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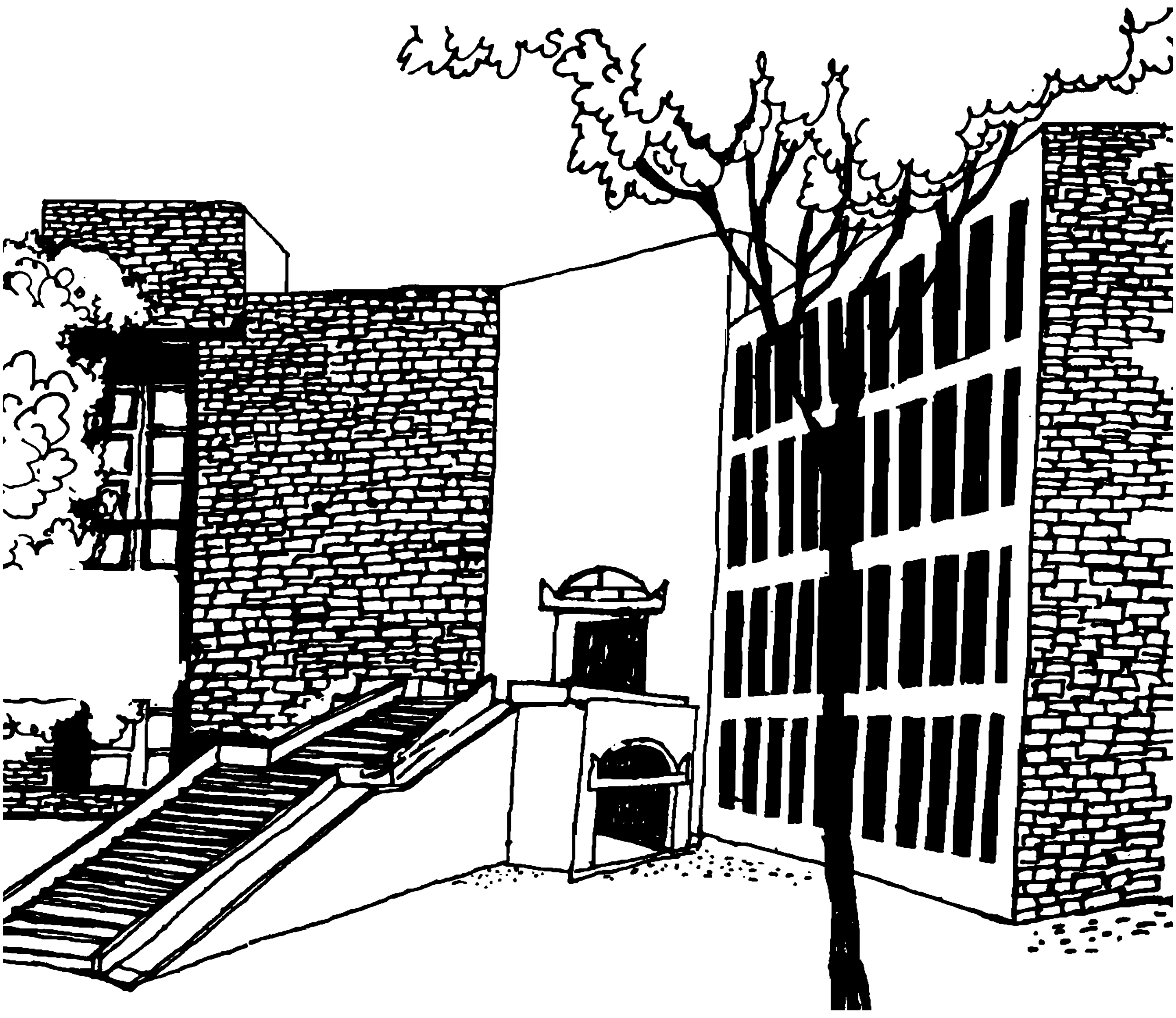

STOCK PRICE BEHAVIOUR IN MALAYSIA

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Chee Hong Kok & G S Gupta

ABSTRACT

The paper examines the validity of the three theories of stock price behaviour in Malaysia : Efficient Market Hypothesis (EMH)/Random Walk Hypothesis (RWH), Technical Analysis and the Fundamental Theory. The sample consists of the Malaysian stock market indices, Singapore stock market price index, USA Dow Jones Industrial Average, Japan Nikkei index and stock prices of 30 Malaysia companies across various sectors, annual data of 1982 through 1993, and weekly data of period 1977 through April 1994. The correlation analysis, time series analysis and multiple regression techniques have been employed to analyse the data. The findings support the usefulness of the technical analysis and fundamental approach to stock pricing and reject the efficient market hypothesis for Malaysia.

