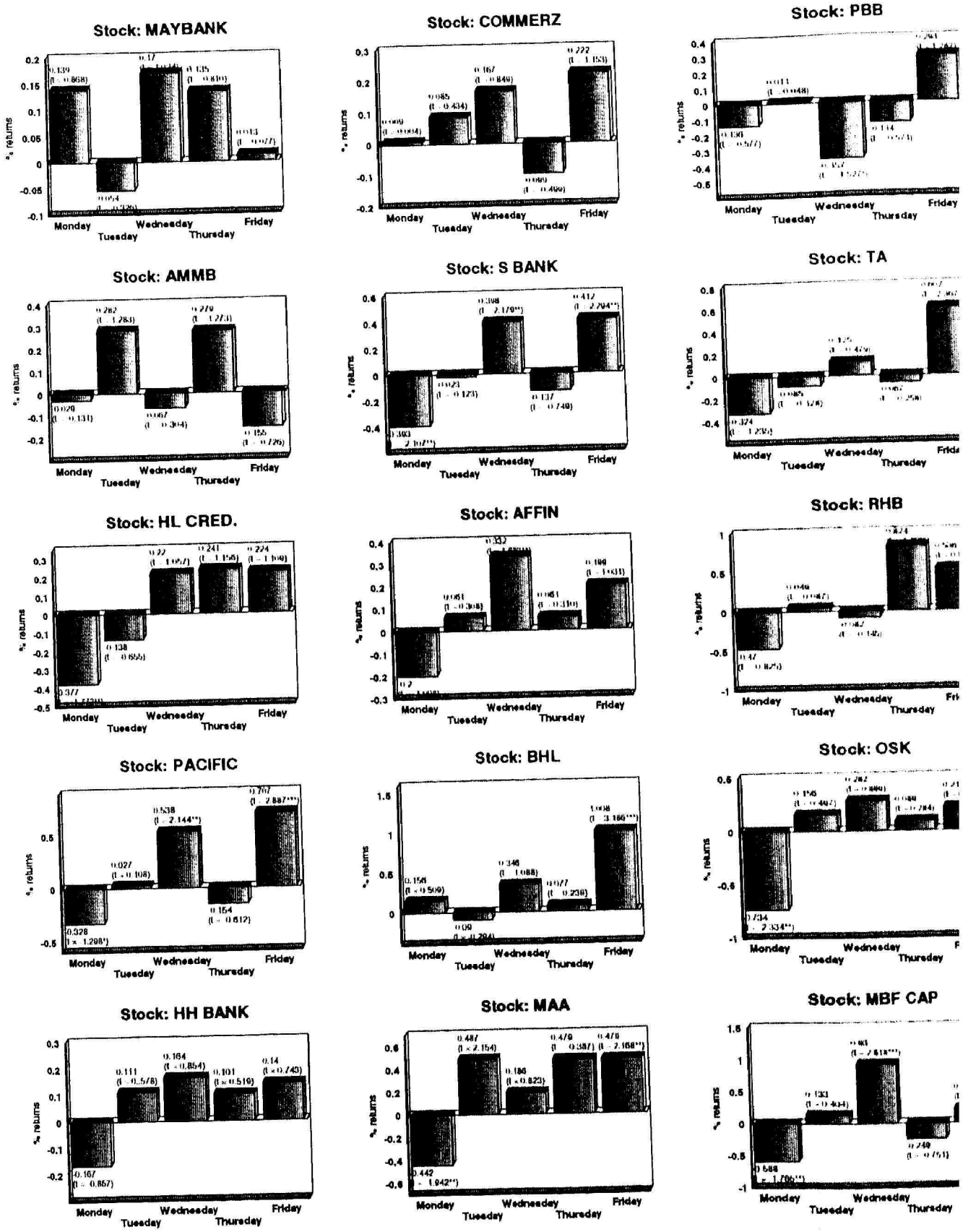
***, **, * represent significance level of 1%, 5% and 10%, respectively.

Figure 5: Mean Returns Across Day-Of-The Week Of Small Companies
January 1994 to December 1996



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

Figure 6: Mean Returns Across Day-Of-The Week Of Large Companies
January 1992 to December 1996



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

From Figures 7 and 8, about 60% (9 stocks) of small companies and 53% (8 stocks) of large companies have positive mean returns on Friday, although the KLSE market is in the declining trend during the period of 1997 to October 1998.

The various statistical results for the third sub-period from 1997 to October 1998 are summarized in Table 9. From *t*-statistics result, only 4 stocks from small companies and 2 stocks from large companies indicate significant negative Monday returns. About 53% (8 stocks) of small companies and 40% (6 stocks) of large companies indicate significant negative Tuesday returns. Hence, we can deduce that Tuesday returns generally have larger negative returns as compared to the Monday returns. In particular, small companies have larger proportion of showing Tuesday effect than large companies.

The mean returns on Wednesdays are not significantly different from zero for the majority of stocks during the third sub-period. It is interesting to note further from Table 9 that Thursday returns are not significantly different from zero for all small companies. However, 50% of large companies indicate significant negative Thursday returns.

In general, the majority of stocks do not indicate significant Friday effect during the third sub-period. Only 5 stocks from small companies have significant positive Friday returns, whilst none of large companies have significant positive Friday returns. From the result, it gives clear evidence that Friday effect is not occurring during the period of 1997 to October 1998.

From Table 9, insignificant Levene's test results indicate that the null hypothesis of equal variances is not rejected at 5% significance level. Thus the

variances for daily returns are assumed to be equal. With this assumption, we may use the one-way ANOVA F test for testing the difference of mean returns across the days of the week.

The *F*-statistics for the one-way ANOVA are summarized in Table 9. The result shows that all stocks except one has no significant mean difference between any of the days given.

In conclusion, we can deduce that there is no day-of-the-week effect in daily stock returns during the period of 1997 to October 1998. This result can be attributed to the declining market in Malaysia caused by the Asian financial crisis that started in the middle of July 1997.

Table 8: Descriptive Statitstics of Daily Mean Returns Across The Day-Of-The-Week For Sub-period Jan 97 to Oct 98

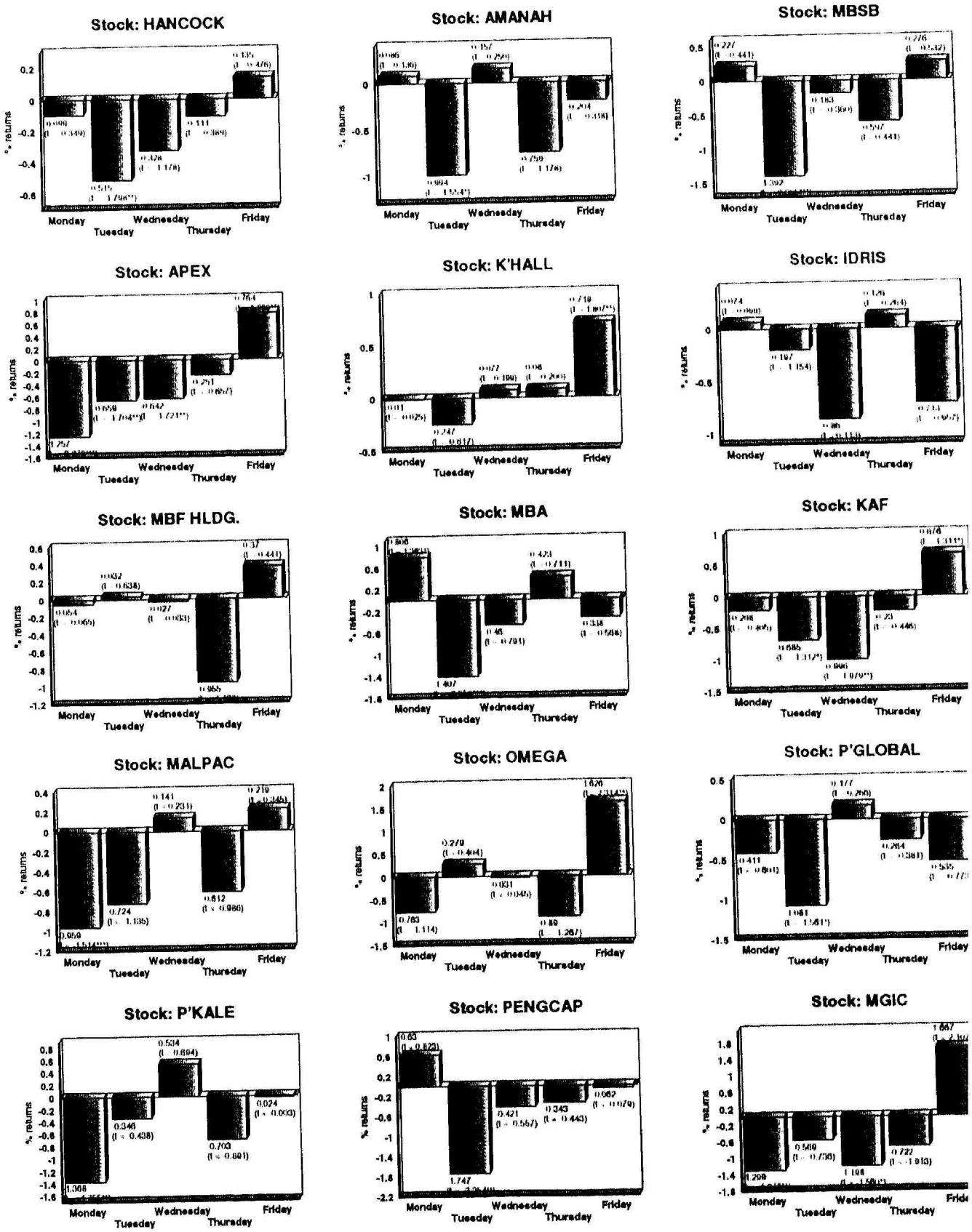
	Monday			Tuesday			Wednesday			Thursday			Friday			Total Observation
	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	Mean	Std.	n	
SMALL COMPANIES																
1 HANCOCK	-0.099	2.624	83	-0.515	2.581	81	-0.328	2.746	86	-0.111	2.791	82	0.135	2.079	82	414
2 AMANAH	0.086	6.208	81	-0.994	6.177	79	0.157	5.184	83	-0.759	5.963	79	-0.204	4.989	80	402
3 MBSB	0.227	4.058	83	-1.392	6.647	81	-0.183	4.417	86	-0.597	3.882	82	0.276	3.966	82	414
4 APEX	-1.257	3.441	82	-0.659	2.643	80	-0.642	3.476	86	-0.251	3.606	82	0.764	3.980	82	412
5 K'HALL	-0.010	3.814	83	-0.247	4.474	81	0.077	2.729	86	0.080	3.749	82	0.719	3.035	82	414
6 IDRIS	0.074	5.393	82	-0.197	9.563	82	-0.860	5.472	82	0.126	6.645	86	-0.713	5.759	82	414
7 MBF HLDG	-0.054	9.804	78	0.032	8.483	76	-0.027	5.738	80	-0.955	4.986	77	0.370	6.779	77	388
8 MBA	0.806	7.809	83	-1.407	4.484	81	-0.460	3.804	86	0.423	6.012	82	-0.338	3.700	82	414
9 KAF	-0.208	3.944	82	-0.685	3.241	79	-0.996	4.163	85	-0.230	5.649	81	0.676	5.698	81	408
10 MALPAC	-0.959	5.250	71	-0.724	5.500	70	0.141	4.783	76	-0.612	4.967	74	0.219	6.144	71	362
11 OMEGA	-0.763	4.607	59	0.279	5.041	58	-0.031	5.180	59	-0.890	6.664	56	1.626	4.568	56	288
12 P'GLOBAL	-0.411	6.997	82	-1.081	6.532	80	0.177	5.406	83	-0.264	6.147	80	-0.535	5.781	80	405
13 P'KALE	-1.368	6.385	79	-0.346	6.526	77	0.534	7.589	81	-0.703	8.017	77	-0.024	5.855	76	390
14 PENGCAP	0.630	8.231	79	-1.747	6.293	77	-0.421	5.232	81	-0.343	6.936	77	-0.062	6.992	76	390
15 MGIC	-1.299	5.995	69	-0.569	6.519	68	-1.198	5.317	70	-0.722	7.218	66	1.667	6.983	66	339
LARGE COMPANIES																
1 MAYBANK	-0.041	3.740	82	0.084	5.102	82	-0.653	4.127	82	0.153	4.089	86	-0.803	3.475	82	414
2 COMMERZ	0.046	7.437	79	-0.669	5.467	79	0.038	6.729	83	-0.547	4.491	80	0.160	6.127	79	400
3 PBB	-0.126	4.009	83	-0.801	3.858	81	0.183	4.020	86	-0.628	3.885	82	0.393	3.500	82	414
4 AMMB	0.146	6.727	83	-1.336	5.286	81	-0.290	5.203	86	-0.931	4.087	82	-0.185	4.886	82	414
5 S. BANK	-0.622	4.638	83	-0.216	3.376	81	-0.221	3.019	86	-0.191	2.851	82	0.170	3.025	82	414
6 TA	-0.353	6.338	83	-1.112	5.160	81	0.058	4.954	86	-0.647	7.125	82	0.570	5.168	82	414
7 HL CRED.	-0.219	3.034	83	-0.464	2.157	81	-0.168	2.507	86	-0.744	4.329	82	-0.175	3.747	82	414
8 AFFIN	0.334	7.692	83	-1.211	6.018	80	-0.144	5.354	85	-0.398	5.489	82	-0.035	6.075	82	412
9 RHB	0.045	8.551	72	-1.213	5.144	74	0.895	6.290	78	-0.104	4.980	73	-0.175	4.937	71	368
10 PACIFIC	-0.518	4.460	83	-0.463	4.653	81	-0.193	3.695	86	-0.648	3.870	82	0.167	3.415	82	414
11 BHL	-0.440	3.781	83	0.428	4.493	81	-0.354	2.997	86	-0.795	3.533	82	0.076	3.690	82	414
12 OSK	-0.199	3.757	83	-0.396	3.938	81	-0.212	3.041	86	-0.493	5.204	82	-0.011	3.007	82	414
13 HH BANK	-0.541	3.284	83	-0.287	3.444	81	-0.396	2.818	85	-0.555	3.053	82	0.345	2.882	82	413
14 MAA	-0.322	7.454	83	-0.433	4.701	81	0.076	6.834	86	-0.508	5.476	82	0.126	8.481	82	414
15 MBF CAP	-0.416	7.713	77	-0.706	7.908	75	0.366	5.747	81	-1.053	5.456	78	-0.107	5.692	78	389

