THE RELATIONSHIP BETWEEN STOCK PRICE AND TRADING VOLUME: EVIDENCE FROM MALAYSIA

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ABSTRACT

This study uses daily return data on a sample of 220 Malaysian stocks for the period January 1992 through December 1998 to investigate the relationship between stock return and trading volume. Both the correlation approach and the more robust Granger causality tests were adopted, with the former test pointing to a preponderance of significant correlation between trading volume and stock return per se, and also between volume and the absolute value of stock return. Although the Granger causality tests show some support for a relationship, the evidence is much less preponderant. It also reveals that the direction of causality is stronger when it runs from return (or absolute return) to volume than when it runs from the reverse direction. Furthermore, the strength of return in Granger-causing volume is found to increase over time.

INTRODUCTION

The relation between changes in share price (i.e. return) and trading volume (hereafter, volume) has occupied an important place in the quest for understanding the forces underlying the complex operations of the stock markets. The concern for this relationship is understandable in view of the importance of the return-volume relation. In a landmark article Karpoff (1987) presents four reasons why it is important to study the relationship. First, the relationship provides some information concerning the structure of the financial markets. Second, if price and volume changes are jointly determined, the incorporation of the relationship will increase the power of tests undertaken in event studies.

Third, the relation is important towards furthering our understanding of the nature of the distribution of speculative prices. This is of particular relevance in view of the fact that the appropriateness of any statistical test depends upon the nature of the distribution of the underlying population of the phenomenon

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under investigation. Finally, the relation between stock return and volume is important for providing a significant implication for research into the futures markets. In particular, the relation has implicatio on whether speculation in the futures market has a stabilizing or disruptive influence on the financia markets.

Given the importance of price-volume relation, this paper sets out to undertake an empirical verificatio of the relation using Malaysian daily return data on 220 stocks listed on Kuala Lumpur Stock Exchang (KLSE) for the period January 1992 through December 1998. Only these companies satisfied ou sampling criterion: complete data on the variables of interest and sample period. The appendix show the list of companies used in the sample. There are two reasons for the choice of this period. First, i comparison with other studies on the KLSE, this study uses newer data and so is likely to be better abl to capture recent changes in the KLSE that have attempted to make the market respond more quickly t the arrival of new information. Second, the period covered by this study is a period with three differe major phases of a complete cycle: the period of upswing (1992-93); a period of relative stabili (1994-96) and a period of decline (1997-98). The choice of this sample, it is hoped would help in th achievement of the objective of this study, which is to examine the extent to which stock return i related to volume. To achieve that objective, the rest of this paper is divided into four. The literatu review is given in section two. Section three explains the methodology while section four presents th results. A concluding remark is given in section five.

LITERATURE REVIEW

Theoretical and empirical research on the relation between stock return and volume has a rather lo history dating back to the early works of Osborne (1959). Although Osborne did not undertake a explicit test of the relation, his work served as an important milestone that sparked off further resear as found in the subsequent works of Granger and Morgenstern (1963), Clark (1973), Harris (198 Godfrey, Granger and Morgenstern (1964), Ying (1966), Crouch (1970a, 1970b), Liesenfeld (199 Lamourex and Lastrapes (1990), Shamsher et al (1995) and Beveridge and Sivakumar (1999).

Although the findings were not unanimous (Saatcioglu and Starks (1998)) they have produced tw "stylized facts" (Karpoff (1987)). One of the common themes arising out of the rather divergent resu is that the correlation between volume and return is positive in both equity and futures markets. T second "stylized fact" is the positive correlation found between volume and return per se in the equ market.

Theoretical works have helped to provide the foundations upon which the empirical works have flourished. The sequential information arrival model developed by Morse (1980) was extended by Jennings and Barry (1983). The model suggests that speculation enhances the efficiency as the stock market will respond faster to the arrival of new information.

Recently, Beveridge and Sivakumar (1999) undertook an examination of the inter-day dynamic linkages between stock returns, return volatility and volume using Canadian market and investigate the ability of volume data to account for the persistence in stock-return volatility. The authors' main contribution is that they used a different estimation and inference approach, various measures of volume, and a fairly new data set, the Canadian market aggregates. They reported results suggesting evidence of both linear and nonlinear causality from stock returns to volume. Bhagat and Bhatia (1996) employ the Granger-causality test to report evidence that price changes lead volume, but find no evidence that volume leads price changes. The work of Hiemstra and Jones (1995) has produced results that are not in total agreement with those of Bhagat and Bhatia. Hiemstra and Jones find a two-way direction of causality between return and volume.