STOCK PRICE BEHAVIOUR IN MALAYSIA

1. INTRODUCTION

Stock price is perhaps a variable which belongs to the group of a highly fluctuating variables. While there are many variables which change significantly over time, the change in them is often uni-directional. However, the stock price registers large changes over time and these changes are in both the directions, particularly in the short-run. It is true that over a long period (say a few years), even the stock price has a positive trend (estimated at around 6% per year for USA) and thus the long-term investors in the stock market only reap profits. However, in the short-run, stock price move in both the directions and thus investors in stocks could gain as well as lose. In view of this, the stock price behaviour is an important subject for an empirical research. The present paper concentrates on this for the Malaysian economy.

The popularity of stocks as a candidate for investment has increased tremendously over time all over the world and

Malaysia is no exception. In the past, investors in stocks, in general, have reaped better returns than the investors in other securities but this cannot be assumed for future. Further, the skillful investors have earned more than the naive investors, indicating the positive reward for skills in stock markets. Due to this, there is an increasing professionalization in security investments. This is reflected in the mushrooming of mutual funds and other investment companies. These institutions invest funds of savers in professionally selected portfolios of securities, earn usually above the market return and share the earnings with savers. This has resulted into financial disintermediation and, in turn, has promoted investments in securities. This calls for a good knowledge of the security markets and the valuation of securities.

The data on growth indices of the Kuala Lumpur Stock Exchange (KLSE) are reported in Table 1.

TABLE 1

A review of these growth indices would indicate that during 1980 end through 1993 end, the

(a) number of listed companies has grown from 250 to 416, registering a 66% growth, giving an annual compound growth rate of 4.0%,

(b) market capitalization has increased from RM43.1 billion to RM619.7 billion, indicating a 1,338% growth, yielding an annual compound growth rate of 22.8%,

(c) trade volume has increased from 1.5 billion units to 107.7 billion units, showing a 7,080% growth, giving an annual compound growth rate of 38.9%,

(d) KLSE - Composite Index (which peaked at 1332 on January 5, 1994 (Base:1977=100)) has increased from around 380 (1980 high) to around 1275 (1993 high), registering an increase of 282%, yielding an annual compound growth rate of 11.1%.

Due to this size and the fast growth rate in all the indices, the KLSE is now one of the top ten bourses in the world, the fifth largest in Asia and the largest in South-East Asia. Stock price fluctuations in Malaysia, like in most other countries, have also been quite significant. During January 1977 to April 1994, the mean and standard deviation of the KLSE-CI stood at 384 and 203 respectively, giving a coefficient of variation of as high as 53%, which is rather high even compared to that in other countries. The details on these factors are presented in Table 2.

TABLE 2

A study of the stock price behaviour in Malaysia is therefore highly significant.

2. LITERATURE AND METHODOLOGY

There are three approaches to understand the stock price behaviour:

* Efficient Market/Random Walk hypothesis
* Technical/Chartist school
* Fundamental school

The efficient market hypothesis (EMH), also known as the random walk hypothesis (RWH) was first postulated by Louis Bachelier in 1900. According to this approach, the stock price always equals its intrinsic value (contains all the market information) and thus the stock market is efficient, and since the pieces of news are received randomly, the price changes are random and unpredictable. As a corollary, the past events have no influence whatsoever on the future price of a share, which is determined solely by future events. However, the supporters of this theory differ with regard to the degree of market efficiency. Thus, currently the theory is cast in three forms : weak, semi-strong and strong. In the weak form, the hypothesis argues that the historical price data are incapable to forecast the future price of a stock. In the semi-strong form, the theory suggests that all the publicly available information (i.e. historical prices, financial statements, etc.) is insufficient to forecast future stock prices. Lastly, the staunchest supporters of the EMH believe that all the possible (i.e. publicly and privately available : corporate insiders) information would not enable good forecasts on future stock prices. As a corollary, the analysis of such information would not enable the analysts to beat (outperform) the market.