Table 9: Summary Statistics For Mean Returns Across The Day-Of-The-Week For Sub-period Jan 1997 to Oct 1998

		t-statistic					Levene Test	F-statistic	Kruskal-Wallis	Tukey's Test
		Monday	Tuesday	Wednesday	Thursday	Friday				
SMALL COMPANIES										
1	HANCOCK	-0.349	-1.798**	-1.178	-0.389	0.476	0.892	0.755	3.507	
2	AMANAH	0.136	-1.544*	0.250	-1.178	-0.318	0.784	0.644	3.299	
3	MBSB	0.441	-2.665***	-0.360	0.441	0.532	0.900	1.754	3.572	
4	APEX	-3.279***	-1.704**	-1.721**	-0.657	1.999**	0.997	3.820**	18.505**	1 & 5
5	K'HALL	-0.025	-0.617	0.199	0.200	1.807**	1.158	0.809	3.668	
6	IDRIS	0.099	-1.154	0.113	-0.264	-0.957	1.633	0.371	5.017	
7	MBF HLDG	-0.065	0.638	-0.033	-1.138	0.441	1.376	0.345	6.071	
8	MBA	1.363*	-2.350***	-0.791	0.711	-0.568	1.155	2.077	7.781	
9	KAF	-0.405	-1.312*	-1.979**	-0.446	1.311*	1.485	1.522	3.183	
10	MALPAC	-1.514*	-1.135	0.231	-0.986	0.345	0.507	0.721	2.025	
11	OMEGA	-1.114	0.404	-0.045	-1.267	2.314**	0.778	2.088	7.201	
12	P'GLOBAL	-0.601	-1.561*	0.266	-0.381	-0.773	0.573	0.440	3.087	
13	P'KALE	-1.755**	-0.438	0.694	-0.891	-0.003	0.610	0.853	4.017	
14	PENGCAP	0.823	-2.254**	-0.557	-0.443	-0.079	0.321	1.257	7.896	
15	MGIC	-1.678**	-0.736	-1.560*	-0.913	2.107**	0.606	2.363	6.776	
LARGE COMPANIES										
1	MAYBANK	-0.090	0.183	-1.428*	0.342	-1.755**	0.411	0.947	1.606	
2	COMMERZ	0.067	-0.969	0.056	-0.797	0.232	1.082	0.310	1.770	
3	PBB	-0.296	-1.867**	0.391	-1.473*	0.922	0.607	1.424	3.454	
4	AMMB	0.250	-2.265**	-0.509	-1.587*	-0.282	0.783	1.058	1.958	
5	S. BANK	-1.724**	-0.591	-0.623	-0.526	0.468	1.213	0.600	5.713	
6	TA	-0.554	-1.724**	0.092	-1.010	0.890	0.515	1.014	6.367	
7	HL CRED.	-0.614	-1.286*	-0.479	-2.074**	-0.486	1.492	0.488	1.293	
8	AFFIN	0.487	-1.734**	-0.212	-0.577	-0.051	1.193	0.694	0.175	
9	RHB	0.063	-1.701**	1.289*	-1.449*	-0.240	1.508	1.480	5.120	
10	PACIFIC	-1.168	-1.032	-0.442	-1.452*	0.375	0.633	0.529	2.703	
11	BHL	-1.078	1.034	-0.883	-1.934**	0.185	0.199	1.332	2.124	
12	OSK	-0.470	-0.922	-0.509	-1.155	-0.258	1.798	0.136	2.769	
13	HH BANK	-1.588*	-0.832	-1.175	-1.626*	1.008	0.395	1.170	8.217	
14	MAA	-0.435	-0.579	0.105	-0.683	0.169	0.642	0.158	4.156	
15	MBF CAP	-0.556	-0.930	0.501	-1.415*	-0.144	1.021	0.546	5.017	

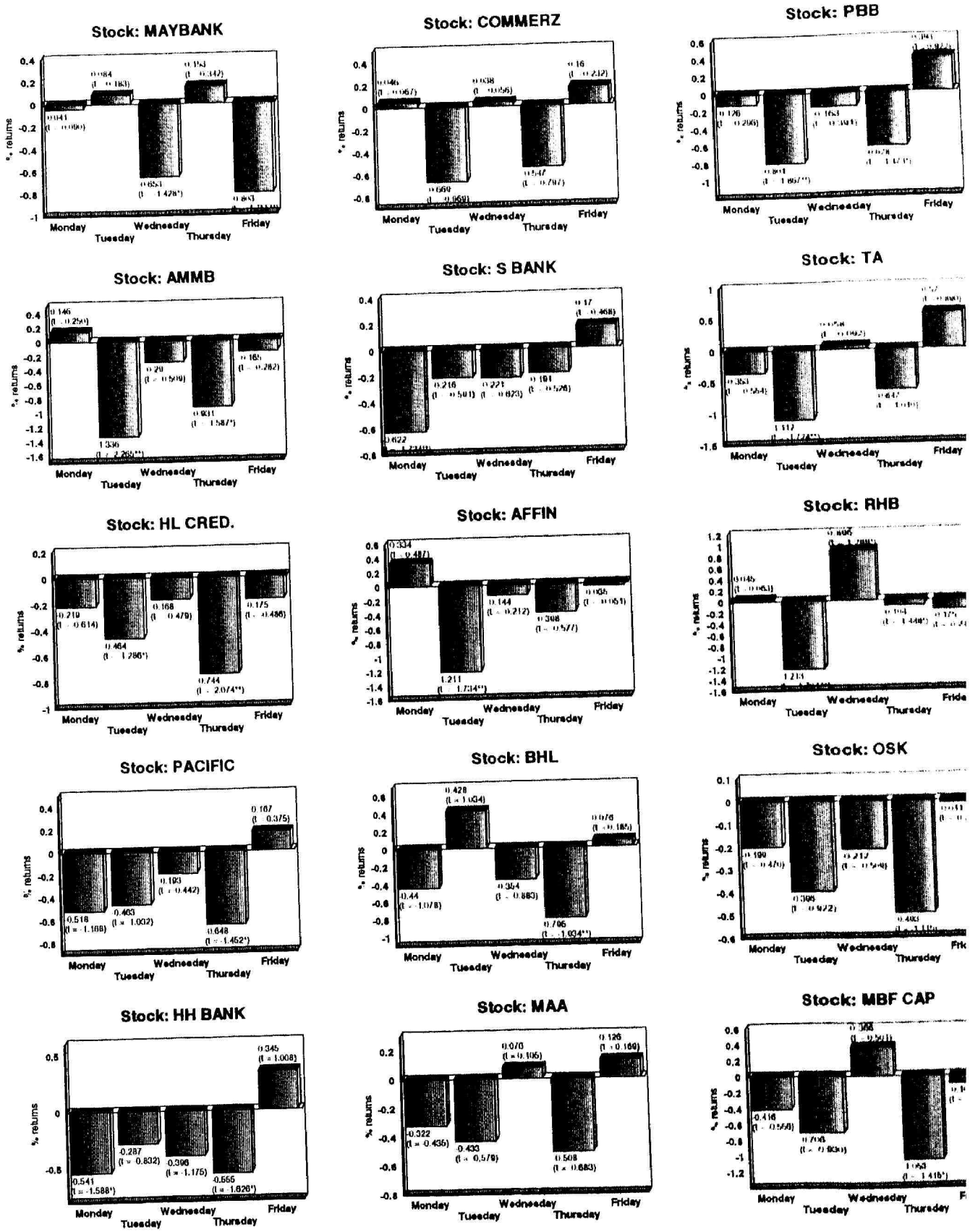
***, **, * represent significance level of 1%, 5% and 10%, respectively.

Figure 7: Mean Returns Across Day-Of-The Week Of Small Companies
January 1997 to October 1998



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

Figure 8: Mean Returns Across Day-Of-The Week Of Large Companies
January 1997 toOctober 1998



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

3.2 Empirical Finding On Pre-Holiday Effect For Whole Period 1992 to June 1999

Table 10 reports the finding for the pre-holiday effects of the 30 finance stocks for overall period from 1992 to June 1999. The graphical summary of the mean returns on pre-holiday and ordinary days for both small and large companies is presented in Figures 9 and 10, respectively.

In general, the mean returns on pre-holidays are higher than the mean returns on ordinary days. About 87% (13 stocks) of small companies and 53% (8 stocks) of large companies have higher mean returns on a day prior to a holiday.

In addition, Table 10 also presents the ratio which indicates the proportion of the mean returns on pre-holidays to ordinary days. For small companies, there are 9 stocks with the mean returns proportion greater than two with the highest ratio of 21. This means that the mean returns for that stock on pre-holidays is about 21 times higher than the mean returns on ordinary days.

However, there are only 4 stocks from large companies showing the mean returns proportion greater than two with the highest ratio of 11. This result suggests that the mean returns on pre-holidays for that stock is about 11 times higher than the mean returns on ordinary days.

