

CHAPTER 4

RESEARCH RESULTS

Relationship between the Ringgit Malaysia Movement and Kuala Lumpur Composite Index Before and During the Currency Crisis

The results of this study were obtained through the empirical research and the event study conducted on the selected samples of Bumiputera-controlled companies and non-Bumiputera companies. Before I discuss the results of the study, the overview of the currency crisis is explained by Figure 1(A) and Figure 1(B). The data for these charts could be refer at Appendix 11 and 12. Figure 1(A) plots the value of the Malaysian Ringgit against the US Dollar. Based on Figure 1(A), after the month 0 or July 1997, there was a steep upward trend in the Malaysian currency against the US Dollar. This showed that the Ringgit Malaysia was weakening against the US Dollar, experiencing a really tremendous drop.

In Figure 1(B), the chart shows that the KLCI had a stable movement before the crisis occurred. However, after July 1997 the chart shows that the stock prices had a steep downward trend. In Malaysia the currency crisis deepened when the Kuala Lumpur Stock Exchange Composite Index (KLSE CI) fell sharply to as low as 262.7 points from 1,077.3 points in June 1997. It fell when the Government announced exchange control on 1st September 1998. However, it then bounced back again and the market tended to show positive movement.

FIGURE 1: RINGGIT MOVEMENT VS KUALA LUMPUR COMPOSITE INDEX

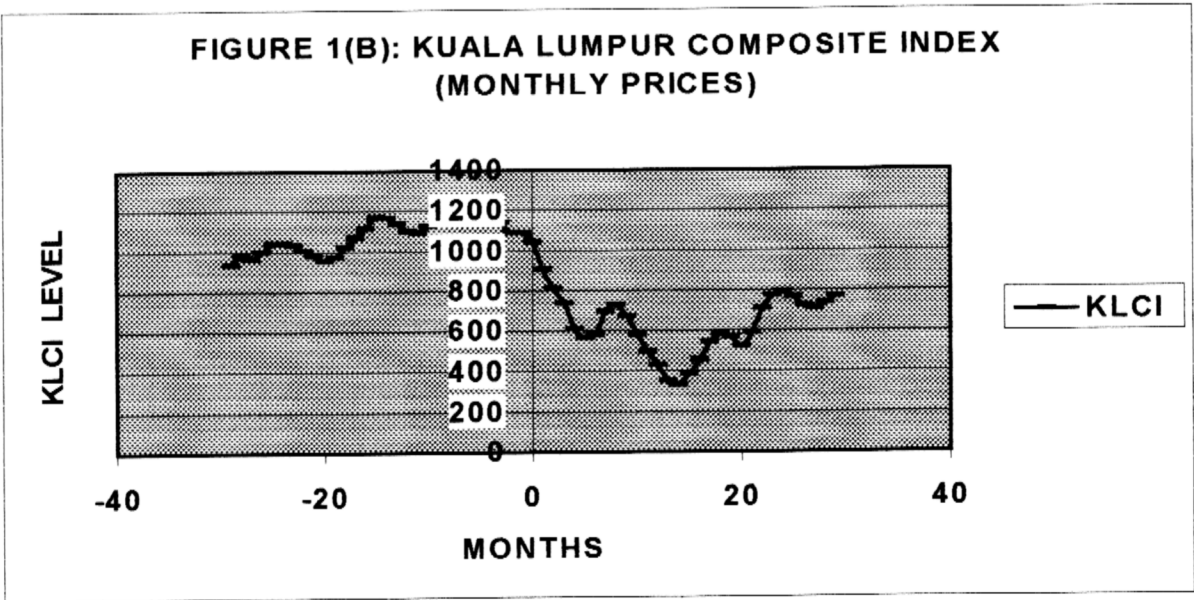
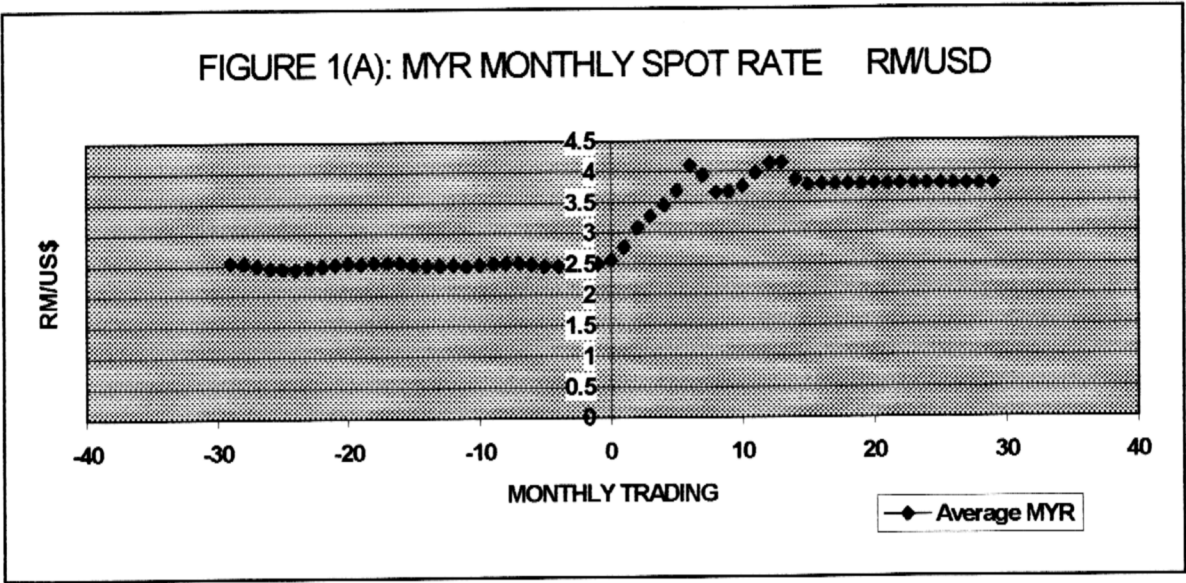