The relation between volume and return has been investigated within the context of earnings announcements [Kiger (1972) and Morse, (1981)]. Morse uses data covering the four-year period 1973-76 to study the relation between volume and price change during earnings announcements for 20 and 5 securities traded over the counter in the NYSE (New York Stock Exchange) and ASE (American Stock Exchange) respectively. Morse argues that trading prior to a public announcement may be due to differences in beliefs about the probability of different signals being emitted by the public announcement. The differences in beliefs, he notes, may be caused by the asymmetric distribution of the information before its public announcement. However, Morse stresses that volume change following the public announcement may be caused by differences in the interpretations of the public announcement by the investors. As far as price changes before announcements are concerned, Morse notes that they may arise because some investors may receive signals that change their beliefs. This sort of price changes is different from those immediately following the announcement. For this category of price changes, Morse attributes them to "some consensus change in beliefs caused by signal". Price changes in the days following the announcement may be caused, according to Morse, by a subsequent release of some additional information related to the public announcement. Morse's findings were "somewhat surprising"

(p. 282) because "there seems to be several days of adjusting prices and portfolios" (p. 282). He argues that this "provides stronger evidence that information processing that is costly in terms of time is taking place among investors in the securities markets" (p. 283).

The relation between volume and return has been little studied on the Kuala Lumpur Stock Exchange. The only published work in this area on the KLSE is that of Shamsher et al (1995) who utilize daily data on the composite index of the KLSE for the period January 1985 to December 1992 to examine the relation between price changes and volume. Using alternative regression models, and also employing the Granger causality tests, the authors reach a number of conclusions. First, they note that absolute price changes are found to have a strong relationship with volume compared to price change per se. Second, they report that contrary to the technical school of investing, price changes are weakly causing volume to change, but volume does not cause price changes.

METHODOLOGY

After making adjustment for capital changes, dividends and rights issues, this study computes returns as a first difference of log values of prices. Absolute returns are obtained by ignoring the negative signs. Two types of statistical tests are adopted. The first is the correlation test while the second involves the Granger causality tests.

For each of the 220 stocks, seven annual correlation coefficients are obtained between volume and absolute stock return. This is repeated for actual stock return per se. Correlations are computed for each year in order to avoid the problem of spurious correlation, arising from the trend commonly found in time-series data. Thus 3,080 correlation coefficients were computed (220 x 7 x 2). The detailed results are given in the first 36-page appendix available from the authors on request. The next step involves running 28 regressions (7 years x 4 equations [Equations (1) through (4) below]) for each of the 220 stocks, giving a total of 6,160 multiple regressions. The results from the regressions are not reported even in the appendix as they are not important in themselves, other than for setting the stage for the Granger causality test. If X Granger-causes Y, then past values of X should have some additional explanatory power on Y even after controlling for the effects of past values of Y. In other words if two models both have Y as the dependent variable, the one that has lagged values of X added to lagged values of Y in the set of regressors should perform better than one that has only lagged values of Y

A comparison of R^2 in the two regressions would provide a high F-statistic if the causality was significant, and a low one if no causality existed[1]. The Granger causality tests are first applied to examine the relation between absolute returns and value. The test procedure is described below.

For each of the seven years in the sample period, the first step involves estimating Equations (1) and (2) below for each of the 220 stocks.

$$|R|_t = \alpha_0 + \sum_{i=1}^{6} \alpha_i |R|_{t-i} + \sum_{j=1}^{6} \lambda_j V_{t-j} + \varepsilon_t \qquad (1)$$

$$V_t = \gamma_0 + \sum_{i=1}^{6} \gamma_i V_{t-i} + \sum_{j=1}^{6} \theta_j |R|_{t-j} + \mu_t \qquad (2)$$

Where:

$\|R\|$	=	absolute return, obtained by multiplying the negative return series by - 1 to drop the negative signs.
V	=	volume, computed by expressing the total value of shares of a stock traded on a given date as a percentage of the market capitaization of that stocks as at that date
α, λ_i	=	are parameters of the first model
γ, θ_i	=	are parameters of the second model
ε, μ_t	=	random error terms assumed to be white noise

Annual estimation of the above equations is performed in order to avoid the problem of spurious regression. This approach also was adopted by Shamsher et al (1995) who cited a similar reason for doing so.

