

CHAPTER 5 : EMPIRICAL FINDINGS FOR JANUARY EFFECTS.

5.1 Pattern In January Effect For The Whole Period Under Review From 1976-1996.

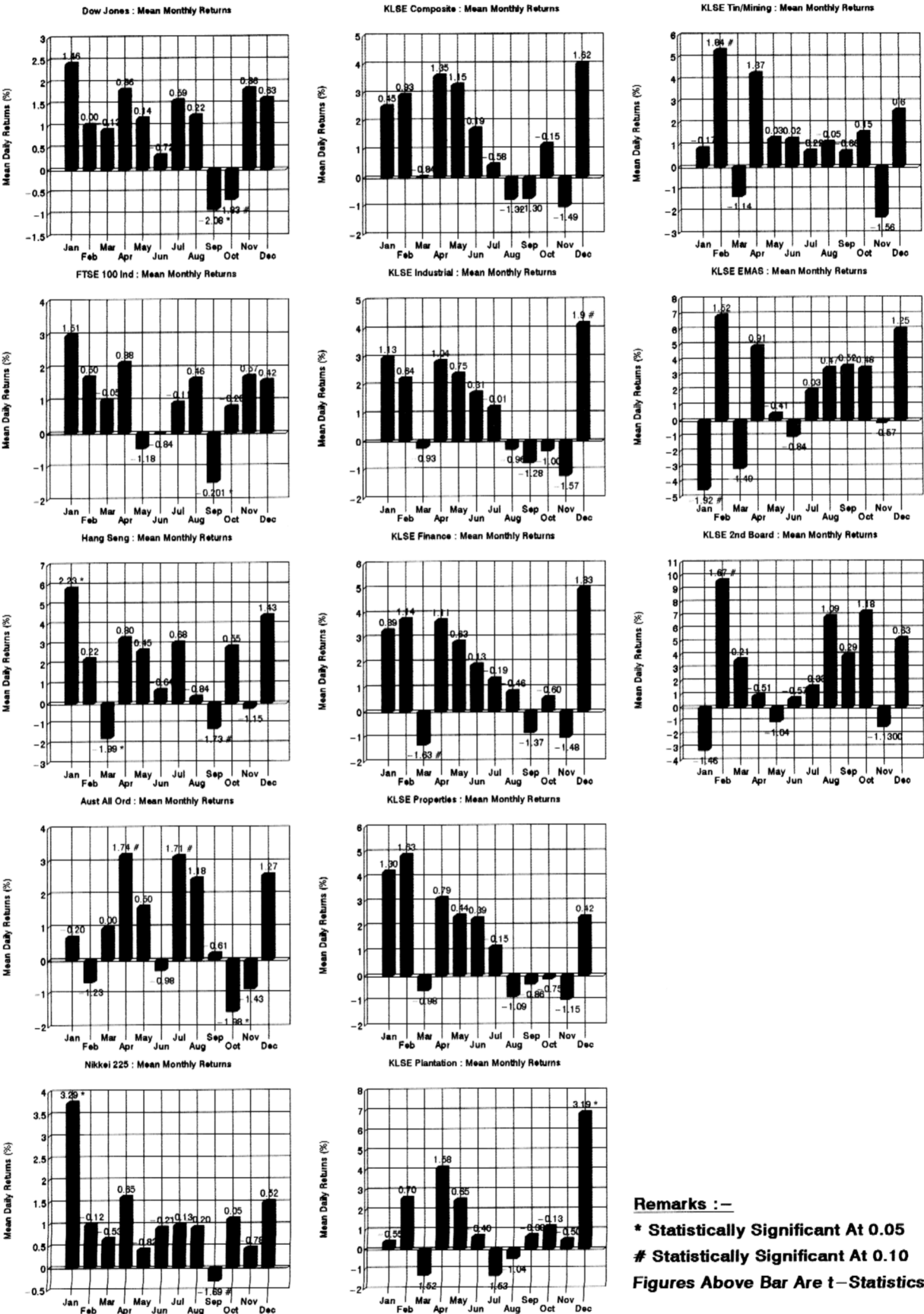
During 1976-1996 (Graph 8), it is noted that large abnormal return in December emerged for Composite, Industrial, Finance and Plantation indices. However, the Properties, Tin/Mining, EMAS and 2nd Board indices showed large abnormal return in February on the KLSE. The US, London, Hong Kong and Tokyo markets showed large abnormal returns during January. Are these anomalies noted statistically significant?