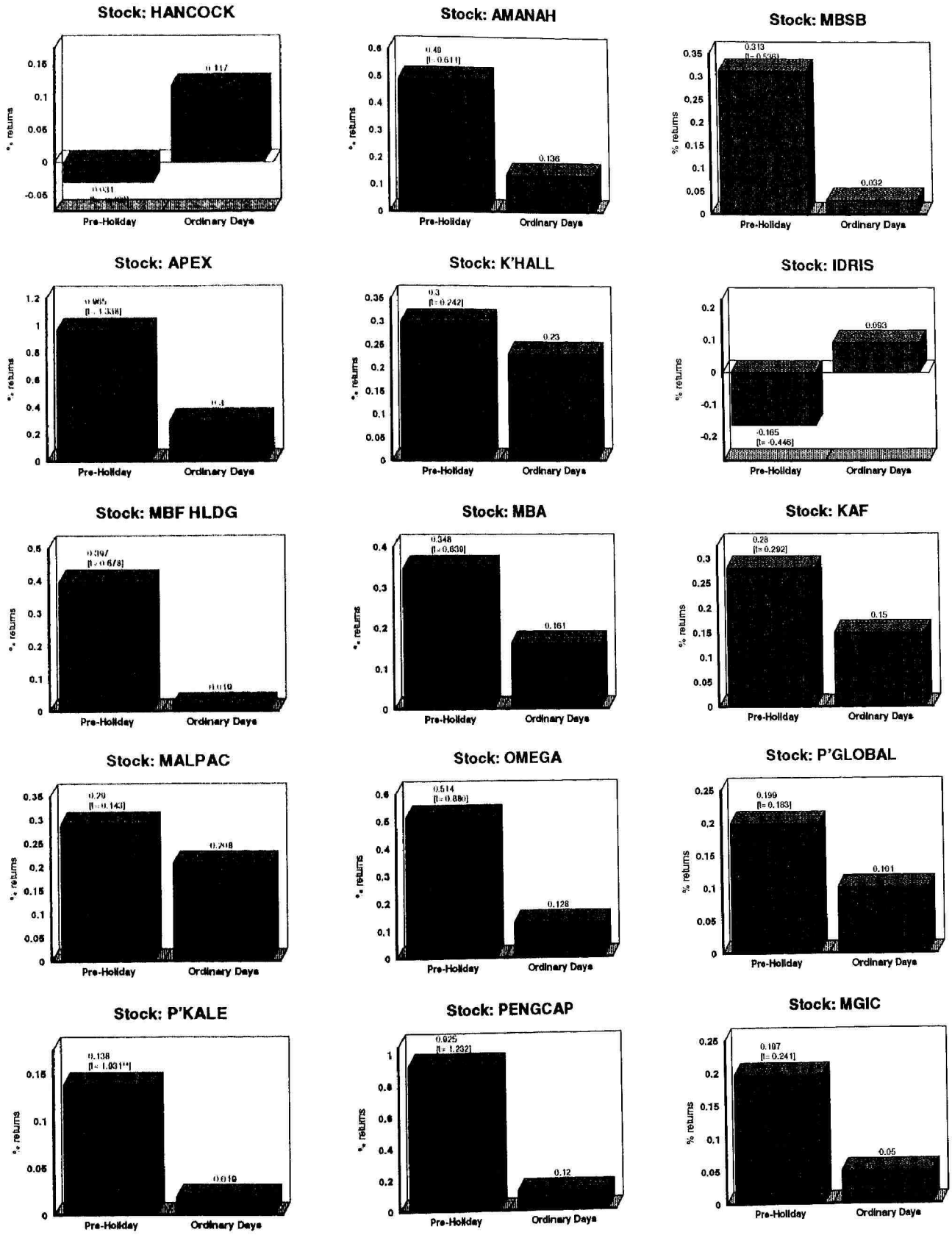
Both parametric and nonparametric test, the *t*-statistics and Mann-Whitney test statistics are reported in Table 10. In general, the majority of stocks have no significant result. This suggests that there is no significant difference in mean returns between pre-holiday and ordinary days. Thus, the results give clear evidence that there is no pre-holidays effect over the entire sample for overall period.

Table10: Summary Statistics For Mean Returns Of Pre-holiday Effects For Whole Period

		Pre-holiday		Ordinary Days		t-Test	Mann-Whitney	Ratio
		n	Mean	n	Mean	(vs.ordianry days)	Test	
SMALL COMPANIES								
1	HANCOCK	61	-0.031	1469	0.117	-0.463	-0.258	-0.26
2	AMANAH	66	0.490	1518	0.136	0.611	-1.181	3.59
3	MBSB	55	0.313	1240	0.032	0.536	-0.556	9.83
4	APEX	50	0.965	1123	0.300	1.338	-1.809	3.22
5	K'HALL	69	0.300	1595	0.230	0.242	-1.032	1.30
6	IDRIS	71	-0.165	1621	0.093	-0.446	-0.061	-1.78
7	MBF HLDG	72	0.397	1574	0.019	0.678	-1.556	20.56
8	MBA	56	0.348	1396	0.161	0.639	-0.783	2.16
9	KAF	72	0.280	1598	0.150	0.292	-0.937	1.88
10	MALPAC	60	0.290	1424	0.208	0.143	-0.711	1.40
11	OMEGA	61	0.514	1396	0.128	0.880	-1.794	4.03
12	P'GLOBAL	73	0.199	1627	0.101	0.183	-0.715	1.97
13	P'KALE	66	0.138	1491	0.019	1.931**	-2.280**	7.27
14	PENGCAP	62	0.925	1431	0.120	1.232	-1.060	7.70
15	MGIC	58	0.197	1365	0.050	0.241	-0.577	3.97
LARGE COMPANIES								
1	MAYBANK	72	-0.068	1663	0.125	-0.600	-0.035	-0.54
2	COMMERZ	75	-0.106	1660	0.177	-0.621	-0.250	-0.60
3	PBB	76	0.297	1687	0.052	0.694	-0.731	5.72
4	AMMB	75	0.175	1669	0.090	0.289	-0.425	1.93
5	S. BANK	74	-0.115	1661	0.096	-1.078	-0.809	-1.19
6	TA	76	0.189	1687	0.160	0.059	-0.905	1.18
7	HL CRED.	75	0.799	1653	0.076	2.279**	-2.355**	10.55
8	AFFIN	76	-0.264	1683	0.130	-0.879	-0.739	-2.03
9	RHB	73	-0.015	1612	0.172	-0.286	-0.769	-0.09
10	PACIFIC	74	0.655	1681	0.076	1.528*	-1.816**	8.64
11	BHL	59	0.273	1447	0.117	0.394	-0.908	2.32
12	OSK	75	0.156	1685	0.151	0.013	-0.708	1.04
13	HH BANK	73	0.104	1678	0.070	0.106	-0.440	1.50
14	MAA	74	0.041	1631	0.175	-0.259	-1.030	0.23
15	MBF CAP	73	-0.009	1618	0.114	-0.222	-1.085	-0.08

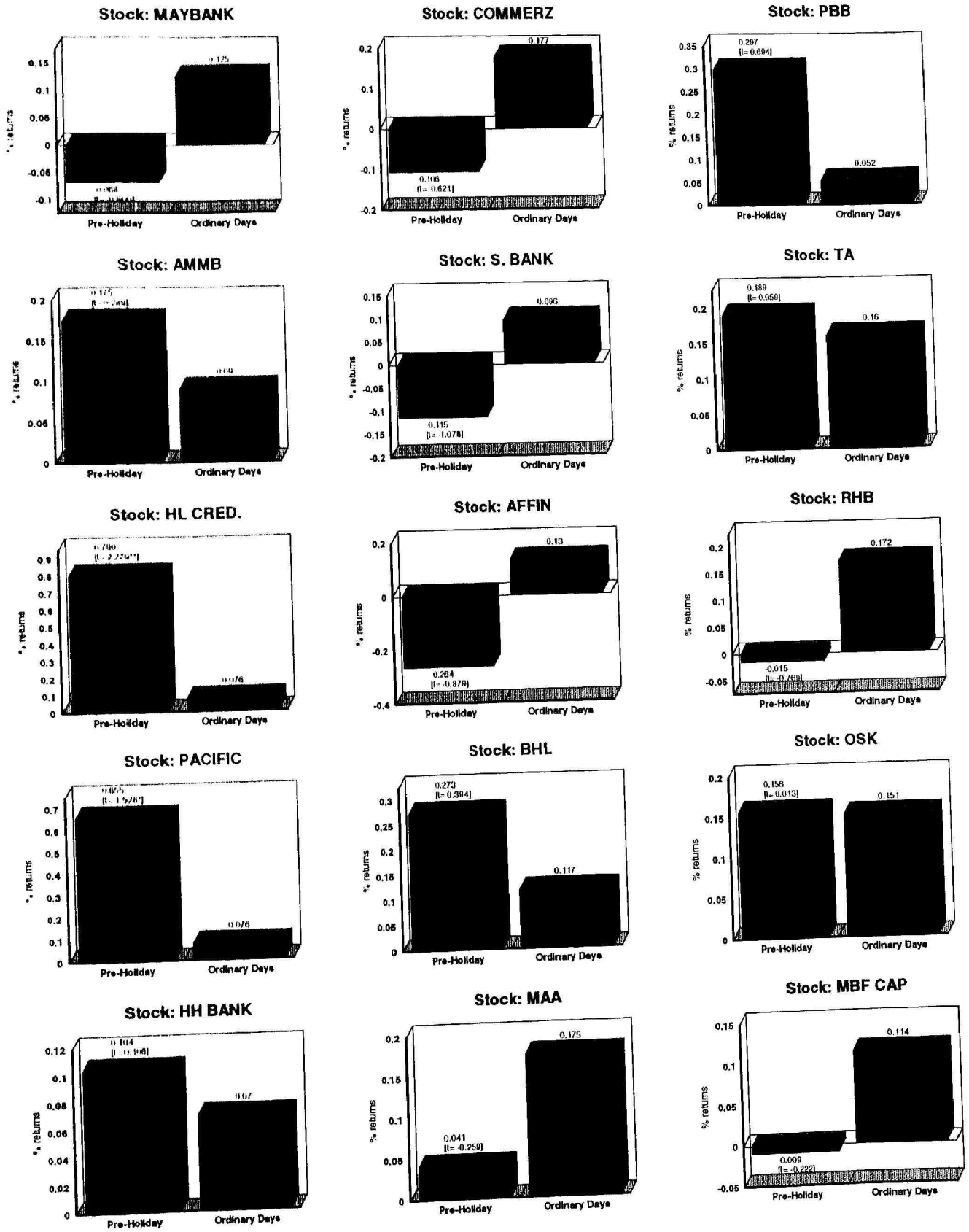
***, **, * represent significance level of 1%, 5% and 10%, respectively.

Figure 9: Mean Returns For The Pre-Holiday Effect Of Small Companies
January 1992 to June 1999



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

Figure 10: Mean Returns For The Pre-Holiday Effect Of Large Companies
January 1992 to June 1999



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

In conclusion, the finding of the pre-holiday effect in this study is not consistent with the findings obtained by Clare, *et al.* (1998) in which they found the pre-holiday effect exists in the KLCI with the stock prices tending to rise on the day prior to a public holiday.

3.3 Empirical Finding On End-Of-The-Month Effect For Whole Period 1992 to June 1999

Table 11 reports the finding for the end of the month effects of 30 finance stocks for overall period from 1992 to June 1999. The graphical summary of the mean returns for the last trading in a month and ordinary days for both small and large companies is presented in Figures 11 and 12, respectively.

In general, the result exhibited high mean returns on the last trading day in a month as compared to the rest of the days in a month. About 73% (11 stocks) of small companies show high proportion of the mean returns on end-of-the-month as compared to the rest of the days in a month. There are 3 stocks showing very high ratios of the mean returns on end-of-the-month to the returns on ordinary days, with the highest ratio of 64. In addition, we see that all stocks from small companies obtained positive returns on the last trading of a month.

However, the above-mentioned phenomenon does not occur in those stocks from large companies. Only 47% (7 stocks) of large companies indicate mean returns on the last trading day of a month that are higher than on ordinary days. The ratios of mean returns in large companies generally are lower than in small companies, with

the highest ratio of 10. Thus, we see that small companies have higher proportion showing an apparent end-of-the-month effect.

Table 11 reports the two independent sample *t*-statistics and the Mann-Whitney test statistics. In general, the majority of stocks indicated no significant result. Hence, we can conclude that there is no significant difference in mean returns between the last trading of a month and ordinary days. From the *t*-statistic result, only 3 out of 30 stocks showed significantly higher mean returns on the day of the end-of-the-month than on ordinary days. However, from the Mann-Whitney test there are 6 stocks, namely 5 stocks from small companies and 1 stock from large companies showing a similar result.