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[1] The statistical package, SHAZAM, used by the authors does not require running two separate regressions as implied by the Granger tests. All that is required is for the larger model to be estimated and a test conducted on a set of linear restrictionsof the form explained below

The second step is to perform two Granger-causality tests for each stock using the regression result obtained from the estimation of the two models above. To test whether volume, V, Granger-cause absolute returns, the F-statistic is computed from test of linear restrictions of the form $\lambda_1 = \lambda_2 = \lambda_3 = \lambda_4 = \lambda_5 = \lambda_6 = 0$. A rejection of this restriction would lead to a high value of F and thi would imply that the Granger-causality operates in the hypothesized direction. A low value of F woul suggest no significant Granger-causality.

The second Granger causality test would involve imposing a restriction to Equation (2) of the form $\theta_1 = \theta_2 = \theta_3 = \theta_4 = \theta_5 = \theta_6 = 0$ in order to test whether or not absolute return Granger-causes volume Again, high values of F would be evidence for a causal relationship; and low values would be evidenc against it. The F-statistics obtained from the Granger tests on Equations (1) and (2) are reported in th second 36-page appendix, also available from the authors on request.

The causality tests explained above are between volume and absolute returns. The tests are repeate with absolute returns replaced by actual returns (or returns per se), as given in Equations (3) and (4 below:

$$R_t = \alpha_0 + \sum_{i=1}^{6} \alpha_i R_{t-i} + \sum_{j=1}^{6} \lambda_j V_{t-j} + \varepsilon_t \qquad (3)$$

$$V_t = \gamma_0 + \sum_{i=1}^{6} \gamma_i V_{t-i} + \sum_{j=1}^{6} \theta_j R_{t-j} + \mu_t \qquad (4)$$

In the same vein, to test for Granger causality in Equations (3) and (4) above, F-values were compute from the imposition of restrictions, $\lambda_1 = \lambda_2 = \lambda_3 = \lambda_4 = \lambda_5 = \lambda_6 = 0$ and $\theta_1 = \theta_2 = \theta_3 = \theta_4 = \theta_5 = \theta_6 = 0$ on th two equations respectively. The F-statistics obtained from the tests are reported in the third 36-pag appendix not reported here but is available from the authors on request.

RESULTS

The results of the study are summarized in three tables. Table 1 reports the results obtained from the correlation approach. The results reveal that 87.4 per cent of stocks on average exhibit a significant amount of correlation between volume and absolute return. In 1997, the proportion of stocks exhibiting significant correlations between volume and absolute return is 69.5 per cent, well below the average for the entire sample period. Also, it is clear that for 1992 and 1993, the proportion of stocks with significant correlations between volume and returns and also between volume and absolute return is higher than the average for the entire sample period. However, in periods of relative stability (such as 1995), the average correlation tends to be close to the average for the entire sample period. During periods of massive decreases in returns (such as 1997), the degree of correlation tends to be less than the average for the entire period. Thus, overall, there seems to be evidence that when return is low, volume tends to be low; when it is high, volume tends to be high. These findings are in support of those of Rogalski (1978) and Smirlock and Starks (1988) who also find a positive correlation between volume and return.

Table 1: Correlations Between Volume and Return

Year	Correlation Between Volume and Absolute Return				Correlation Between Volume and Return Per Se			
	Significant		Not Significant		Significant		Not Significant	
	2	3	4	5	6	7	8	9
	Freq	%	Freq	%	Freq	%	Freq	%
1992	207	94.1	13	5.9	188	85.5	32	14.5
1993	211	95.9	9	4.1	211	95.9	9	4.1
1994	191	86.8	29	13.2	168	76.4	52	23.6
1995	186	84.5	34	15.5	178	80.9	42	19.1
1996	196	89.1	24	10.9	188	85.5	32	14.5
1997	153	69.5	67	30.5	114	51.8	106	48.2
1998	202	91.8	18	8.2	166	75.5	54	24.5
Average	192.3	87.4	27.7	12.6	173.3	78.8	46.7	21.2