TABLE 1(A): SUMMARY STATISTICS OF MONTHLY AVERAGE RETURNS (BUMIPUTERA-CONTROLLED COMPANIES)

NO.	COMPANY	FULL PERIOD (FEB 1995 - DEC 1999)	BEFORE CRISIS (FEB 1995 - JULY 1997)	DURING CRISIS (JULY 1997 - DEC 1999)
1	Ekovest Berhad	0.3600	0.0280	0.3397
2	EPE Power Berhad	0.6301	3.1335	-1.9533
3	Faber Group Berhad	-2.9092	-3.6320	-2.2454
4	Fima Corporation Berhad	-0.3055	0.8326	-1.5881
5	Guthrie Ropel Berhad	-0.0118	0.4964	-0.6092
6	Kinta Kelas PLC Berhad	-0.7384	-0.5253	-1.1079
7	KPJ Healthcare Berhad	-0.5524	1.0250	-2.2385
8	Kulim Plantations Berhad	0.2210	1.1878	-0.9576
9	Prompto Berhad	-1.2039	0.9276	-3.6308
10	Propel Berhad	-1.1255	-0.7628	-1.7212
11	SPK Sentosa Berhad	1.1050	0.6152	1.5328
12	Park May Berhad	-1.7629	-1.2610	-2.4409
13	Antah Holdings Berhad	-0.0247	1.8291	-2.1970
14	Crest Petrol Berhad	1.0810	0.0185	1.7771
15	Datuk Keramat Holdings	-0.6441	-1.1677	-0.1864
16	Edaran Otomobil Nasional Berhad	0.4536	0.7747	0.0559
17	Gadek Malaysia Berhad	0.1400	1.0571	-0.9057
18	Golden Hope Plantations Berhad	-0.1271	0.0284	-0.3400
19	Negara Properties Berhad	-5.5324	-0.0013	-10.8790
20	Kedah Cement Berhad	0.4101	0.6239	0.0256
21	New Straits Times Berhad	1.6305	2.5879	0.6074
22	Island & Peninsular Berhad	0.2922	0.9472	-0.3213
23	Proton Berhad	0.7184	1.1046	0.0941
24	Hicom Berhad	-0.5435	-0.0979	-1.0721
25	Malaysian Airlines System Berhad	-0.3518	-0.6429	0.1157
26	Mentiga Berhad	-0.9016	-0.6854	-1.2210
27	Petronas Dagangan Berhad	0.1615	1.0705	-0.6374
28	Sistem Televisyen Malaysia Berhad	0.7152	2.5292	-1.0902
29	Tenggara Capital Berhad	0.3230	0.9586	-0.6306
	KLCI	0.0379	0.4191	-0.4891

Empirical Results

Table 1 (A) presents the descriptive statistics of monthly average returns for each sample of Bumiputera-controlled companies. Over the full period which consists of the period before the crisis and during the crisis, 15 companies reported a positive stock return. In the period "before the crisis", majority firms reported a higher return than the market and only 8 companies had reported a negative return. However, "during the crisis" period, 18 companies under-performed the market and the majority reported a negative return. Table 1 (B) below lists the results of the t- statistics test. The results were useful to test the hypothesis.

**Table 1(B): Bumiputera-Controlled Companies' Performance Before the Crisis and During the Crisis.
(T-Test on Monthly Average Returns)**

	BUMIPUTERA	PORTFOLIO
	BEFORE CRISIS	DURING CRISIS
Mean	0.448258027	-1.15260306
t Stat	3.339060173	
Variance	1.759207604	4. 906661836
Observations	29 companies	29 companies
P(T<=t) one-tail	0.000749942	
P(T<=t) two-tail	0.001499884	

Hypothesis 1

$$H_0 : R_{\text{Bumi Before The Crisis}} = R_{\text{Bumi During The Crisis}}$$

$$H_1 : R_{\text{Bumi Before The Crisis}} \neq R_{\text{Bumi During The Crisis}}$$

Based on the t-test results in Table 1(B), it can be concluded that there was a significant difference in Bumiputera-controlled companies' performance between the two periods. The null hypothesis was rejected, as the t-statistic was significant at the alpha equals 5% level. The mean score indicated that during the crisis period, the Bumiputera Companies had a negative return of 1.153 compared to a positive return of 0.448 before the crisis.