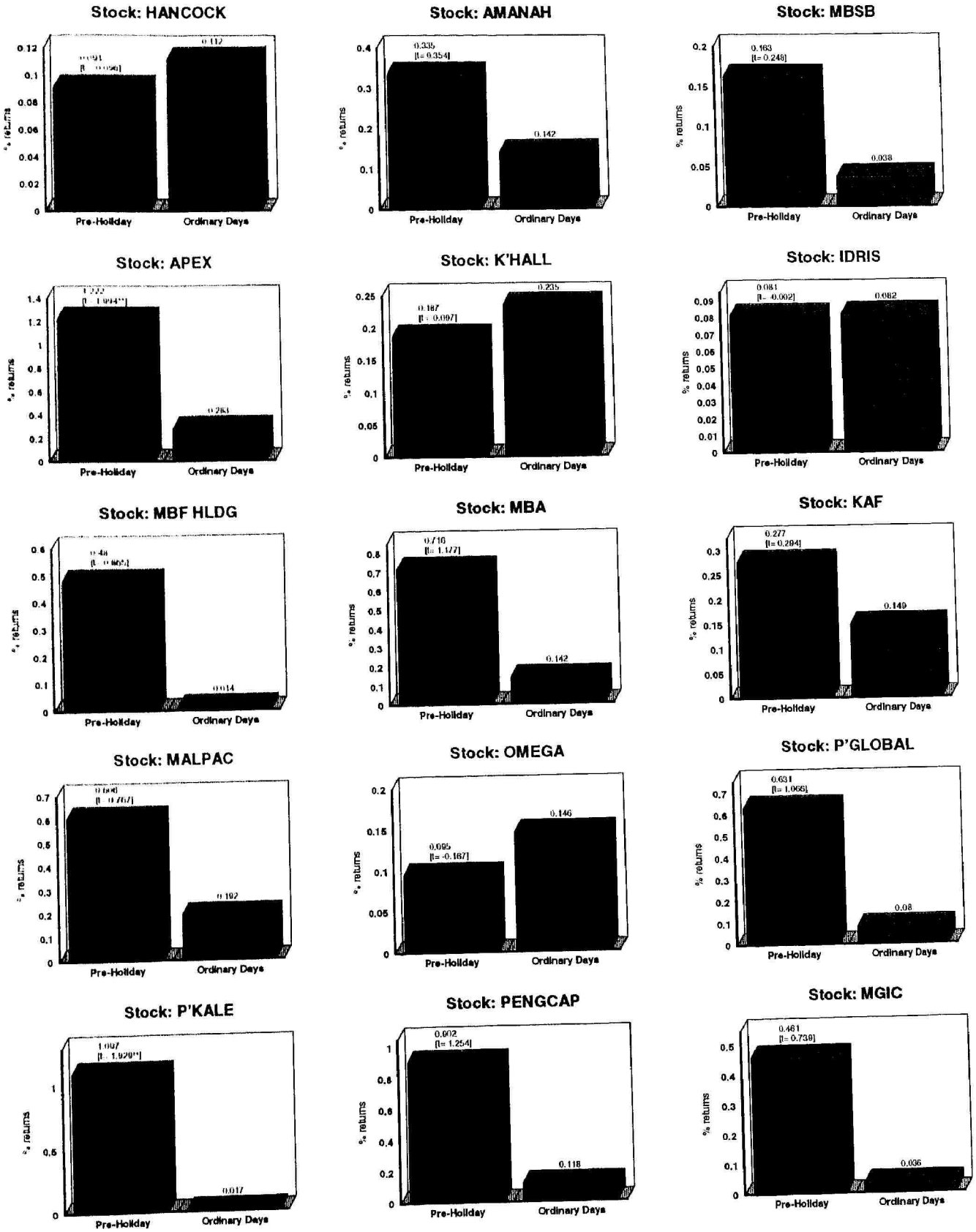
In conclusion, we can deduce that there is no persistence of the end-of-the-month effect in the entire sample period. However, among those significant results, the stocks from small companies have a more pronounced end-of-the-month effect as compared to the stocks from large companies.

Table 11: Summary Statistics For Mean Returns Of End-Of-The-Month Effects For Whole Period

		End-of-the month		Ordinary Days		t-Test	Mann-Whitney	Ratio
		n	Mean	n	Mean	(vs. Ordinary days)	Test	
SMALL COMPANIES								
1	HANCOCK	69	0.091	1461	0.112	-0.069	-0.039	0.81
2	AMANAH	75	0.335	1509	0.142	0.354	-0.134	2.36
3	MBSB	60	0.163	1235	0.038	0.248	-0.147	4.28
4	APEX	56	1.222	1117	0.283	1.994**	-2.082**	4.32
5	K'HALL	77	0.187	1587	0.235	-0.097	-0.173	0.80
6	IDRIS	78	0.081	1614	0.082	-0.002	-0.721	0.99
7	MBF HLDG	77	0.480	1569	0.014	0.865	-1.817*	34.30
8	MBA	66	0.716	1386	0.142	1.177	-1.554*	5.03
9	KAF	77	0.277	1593	0.149	0.294	-1.308	1.86
10	MALPAC	69	0.606	1415	0.192	0.767	-0.452	3.16
11	OMEGA	67	0.095	1390	0.146	-0.167	-0.115	0.65
12	P'GLOBAL	79	0.631	1621	0.080	1.066	-1.698**	7.91
13	P'KALE	71	1.097	1486	0.017	1.929**	-1.872**	63.76
14	PENGCAP	68	0.902	1425	0.118	1.254	-0.136	7.66
15	MGIC	66	0.461	1357	0.036	0.739	-0.019	12.84
LARGE COMPANIES								
1	MAYBANK	76	0.111	1656	0.118	-0.022	-0.196	0.94
2	COMMERZ	83	0.416	1652	0.153	0.606	-1.011	2.73
3	PBB	83	-0.173	1680	0.074	-0.352	-0.242	-2.33
4	AMMB	82	0.219	1662	0.088	0.328	-0.386	2.49
5	S. BANK	82	0.501	1653	0.067	1.515*	-0.929	7.49
6	TA	83	-0.082	1680	0.174	-0.549	-1.367	-0.47
7	HL CRED.	80	0.180	1648	0.104	0.246	-0.381	1.73
8	AFFIN	82	-0.144	1677	0.126	-0.626	-0.560	-1.15
9	RHB	79	0.025	1606	0.171	-0.231	-0.046	0.15
10	PACIFIC	82	-0.094	1673	0.110	-0.889	-0.615	-0.86
11	BHL	67	0.847	1493	0.090	1.514	-0.556	9.44
12	OSK	83	-0.079	1677	0.162	-0.790	-0.510	-0.49
13	HH BANK	82	0.129	1669	0.068	0.197	-0.005	1.90
14	MAA	80	0.511	1625	0.152	0.719	-2.133**	3.36
15	MBF CAP	81	-0.150	1610	0.122	-0.793	-0.248	-1.23

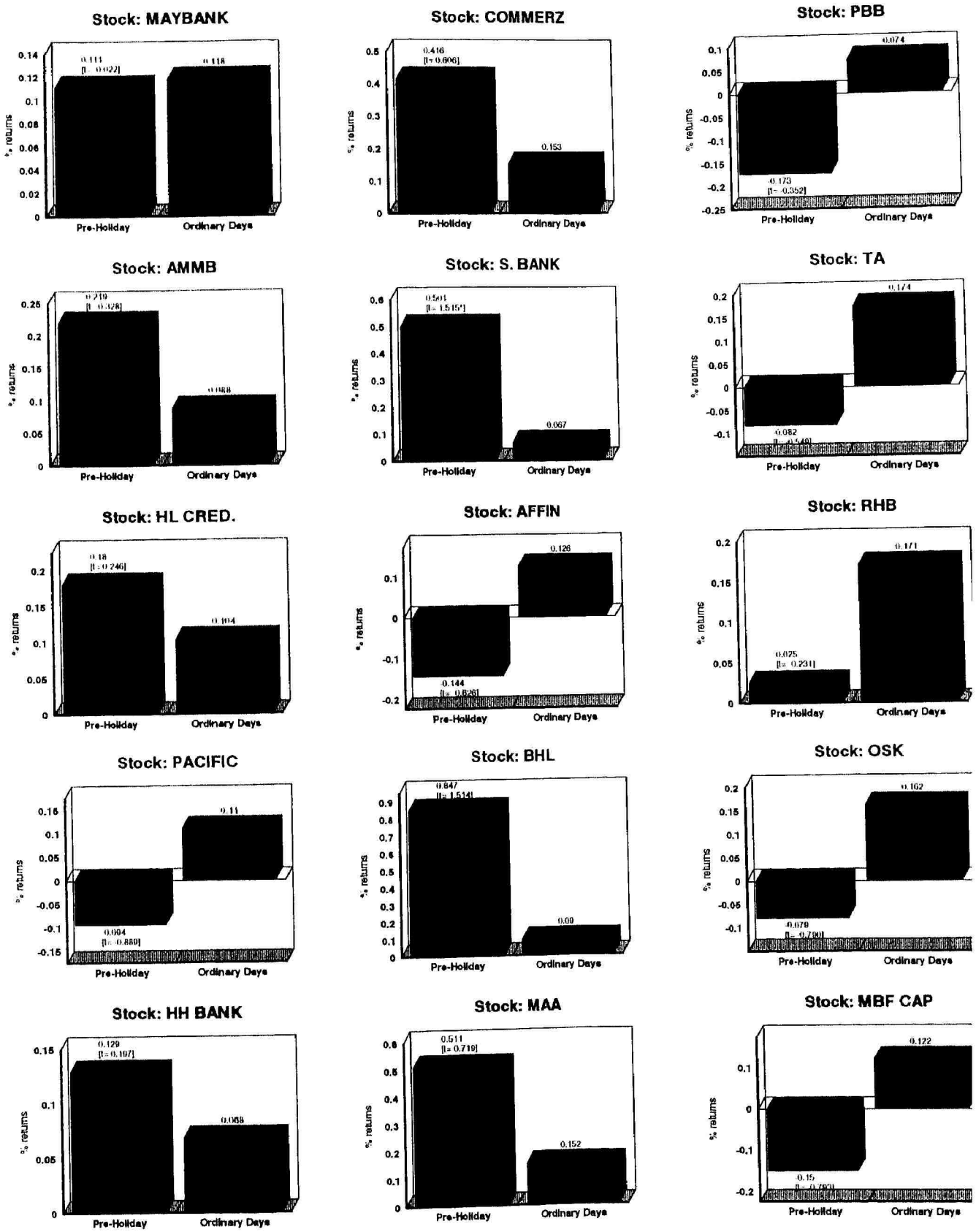
***, **, * represent significance level of 1%, 5% and 10%, respectively.

Figure 11: Mean Returns For The End-Of-The-Month Effects Of Small Companies
January 1992 to June 1999



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

Figure 12: Mean Returns For The End-Of-The-Month Effects Of Large Companies
January 1992 to June 1999



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

3.4 Empirical Finding in 'Good' and 'Bad' News Market Environment For Whole Period 1992 to June 1999

In section 3.1, we have discussed the trend of the day-of-the-week effect for the entire sample period. The above-mentioned analysis fails to take into account the market environment where stocks were traded. An analysis is carried out in order to observe whether the day-of-the-week effect exists in the good or bad news environment.

Tables 12 presents the summary statistics for daily mean returns in good news market environments for the overall period of 1992 to June 1999. Figures 13 and 14 present a graphical summary of the mean returns for the good news market environments effect for small and large companies, respectively.

Among 15 stocks from small companies, 33% (5 stocks) of them have the highest returns on Mondays as compared to other days. 2 stocks with the highest returns on Tuesdays and another 2 stocks with the highest returns on Thursdays. 5 stocks have the highest return on Wednesday, whilst only 1 stock have the highest return on Friday.

However for large companies, about 67% (10 stocks) of them had their highest return on Monday. 1 stock had its highest return on Tuesday, and another on Thursday. 2 stocks had their highest returns on Wednesdays, whilst only 1 stock had its highest return on Friday.

The *t*-statistic shown in Table 12 obtained for mean returns during a good news market environment generally show that a minority of stocks had significant results. Only 3 stocks, namely 2 from small companies and 1 from large companies

show Monday's return is significantly different from other days. Less than 10% of the total stocks have significant result on Tuesday to Thursday. Only 2 stocks from large companies show Friday's return is significantly different from other days.

The results of the *F*-test and Kruskal-Wallis test, which are presented in Table 12, indicate that the majority of stocks do not show significant mean differences among daily mean returns. Thus, we can conclude that there were no differences amongst the daily mean returns during a good news market environment.

Thus, we can summarize from the various tests that in the good news market environment, the majority of stocks do not exhibit the day-of-the-week effect. This contrasts with the results obtained in section 3.1.1. Findings from the results show that Monday's return is not the lowest mean return among the positive returns. Again contrary to the result obtained in the section 3.1.1, the Friday's return does not display the highest mean return among the positive returns.

It is assumed that the negative mean returns are associated with the bad news market environment in which there is more bad news arriving on Mondays compared to the rest of the days. The summary statistics for the bad news sample is presented in Table 13 and Figures 15 and 16 present the graphical summary for the mean returns in bad news market environment.