Columns 6 through 9 of Table 1 show the correlations between returns per se and volume. An avera of 173.3 or 78.8% of stocks exhibited significant correlations between volume and returns per se. other words only 21.2 per cent of the stocks did not record significant correlations. Comparing t results for correlations between volume and returns, and for volume and absolute returns, one finds striking similarity as well as a key difference. An important difference is that volume tends to correla more with absolute returns than it does with returns per se. The important similarity is that in bo cases, 1997 stood out to have a markedly weaker evidence of correlations between volume and retu A tentative conclusion is that in periods of financial turmoil, there is a substantial reduction in t proportion of stocks showing significant correlation between volume and return. This may be due to t influence of other, probably more poignant, factors. Thus, the correlation between volume and retu tends to wander out of its equilibrium level during periods of abnormal financial conditio

The results obtained from the Granger causality tests are shown in Tables 2 and 3. From Table 2 number of observations can be made. First, the average number of stocks exhibiting evidence t volume Granger-causes absolute returns is 17.6%, much lower than the average of 33.6% obtai when the direction of causality is reversed. This suggests that there is stronger evidence that absol return Granger-causes volume than there is for the reversed direction of causality. In both cases, howe the average proportion of stocks showing significant causality between return and volume is less th 50 per cent, implying that there is more evidence against, than there is in support of, the existence such a causal relationship. It should be stressed however, that from column 7 of Table 2, there is increasing tendency from 1992 through 1998 for absolute returns to Granger-cause volume. Th results lend more support to Bhagat and Bhatia (1996) who report evidence of one-way causality th they do to Hiemstra and Jones (1995), who find a two-way causal relation. This conclusion should taken against the background of our limitation. No test is involved in comparing the strength of causa from the two directions. Further research is required to shed additional light on whether or not there significant differences in the mean number of stocks showing significant causality running from ret to volume and vice verse.

Table 2: The Granger Causality Between Volume and Absolute Return

Year	Volume Granger-causing Absolute Return				Absolute Return Granger-causing Volume			
	Significant		Not Significant		Significant		Not Significant	
	2	3	4	5	6	7	8	9
	Freq	%	Freq	%	Freq	%	Freq	%
1992	38	17.3	182	82.7	72	32.7	148	67.3
1993	47	21.4	173	78.6	100	45.5	120	54.5
1994	60	27.3	160	72.7	50	22.7	170	77.3
1995	12	5.5	208	94.5	64	29.1	156	70.9
1996	48	21.8	172	78.2	71	32.3	149	67.7
1997	29	13.2	191	86.8	71	32.3	149	67.7
1998	37	16.8	183	83.2	89	40.5	131	59.5
Average	38.7	17.6	181.3	82.4	73.9	33.6	146.1	66.4

Next, we examine the causal relationship between volume and returns per se. Table 3 below shows a summary of the tests for Granger causality on this relationship.

From Table 3, it is clear that on average, 19% of stocks exhibit evidence in favour of the hypothesis that volume Granger-causes return. This compares with 34.5% of stocks found to show evidence that return Granger-causes volume. Thus, as found in the preceding section, return Granger-causes volume more than volume does return. A look at columns 3 and 7 of Table 3 reveals two opposing trends. While column 3 shows that over time volume becomes weaker in Granger-causing returns, column 7 shows that return tends to become stronger over time in Granger-causing volume. Thus the evidence points towards a one-way causality in which returns lead volume. This conclusion is also tentative so further research is required to establish whether or not the strength of the causal does change significantly from year to year.

Table 3: The Granger Causality Between Volume and Return Per Se

Year	Volume Granger-causing Return				Return Granger-causing Volume			
	Significant		Not Significant		Significant		Not Significant	
	2	3	4	5	6	7	8	9
	Freq	%	Freq	%	Freq	%	Freq	%
1992	43	19.5	177	80.5	65	29.5	155	70.5
1993	44	20.0	176	80.0	98	44.5	122	55.5
1994	78	35.5	142	64.5	33	15.0	187	85.0
1995	16	7.3	204	92.7	74	33.6	146	66.4
1996	44	20.0	176	80.0	76	34.5	144	65.5
1997	34	15.5	186	84.5	72	32.7	148	67.3
1998	33	15.0	187	85.0	113	51.4	107	48.6
Average	41.7	19.0	178.3	81.0	75.9	34.5	144.1	65.5

CONCLUSION

Despite the importance of studying the relationship between volume and return, the developing emergi stock markets have not been subjected to rigorous empirical or theoretical investigation. This stu attempts to examine the relation using Malaysian daily return data for 220 stocks listed on the KLS The correlations and regression approaches were adopted to examine the correlation between return a volume and also to examine the direction of causality.