From Table 8A, on the domestic bourse, only t-test suggested evidence of a year-end effect on the KLSE Plantation index during December. However, the assumption of equality of variances used in t-test is invalid as depicted by Bartlett's test results. Therefore we cannot conclude that there was year-end effect on the local bourse during 1976-1996.

The various statistical tests failed to provide evidence of a January effect for the Australian, US and London markets. However, t-test results suggested that the January effect noted on Hong Kong and Tokyo is significant. Bartlett's test showed that there was non-homogeneity in

variances on Hong Kong's data but there was equality of variance in Tokyo's data. Thus, only Tokyo's t-test results are valid. Hence, we conclude that January effect existed only on the Tokyo market.

Graph 8 : Mean Monthly Returns For Whole Period From 1976–1996



Remarks :—
* Statistically Significant At 0.05
Statistically Significant At 0.10
Figures Above Bar Are t–Statistics

Note : Nikkei 225 (1950–1996)

Table 8A : Test Statistics For January Effects For Whole Period From 1976 – 1996

January Effects For Period :-		Whole Period From 1976 To 1996												Oneway	Barlett's	Tukey's	K-W
Index	Statistic	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	F Statistic	Test	Test	Test
1 Hang Seng	Mean	5.8317	2.2313	-1.7172	3.2770	2.6456	0.6823	3.0619	0.3356	-1.2570	2.6392	-0.2360	4.4097		No Two		
	t-Stat *	2.2300	0.2200	-1.9600	0.8000	0.4500	-0.6400	0.6900	-0.8400	-1.7300	0.5500	-1.1500	1.4300	1.5237	2.4810	Gps. Was	17.2945
	2Tail Prob.	0.03	0.83	0.05	0.43	0.66	0.52	0.50	0.40	0.09	0.58	0.25	0.16	0.12	0.00	Sig. Diff.	0.10
2 Aust. All Ord.	Mean	0.6981	-0.6444	0.9707	3.1823	1.6039	-0.2874	3.1445	2.4678	0.1879	-1.5422	-0.8584	2.5832		No Two		
	t-Stat *	-0.2000	-1.2900	0.0000	1.7400	0.5000	-0.9800	1.7100	1.1800	-0.6100	-1.9800	-1.4300	1.2700	1.5299	5.5457	Gps. Was	25.8470
	2Tail Prob.	0.84	0.22	1.00	0.06	0.62	0.33	0.09	0.24	0.54	0.05	0.15	0.21	0.12	0.00	Sig. Diff.	0.01
3 Dow Jones Ind.	Mean	2.4201	1.0245	0.9001	1.8255	1.1537	0.3254	1.5716	1.2240	-0.9039	-0.6732	1.8293	1.6123		No Two		
	t-Stat *	1.4600	0.0000	-0.1300	0.8600	0.1400	-0.7200	0.5900	0.2200	-2.0800	-1.8300	0.8600	0.6300	1.0424	2.7340	Gps. Was	12.3906
	2Tail Prob.	0.15	1.00	0.90	0.39	0.89	0.47	0.56	0.83	0.04	0.07	0.39	0.53	0.41	0.00	Sig. Diff.	0.34
4 FTSE 100 Ind.	Mean	2.9668	1.6982	0.9953	2.1455	-0.4294	-0.0014	0.9269	1.6435	-1.4689	0.8034	1.7230	1.5861		No Two		
	t-Stat *	1.5100	0.5000	-0.0500	0.8600	-1.1800	-0.8400	-0.1100	0.4600	-0.2010	-0.2000	0.5700	0.4200	0.8372	2.8000	Gps. Was	10.0018
	2Tail Prob.	0.13	0.62	0.96	0.38	0.24	0.40	0.91	0.65	0.05	0.84	0.57	0.67	0.60	0.00	Sig. Diff.	0.53
5 Nikkei 225	Mean	3.7527	0.9960	0.6592	1.6219	0.4244	0.9160	0.9825	0.9252	-0.2891	1.1294	0.4580	1.5164		9-1		
	t-Stat *	3.2900	-0.1200	-0.5300	0.6500	-0.8200	-0.2100	-0.1300	-0.2000	-1.0900	0.0500	-0.7800	0.5200	1.3319	1.3030	Gps. Was	16.9776