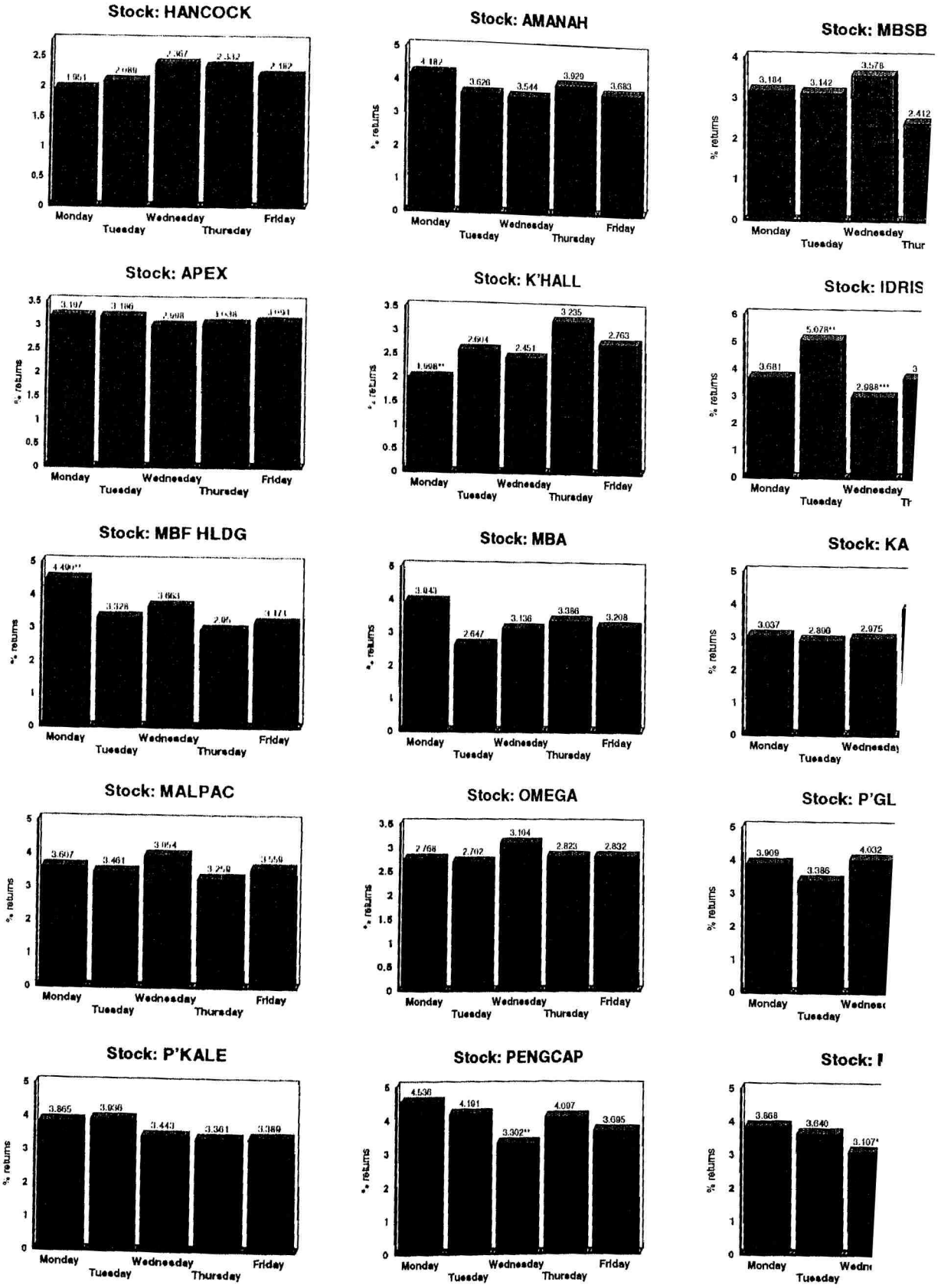
From the result, about 53% (8 stocks) of small companies have lower Monday's return as compared with other days. 4 stocks have their lowest returns on Tuesdays while another 2 stocks on Thursdays. Only 1 stock had its lowest mean return on Wednesday and none at all on Fridays.

Table 12: Summary Statistics For 'Good' News Market Environment For Whole Period

	t-statistic						Levene Test	F-Statistic	Kruskal-Wallis Statistic	Tukey's Test
	Monday	Tuesday	Wednesday	Thursday	Friday	Total obs.				
SMALL COMPANIES										
1 HANCOCK	1.951	2.089	2.367	2.332	2.182	492	0.619	0.385	7.927	
2 AMANAH	4.182	3.626	3.544	3.929	3.683	623	1.253	0.392	1.021	
3 MBSB	3.184	3.142	3.578	2.412***	2.920	478	3.216**	1.640	5.904	
4 APEX	3.197	3.186	2.998	3.038	3.091	475	0.179	0.068	1.045	
5 K'HALL	1.998**	2.604	2.451	3.235	2.763	825	3.516***	2.015	12.038**	
6 IDRIS	3.681	5.078**	2.988***	3.686	4.214	635	3.512**	2.326	7.896	
7 MBF HLDG	4.490**	3.328	3.663	2.950	3.171	652	2.019	1.723	7.814	
8 MBA	3.943	2.647	3.136	3.386	3.208	466	1.183	0.950	4.326	
9 KAF	3.037	2.896	2.975	3.890**	3.746	589	3.099**	1.918	8.355	
10 MALPAC	3.607	3.461	3.954	3.259	3.559	583	1.314	0.413	0.770	
11 OMEGA	2.768	2.702	3.104	2.823	2.832	575	0.595	0.326	4.187	
12 P'GLOBAL	3.909	3.386	4.032	3.775	3.562	664	0.377	0.494	6.783	
13 P'KALE	3.865	3.936	3.443	3.361	3.389	581	0.952	0.358	1.550	
14 PENGCAP	4.536	4.191	3.302**	4.097	3.695	592	2.686**	1.023	2.926	
15 MGIC	3.868	3.640	3.107***	4.123	4.217	561	3.455***	1.468	2.314	
LARGE COMPANIES										
1 MAYBANK	2.105	2.339	2.095	2.185	1.912	746	2.345	0.671	1.164	
2 COMMERZ	3.088	2.700	3.190	2.519**	2.864	714	3.126**	0.711	2.720	
3 PBB	2.470	1.980	2.227	2.041	2.380	681	1.753	0.799	1.901	
4 AMMB	2.943	2.868	2.824	2.582	2.629	725	1.018	0.341	1.011	
5 S. BANK	2.523	2.133	2.031	2.006	2.207	690	1.826	1.084	2.929	
6 TA	4.012	2.982**	3.449	3.424	3.293	715	2.618**	1.147	1.514	
7 HL CRED.	2.337	2.159	2.402	2.471	2.418	678	1.273	0.364	0.689	
8 AFFIN	3.381	2.568	2.915	2.817	2.942	735	3.016**	0.860	0.417	
9 RHB	3.893	3.043	3.429	3.794	2.960	684	1.121	0.564	4.769	
10 PACIFIC	2.695	2.668	2.015	2.376	2.536	678	0.960	0.191	1.273	
11 BHL	2.546	2.738	2.405	2.207**	3.256**	483	3.354**	1.840	8.733	
12 OSK	2.978	2.887	2.965	2.973	2.971	706	0.820	0.017	2.678	
13 HH BANK	2.745	2.508	2.051	2.140	2.231	662	2.993**	1.520	3.120	
14 MAA	4.586***	3.022	3.592	3.130	3.371	667	4.743	2.213	3.623	
15 MBF CAP	3.910	3.888	3.986	3.196	2.945**	689	2.980**	1.562	4.967	

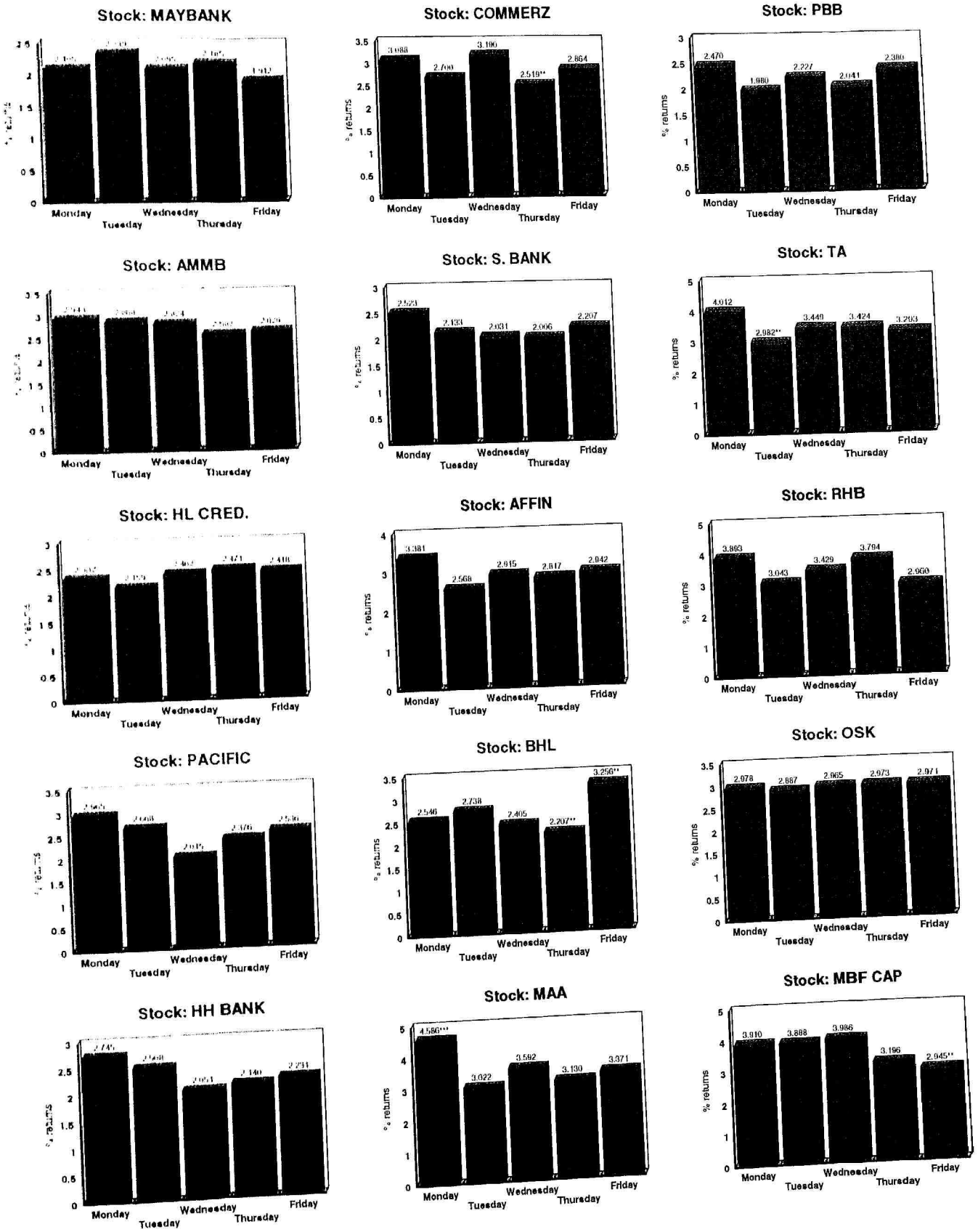
*** and ** represent significance level of 1% and 5%, respectively

Figure 13: Mean Returns For The 'Good' News Market Environment Effect Of Small Com
January 1992 to June 1999



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

Figure 14: Mean Returns For The 'Good' News Market Environment Effect Of Large Companies
January 1992 to June 1999



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

For large companies, about 47% (7 stocks) of them have their lowest returns on Mondays, whilst 4 stocks had their lowest returns on Tuesdays. Only 1 stock shows its lowest return on Wednesday and another 3 stocks had their lowest returns on Thursdays. For no stock is Friday's return the lowest return. Thus, we can deduce that both small and large companies have larger proportion showing the lowest returns on Mondays, whilst none of them have the lowest returns on Friday.

From the *t*-statistics result presented in Table 13, 40% (6 stocks) of small companies and 13% (2 stocks) of large companies have significant results on Monday. The result suggests that Monday returns are significantly different from other days' returns. About 53% (8 stocks) of small companies and 47% (7 stocks) of large companies have significant result on Friday, indicating that Friday returns are significantly different from other days' returns.

Both *F*-statistic and Kruskal-Wallis statistic are also presented in Table 13. *F*-statistics for 7 stocks, namely 5 from small companies and 2 from large companies, are sufficient to reject the equality of the mean returns across the days of the week. The results confirm that at least one of the day's mean returns differs from another day's mean returns for these stocks in a bad news market environment. The Tukey's test further confirms there is significant mean difference between Monday returns and Friday returns in the bad news market environment.

The Levene's test statistics given in Table 13 show that about 32% (10 stocks) of the mean returns in the bad news sample exhibited a violation of the assumption of homoscedasticity. In view of the fact that the mean returns in those stocks are not homogenous in the variances, these stocks were subjected to the Kruskal–Wallis test.