TABLE 2(A): SUMMARY STATISTICS OF MONTHLY AVERAGE RETURNS (NON-BUMIPUTERA COMPANIES)

NO.	COMPANY	FULL PERIOD (FEB 1995 - DEC 1999)	BEFORE CRISIS (FEB 1995 - JULY 1997)	DURING CRISIS (JULY 1997 - DEC 1999)
1	KRETAM HOLDINGS BERHAD	-1.5228	0.8911	-3.6750
2	MALAYSIA PLANTATIONS BERHAD	2.1609	2.0314	1.9915
3	MAMEE BERHAD	-0.4613	0.1569	-1.1511
4	AJINOMOTO BERHAD	-0.7108	-0.0896	-1.5305
5	AYER HITAM PLANTATIONS	2.9982	5.7740	0.0412
6	BERJUNTAI BERHAD	-0.6117	0.5696	-1.9992
7	CHOO BEE METAL BERHAD	0.0982	1.1011	-1.2422
8	GAMUDA BERHAD	2.8507	3.3135	2.0968
9	GULA PERAK BERHAD	-0.7896	-0.5205	-1.2020
10	HAI MING BERHAD	0.1853	2.2844	-2.1822
11	INTRIA BERHAD	0.8848	0.8190	0.2295
12	KEMAYAN BERHAD	-2.7006	-0.7238	-4.7653
13	KIAN JOO BERHAD	0.1792	0.6858	-0.4725
14	KL KEPONG BERHAD	0.5590	1.2592	-0.2382
15	MALAYAN CEMENT BERHAD	0.2800	1.2081	-0.5782
16	MENANG CORPORATION BERHAD	-1.5281	-0.2678	-2.8626
17	MITRAJAYA HOLDINGS BERHAD	2.3319	1.9974	2.0617
18	PANGLOBAL BERHAD	-1.1238	-0.6614	-1.6487
19	SELANGOR DREDGING BERHAD	-0.4392	-0.0412	-0.9782
20	SIAM BROTHERS BERHAD	-1.1327	-0.3937	-2.1376
21	SIN KEAN BERHAD	1.3205	3.0371	-0.2121
22	HWA TAI BERHAD	5.9724	11.3147	0.8712
23	HOCK HUA BERHAD	0.7597	1.3976	0.0314
24	SRI HARTAMAS BERHAD	0.0555	0.0227	-0.1405
25	TANJONG PLC BERHAD	0.6277	0.6736	0.2561
26	TONGKAK BERHAD	-1.4216	-2.1369	-0.4778
27	BUKIT KATIL BERHAD	1.1764	2.4502	-0.1299
28	EKRAN BERHAD	-2.0178	-1.0855	-3.0264
29	YTL BERHAD	1.2826	0.4906	1.8927
	KLCI	0.0379	0.4191	-0.4891

The non-Bumiputera companies' performance due to the crisis was also examined in this study. Based on the Table 2(A), the crisis also had a bad impact on the non-Bumiputera companies' performance. Over the full period, which consists of the period before the crisis and during the crisis, 17 companies reported a positive stock return. In the period "before the crisis", only 9 out of 29 companies reported a negative return and 18 companies showed a positive higher return than the market. However, "during the crisis" period, 20 companies had a negative return. Table 2 (B) below lists the results of the t-test statistical test.

Table 2 (B): Non-Bumiputera Companies ' Performance Before the Crisis and During the Crisis.
(T-Test on Monthly Average Returns)

NON-BUMIPUTERA PORTFOLIO		
	BEFORE CRISIS	DURING CRISIS
Mean	1.2261	-0.7303
t Stat	3.5017	
Variance	6.2039	2.8486
Observations	29 companies	29 companies
P(T<=t) one-tail	0.0005	
P(T<=t) two-tail	0.0009	

Hypothesis 2

$$H_0 : R_{\text{Non-Bumi Before The Crisis}} = R_{\text{Non-Bumi During The Crisis}}$$

$$H_1 : R_{\text{Non-Bumi Before The Crisis}} \neq R_{\text{Non-Bumi During The Crisis}}$$

In order to compare the results shown in the summary statistics table, the t-test Assuming Equal Variances was conducted. The t-test results also indicate that there was a significant difference in non-Bumiputera companies' performance between the period before the crisis and the period during the crisis. The null hypothesis was rejected, as the significant score was less than alpha, which was very significant at 0.0005. During the crisis, the mean score of the companies showed a negative return.

Figure 2 illustrates the monthly Bumiputera stock return, non-Bumiputera stock return and the market. From the graph, the average return for twenty-nine months before the crisis and twenty months during the crisis were plotted. From the chart, all groups showed stable returns during the period before the crisis. The non-Bumiputera companies outperformed the market during this time, while the Bumiputera-controlled companies experienced an average performance compared to the market.

However, the market started to show a downswing after July 1997. At the beginning period of the crisis or within three months after the crisis started, the graph clearly shows that the Bumiputera companies were affected and underperformed the market but the non-Bumiputera companies stock return was still not affected and performed better than the market. However after 5 months of crisis, the non-Bumiputera companies showed signs of being affected. The crisis began to affect the non-Bumiputera companies more than the market from that time, while the Bumiputera companies tended to follow the market performance. After capital controls were imposed in September 1998, the return of the companies started to increase.