The technical school (chartist) is totally opposed to the EMH. According to them, the historical data on stock prices and their trade volumes could be used to obtain meaningful forecasts on future stock prices, which in turn, could be used to earn above average profits from investments in stocks. The fundamental school argues that the stock, industry and economy specific fundamental (intrinsic or real) variables could help in predicting the future stock prices. Chartists and fundamentalists are not at odd with each other and the latter does not contradict with the efficient market theory.

While there are a number of studies on the stock price behaviour along these three approaches in the West, there are only a few studies in the literature in the East, and particularly on the Malaysian data. Further, the studies on Malaysia have basically tested the weak-form of the EMH only, using the serial correlation and runs analysis, and their findings are mixed. For example, Lim (1981) used June 1974 to June 1980 price data on the 30 most active stocks and found that the market was weakly efficient. Nassir (1983), using the same period data and the same methodology, reached the same conclusion through the study of 101 active stocks. Neoh (1985) covered 78 stocks, used 1968 to 1983 data, applied periodicity and moving average methods and concluded that the market was weakly efficient but semi-strong inefficient. Laurence (1986) had a sample of 16 most active industrial stocks, used June 1973 to December 1978 data, applied serial correlation and runs tests and found the market as inefficient. Othman (1987) used a sample of 170 stocks, data of 1977 to 1985, methods of serial correlation and runs analysis, and concluded the market as weakly efficient but non-randomness in the direction of price change for a high proportion of stocks. Saw and Tan (1989) covered all share indices, used 1975 to 1983 data, applied serial correlation, runs and spectral analyses, and concluded the market as inefficient.

Studies in the West have provided evidences with regard to the salient fundamental variables that influence the stock price. Graham and Dodd (1951), Gordon (1959) and Miller and Scholes (1982) found that dividend affects stock price positively. Black and Scholes (1974) found no clear cut relationship between these two variables. Miller and Modigliani (1961) have advanced the theory of dividend irrelevance in stock valuation in the world of no taxes, no transaction costs or any other market imperfections. Litzenberger and Ramaswamy (1979) suggests a negative relationship between dividend and stock price through their argument of higher tax rate on dividend than on capital gain. Ball and Brown (1968) have provided evidence on the positive effect of accounting earnings on stock price. Solomon (1955) concluded that the stock prices in 1955 were very close to what would have been predicted if one had based the predictions on the growth rate in real GNP. Reilly, Johnson and Smith (1970) and Cagan (1974) have provided evidences of a positive relationship between stock price and inflation rate, which was subsequently challenged by Fama (1981). The Sharpe's capital market model (1963) suggests that stock price is influenced negatively by the level of risk in the underlying security.

On the basis of the above findings, the present paper purports to apply the correlation model, time series model as well as the fundamental model to study both the stock market price behaviour as well as the individual stock price behaviour in Malaysia. The correlation and time series models have also been applied to the selected market price indicators of foreign countries, viz. Singapore, USA and Japan. The specific models are as follows:

(a) Correlation Model :

Pearsonian correlation coefficient between each stock price and market price indicators and between all combinations of different market price indicators are computed and analysed.

(b) Time Series Model:

(i) Auto-regression : $P_t = f(P_{t-1}, P_{t-2})$ ...(1)

or

(ii) Trend : $P_t = f(T, T^2)$ ...(2)

(c) **Fundamental Model :**

$$P = f\ (DI, PO, GE, GP, GI, SD)$$

$$f_1\ ,\ f_3\ ,\ f_4\ ,\ f_5 > 0 > f_6 \quad ...(3)$$

$$f_2 = ?$$

where P = individual stock (or market) price

T = time (measured as 1,2,....,n)

DI = dividend per share (sen)

PO = dividend payout ratio (dividend/earnings)

GE = growth rate in earnings

GP = growth rate in general price (inflation rate

GI = growth rate in real gross domestic product (GDP)

SD = standard deviation of dividend per share (measure of risk)

The multiple regression technique has been applied to estimate and test the above models.

3. DATA AND RESULTS

It was decided to study a sample of 30 stocks' prices, KLSE-CI, KLSE-Emas, Straits Times Index (STI) of Singapore, Dow Jones Industrial Average (DJIA) of USA and Nikkei of Japan. The sample of 30 stocks was selected on the basis of the stratified disproportionate random sampling procedure. The stratification criteria used were sectoral classification and the performance rating of Dynaquest's Stock Performance Guide. The list of the selected sample of counters is given in Table 3.