There is a consistent result indicating the rejection of the equality of mean returns across the days of the week in those stocks.

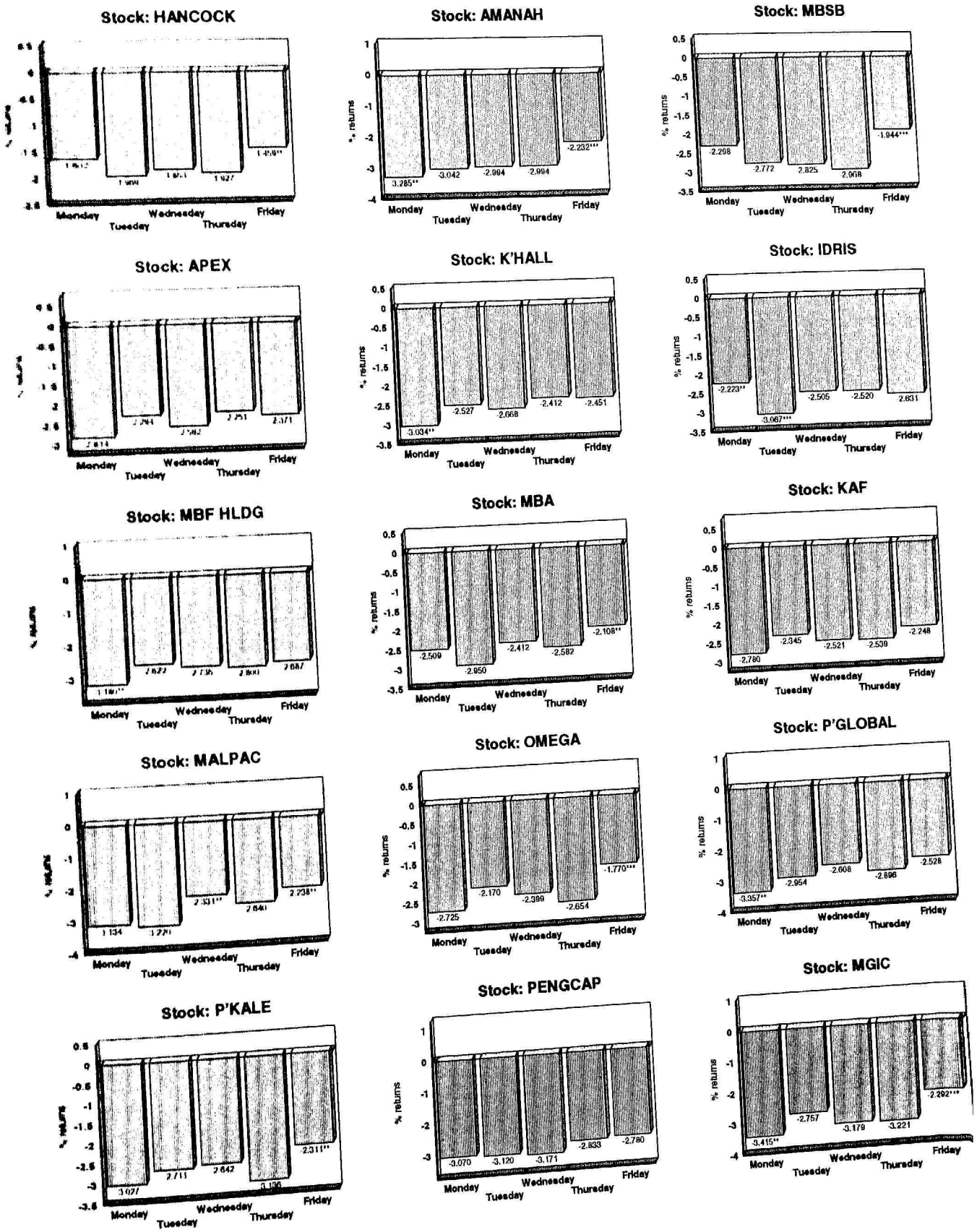
From the various statistical results, we can deduce generally that the existence of the day-of-the-week effect on the bad news market environment is stronger than on the good news market environment. The result confirms that there is more bad news present on Monday as the mean returns is the lowest return amongst other days' returns. In addition, the day-of-the-week effect on the bad news market environment is more pronounced in small companies as larger proportion of small companies has their lowest returns on Mondays.

Table 13: Summary Statistics For 'Bad' News Market Environment For Whole Period

		t-statistic						Levene Test	F-Statistic	Kruskal-Wallis Statistic	Tukey's Test
		Monday	Tuesday	Wednesday	Thursday	Friday	Total obs.				
SMALL COMPANIES											
1	HANCOCK	-1.632	-1.969	-1.853	-1.927	-1.459**	512	2.698**	1.269	6.311	
2	AMANAH	-3.285**	-3.042	-2.631	-2.994	-2.232**	735	3.137**	2.791**	11.778**	1 & 2
3	MBSB	-2.298	-2.772	-2.825	-2.968	-1.944**	542	3.786**	1.996	17.802***	
4	APEX	-2.814	-2.294	-2.592	-2.251	-2.371	438	1.165	1.048	4.638	
5	K'HALL	-3.034**	-2.527	-2.668	-2.412	-2.451	677	0.558	0.854	10.899**	
6	IDRIS	-2.223**	-3.067***	-2.505	-2.520	-2.631	875	1.347	2.704**	20.002***	1 & 2
7	MBF HLDG	-3.18**	-2.622	-2.735	-2.800	-2.687	784	0.228	1.321	16.280***	
8	MBA	-2.509	-2.950	-2.412	-2.582	-2.108**	510	2.108	1.344	5.201	
9	KAF	-2.780	-2.345	-2.521	-2.539	-2.248	683	1.207	0.919	5.911	
10	MALPAC	-3.134	-3.220	-2.331**	-2.640	-2.238**	650	6.997***	2.973**	7.326	
11	OMEGA	-2.725	-2.170	-2.399	-2.654	-1.770**	600	3.166**	2.626**	14.759***	1 & 5
12	P'GLOBAL	-3.357**	-2.954	-2.608	-2.896	-2.528	792	2.076	2.291	13.122**	
13	P'KALE	-3.027	-2.711	-2.642	-3.136	-2.311**	707	1.651	1.628	12.237**	
14	PENGCAP	-3.070	-3.120	-3.171	-2.833	-2.780	694	0.816	0.444	4.830	
15	MGIC	-3.415**	-2.757	-3.179	-3.221	-2.292**	683	1.600	2.978**	23.669***	1 & 5
LARGE COMPANIES											
1	MAYBANK	-1.957	-2.113	-1.947	-2.037	-2.127	678	0.118	0.284	3.658	
2	COMMERZ	-2.454	-2.720	-2.535	-2.400	-2.334	709	1.890	0.436	1.148	
3	PBB	-1.872	-1.994	-2.083	-2.015	-1.438**	741	2.738**	1.390	5.914	
4	AMMB	-2.724	-2.507	-2.711	-2.554	-2.349	717	1.723	0.621	4.673	
5	S. BANK	-2.218**	-1.941	-1.848	-1.649	-1.478**	728	3.689***	3.986***	17.765***	1 & 4; 1 & 5
6	TA	-2.748	-2.651	-2.689	-2.632	-2.089**	834	1.499	1.567	9.125	
7	HL CRED.	-1.933	-1.878	-1.850	-2.271**	-1.809	728	1.548	1.411	6.759	
8	AFFIN	-2.587	-2.684	-2.428	-2.430	-2.185**	788	2.077	0.927	4.210	
9	RHB	-2.688	-2.965	-2.736	-2.685	-2.124**	771	1.759	1.269	5.066	
10	PACIFIC	-2.333***	-2.020	-1.866	-1.968	-1.568**	796	3.607***	2.848**	12.147**	1 & 5
11	BHL	-2.609	-1.943	-2.179	-2.716**	-1.981	479	2.896**	1.861	7.539	
12	OSK	-2.274	-2.130	-2.041	-2.532	-2.036	827	1.407	1.296	17.002	
13	HH BANK	-2.061	-1.906	-1.706	-1.955	-1.857	743	1.057	0.830	3.950	
14	MAA	-2.937	-2.558	-2.553	-2.894	-2.465	757	1.268	1.016	5.121	
15	MBF CAP	-2.995	-2.927	-2.611	-2.826	-2.317**	825	1.907	1.512	6.956	

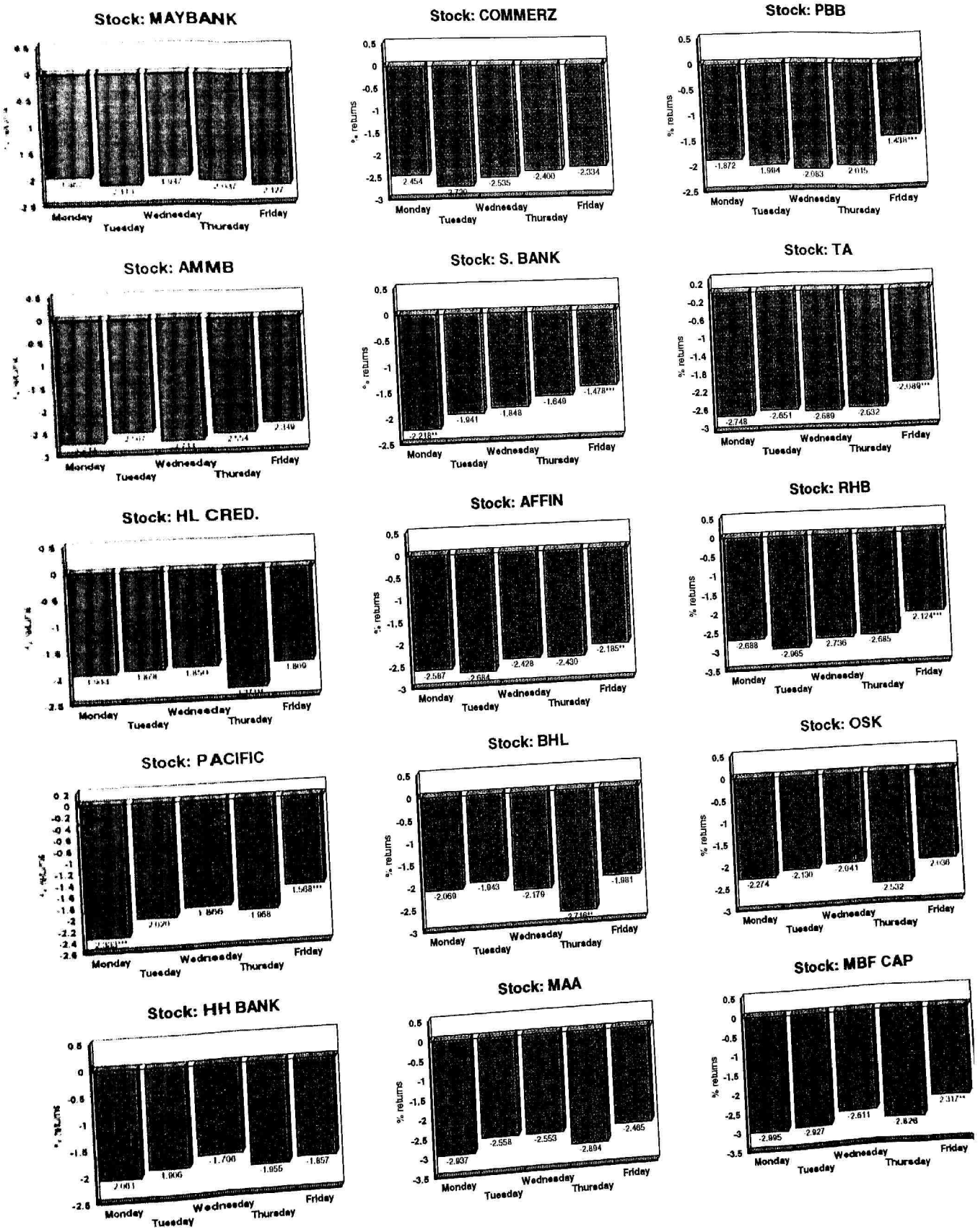
*** and ** represent significance level of 1% and 5%, respectively

Figure 15: Mean Returns For The 'Bad' News Market Environment Effect Of Small Companies
January 1992 to June 1999



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

Figure 16: Mean Returns For The 'Bad' News Market Environment Effect Of Large Companies
January 1992 to June 1999



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

3.5 Empirical Finding For The Day-Of-The-Week Effect For Whole Period By Using GARCH Model

The result reported in Table 14 is the summary statistics of mean returns for 30 stocks by using the OLS method. The *t*-statistics for the OLS estimates are computed using Newey-West heteroscedasticity and autocorrelation-consistent estimator of the covariance matrix. By using this method, factor of heteroscedasticity and autocorrelation are taken into consideration in obtaining the estimator of the stock returns.