	2Tail Prob.	0.00	0.91	0.60	0.52	0.41	0.83	0.89	0.84	0.09	0.96	0.44	0.22	0.20	0.22	Sig. Diff.	0.11
6 KLSE Composite	Mean	2.5161	2.9161	0.0166	3.5866	3.2736	1.6981	0.4404	-0.7534	-0.7176	1.1405	-1.0247	4.0223		No Two		
	t-Stat *	0.4500	0.9300	-0.8400	1.3500	1.1500	0.1900	-0.5800	-1.3200	-1.3000	-0.1500	-1.4900	1.8200	1.1348	1.6130	Gps. Was	12.7035
	2Tail Prob.	0.65	0.35	0.40	0.18	0.25	0.85	0.56	0.19	0.20	0.86	0.14	0.11	0.34	0.09	Sig. Diff.	0.31
7 KLSE Industrial	Mean	2.9857	2.2252	-0.2146	2.8444	2.3907	1.7076	1.2142	-0.2868	-0.7579	-0.3281	-1.2085	4.1659		No Two		
	t-Stat *	1.1300	0.6400	-0.9300	1.0400	0.7500	0.3100	-0.0100	-0.9600	-1.2800	-1.0000	-1.5700	1.9000	1.1610	1.0480	Gps. Was	11.3989
	2Tail Prob.	0.26	0.52	0.36	0.30	0.46	0.76	0.99	0.34	0.20	0.32	0.12	0.06	0.32	0.40	Sig. Diff.	0.41
8 KLSE Finance	Mean	3.2790	3.7390	-1.3006	3.6750	2.8162	1.8896	1.3234	0.8263	-0.8225	0.5614	-1.0156	4.9681		No Two		
	t-Stat *	0.8900	1.1400	-1.6300	1.1100	0.6300	0.1300	-0.1900	-0.4600	-1.3700	-0.8000	-1.4800	1.8900	1.2058	1.4970	Gps. Was	14.0978
	2Tail Prob.	0.38	0.25	0.10	0.27	0.53	0.90	0.85	0.65	0.17	0.55	0.14	0.07	0.26	0.13	Sig. Diff.	0.23
9 KLSE Properties	Mean	4.1879	4.8583	-0.5990	3.1158	2.3855	2.2767	1.1377	-0.8397	-0.3432	-0.1166	-0.9594	2.3360		No Two		
	t-Stat *	1.3000	1.6300	-0.9600	0.7900	0.4400	0.3900	-0.1500	-1.0900	-0.8600	-0.7500	-1.1500	0.4200	0.8499	1.6300	Gps. Was	0.9056
	2Tail Prob.	0.19	0.11	0.33	0.43	0.66	0.70	0.88	0.28	0.39	0.46	0.25	0.68	0.59	0.08	Sig. Diff.	0.82
10 KLSE Plantations	Mean	0.3895	2.5978	-1.3096	4.1304	2.4987	0.6494	-1.3162	-0.4734	0.6624	1.1285	0.4723	6.8712		No Two		
	t-Stat *	-0.5500	0.7000	-1.5200	1.5900	0.6500	-0.4000	-1.5300	-1.0400	-0.3600	-0.1300	-0.5000	3.1900	1.7000	3.3520	Gps. Was	16.7982
	2Tail Prob.	0.58	0.48	0.13	0.12	0.52	0.69	0.13	0.30	0.70	0.90	0.62	0.00	0.07	0.00	Sig. Diff.	0.11
11 KLSE Mining	Mean	0.8529	5.3087	-1.3170	4.2705	1.2911	1.2871	0.7247	1.1097	0.6958	1.5610	-2.2628	2.5750		No Two		
	t-Stat *	-0.1700	1.8400	-1.1400	1.3700	0.0300	0.0200	-0.2200	-0.0500	-0.8600	0.1500	-1.5900	0.6000	0.8389	2.7050	Gps. Was	10.1341
	2Tail Prob.	0.87	0.07	0.26	0.17	0.98	0.99	0.82	0.96	0.39	0.86	0.12	0.55	0.60	0.00	Sig. Diff.	0.52
12 KLSE 2nd Board	Mean	-3.1733	9.6300	3.5917	0.8992	-1.0654	0.6612	1.5760	6.8818	3.9121	7.2032	-1.4039	5.1730		No Two		
	t-Stat *	-1.4600	1.6700	0.2100	-0.5100	-1.0400	-0.5700	-0.3300	1.0900	0.2900	1.1800	-1.1300	0.6300	0.9037	1.5360	Gps. Was	11.2659
	2Tail Prob.	0.15	0.10	0.84	0.61	0.30	0.57	0.74	0.28	0.77	0.24	0.26	0.53	0.54	0.11	Sig. Diff.	0.42
13 KLSE Emas	Mean	-4.5009	6.8717	-3.1279	4.8875	0.4266	-1.0048	1.9316	3.4102	3.5718	3.4490	-0.1200	6.0050		No Two		
	t-Stat *	-1.9200	1.5200	-1.4900	0.9100	-0.4100	-0.8400	0.0300	0.4700	0.5200	0.4900	-0.5700	1.2500	1.0293	1.4140	Gps. Was	10.0136
	2Tail Prob.	0.06	0.13	0.14	0.37	0.68	0.41	0.97	0.64	0.61	0.63	0.57	0.22	0.44	0.16	Sig. Diff.	0.53