A number of important features of the results are worth mentioning here. First, a substantial proport of stocks exhibited significant correlations between return and volume, as well as between absol return and volume. Second, during periods of financial turmoil, such as 1997, the proportion of sto exhibiting significant correlations between volume and return was almost 20 percentage points less th the average for the entire period. This tentative evidence is suggestive of the influence of other fact which help to divert the correlation coefficients away from their equilibrium values.

Third, the Granger-causality tests showed that the number of stocks showing no evidence of a causal relationship between volume and return is greater than the number that do. This does not mean that the somewhat little evidence of causality should be dismissed offhand. Quite to the contrary, the results in that show evidence that over time a growing number of stocks exhibit significant causality that runs from return (or absolute return) to volume.

In what ways do the results relate to those reported by earlier researchers? The results confirm the "stylized facts" noted by Karpoff (1987). In particular the correlation results concur with those of Shamsher et al. (1995) who also found evidence of significant correlations. However, the Granger causality test results do not agree with those of Shamsher et al. (1995). What could have accounted for the differences in the two results which have been both conducted on the KLSE? Part of the explanation could be found in the differences in the data used in the two studies. Shamsher et al. (1995) used KLSE composite index, and not data on individual stocks as in this study. The use of an index has the loophole of hiding some rich information that may be found from individual stock data. Since the index is an average, it ignores the differences in the component stocks. This could have accounted for the observed differences. It also is imperative to stress that Shamsher et al. (1995) utilized data for 1985 to 1992, much earlier than the data for this study. Thus, their study covers a small portion of the 1990s and so leaves out the rest of the decade during which the KLSE has experienced the most dramatic change both in size and in the computerization of its trading activity. The results reported in this study appear to confirm the earlier findings of Beveridge and Sivakumar (1999) and Bhagat and Bhatia (1996) both of which report evidence for causality running from return to volume. More research is required to examine whether the causal relationship is due to market inefficiency or due to continuous revision in volume necessitated by continuous adjustment by investors of their trading positions as new information reaches the market.

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APPENDIX: LIST OF COMPANIES USED IN THE SAMPLE

Acronym	Name of Company
A AMAL	AUSTRAL AMALGAMATED TIN BHD
ACTA	ACTACORP HOLDINGS BERHAD
AFFIN	AFFIN HOLDINGS BHD
AISB	AMALGAMATED INDUSTRIAL STEEL BHD
AJI	AJINOMOTO (MALAYSIA) BERHAD
ALCOM	ALUMINIUM COMPANY OF MALAYSIA BERHAD
AMDB	ARAB-MALAYSIAN DEVELOPMENT BERHAD
ANCOM	ANCOM BERHAD
ANGKASA	ANGKASA MARKETING BERHAD
ANTAH	ANTAH HOLDINGS BERHAD
AP LAND	ASIA PACIFIC LAND BHD
ASB	ADVANCE SYNERGY BERHAD
ASIATIC	ASIATIC DEVELOPMENT BERHAD
AUS ENT	AUSTRAL ENTERPRISES BERHAD
BHLBANK	BAN HIN LEE BANK BERHAD
BJUNTAI	BERJUNTAI TIN DREDGING BERHAD
B KAWAN	BATU KAWAN BERHAD
BOLTON	BOLTON BERHAD
B'TEAD	BOUSTEAD HOLDINGS BERHAD
B-TOTO	BERJAYA SPORTS TOTO BERHAD
B.WORLD	BEST WORLD LAND BERHAD
CAMERLN	CAMERLIN GROUP BERHAD
CASH	CONSTRUCTION AND SUPPLIES HOUSE BERHAD
C'BERG	CARLSBERG BREWERY MALAYSIA BERHAD
CHOC	CHOCOLATE PRODUCTS (MALAYSIA) BERHAD
CCM	CHEMICAL COMPANY OF MALAYSIA BHD
CI HLDG	C. I. HOLDINGS BERHAD