FIGURE 2

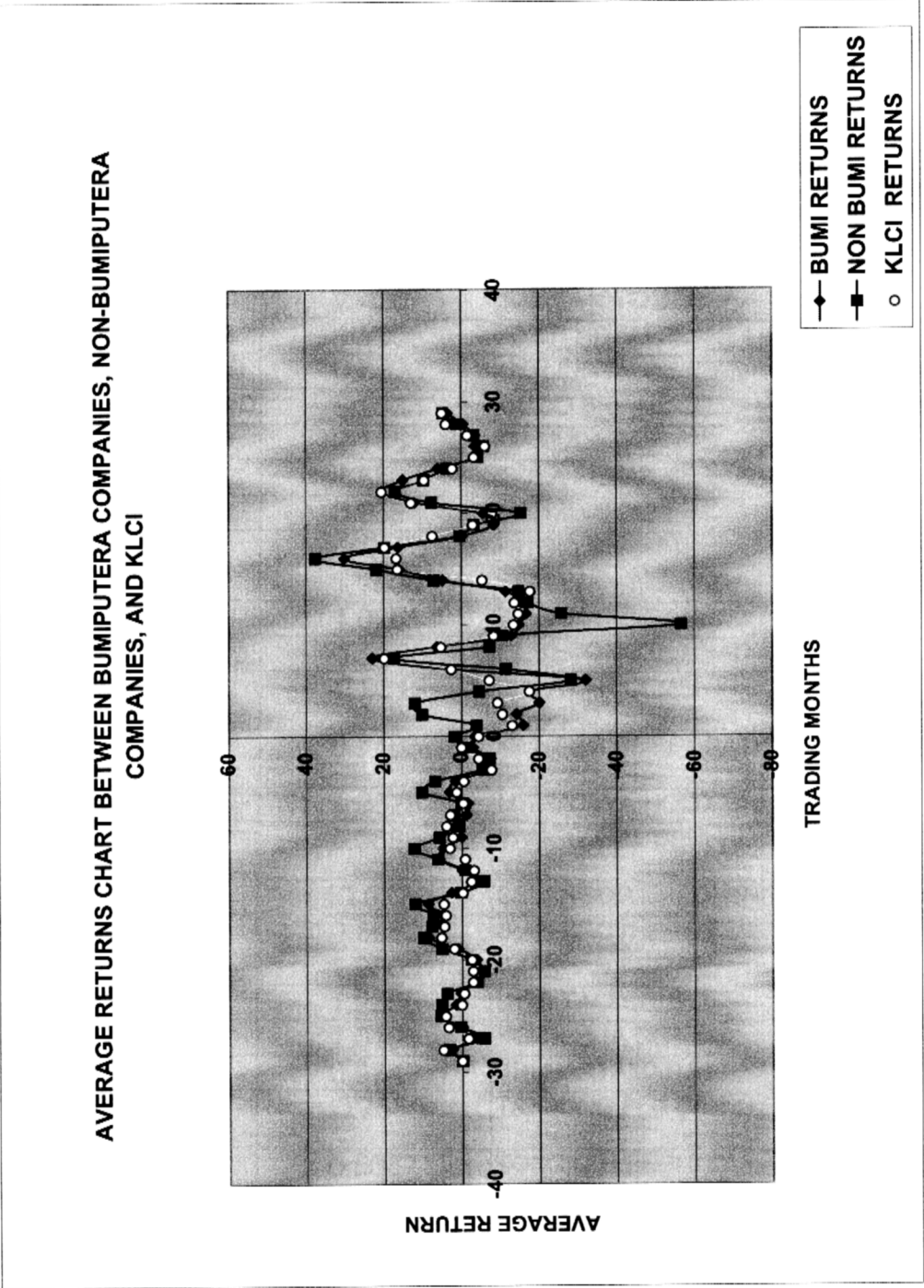


TABLE 3(A): THE DESCRIPTIVE STATISTICS OF MONTHLY AVERAGE RETURNS DIFFERENCES BETWEEN THE BEFORE CRISIS PERIOD AND DURING CRISIS PERIOD.

(BUMIPUTERA-CONTROLLED COMPANIES)	$R_{BC} - R_{DC}$	(NON-BUMIPUTERA COMPANIES)	$R_{BC} - R_{DC}$
EKOVEST BERHAD	-0.3117	KRETAM HOLDINGS BHD	4.5660
EPE POWER BERHAD	5.0868	MALAYSIA PLANTATIONS BERHAD	0.0398
FABER GROUP BERHAD	-1.3866	MAMEE BERHAD	1.3080
FIMA CORPORATION BHD.	2.4207	AJINOMOTO BERHAD	1.4409
GUTHRIE ROPEL BERHAD	1.1056	AYER HITAM PLANTATION	5.7328
KINTA KELAS PLC BERHAD	0.5826	BERJUNTAI BERHAD	2.5688
KPJ HEALTHCARE BERHAD	3.2635	CHOO BEE METAL BHD	2.3434
KULIM PLANTATIONS BHD	2.1454	GAMUDA BERHAD	1.2167
PROMPTO BERHAD	4.5584	GULA PERAK BERHAD	0.6816
PROPEL BERHAD	0.9584	HAI MING BERHAD	4.4666
SPK SENTOSA BERHAD	-0.9176	INTRIA BERHAD	0.5895
PARK MAY BERHAD	1.1800	KEMAYAN BERHAD	4.0415
ANTAH HOLDINGS BERHAD	4.0261	KIAN JOO BERHAD	1.1583
CREST PETROL BERHAD	-1.7586	KL KEPONG BERHAD	1.4974
DATUK KERAMAT HOLDINGS	-0.9813	MALAYAN CEMENT BERHAD	1.7863
EDARAN OTOMOBIL NASIONAL BERHAD	0.7188	MENANG CORPORATION BERHAD	2.5948
GADEK MALAYSIA BERHAD	1.9628	MITRAJAYA HOLD. BHD	-0.0643
GOLDEN HOPE PLANTATIONS BERHAD	0.3685	PANGLOBAL BERHAD	0.9873
NEGARA PROPERTIES BHD	10.8776	SELANGOR DRED. BHD	0.9370
KEDAH CEMENT BERHAD	0.5983	SIAH BROTHERS BERHAD	1.7439
NEW STRAITS TIMES BHD	1.9805	SIN KEAN BERHAD	3.2493
ISLAND & PEN. BHD	1.2685	HWA TAI BERHAD	10.4435
PROTON BERHAD	1.0105	HOCK HUA BERHAD	1.3661
HICOM BERHAD	0.9742	SRI HARTAMAS BERHAD	0.1632
MALAYSIAN AIRLINES SYSTEM BERHAD	-0.7585	TANJONG PLC BERHAD	0.4175
MENTIGA BERHAD	0.5357	TONGKAH BERHAD	-1.6591
PETRONAS DAGANG. BHD	1.7079	BUKIT KATIL BERHAD	2.5800
SISTEM TELEVISYEN MALAYSIA BERHAD	3.6194	EKRAN BERHAD	1.9409
TENGGARA CAPITAL BHD	1.5893	YTL BERHAD	-1.4021