Footnote : * Independent samples t-test statistics for the respective month against the rest of the months in the year.

5.2 EVOLUTION OF JANUARY EFFECTS OVER TEN YEARS SUB-PERIODS ANALYSIS.

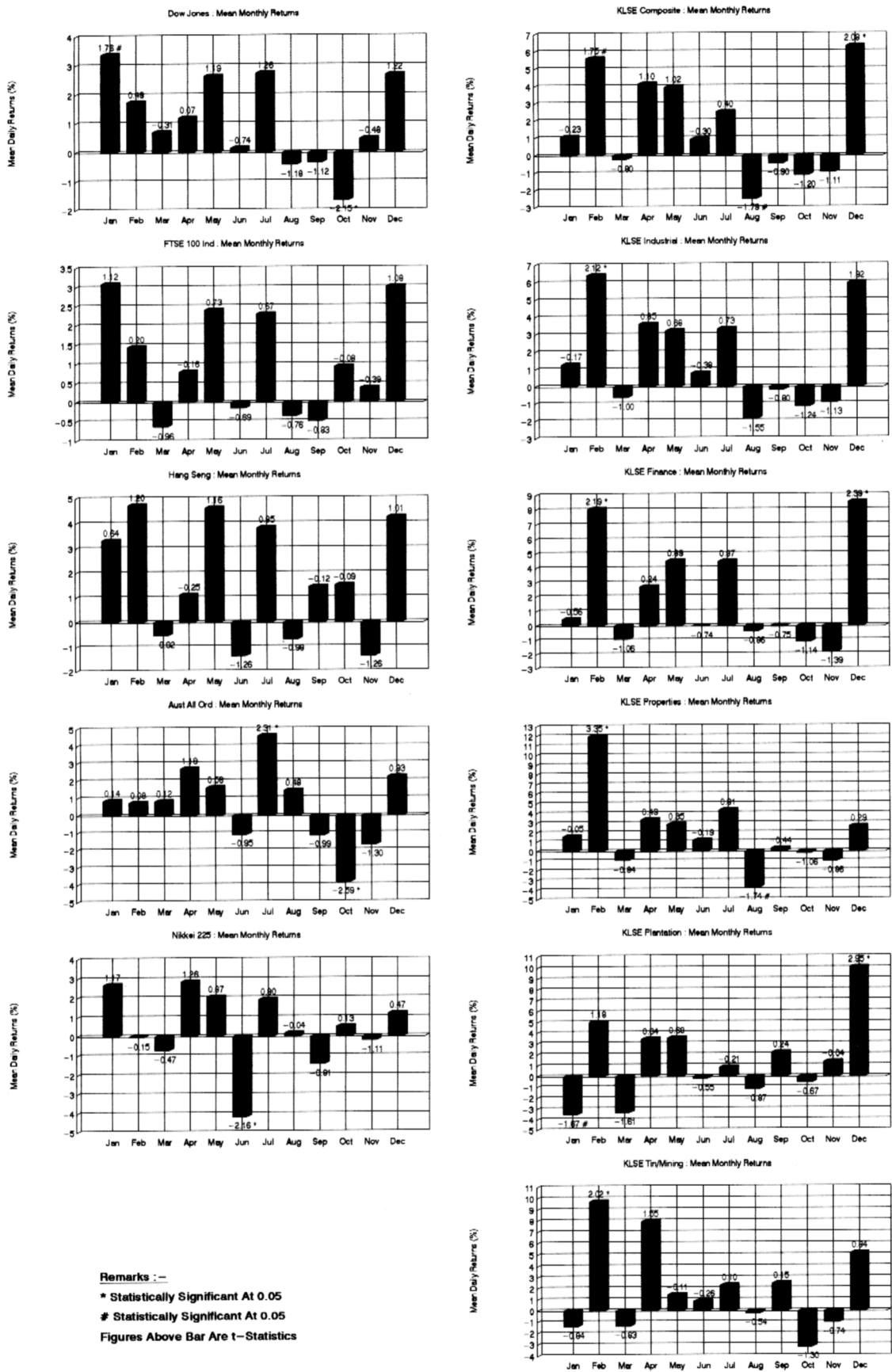
5.2.1 January Effects For Ten Year Sub-Periods 1977-86.

Graph 9 displayed the monthly mean distributions for both local and overseas markets from 1977-86. The graph showed that there was a large abnormal December and/or February monthly return noted on all the six KLSE indices. On the international front, the US and UK markets showed abnormal returns during January, whilst Hong Kong showed large returns during February. Are these anomalies statistically significant?

From Table 8B, only t-test suggested evidence of a year-end effect for the Composite, Finance and Plantation indices during December and as for the Industrial, Finance, Properties and Tin/Mining during February. Bartlett's test showed that the t-test result is unreliable due to non-homogeneity in variances observed for the Composite, Industrial, and Properties indices. Therefore we deduce that there was year-end effect on the KLSE for the Finance and Plantation sectors in December and the Tin/Mining sector in February for the ten-year sub-period 1977-1986.

From the results obtained in Table 8B, the various statistical results failed to provide evidence of a year-end effect for all the major international bourse for the ten-year sub-period 1977-1986 as all the tests failed to reject their respective null hypotheses.

Graph 9 : Mean Monthly Returns For Ten Years Sub –Period From 1977 –1986



5.2.2 January Effects For The Ten Year Sub-Period 1987-1996.

From Graph 10, on the local bourse, it appears that there was a large January return for the Composite, Industrial, Finance and Properties indices. As for overseas bourses, only Hong Kong showed large January returns. Are these observed abnormal returns statistically significant?

From Table 8C, on the domestic front, the various statistical test results obtained failed to reject their respective null hypotheses for all the indices studied. Therefore, we cannot conclude that there was January effect during the ten-year sub-period 1987-1996 as seen on Graph 10.