The purpose of finding OLS estimator is to determine the significance of daily dummies and hence be a part of explanatory variables in GARCH model. From the result, 2 stocks from large companies do not show any significant daily mean returns. Thus, these two stocks are not subjected to the GARCH analysis.

From the *t*-statistic results, 10 (33%) out of 30 stocks show Monday's returns that are significantly different from zero. Similarly, another 10 stocks indicate that Wednesday's returns are significant. 90% (27 stocks) indicate the mean returns on Friday are significantly different from zero, whilst the majority of stocks do not show significant returns on Tuesday or Thursday. In general, the majority of stocks have significant mean returns on Monday, Wednesday and Friday.

Stocks with the significant mean returns on particular days are then subjected to the GARCH analysis to determine whether the stock returns are due to the seasonal variation of returns volatility. The summary statistics for the conditional mean returns and variance equation of mean returns of GARCH for small and large companies are presented in Tables 15 and 16, respectively.

Table 14: Summary Statitstics (OLS) of Mean Returns Across The Day-Of-The-Week For Whole Period

	Monday		Tuesday		Wednesday		Thursday		Friday		Total Observation
	Mean	t-Statistic	Mean	t-Statistic	Mean	t-Statistic	Mean	t-Statistic	Mean	t-Statistic	
SMALL COMPANIES											
1 HANCOCK	-0.056	-0.514	-0.001	-0.004	0.021	0.152	0.204	1.237	0.364	2.681***	1530
2 AMANAH	-0.380	-1.356	-0.116	-0.465	0.501	2.154**	-0.046	-0.162	0.744	3.231***	1584
3 MBSB	0.211	0.944	-0.314	-1.096	0.143	0.516	-0.263	-1.224	0.418	2.231**	1295
4 APEX	-0.229	-0.954	0.234	0.964	0.203	0.900	0.319	1.508	1.055	5.096*	1173
5 K'HALL	-0.510	-2.663***	0.206	0.996	0.152	0.698	0.583	2.036**	0.694	2.912***	1664
6 IDRIS	0.779	3.519***	-0.650	-1.974**	-0.159	-0.758	0.256	1.001	0.139	0.520	1692
7 MBF HLDG	-0.260	-0.757	-0.044	-0.163	0.257	1.127	-0.241	-1.165	0.443	1.856*	1646
8 MBA	0.642	2.103**	-0.597	-2.814***	0.357	1.753*	0.071	0.320	0.349	1.889*	1452
9 KAF	-0.237	-1.226	-0.015	-0.079	0.008	0.045	0.241	1.078	0.745	3.424***	1670
10 MALPAC	-0.210	-0.750	-0.031	-0.116	0.523	1.858*	0.034	0.156	0.689	2.995***	1484
11 OMEGA	-0.367	-1.835*	0.034	0.182	0.237	1.178	-0.046	-0.218	0.839	4.570***	1457
12 P'GLOBAL	-0.580	-2.121**	-0.058	-0.228	0.482	2.091**	0.208	0.834	0.423	1.920*	1700
13 P'KALE	-0.553	-2.051**	0.253	0.872	0.473	1.818*	-0.366	-1.406	0.468	2.309**	1557
14 PENGCAP	0.080	0.250	-0.196	-0.564	0.302	1.221	-0.112	-0.438	0.665	2.490*	1493
15 MGIC	-0.735	-2.556**	-0.157	-0.644	-0.052	-0.219	-0.028	-0.093	1.176	4.275***	1423
LARGE COMPANIES											
1 MAYBANK	0.192	1.495	0.068	0.404	0.059	0.423	0.302	2.111**	-0.046	-0.374	1735
2 COMMERZ	0.072	0.308	-0.056	-0.276	0.341	1.384	0.009	0.058	0.446	2.338**	1735
3 PBB	0.044	0.277	-0.086	-0.578	-0.233	-0.117	-0.053	-0.362	0.422	2.851***	1763
4 AMMB	0.104	0.475	0.006	0.031	0.151	0.754	0.109	0.644	0.093	0.534	1744
5 S. BANK	-0.305	-1.740*	0.053	0.397	0.257	2.044**	-0.025	-0.219	0.427	3.536***	1735
6 TA	-0.158	-0.618	-0.139	-0.659	0.118	0.530	0.195	0.865	0.776	3.887***	1763
7 HL CRED.	-0.183	-1.258	-0.020	-0.166	0.261	1.823*	0.103	0.608	0.346	2.432**	1728
8 AFFIN	-0.053	-0.243	-0.225	-1.126	0.333	1.672*	0.124	0.705	0.361	1.920*	1759
9 RHB	0.011	0.038	-0.318	-1.439	0.310	1.171	0.202	0.437	0.603	3.152***	1685
10 PACIFIC	-0.295	-1.723*	0.039	0.223	0.204	1.230	-0.126	-0.830	0.650	3.669***	1755
11 BHL	-0.011	-0.063	0.102	0.551	0.033	0.225	-0.162	-1.013	0.658	3.454	1506
12 OSK	-0.359	-2.083**	0.057	0.321	0.262	1.476	0.250	1.083	0.519	2.627***	1760
13 HH BANK	-0.068	-0.397	0.096	0.608	0.002	0.013	0.067	0.501	0.244	1.699*	1751
14 MAA	-0.072	-0.251	0.203	1.034	0.229	1.003	-0.016	-0.074	0.493	2.090**	1705
15 MBF CAP	-0.267	-0.929	0.077	0.276	0.515	1.947*	-0.153	-0.623	0.343	1.759*	1691

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

From the results presented in Table 15A and 16A, only 5 stocks from small companies and 3 stocks from large companies have significant results for the first lag in own returns (R_{t-1}). This means that there is a strong autoregressive process in the daily mean returns in these particular 8 stocks. It can be concluded that the daily mean returns in such stocks depend on the past price / returns.

The estimators of the conditional variance of the returns are reported in Table 16A and 16B for both small and large companies, respectively. The order of the ARCH and GARCH terms is determined by using the Akaike information criterion as a diagnostic test. The model with the smallest information criterion will be chosen as appropriate model. The highest order considered in this study is 5 for both ARCH and GARCH terms.

From the result, 40% (6 stocks) of 15 small companies and 27% (4 stocks) of large companies have significant result for the ARCH term, $h_t^{1/2}$ in the conditional mean. The significance of the ARCH term, $h_t^{1/2}$ indicates that the stock returns may be due to the changes of market risk and hence a further investigation should be examined by using the conditional variance estimation.

From the conditional mean obtained for the overall period for small companies, result generally shows that significant daily seasonal dummies are Monday, Wednesday and Friday. (cf. Table 15A) About 50% of small companies have at least two significant daily seasonal dummies in the conditional mean. Hence, we can deduce that the seasonality in the daily returns in these stocks is not due to the variation in return volatility.

However, only one stock has no significance of Wednesday and Friday seasonal dummy in conditional mean but is found significant in the equation for the conditional variance. (cf. Table 15B). The significance of Wednesday and Friday seasonal dummy in the conditional variance indicates that there is seasonal variation in the stock return volatility. One stock shows significance of Monday, Wednesday and Friday seasonal dummy in both conditional mean and variance. This result revealed that the seasonality in stock returns could not be explained by the changes of return volatility.

Table 16A reports the conditional mean for large companies over the entire sample period. In general, results show that significant daily seasonal dummies are Monday, Wednesday and Friday. However, in contrast to the small companies only 20% (4 stocks) of large companies have at least two significant daily seasonal dummies in the conditional mean. Thus, only a minority of large companies have seasonality in the daily returns that is not due to the variation in return volatility.

By comparing the result obtained in Tables 16A and 16B, 3 stocks have insignificance of Friday seasonal dummy in conditional mean but are found significant in the equation for the conditional variance. One stock shows significance of the Wednesday and Friday seasonal dummies in both conditional mean and variance equation.

In conclusion, we can summarize that small companies have larger proportion showing seasonality in the daily returns that are not due to the variation in return volatility. In contrast, large companies with a significant Friday seasonal dummy in

conditional variance equation have a larger proportion showing the seasonal variation in stock returns is due to the changes of return volatility or seasonal variation in risk.

Table 15A: Conditional Mean Returns of GARCH Model For Small Companies For Whole Period

		α_0	$h_t^{1/2}$	R_{t-1}	δ_1	δ_2	δ_3	δ_4	δ_5
SMALL COMPANIES									
1	HANCOCK	-0.454	0.251	-0.039	-	-	-	-	0.288
		(-3.124)***	(3.208)***	(-0.669)	-	-	-	-	(2.381)**
2	AMANAH	-0.334	0.06	-0.039	-	-	0.551	-	0.712
		(-3.026)***	(-1.424)	(-1.310)	-	-	(3.399)***	-	(3.781)***
3	MBSB	0.6	-0.265	-0.008	-	-	-	-	0.590
		(1.241)	(-2.076)**	(-0.131)	-	-	-	-	1.571
4	APEX	-1.536	0.476	0.021	-	-	-	-	0.890
		(-5.480)***	(5.406)***	(-0.615)	-	-	-	-	(3.825)***
5	K'HALL	-0.249	0.124	-0.008	-0.638	-	-	0.194	0.391
		(-0.941)	(2.200)**	(-0.221)	(-2.327)**	-	-	(0.808)	(1.486)
6	IDRIS	-0.224	0.021	-0.065	0.576	-0.552	-	-	-
		(-1.244)	(0.352)	(-1.547)	(3.184)***	(-3.006)***	-	-	-
7	MBF HLDG	0.054	-0.007	-0.054	-	-	-	-	0.351
		(0.324)	(-0.123)	(-1.735)*	-	-	-	-	(1.944)*
8	MBA	0.017	-0.049	0.014	0.652	-0.266	0.634	-	0.320
		(0.092)	(-0.430)	(0.332)	(2.623)***	(-1.214)	(2.984)***	-	(1.257)
9	KAF	-0.427	0.131	-0.001	-	-	-	-	0.146
		(-2.606)***	(2.060)**	(-0.017)	-	-	-	-	(0.628)
10	MALPAC	-0.17	-0.011	-0.025	-	-	0.411	-	0.690
		(-1.034)	(-0.222)	(-0.488)	-	-	(2.228)**	-	(3.509)***
11	OMEGA	-0.043	0.011	0.012	-0.236	-	-	-	0.399
		(-0.386)	(0.197)	(0.263)	(-1.664)*	-	-	-	(2.934)***
12	P'GLOBAL	-0.033	0.012	-0.071	-0.371	-	0.243	-	0.172
		(-0.997)	(0.329)	(-2.126)**	(-1.918)*	-	(1.050)	-	(0.869)
13	P'KALE	-0.346	0.079	-0.006	-0.401	-	0.842	-	0.362
		(-1.817)*	(1.550)	(-0.195)	(-1.902)*	-	(3.559)***	-	(2.048)**
14	PENGCAP	-1.077	0.208	-0.037	-	-	-	-	0.755
		(-1.936)*	(1.788)*	(-0.888)	-	-	-	-	(2.636)***
15	MGIC	0.045	0.020	-0.029	-0.886	-	-	-	0.633
		(0.178)	(0.279)	(-0.916)	(-3.461)***	-	-	-	(3.045)***

Value in the parenthesis show the z-statistic for the estimators
***, ** and * represent significance level of 10%, 5% and 1%, respectively

Table 15B: Variance Equation of Mean Returns of GARCH Model For Small Companies For Whole Period