Based on the descriptive data in table 3(A), there are about 6 Bumiputera companies that performed better "during the crisis" period compared to the "before the crisis" period. However, only 3 non-Bumiputera companies performed better during the crisis time compared to before the crisis. Through the descriptive table above, the statistics showed that more non-Bumiputera companies had a tremendous drop in performance due to the crisis compared to Bumiputera companies. Even the percentage fall of stock return for each company was larger than the Bumiputera-controlled companies.

Table 3 (B): T-Test Results on Monthly Average Return between Bumiputera-Controlled Companies' and Non-Bumiputera Companies' Due to the Currency Crisis.

BUMIPUTERA VS NON-BUMIPUTERA PORTFOLIO		
	BUMIPUTERA	NON-BUMIPUTERA
Mean	1.600861	1.956401
T Stat	-0. 563765	
Variance	6.090672	5.443265
Observations	29 companies	29 companies
P(T<=t) one-tail	0.287582	
P(T<=t) two-tail	0.575165	

Hypothesis 3:

$$H_0 : R_{\text{Bumiputera}} = R_{\text{Non-Bumiputera}}$$

$$H_1 : R_{\text{Bumiputera}} \neq R_{\text{Non-Bumiputera}}$$

The t-test results showed insignificant results. They indicated that there was no difference in performance between the two groups due to the crisis. This means that both independent groups' returns were affected by the crisis. The mean score showed that the Bumiputera-controlled companies had a mean score of 1.600 while the non-Bumiputera companies scored 1.956. This result indicates that average non-Bumiputera companies experienced bigger differences in performance due to the crisis than Bumiputera companies.

Figure 3 on the next page illustrates the Bumiputera and non-Bumiputera performance due to the crisis. As plotted on the chart, the non-Bumiputera companies and Bumiputera companies experienced a small range of swing trend before the crisis period. However, during the crisis period, both companies showed that their stock lost a huge amount of value. Based on the stock price chart in Appendix 6 and 7, the study found that the stock price for the majority of the companies experienced a tremendous drop during the crisis.

FIGURE 3

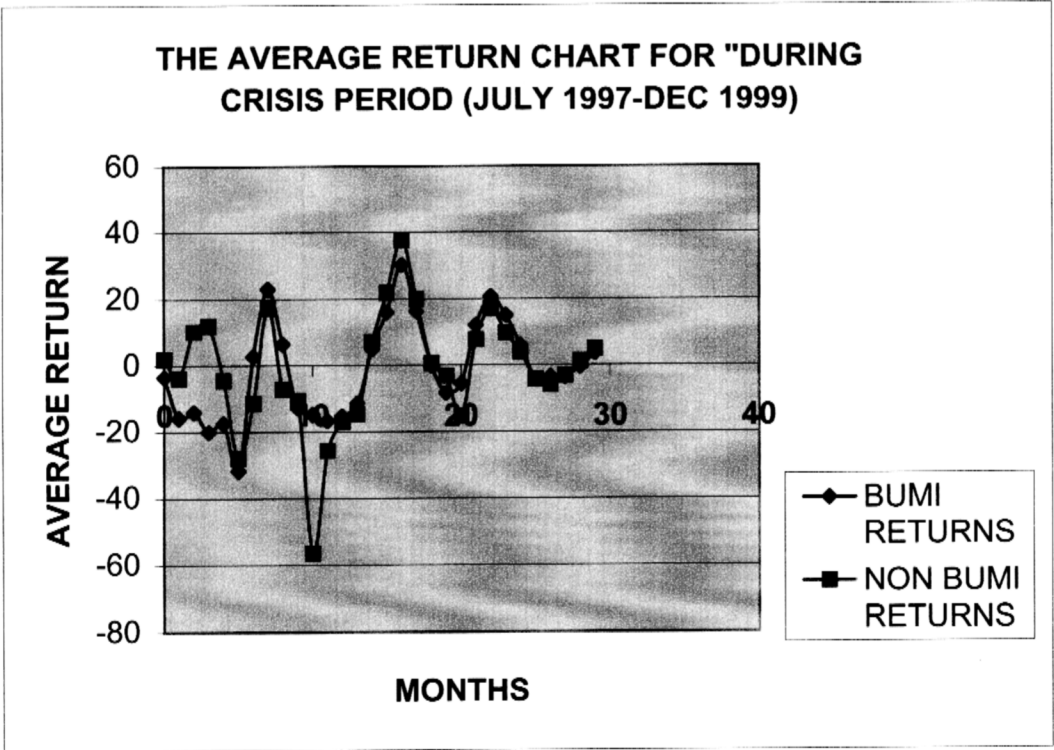
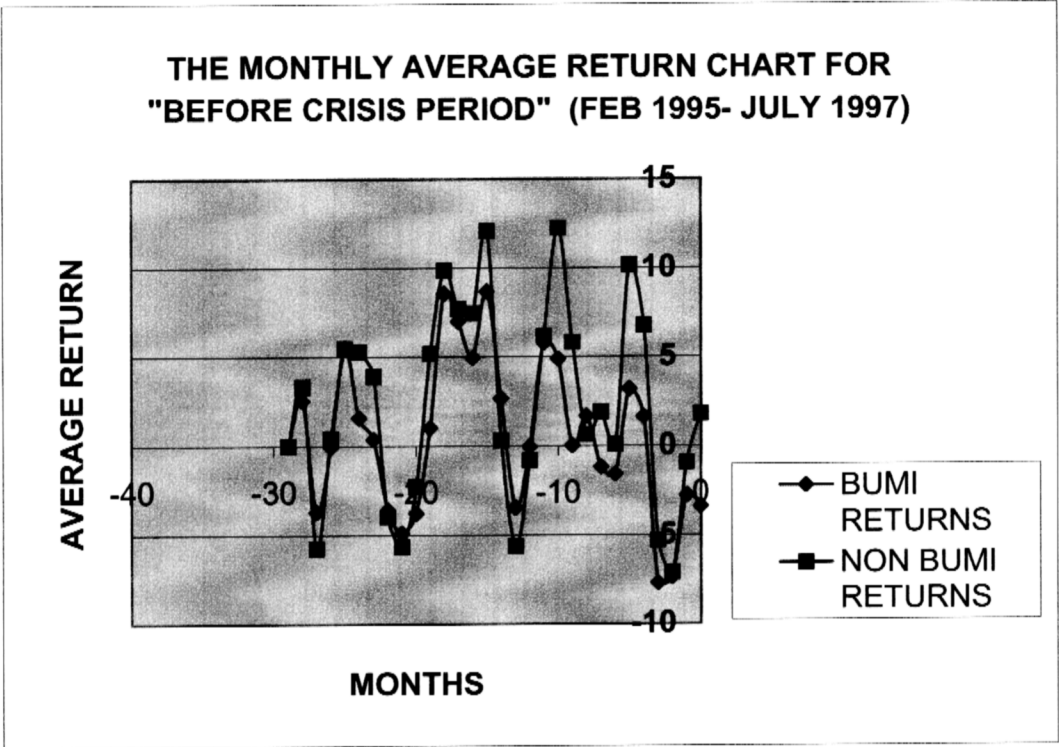