TABLE 3

The construction sector is not represented because there was no firm which had distributed dividend in all the sample years in this sector. Also, the sample has no trust company due to their short listing history.

The time period covered for the company data is 1982 through 1993 (annual). For the KLSE-CI, it is weekly data from January 1977 to April 1994; for Emas, it is weekly from January 1984 to April 1994 and for STI, DJIA and Nikkei, it is also weekly but from January 1990 to April 1994. The time span choices were dictated basically by the data availability.

The relevant data were collected from the Ministry of Finance's Economic Reports, KLSE publications (e.g. Annual Companies Handbook), Dynaquest's database and The Star. The individual stock prices were adjusted for capitalization changes such as bonus, rights and stock splits. The stock prices are measured at the mid-range and in terms of Ringgit, dividend per share (DPS) and standard deviation in DPS in sen, payout ratio, growth rates in earnings, price and real GDP in percentages, and all market indices in their respective index numbers/averages.

The results on correlation coefficients are provided in Table 4.

TABLE 4

The results indicate a rather strong correlation between various combinations of individual stocks and market price indicators. All individual stock prices, barring that of Guinness, are positively correlated both with the KLSE-CI and Emas. The magnitudes lying between 0.26 and 0.98, with a mean value of 0.78 and about 80% of them exceeding 0.80. Thus as expected, stock prices are highly correlated with the market price indices. An analysis of the correlations between the five market price indicators across four countries reveal that they are positively and strongly correlated across Malaysia, Singapore and USA, and each of them is negatively and weakly correlated with Japan. As expected, the correlations are the highest within Malaysia; between Malaysia and Singapore the next; and between Malaysia and USA the least. The negative correlation with Japan could be due to the recession in that country in contrast to the high growth rate in Malaysia during the sample period. Incidentally, Abdul Ghani Shafie (1992) found the correlation coefficient between KLSE-CI and Nikkei at 0.27 using January 1980 to December 1987 data.

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The linear form of both the alternative versions of the time series model as well as just one or both the explanatory variables were tried. The best results for each individual stock and market price, as judged by the R^2 and t-values, are presented in Table 5.

TABLE 5

The estimation results are quite good. The fits for all the market price indicators are almost perfect, for their R^2 values are all close to unity. For individual stocks' prices, the R^2 values are above 0.8 for 14 out of the 30 stocks, above 0.5 for 24 out of the 30 stocks, and they are below 0.4 just for two stocks (viz. MMC and MTC). Of the two versions, the trend version provided the better results for 25 out of the 30 cases than the auto-regression results, and the opposite was true for the remaining just five cases. The t-values for the trend (or lagged) variable in most cases are highly significant as well. An undesirable feature of some of the results is that the coefficient of the trend variable (T) was found to be negative, though that of its square (T^2) was positive. Since the objective is prediction, this need not bother us much.

The fundamental model was estimated both through the time series as well as the cross-section data. The risk variable (standard deviation of dividend) could not be used in the time series regression, for there is only one value of it for all the years for each stock, on the basis of which its value was estimated. For cross-section regressions, the risk variable was assumed to take the same value in each of the three years for which the regressions were estimated. Similarly, the inflation rate and economic growth rate variables could not be tried in the cross-section regressions because they do not vary over the cross-section of companies. With these limitations, the linear form with alternative combinations of all the explanatory variables were tried for each stock on time series data as well as for each year of the three selected years (1982, 1988 and 1993) on the cross section data. The results of the selected equation for each stock are reported in Table 6. The best equations were selected on the basis of a priori expected signs for the regression coefficients, their significance as judged by the t-test and the overall fit as witnessed by the R^2 value.

TABLE 6

The results in Table 6 are mixed ones. The R^2 value range between 0.10 and 0.99, with a mean value of 0.64. About 30% of R^2s exceeds 0.8 and 80% exceed 0.5. By our selection criteria, all explanatory variables assume a priori signed coefficients. In terms of the significance of the regression coefficients, dividend is the only variable which usually assumes a significant coefficient. The growth rate in GDP is the next most relevant explanatory variable as it assumes a significant coefficient in 7 out of the 30 equations in Table 6. The payout ratio takes a significant coefficient in 5 equations, the growth rate in earnings in 2 equations, and the growth rate in inflation in none of the 30 equations. In terms of the multipliers (magnitudes of regression coefficients), the average (mean) value for dividend stands at 0.57, for payout ratio at 0.0032 and for growth rates in earnings, general price and GDP at 0.0019, 0.048 and 0.096, respectively. Thus, on an average, a 10 sen increase in dividend per share leads to a 57 sen increase in the corresponding stock price. Further, a 10% increase in the payout ratio causes a 3.2 sen increase in the relevant stock price. Also, if earnings of a company grow by 10%, its stock price increases by 1.9 sen. The effects of a 10% increase in the general price index and the GDP on stock price, on average, stand at 48 sen and 96 sen, respectively. Of course, the effects of such changes in the explanatory variables on the individual stock's price varies from company to company. The details on these are available in Table 6.