		β_0	ε^2_{t-1}	ε^2_{t-2}	ε^2_{t-3}	ε^2_{t-4}	ε^2_{t-5}	h_{t-1}	h_{t-2}	h_{t-3}	h_{t-4}	h_{t-5}	δ_1	δ_2	δ_3	δ_4	δ_5
SMALL COMPANIES																	
1	HANCOCK	1.846	0.633	-0.523	0.609	-	-	1.102	-1.187	0.258	-	-	-	-	-	-	-0.220
		(5.892)***	(6.464)***	(-6.272)***	(6.075)***	-	-	(18.716)***	(-25.320)***	(5.140)***	-	-	-	-	-	-	(-2.076)**
2	AMANAH	-0.050	0.314	-0.115	0.213	-0.249	0.122	0.630	-0.706	0.909	-0.235	0.128	-	-	-0.371	-	2.757
		(-0.179)	(4.923)***	(-1.786)*	(3.963)***	(-3.807)***	(2.171)**	(5.273)***	(-8.294)***	(10.621)***	(-1.969)**	(1.570)	-	-	(-0.588)	-	(2.621)***
3	MBSB	4.713	0.574	-	-	-	-	0.324	-	-	-	-	-	-	-	-	-2.888
		(3.104)***	(1.921)*	-	-	-	-	(1.932)*	-	-	-	-	-	-	-	-	(-1.551)
4	APEX	10.420	0.243	-	-	-	-	-0.075	-	-	-	-	-	-	-	-	-1.156
		(6.439)***	(3.075)***	-	-	-	-	(-3.165)***	-	-	-	-	-	-	-	-	(-0.659)
5	K'HALL	6.267	0.303	0.014	-0.071	-	-	0.635	-0.213	0.134	-	-	-6.952	-	-	-9.312	5.746
		(3.685)***	(3.392)***	(0.153)	(-0.993)	-	-	(5.181)***	(-1.504)	(1.954)*	-	-	(-3.238)***	-	-	(-5.835)***	(1.309)
6	IDRIS	0.297	0.545	-0.536	-	-	-	1.350	-0.358	-	-	-	-0.562	-0.852	-	-	-
		(1.125)	(8.161)***	(-8.271)***	-	-	-	(23.069)***	(-6.357)***	-	-	-	(-0.923)	(-1.090)	-	-	-
7	MBF HLDG	0.115	0.222	0.104	0.061	-0.115	0.131	0.131	0.129	0.766	-0.318	-	-	-	-	-	3.469
		(0.259)	(4.481)***	(2.374)*	(1.087)	(-2.196)**	(0.600)	(0.600)	(1.357)	(21.625)***	(-1.742)*	-	-	-	-	-	(4.363)***
8	MBA	-0.136	0.187	-0.074	0.109	0.083	-0.035	0.380	-0.275	-0.106	0.309	0.277	1.744	1.666	2.094	-	2.721
		(-0.128)	(1.343)	(-1.085)	(2.154)**	(1.361)	(-0.257)	(2.333)*	(-0.862)	(-0.181)	(0.486)	(0.700)	(1.648)*	(1.573)	(1.158)	-	(1.320)
9	KAF	0.079	0.389	-0.382	-	-	-	1.543	-0.548	-	-	-	-	-	-	-	-0.359
		(1.104)	(5.139)***	(-5.336)***	-	-	-	(18.902)***	(-6.983)***	-	-	-	-	-	-	-	(-1.032)
10	MALPAC	0.158	0.469	0.179	-0.294	-0.194	-	0.138	0.623	0.051	0.048	-	-	-	-0.333	-	0.377
		(0.468)	(3.214)***	(1.450)	(-2.166)**	(-2.014)**	-	(0.594)	(2.145)**	(0.203)	(0.517)	-	-	-	(-0.395)	-	(0.375)
11	OMEGA	0.063	0.307	-0.304	-	-	-	1.667	-0.669	-	-	-	-0.021	-	-	-	-0.283
		(2.043)**	(4.941)***	(-5.038)***	-	-	-	(23.518)***	(-9.636)***	-	-	-	(-0.194)	-	-	-	(-1.994)**
12	P'GLOBAL	-1.071	0.319	0.011	0.169	-0.137	-0.088	0.220	-0.391	0.478	0.280	0.099	1.289	-	4.581	-	3.839
		(-1.795)*	(4.878)***	(0.154)	(3.489)***	(-2.188)**	(-1.580)	(0.193)	(-2.745)***	(3.591)***	(1.852)*	(1.154)	(1.137)	-	(3.440)***	-	(3.664)***
13	P'KALE	3.705	0.186	0.207	0.029	0.262	0.101	0.013	0.1669	-0.600	0.162	0.505	-2.781	-	-3.479	-	-2.868
		(3.983)***	(3.786)***	(3.658)***	(1.303)	(5.645)***	(2.184)**	(0.229)	(4.874)***	(-14.820)***	(4.260)***	(15.558)***	(-3.050)***	-	(-3.282)***	-	(-3.641)***
14	PENGCAP	11.891	0.491	-	-	-	-	0.190	-	-	-	-	-	-	-	-	-7.324
		(3.136)**	(2.917)***	-	-	-	-	(1.957)*	-	-	-	-	-	-	-	-	(-1.426)
15	MGIC	0.066	0.289	-0.440	0.157	-	-	1.702	-0.671	-0.037	-	-	-0.202	-	-	-	-0.073
		(0.407)	(4.750)***	(-2.349)*	(1.087)	-	-	(3.191)***	(-0.909)	(-0.163)	-	-	(-0.368)	-	-	-	(-0.253)

Value in the parenthesis show the z-statistic for the estimators

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

Table 16A: Conditional Mean Returns of GARCH Model For Large Companies For Whole Period

		α_0	$h_t^{1/2}$	R_{t-1}	δ_1	δ_2	δ_3	δ_4	δ_5
LARGE COMPANIES									
1	MAYBANK	0.008	0.038	0.076	-	-	-	0.138	-
		(0.144)	(1.052)	(2.850)***	-	-	-	(1.386)	-
2	COMMERZ	-0.22	0.128	0.035	-	-	-	-	0.151
		(-1.547)	(1.959)*	(1.226)	-	-	-	-	(0.909)
3	PBB	-0.025	0.009	-0.130	-	-	-	-	0.955
		(-0.132)	(0.102)	(-1.358)	-	-	-	-	(1.293)
4	AMMB	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-
5	S. BANK	0.043	-0.013	0.009	-0.423	-	0.372	-	0.304
		(0.384)	(-0.232)	(0.261)	(-2.443)**	-	(3.610)***	-	(2.180)**
6	TA	-0.303	0.062	0.036	-	-		-	0.708
		(-1.727)*	(1.022)	(1.203)	-	-		-	(4.141)
7	HL CRED.	-0.064	0.019	0.082	-	-	0.267	-	0.344
		(-1.072)	(0.458)	(2.772)***	-	-	(1.610)	-	(2.249)**
8	AFFIN	0.085	-0.025	0.0313	-	-	0.425	-	0.306
		(0.991)	(-0.537)	(1.176)	-	-	(2.475)**	-	(1.712)*
9	RHB	-1.374	0.306	0.029	-	-	-	-	1.065
		(-1.705)*	(2.018)**	(0.807)	-	-	-	-	(2.139)**
10	PACIFIC	-0.002	-0.047	-0.032	-0.493	-	-	-	0.368
		(-0.02)	(-0.851)	(-0.548)	(-2.185)**	-	-	-	(2.257)**
11	BHL	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-
12	OSK	0.181	-0.006	0.068	-0.449	-	-	-	0.225
		(0.835)	(-0.088)	(1.832)*	(-2.264)**	-	-	-	(1.306)
13	HH BANK	-0.238	0.099	-0.010	-	-	-	-	0.086
		(-2.059)**	(1.820)*	(-0.255)	-	-	-	-	(0.734)
14	MAA	-0.056	0.104	-0.028	-	-	-	-	-0.015
		(-1.008)	(2.107)**	(-0.528)	-	-	-	-	(-0.059)
15	MBF CAP	-0.309	0.090	0.049	-	-	0.128	-	0.326
		(-1.230)	(1.204)	(1.504)	-	-	(0.351)	-	(1.760)*

Value in the parenthesis show the z-statistic for the estimators

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

Table 16B: Variance Equation of Mean Returns of GARCH Model For Large Companies For Whole Period

		A_0	ε^2_{t-1}	ε^2_{t-2}	ε^2_{t-3}	ε^2_{t-4}	ε^2_{t-5}	h_{t-1}	h_{t-2}	h_{t-3}	h_{t-4}	h_{t-5}	δ_1^2	δ_2^2	δ_3^2	δ_4^2	δ_5^2
LARGE COMPANIES																	
1	MAYBANK	0.292	0.136	-0.125	0.210	-0.081	0.077	1.530	-2.047	1.865	-1.364	0.774	-	-	-	-0.421	-
		(3.454)***	(5.758)***	(-3.593)***	(4.826)***	(-2.300)**	(3.345)***	(53.731)***	(-34.888)***	(24.789)***	(-23.629)***	(25.702)***	-	-	-	(-5.349)***	-
2	COMMERZ	0.077	0.147	0.079	-0.147	0.233	-0.226	1.398	-1.457	1.002	-0.099	0.067	-	-	-	-	0.071
		(2.312)**	(2.551)**	(0.342)	(-0.488)	(0.830)	(-1.344)	(8.950)***	(-5.175)***	(3.233)***	(-0.411)	(0.767)	-	-	-	-	(0.742)
3	PBB	0.296	0.970	-	-	-	-	0.483	-	-	-	-	-	-	-	-	1.652
		(1.930)*	(1.734)*	-	-	-	-	(3.267)***	-	-	-	-	-	-	-	-	(2.564)***
4	AMMB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	S. BANK	0.535	0.182	0.093	0.210	0.154	0.061	-0.158	-0.271	-0.047	0.320	0.424	1.324	-	0.673	-	-0.134
		(1.272)	(3.507)***	(1.867)*	(4.662)***	(2.883)***	(1.342)	(-0.712)	(-1.518)	(-0.296)	(3.343)***	(3.831)***	(2.841)***	-	(1.128)	-	(-0.231)
6	TA	0.247	0.347	-0.226	-	-	-	0.801	0.075	-	-	-	-	-	-	-	0.010
		(0.984)	(5.525)***	(-2.832)***	-	-	-	(3.784)***	(0.444)	-	-	-	-	-	-	-	(0.009)
7	HL CRED.	-0.520	0.121	0.054	-0.117	-0.026	-	0.686	0.655	-0.897	0.312	-	-	-	2.834	-	0.216
		-2.139**	(3.394)***	(1.085)	(-3.039)***	(-0.542)	-	(6.602)***	(6.322)***	(-6.834)***	(3.114)***	-	-	-	(3.476)***	-	(0.301)
8	AFFIN	0.096	0.092	0.106	0.031	0.120	-	0.405	-0.292	-0.156	0.657	-	-	-	1.559	-	1.550
		(0.616)	(2.823)***	(2.316)**	(0.842)	(3.011)***	-	(2.335)**	(-1.502)	(-0.744)	(4.773)***	-	-	-	(5.178)***	-	(3.899)***
9	RHB	6.053	0.231	-0.028	-0.008	0.171	-	0.269	0.064	-0.296	0.374	-	-	-	-	-	-6.277
		(1.799)*	(1.959)*	(-0.978)	(-0.205)	(2.269)**	-	(1.933)*	(0.479)	(-2.170)**	(5.919)***	-	-	-	-	-	(-1.188)
10	PACIFIC	-0.042	0.736	-0.716	-	-	-	1.238	-0.252	-	-	-	-0.042	-	-	-	0.296
		(-0.787)	(6.422)***	(-6.883)***	-	-	-	(11.399)***	(-2.471)*	-	-	-	(-0.168)	-	-	-	(1.467)
11	BHL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	OSK	2.137	0.215	-0.149	0.027	0.075	-	0.996	0.244	-0.722	0.272	-	-2.806	-	-	-	-3.441
		(3.542)***	(4.364)***	(-1.824)*	(0.379)	(1.401)	-	(4.559)***	(1.339)	(-5.876)***	(3.226)***	-	(-3.073)***	-	-	-	(-2.209)**
13	HH BANK	0.002	0.777	-0.715	-	-	-	0.948	0.001	-	-	-	-	-	-	-	0.196
		(0.022)	(6.568)***	(-6.496)***	-	-	-	(24.382)***	(0.039)	-	-	-	-	-	-	-	(0.497)
14	MAA	-0.418	0.348	-0.187	-	-	-	0.634	0.202	-	-	-	-	-	-	-	3.823
		(-3.902)***	(4.602)***	(-2.132)**	-	-	-	(3.565)***	(1.346)	-	-	-	-	-	-	-	(4.289)***
15	MBF CAP	1.670	0.261	0.044	0.080	0.217	-0.065	0.029	-0.165	0.155	0.218	0.087	-	-	12.956	-	0.641
		(1.132)	(2.829)***	(0.910)	(1.657)*	(2.546)*	(-1.577)	(0.329)	(-1.158)	(1.917)*	(2.690)***	(1.002)	-	-	(1.241)	-	(0.369)

Value in the parenthesis show the z-statistic for the estimators

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