TABLE 4(A): DESCRIPTIVE STATISTICS OF MONTHLY AVERAGE RETURNS (LOW LEVERAGE COMPANIES)

NO.	COMPANY	FULL PERIOD (FEB 1995 - DEC 1999)	BEFORE CRISIS (FEB 1995 - JULY 1997)	DURING CRISIS (JULY 1997 - DEC 1999)	R - R BC DC
1	Ekovest Berhad	0.3600	0.0280	0.3397	-0.3117
2	Fima Corporation Berhad	-0.3055	0.8326	-1.5881	2.4207
3	Kulim Plantations Berhad	0.2210	1.1878	-0.9576	2.1454
4	Prompto Berhad	-1.2039	0.9276	-3.6308	4.5584
5	Propel Berhad	-1.1255	-0.7628	-1.7212	0.9584
6	SPK Sentosa Berhad	1.1050	0.6152	1.5328	-0.9176
7	Edaran Otomobil Nasional Berhad	0.4536	0.7747	0.0559	0.7188
8	New Straits Times Berhad	1.6305	2.5879	0.6074	1.9805
9	Island & Peninsular Berhad	0.2922	0.9472	-0.3213	1.2685
10	Proton Berhad	0.7184	1.1046	0.0941	1.0105
11	Malaysian Airlines System Berhad	-0.3518	-0.6429	0.1157	-0.7585
12	Petronas Dagangan Berhad	0.1615	1.0705	-0.6374	1.7079
13	Golden Hope Plantations Berhad	-0.1271	0.0284	-0.3400	0.3685
14	Negara Properties Berhad	-5.5324	-0.0013	-10.8790	10.8776
	Total Average (14 Companies)	-0.2646	0.6212	-1.2378	1.8591
	Total Average (12 Companies)	0.163	0.7225	-0.5092	1.2318

TABLE 4(B): DESCRIPTIVE STATISTICS OF MONTHLY AVERAGE RETURNS (HIGH LEVERAGE COMPANIES)

NO.	COMPANY	FULL PERIOD (FEB 1995 - DEC 1999)	BEFORE CRISIS (FEB 1995 -JULY 1997)	DURING CRISIS (JULY 1997 - DEC 1999)	R - R BC DC
1	EPE Power Berhad	0.6301	3.1335	-1.9533	5.0868
2	Faber Group Berhad	-2.9092	-3.6320	-2.2454	-1.3866
3	Kinta Kelas PLC Berhad	-0.7384	-0.5253	-1.1079	0.5826
4	Park May Berhad	-1.7629	-1.2610	-2.4409	1.1800
5	Antah Holdings Berhad	-0.0247	1.8291	-2.1970	4.0261
6	Crest Petrol Berhad	1.0810	0.0185	1.7771	-1.7586
7	Datuk Keramat Holdings	-0.6441	-1.1677	-0.1864	-0.9813
8	Kedah Cement Berhad	0.4101	0.6239	0.0256	0.5983
9	Hicom Berhad	-0.5435	-0.0979	-1.0721	0.9742
10	Mentiga Berhad	-0.9016	-0.6854	-1.2210	0.5357
11	Sistem Televisyen Malaysia Berhad	0.7152	2.5292	-1.0902	3.6194
12	Tenggara Capital Berhad	0.3230	0.9586	-0.6306	1.5893
	Total Average	-0.3637	0.1436	-1.0285	1.1722

After looking at the return performance of Bumiputera and non-Bumiputera companies due to the crisis, this study went on to see the performance of Bumiputera companies in relation to the leverage issue. Table 4A and 4B, points out that during the currency crisis, the monthly stock returns of most low leverage companies and high leverage companies were affected.