A careful look at the results in Table 6 would further reveal that the behavioral equations for the stock price, in general, have good fit for the blue chip companies, average fit for the second grade companies, and poor fit for the third grade companies. Thus, the estimation results are excellent for Carlsberg, GKM, HLI, Maybank, KLK, MOX, Rothmans, Shell and Sime, and poor for BI, CSM, Mosaics, MTC and MPHB.

The cross-section estimation results for each of the three selected years are given in Table 7.

TABLE 7

Once again, dividend alone turns out to be a significant (and positive) determinant of the stock price in all the years. Though the other determinants have low significance level, they assume correctly signed coefficients where ever they appear. While the growth rate in earnings and standard deviation of dividend were found to be the relevant cause variables in 1982, they were not so in 1988 and 1993. In contrast, the significance level of the payout ratio has improved over time. In terms of the R^2 value, 1988 results are the best and 1993 the worst.

4. ANALYSIS AND CONCLUSIONS

The correlation results of Table 4 and the time series model results of Table 5 suggest that the historical stock price data could be used profitably to reproduce the history. Further, they reveal that all the five market price indices have near perfect fit on the time series model (bottom part of Table 5) and thus their future values can be predicted with reasonable accuracy. Also, the correlation coefficients between the prices of each individual stock and the Malaysian stock market indices (KLSE-CI and Emas), in general, are pretty high and thus, given the predictions on the latter, those on the former could easily be inferred. In consequence, all these findings imply that the historical stock prices are capable of producing fairly good forecasts on the future stock prices. If so, the weak form of the Efficient Market Theory is nullified, which, in turn, implies that the other two forms of this theory (viz. semi-strong and strong) are also unfounded. Thus, our results imply that the Malaysian stock market is inefficient. This also means that the technical (chart) analysis is useful. This findings is corroborated by several studies in the literature, which use different samples and methodology than ours.

The fundamental model results are quite good at least for the good companies. Since the explanatory (fundamental) variables of this model are relatively easier to forecast than the stock prices themselves, this model could also be used to generate forecasts on future stock prices. If so, the under-priced and over-priced stocks could be identified, which, in turn, could be used to arrive at buying/selling decisions. Thus the fundamental model, like the technical analysis (correlation coefficients and time serires model) results could be used to arrive at the optimum investment decisions in Malaysia.

Needless to say, the above findings and conclusions are subject to our limited sample and thus generalisation may be too optimistic. We merely offer these as some results and look forward to future findings.

TABLE 1: GROWTH OF KLSE

Year end	No. of listed companies	Market capital-ization	Volume traded	Value traded	Composite index (highest)
		(RM billion)	(billion units)	(RM billion)	(1977=100)
1980	250+	43.1	1.5	5.6	379.6
1985	284+	58.3	2.9	6.2	320.5
1990	285	131.7	13.2	29.5	632.2
1991	324	161.3	12.3	30.1	635.0
1992	369	245.8	19.3	51.5	660.4
1993	416	619.7	107.7	387.3	1275.3

\+ Includes 56 Singapore companies.

TABLE 2 : LOCATION AND SPREAD MEASURES OF STOCK PRICE MOVEMENTS IN SELECTED COUNTRIES

Country	Stock price measure	Base year	Sample period (weekly)	Mean (arith-metic)	Standard deviation	Coeff. of variation (%)
Malaysia	KLSE-CI	1977	Jan 77-Apr 94	384	203	52.9
Singapore	STI	1966	Jan 90-Apr 94	1591	307	19.3
USA	DJIA	1886	Jan 90-Apr 94	3146	394	12.5
Japan	Nikkei	-	Jan 90-Apr 94	22502	5173	23.0