On the international markets, results obtained in Table 8C failed to provide evidence of year-end effect for the US, London, Australian, Hong Kong and Tokyo markets. This is because all the tests conducted failed to reject their respective null hypotheses. Thus, we deduce that there was no year-end effect on all the major international bourses during the ten-year sub-period from 1987-1996.

5.2.3 Overall Findings For Ten Year Sub-Period Analyses.

The local and international bourses studied have been liberated from the year-end effect as shown in this study. The year-end effect found on the Finance, Plantations and Tin/Mining indices during 1977-1986 have

Graph 10 : Mean Monthly Returns For Ten Years Sub-Period From 1987–1996

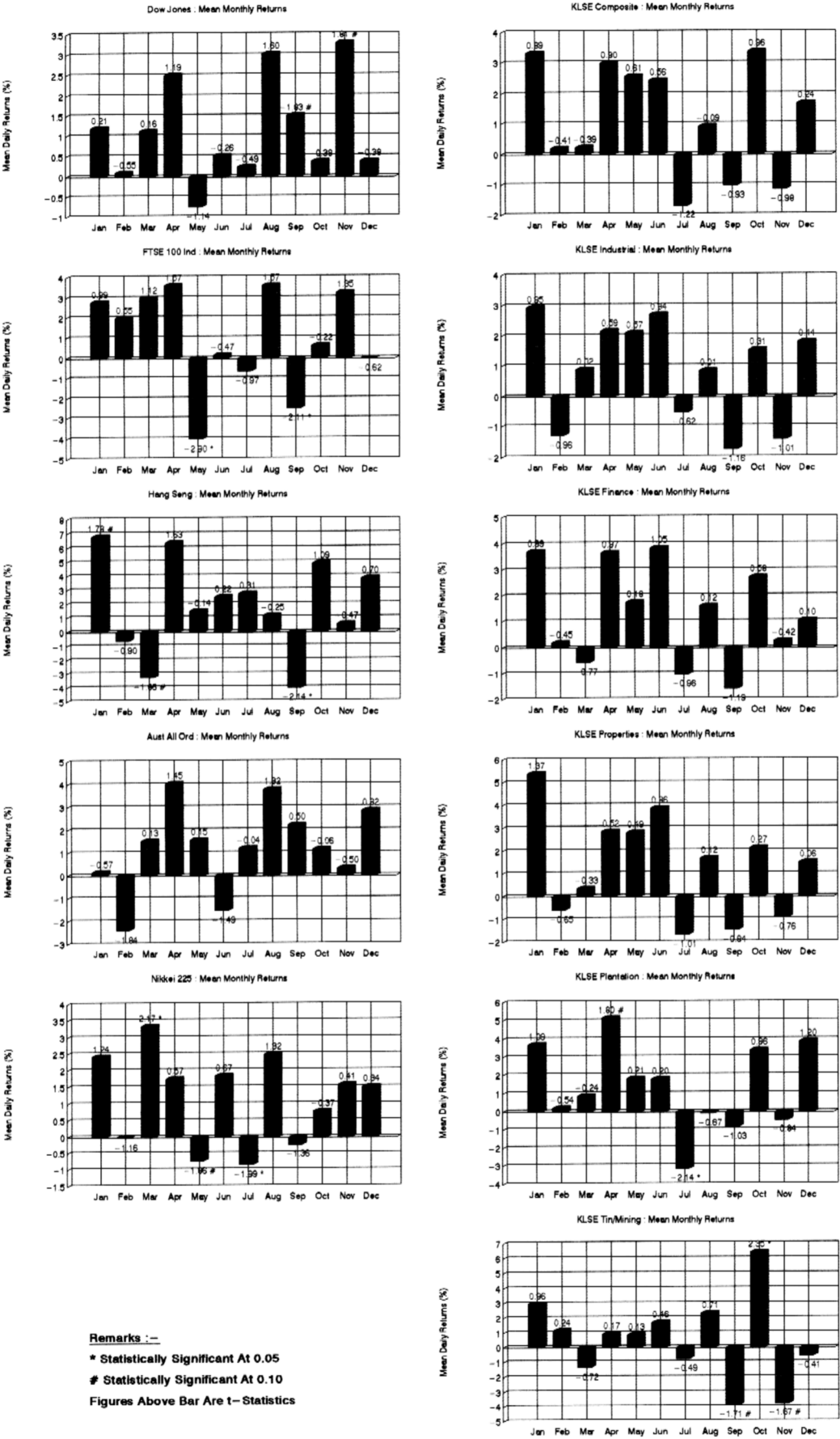


Table 8C : Test Statistics For January Effects For Ten Years Sub-Period From 1987 – 1996