Table 4(C): T-Test on Monthly Average Returns of Bumiputera-Controlled Companies. (Low Leverage VS High Leverage)

BUMIPUTERA PORTFOLIO		
	LOW LEVERAGE	HIGH LEVERAGE
Mean	1.8590	1.1722
t Stat	0.684315	
Variance	8.7486	4.5934
Observations	14 companies	12 companies
P(T<=t) one-tail	0.250307	
P(T<=t) two-tail	0.500614	

Hypothesis 4:

$$H_0 : R_{\text{High Leverage}} = R_{\text{Low Leverage}}$$

$$H_1 : R_{\text{High Leverage}} \neq R_{\text{Low Leverage}}$$

The t-test showed insignificant results. There was no difference between the high leverage and low leverage groups of Bumiputera-controlled companies. The study accepted the null hypothesis, where both groups performed similarly due to the crisis. The mean score result was opposite to the expected result. Through the mean result shown in both tables, the average percentage drop in return for the low leverage group was slightly higher than the companies with high leverage. It seems that there was no difference between the groups. However if we look at each company in the low leverage group, Negara Properties Berhad had a tremendous drop in return during the crisis compared to other companies. In order to avoid any outliers in the result, the study ran a second T-test in which this company and Golden Hope Plantation Berhad were excluded. Below are the second t-test results. It seems that the results are not really different from the first test. The low leverage companies' stock returns fell slightly more than high leverage companies due to the crisis.

**Table 4(D): Monthly Average Returns of Bumiputera Companies
(Low Leverage VS High Leverage)**

BUMIPUTERA PORTFOLIO		
	LOW LEVERAGE	HIGH LEVERAGE
Mean	1.2318	1.1722
t Stat	0.0786	
Variance	2.3139	4.593
Observations	12 companies	12 companies
P(T<=t) one-tail	0.4690	
P(T<=t) two-tail	0.9380	

Event Study Results

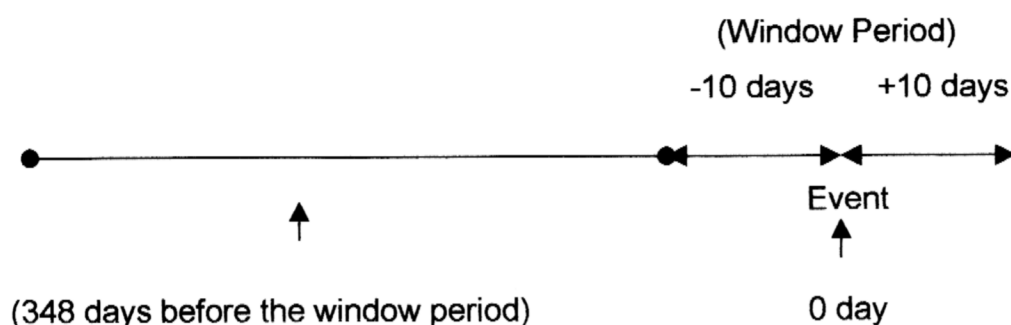
Table 5(A) below shows the results of the regression analysis between daily return of Bumiputera-controlled companies and its independent variable, the KLCI return. The second row indicates the regression results of non-Bumiputera companies and the KLCI. The mean of the KLCI daily return is also listed below.

Table 5(A): The regression result between daily return of Bumiputera controlled companies and non-Bumiputera companies with the independent variable, the KLCI daily return.

CO.	\bar{x} (KLCI mean)	MS. Residual	α	β	St. Dev	St. Error
BUMI	- 0.0104	0.494288	0.03854	0.869825	0.037691	0.043947
NON-BUMI	- 0.0104	0.674	0.040304	0.995932	0.044017	0.051323

The regression results above were computed by regressing the daily return of Bumiputera-controlled companies with the KLCI daily return. The daily return for the duration before the window period was used in this analysis. The study then repeated the regression analysis step for non-Bumiputera companies.

The Bumiputera average daily return, the KLCI daily return and all the six elements above were then used as important data to run the OLSEVNT2 program in order to calculate the abnormal return and cumulative abnormal return. In this stage the daily returns for the window period were used. This study was conducted in order to see whether any abnormalities existed during the window period due to the currency crisis.



The window period in this study was between 28th July 1997 and 25th August 1997. The event date was 11th August, 1997. This date was chosen as the event date because most companies' stock returns dropped more than usual on this day. (Refer to Appendix 9-10).

The outcome of the event study is presented in Tables 5(B) and 5(C). Table 5(B) and Table 5(C) present the abnormal returns and cumulative abnormal returns (CAR) results for Bumiputera and Non-Bumiputera selected companies. The Z-statistic was used to see the correlation between the two sub-periods.

Bumiputera-controlled companies

In Table 5(B), the Z-statistic showed that there was a significant result four days before the event. This result explained that there were differences in performance between Bumiputera-controlled companies and the market on Day -4. Bumiputera companies beat the market performance on Day -4 by 1.623%. However, on Day -1 Bumiputera-controlled companies experienced an abnormal return of -1.484. This means that the companies' return was less than the previous day by 1.484% where, Z-statistic showed a significant result or in other words there were differences in performance between the group and the market.