TABLE 3 : SAMPLE COMPANIES

ID No.	Company	Abbreviation used	Sector	Classification	
				Rating Score*	Group
1	Bandar Raya Developments Bhd.	BR	Properties	2.5	Below average
2	Berjaya Industrial Bhd.	BI	Consumer Products	1.5	Below average
3	Boustead Holdings Bhd.	Boustead	Trading/Services	4.5	Average
4	Carlsberg Brewery Malaysia Bhd.	Carlsberg	Consumer Products	10.0	Blue chip
5	Chemical Company of Malaysia Bhd.	CCM	Industrial Products	6.5	Blue chip
6	Cold Storage (Malaysia) Bhd.	CSM	Consumer Products	5.5	Average
7	Consolidated Plantations Bhd.	Consplant	Plantations	6.0	Average
8	DMIB Bhd.	DMIB	Industrial Products	6.0	Average
9	Esso Malaysia Bhd.	Esso	Industrial Products	6.5	Blue chip
10	The East Asiatic Company (Malaysia) Bhd.	EAC	Trading/Services	6.0	Average
11	Faber Group Bhd.	Faber	Hotels	4.0	Below average
12	Genting Bhd.	Genting	Trading/Services	9.0	Blue chip
13	George Kent (Malaysia) Bhd.	GKM	Trading/Services	3.5	Below average
14	Guinness Anchor Bhd.	Guinness	Consumer Products	7.0	Blue chip
15	Hong Leong Industries Bhd.	HLI	Consumer Products	5.5	Average
16	Island & Peninsular Bhd.	I & P	Properties	5.5	Average
17	Kuala Lumpur Kepong Bhd.	KLK	Plantations	6.5	Blue chip
18	Malayan Banking Bhd.	Maybank	Finance	8.0	Blue chip
19	Malaysia Mining Corporation Bhd.	MMC	Minings	4.0	Below average
20	Malaysian Mosaics Bhd.	Mosaics	Trading/Services	4.0	Below average
21	Malaysian Oxygen Bhd.	MOX	Industrial Products	7.5	Blue chip
22	Malaysian Tobacco Company Bhd.	MTC	Consumer Products	5.5	Average
23	Multi-Purpose Holdings Bhd.	MPHB	Trading/Services	4.0	Below average
24	The New Straits Times Press (Malaysia) Bhd.	NSTP	Trading/Services	5.0	Average
25	Public Bank Bhd.	PBB	Finance	8.0	Blue chip
26	Shell Refining Company (Federation of Malaya) Bhd.	Shell	Industrial Products	8.0	Blue chip
27	Sime Darby Bhd.	Sime	Trading/Services	7.0	Blue chip
28	Rothmans of Pall Mall (Malaysia) Bhd.	Rothmans	Consumer Products	10.5	Blue chip Blue chip
29	Tasek Cement Bhd.	Tasek	Industrial Products	6.5	Blue chip
30	UAC Bhd.	UAC	Industrial Products	5.5	Average

* Rating scores are out of 12. Companies having a score above 6 are termed as blue chips; a score between 4.5 and 6 as average and the ones below 4.5 as below average.

TABLE 4 : CORRELATION COEFFICIENTS FOR SELECTED MALAYSIAN STOCKS

Company/ market price	Market Price Indicators	
	KLSE-CI	KLSE-Emas
Stocks:@		
BI	0.91	0.93
BR	0.89	0.90
Boustead	0.91	0.92
Carlsberg*	0.85	0.83
CCM	0.81	0.78
Consplant*	0.86	0.87
CSM	0.91	0.93
DMIB	0.86	0.87
EAC	0.87	0.87
Esso	0.90	0.75
Faber	0.88	0.90
Genting	0.98	0.98
GKM	0.91	0.91
Guinness	-0.43	-0.43
HLI	0.92	0.91
I & P	0.86	0.87
KLK	0.49	0.51
Maybank	0.92	0.91
MMC	0.93	0.94
Mosaics*	0.93	0.94
MOX	0.62	0.59
MTC*	0.26	0.29
MPHB*	0.95	0.96
NSTP	0.85	0.87
PBB	0.94	0.94
Rothmans	0.93	0.94
Shell	0.47	0.46
Sime	0.97	0.95
Tasek*	0.82	0.84
UAC*	0.40	0.44
Mean	0.78	0.78
Market Price:		
KLSE-Emas+	0.99	1.00
STI#	0.96	0.95
DJIA#	0.81	0.76
Nikkei#	-0.34	-0.28

Note: Correlation coefficients between STI and DJIA, STI and Nikkei, and DJIA and Nikkei were 0.81, -0.23 and -0.66, respectively.