January Effects For Period :-		Ten Years Sub-Period From 1987 – 96												Oneway F Statistic		Bartlett's Test	Tuley's Test	K-W Test
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec					
1 Hang Seng	Statistic	6.8061	-0.6142	-3.2523	6.4096	1.5069	2.5151	2.7657	1.1666	-3.9630	4.9142	0.5668	3.8408	No Two	1.3740	0.18	0.16	16.0995
	t-Stat *	1.7800	-0.9000	-1.8600	1.6300	-0.1400	0.2200	0.3100	-0.2500	-2.1400	1.0900	-0.4700	0.7000					
	2Tail Prob.	0.08	0.37	0.07	0.11	0.86	0.82	0.75	0.80	0.03	0.28	0.64	0.49					
2 Aust. All Ord.	Mean	0.1564	-2.3735	1.5513	4.0594	1.5863	-1.5165	1.2258	3.8077	2.2529	1.1810	0.3468	2.8675	No Two	3.6400	0.00	0.00	17.4694
	t-Stat *	-0.5700	-1.8400	0.1300	1.4500	0.1500	-1.4900	-0.0400	1.3200	0.5000	-0.0600	-0.5000	0.8200					
	2Tail Prob.	0.57	0.07	0.90	0.15	0.88	0.14	0.97	0.19	0.62	0.95	0.82	0.41					
3 Dow Jones Ind.	Mean	1.2086	0.1096	1.1369	2.5132	-0.7310	0.5350	0.2513	3.0462	1.5295	0.3947	3.3164	0.3081	No Two	1.6910	0.07	0.07	13.2137
	t-Stat *	0.2100	-0.5500	0.1800	1.1900	-1.1400	-0.2600	-0.4900	1.8000	-1.8300	-0.3600	1.8100	-0.3600					
	2Tail Prob.	0.84	0.58	0.86	0.24	0.26	0.80	0.63	0.11	0.07	0.71	0.07	0.71					
4 FTSE 100 Ind.	Mean	2.7992	2.0089	3.0168	3.6304	-3.9862	0.1821	-0.8078	3.6346	-2.4583	0.6588	3.2831	-0.0130	No Two	0.7830	0.06	0.06	20.1063
	t-Stat *	0.9900	0.5500	1.1200	1.5700	-2.9000	-0.4700	-0.9700	1.5700	-2.1100	-0.2200	1.3500	-0.6200					
	2Tail Prob.	0.32	0.58	0.27	0.12	0.01	0.64	0.33	0.12	0.04	0.83	0.18	0.54					
5 Nikkei 225	Mean	2.4314	-0.0254	3.3444	1.7445	-0.7225	1.8519	-0.8452	2.5068	-0.2199	0.7857	1.5794	1.5161	No Two	2.1290	0.02	0.02	13.27
	t-Stat *	1.2400	-1.1600	2.1700	0.5700	-1.8600	0.6700	-1.9900	1.3200	-1.3600	-0.3700	0.4100	0.3400					
	2Tail Prob.	0.22	0.25	0.03	0.57	0.07	0.50	0.05	0.19	0.18	0.71	0.89	0.73					
6 KLSE Composite	Mean	3.3386	0.2052	0.2390	3.0070	2.5751	2.4496	-1.8670	0.8371	-1.0083	3.3919	-1.1254	1.7007	No Two	1.1700	0.30	0.30	6.1968
	t-Stat *	0.8900	-0.4100	-0.3900	0.8000	0.6100	0.5900	-1.2200	-0.0900	-0.9300	0.9600	-0.9600	0.5377					
	2Tail Prob.	0.38	0.69	0.70	0.43	0.54	0.58	0.23	0.93	0.35	0.34	0.33	0.81					
7 KLSE Industrial	Mean	2.9445	-1.2706	0.8962	2.1632	2.1049	2.7189	-0.5205	0.8674	-1.7102	1.5472	-1.3879	1.8220	No Two	1.1910	0.29	0.29	5.7150
	t-Stat *	0.9500	-0.9600	0.0200	0.5900	0.5700	0.8400	-0.6200	0.0100	-1.1600	0.3100	-1.0100	0.4400					