There were no any abnormalities occurred on Day 0, even though the majority of the companies experienced a stock return drop. This was because the group tended to follow the market performance on Day 0. On this day, most of the stock returns of selected Bumiputera controlled companies experienced a tremendous drop and the market also performed in the same way. However, the largest single day's abnormal returns occurred on day 7, at -2.239%. The Z-statistic reported a very significant result. This means that there was a difference between the market and the Bumiputera group returns on that day. The result indicates that on day 7, the Bumiputera-controlled companies stock return dropped by 2.239 percent compared to the previous day.

Non-Bumiputera companies

In Table 5(C), the Z-statistic shows that there was a significant difference between non-Bumiputera companies and the market on Day -3. The non-Bumiputera companies beat the market performance on Day -3 by 2.14%. This leads to a gradually increasing CAR, which reached its peak of 3.9986% on Day -1. However, the Z statistic reports insignificant results or, in other words, there was no difference in performance during Day 0. It seems that even though the majority of companies' returns dropped on this day, because the number of companies used as a sample was quite big, the result reflects the market performance. The largest significant result appeared 8 days after the event. The difference was reported on Day 8 at -2.7882. The abnormal return results were -2.402. This means that the group return dropped by 2.402 % compared to the previous day.

From the results above, the study found that Bumiputera-controlled companies tended to react faster than non-Bumiputera companies if there was any event affecting the market.

TABLE 5(B): BUMIPUTERA COMPANIES ABNORMAL RETURN OVER 21-DAYS AROUND THE BEGINNING OF THE CURRENCY CRISIS

DAY	AR	VAR(AR)	Z-VALUE	CAR	VAR(CAR)	Z-VALUE
-10	0.903	0.4982	1.2795	0.903	0.4982	1.2795
-9	-0.171	0.4958	-0.2426	0.7322	0.9958	0.7337
-8	0.173	0.4965	0.2451	0.9049	1.5003	0.7388
-7	0.871	0.4983	1.2338	1.7758	2.0141	1.2513
-6	0.656	0.4976	0.9294	2.4315	2.5335	1.5276
-5	1.003	0.5067	1.4083	3.434	3.0887	1.9539**
-4	1.623	0.5182	2.2546**	5.0569	3.7042	2.6275***
-3	-0.935	0.4967	-1.3263	4.1222	4.1946	2.0127**
-2	0.606	0.5073	0.8513	4.7285	4.8078	2.1565**
-1	-1.484	0.4961	2.1067**	3.2447	5.3101	1.4081
0	-0.571	0.5159	-0.7944	2.6741	5.9892	1.0927
1	-0.913	0.4963	-1.2963	1.7609	6.5455	0.6883
2	0.015	0.499	0.0215	1.7762	7.0054	0.6711
3	-0.84	0.498	-1.1902	0.9362	7.485	0.3422
4	0.186	0.4973	0.2635	1.122	8.0644	0.3951
5	0.878	0.5162	1.2226	2.0004	8.7877	0.6748
6	-1.445	0.4963	2.0515**	0.5552	9.294	0.1821
7	-2.239	0.5442	3.0353***	-1.684	9.5812	-0.544
8	1.179	0.5049	1.6586	-0.5055	10.2277	-0.158
9	-0.811	0.4961	-1.152	-1.3168	10.8006	-0.4007
10	1.405	0.5061	1.9756**	0.0885	11.4832	0.0261

*, **, *** denote significant at the 10%, 5%, and 1% level respectively

TABLE 5(C): NON-BUMIPUTERA COMPANIES ABNORMAL RETURN OVER 21-DAYS AROUND THE BEGINNING OF THE CURRENCY CRISIS.

DAY	AR	VAR(AR)	Z-VALUE	CAR	VAR(CAR)	Z-VALUE
-10	0.1143	0.6794	0.1387	0.1143	0.6794	0.1387
-9	-0.1341	0.6762	-0.1631	-0.0198	1.3582	-0.017
-8	0.0286	0.6772	0.0347	0.0088	2.0463	0.0062
-7	-0.0403	0.6761	-0.049	-0.0315	2.7339	-0.019
-6	0.4185	0.6796	0.5077	0.3871	3.4384	0.2087
-5	0.9063	0.6787	1.1001	1.2933	4.1506	0.6348
-4	0.1792	0.6911	0.2155	1.4725	4.9116	0.6644
-3	2.1401	0.7067	2.5457***	3.6126	5.7548	1.5059
-2	-0.3464	0.6774	-0.4209	3.2662	6.4275	1.2883
-1	0.7324	0.6919	0.8805	3.9986	7.2676	1.4833
0	-0.2451	0.6766	-0.2979	3.7536	7.9566	1.3307
1	-0.4729	0.7036	-0.5638	3.2807	8.8864	1.1005
2	-0.5517	0.6768	-0.6706	2.729	9.649	0.8785
3	-0.3538	0.6805	-0.4289	2.3752	10.2802	0.7408
4	-0.6566	0.6792	-0.7968	1.7185	10.9383	0.5196
5	0.9251	0.6782	1.1233	2.6436	11.7323	0.7718
6	0.9878	0.704	1.1773	3.6314	12.7225	1.0181
7	-0.6599	0.6769	-0.8021	2.9715	13.417	0.8112
8	-2.402	0.7422	-2.7882***	0.5694	13.8128	0.1532
9	1.4264	0.6886	1.719*	1.9959	14.6983	0.5206
10	0.3625	0.6766	0.4407	2.3584	15.4835	0.5993

*, **, *** denote significant at the 10%, 5% and 1% level respectively