* Not a component stock of the KLSE-CI as at 30th April 1993.
@ Sample : Jan. 1991 to April 1994 (weekly).
+ Sample : Jan. 1984 to April 1994 (weekly).
# Sample : Jan. 1990 to April 1994 (weekly).

TABLE 5 : TIME SERIES MODELS FOR STOCK AND MARKET PRICES
Sample period : Companies: 1982 to 1993 (n=12)
: Market indices : same as in Table 4

Dependent variable	Coefficients (t-values) of Independent variables				R^2
	Constant	T	T^2	$(Dep. var.)_{-1}$	
Stock price of:					
BI	0.97	-0.06 (0.37)	0.01 (1.17)		0.57
BR	3.21	-0.58 (4.03)*	0.04 (3.92)*		0.64
Boustead	3.17	-0.55 (3.37)*	0.05 (4.25)*		0.76
Carlsberg	0.05			0.83 (10.81)*	0.93
CCM	2.38	0.11 (0.87)	0.01 (1.42)		0.92
Consplant	1.42	0.12 (4.52)*			0.67
CSM	1.34	0.47 (2.54)*	-0.03 (2.52)*		0.42
DMIB	1.47	-0.10 (0.70)	0.01 (1.31)		0.47
EAC	1.03	0.26 (8.13)*			0.87
Esso	1.02	0.50 (14.37)*			0.95
Faber	3.89	-0.63 (2.40)*	0.04 (1.98)		0.48
Genting	1.37			0.49 (15.90)*	0.97
GKM	2.47	-0.78 (3.36)*	0.08 (4.52)*		0.82
Guinness	-0.24			0.98 (6.60)*	0.83
HLI	7.16	-2.04 (5.77)*	0.21 (7.79)*		0.93
I & P	3.78	-0.37 (1.40)	0.04 (2.06)*		0.56
KLK	1.98	0.23 (4.56)*			0.68
Maybank	4.13	-1.12 (2.15)*	0.13 (3.38)*		0.80
MMC	3.07	-0.37 (1.43)	0.03 (1.73)		0.32
Mosaics	2.22	-0.40 (1.82)	0.04 (2.31)*		0.50

TABLE 5 : CONTINUED

Dependent variable	Coefficients (t-values) of Independent variables				R^2
	Constant	T	T^2	(Dep. var.)$_{-1}$	
MOX	-0.14			0.88	0.92
				(10.22)*	
MTC	3.64	0.26	-0.02		0.20
		(1.49)	(1.46)		
MPHB	3.48	-0.98	0.08		0.84
		(5.61)*	(6.31)*		
NSTP	0.82	0.41			0.67
		(4.47)*			
PBB	0.93	-0.13	0.02		0.72
		(0.81)	(1.92)		
Rothmans	0.18			0.75	0.91
				(9.35)	
Shell	-0.07			0.87	0.89
				(8.75)	
Sime	1.59	-0.11	0.04		0.92
		(0.68)	(1.98)		
Tasek	4.27	-0.61	0.06		0.62
		(2.22)*	(2.87)*		
UAC	4.56	-0.54	0.05		0.46
		(1.61)	(2.09)*		
<u>Market Price:</u>					
KLSE-CI	1.93			0.99	0.99
				(396.88)	
KLSE-Emas	1.28			0.99	0.99
				(266.89)	
STI	27.81			0.98	0.98
				(122.50)	
DJIA	67.30			0.98	0.96
				(75.15)	
Nikkei	-138.89			1.01	
				(102.52)	0.98

* Significant at 5% level.