	2Tail Prob.	0.35	0.34	0.96	0.56	0.57	0.40	0.54	0.99	0.25	0.75	0.32	0.66					
8 KLSE Finance	Mean	3.7197	0.2161	-0.5515	3.6767	1.7612	3.8596	-1.0053	1.6194	-1.5736	2.7431	0.2978	1.0663	No Two	1.4440	0.15	0.15	5.9734
	t-Stat *	0.9900	-0.4500	-0.7700	0.9700	0.1800	1.0500	-0.9600	0.1200	-1.1900	0.5900	-0.4200	0.1000					
	2Tail Prob.	0.33	0.65	0.44	0.33	0.86	0.30	0.34	0.90	0.24	0.56	0.68	0.92					
9 KLSE Properties	Mean	5.4023	-0.5930	0.3531	2.8811	2.8168	3.8912	-1.8423	1.7152	-1.4478	2.1564	-0.8014	1.5178	No Two	1.2720	0.23	0.23	4.9134
	t-Stat *	1.3700	-0.6500	-0.3300	0.5200	0.4900	0.8600	-1.0100	0.1200	-0.9400	0.2700	-0.7600	0.0600					
	2Tail Prob.	0.17	0.52	0.74	0.61	0.62	0.39	0.32	0.90	0.35	0.79	0.45	0.95					
10 KLSE Plantations	Mean	3.6973	0.2191	0.8728	5.1633	1.8153	1.8000	-3.1159	-0.0548	-0.8065	3.4090	-0.4165	3.9137	No Two	0.7690	0.65	0.65	11.2559
	t-Stat *	1.0900	-0.5400	-0.2400	1.8000	0.2100	0.2000	-2.1400	-0.6700	-1.0300	0.9600	-0.8400	1.2000					
	2Tail Prob.	0.28	0.59	0.81	0.08	0.84	0.84	0.03	0.50	0.31	0.34	0.40	0.23					
11 KLSE Mining	Mean	2.9981	1.1564	-1.3237	0.9666	0.8794	1.7202	-0.7279	2.3587	-3.8425	6.4625	-3.7360	-0.5157	No Two	2.7750	0.00	0.00	10.0974
	t-Stat *	0.9600	0.2400	-0.7200	0.1700	0.1300	0.4600	-0.4900	0.7100	-1.7100	2.3500	-1.6700	-0.4100					
	2Tail Prob.	0.34	0.81	0.47	0.87	0.89	0.65	0.63	0.48	0.09	0.02	0.10	0.69					
12 KLSE 2nd Board	Mean																	
	t-Stat *																	
	2Tail Prob.																	
13 KLSE Emas	Mean																	
	t-Stat *																	
	2Tail Prob.																	

Footnote : * Independent samples t- test statistics for the respective month against the rest of the months in the year.

disappeared from the KLSE during 1987-1996. This finding suggests that stock market anomalies (noted in past empirical studies using data prior to 1987 as documented in our literature review) have been arbitrated away from the market place by informed investors or specialised funds. This is possibly due to the fact that as market sophistication develops, trading volume expand, timely information disclosure improves and market liberalisation proceeds, there is a general tendency for investors to become more informed. As a result, these informations is being instantaneously discounted leading to the disappearance of the year-end effect in the 1990's.