TABLE 6: FUNDAMENTAL MODELS FOR STOCK PRICES: TIME SERIES DATA
[Sample Period: 1982-1993 (n=12)]

ependent ariable Stock rice of)	Coefficients (and t-values) of Independent variables CO	DI	PO	GE	GP	GI	R^2
BI	0.73	0.15	-0.0001			0.02	0.39
		(1.54)	(0.18)			(0.23)	
BR	0.06	0.28	0.0030			0.13	0.59
		(2.54)*	(0.97)			(2.74)*	
Boustead	2.78	0.34	-0.0100			0.08	0.54
		(2.26)*	(1.50)			(1.33)	
Carlsberg	-2.91	0.28	0.0600	0.01	0.05	0.08	0.99
		(16.87)*	(2.38)*	(2.27)*	(0.91)	(0.76)	
CCM	5.14	0.11	-0.0400			0.02	0.68
		(1.22)	(2.11)*			(0.19)	
Consplant	-4.11	0.04	0.065				0.47
		(0.88)	(2.41)*				
CSM	2.67	0.03	-0.0050			0.01	0.10
		(0.27)	(0.83)			(0.12)	
DMIB	0.57	0.09	0.0020			0.06	0.59
		(0.99)	(0.22)			(1.08)	
EAC	0.28	0.19	0.0002			0.11	0.62
		(1.91)*	(0.09)			(1.34)	
Esso	-10.56	0.33	0.1300	0.03	0.14	0.76	0.55
		(1.71)	(1.07)	(1.06)	(0.58)	(0.96)	
Faber	1.52	0.005	0.0200	0.0007			0.66
		(0.59)	(0.36)	(0.58)			
Genting	7.66	0.73	-0.3500		0.86		0.47
		(2.43)*	(2.18)*		(0.80)		
GKM	-0.36	0.67	-0.0060	0.0001		0.09	0.97
		(11.34)*	(2.11)*	(0.14)		(3.33)*	
Guinness	0.32	0.08	0.0080			0.16	0.66
		(1.97)*	(1.75)			(1.37)	
HLI	-34.30	8.31	-0.0200		0.31		0.88
		(4.11)*	(0.73)		(0.95)		
I & P	1.22	0.30	-0.0200			0.15	0.50
		(1.31)	(1.50)			(1.91)*	
KLK	-3.49	0.62	0.0010	0.001	0.09	0.01	0.81
		(2.11)*	(0.66)	(1.85)	(0.81)	(0.81)	
Maybank	-1.06	0.849	-0.001	0.0053		0.003	0.95
		(10.30)*	(0.06)	(0.83)		(0.03)	
MMC	0.89	0.08	0.0100			0.16	0.60
		(0.95)	(0.67)			(2.79)*	
Mosaics	0.30	0.12	0.0100			0.11	0.21
		(0.53)	(0.73)			(1.13)	

TABLE 6 : CONTINUED

Dependent variable (Stock Price of)	CO	DI	PO	GE	GP	GI	R^2
MOX	-0.33	0.36	-0.0200			0.09	0.92
		(6.65)*	(1.07)			(0.86)	
MTC	2.54	0.07	0.0100				0.19
		(1.17)	(1.13)				
MPHB	0.79	0.554	0.0520	0.0011		0.08	0.18
		(0.77)	(0.07)	(0.27)		(0.40)	
NSTP	-0.84	0.53	0.0100			0.10	0.73
		(4.40)*	(0.38)			(0.99)	
PBB	-0.87	0.520	0.0200	0.0101		0.05	0.76
		(3.62)*	(1.13)	(1.88)*		(0.99)	
Rothmans	-0.44	0.38	0.0070			0.16	0.96
		(11.97)*	(0.53)			(8.93)*	
Shell	0.61	0.39	-0.0200			0.01	0.97
		(9.87)*	(1.28)			(0.23)	
Sime	-1.13	0.38	0.0100			0.11	0.95
		(9.27)*	(0.62)			(2.15)*	
Tasek	-0.09	0.29	-0.0020			0.19	0.73
		(3.63)*	(0.14)			(2.70)*	
UAC	2.18	0.16	-0.0200			-0.13	0.63
		(1.73)	(1.07)			(1.18)	
Mean	-1.10	0.57	0.0032	0.0019	0.0480	0.096	0.64

* significant at 5%.

TABLE 7 : FUNDAMENTAL MODEL FOR STOCK PRICES : CROSS-SECTION DATA

Dependent variable : Stock Price
(Sample : 30 companies)

Year	coefficients (and t-values) of independent variables					R^2
	constant	DI	PO	GE	SD	
1993	3.67	0.33 (3.74)*	-0.02 (1.66)			0.39
1988	0.92	0.23 (9.00)*	-0.003 (0.72)			0.76
1982	1.29	0.15 (3.84)*	-0.0001 (0.10)	0.006 (2.00)*	-0.07 (1.41)	0.49
Mean	1.96	0.24	-0.0077	0.002	-0.02	0.55

* Significant at 5% level.

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