CMSB	CAHYA MATA SARAWAK BHD
COMMERZ	COMMERCE ASSET HOLDING BERHAD
CS (M)	COLD STORAGE (MALAYSIA) BERHAD
D BABY	DUTCH BABY MILK INDUSTRIES (MALAYA) BERHAD
D RED	DAMANSARA REALTY BERHAD
DIJAENT	DIJAYA ENTERPRISE BHD.
DMIB	DMIB BERHAD
DNP	DNP HOLDINGS BERHAD
E&O	EASTERN & ORIENTAL BERHAD
ECONS	ECONSTATES BERHAD
EON	EDARAN OTOMOBIL NASIONAL BERHAD
EPIC	EASTERN PACIFIC INDUSTRIAL CORPORATION BERHAD
ESSO	ESSO MALAYSIA BHD
FABER	FABER GROUP BERHAD
FAP	FA PENINSULAR BERHAD
FCW	FCW HOLDINGS BERHAD
FEHB	FAR EAST HOLDINGS BERHAD
FFM	FEDERAL FLOUR MILLS BERHAD
FIMA	FIMA CORPORATION BERHAD
GADEK	GADEK (M) BHD
GBH	GOH BAN HUAT BERHAD
G COIN	GOLD COIN (MALAYSIA) BERHAD
G CORP	GENERAL CORPORATION BHD
GENTING	GENTING BERHAD
G HOPE	GOLDEN HOPE PLANTATIONS BERHAD
G KENT	GEORGE KENT (MALAYSIA) BERHAD
G PERAK	GULA PERAK BERHAD
G PLUS	GOLDEN PLUS HOLDINGS BHD
GRANITE	GRANITE INDUSTRIES BERHAD
G ROPEL	GUTHRIE ROPEL BERHAD

G TOWN	GEORGE TOWN HOLDINGS BERHAD
GUINESS	GUINNESS ANCHOR BERHAD
GUTHRIE	KUMPULAN GUTHRIE BERHAD
H&L	HIGHLANDS & LOWLANDS BERHAD
HANCOCK	JOHN HANCOCK LIFE INSURANCE (MALAYSIA) BERHAD
HAPSENG	HAP SENG CONSOLIDATED BERHAD
HEXZA	HEXZA CORPORATION BERHAD
HH BANK	HOCK HUA BANK BERHAD
HL CRED	HONG LEONG CREDIT BERHAD
HL IND	HONG LEONG INDUSTRIES BERHAD
HO HUP	HO HUP CONSTRUCTION COMPANY BERHAD
HUME	HUME INDUSTRIES (MALAYSIA) BHD
IDRIS	IDRIS HYDRAULIC (MALAYSIA) BERHAD
IGB	IGB CORPORATION BERHAD
IJM	IJM CORPORATION BERHAD
INC KEN	INCH KENNETH KAJANG RUBBER LIMITED COMPANY
INTRIA	INTRIA BERHAD
IOI	IOI CORPORATION BERHAD
IOIPB	IOI PROPERTIES BERHAD
IS&PEN	ISLAND & PENINSULAR BERHAD
I'VEST	INNOVEST BERHAD
JOHAN	JOHAN HOLDINGS BERHAD
KCB	KAMUNTING CORPORATION BERHAD
K.EMAS	KUMPULAN EMAS BERHAD
KEMAYAN	KEMAYAN CORPORATION BERHAD
KFC	KFC HOLDINGS (MALAYSIA) BERHAD
KG HLDG	KHONG GUAN HOLDINGS MALAYSIA BERHAD
K'HALL	KILLINGHALL (MALAYSIA) BERHAD
K.JOO	KIAN JOO CAN FACTORY BERHAD
KKELLAS	KINTA KELLAS PUBLIC LIMITED COMPANY
KLIH	KUALA LUMPUR INDUSTRIES HOLDINGS BERHAD

KLK	KUALA LUMPUR KEPONG BERHAD
KRETAM	KRETAM HOLDINGS BHD
KSENG	KECK SENG (MALAYSIA) BERHAD
KSIDIM	KUALA SIDIM BERHAD
KULIM	KULIM (MALAYSIA) BERHAD
KURNIA	KURNIA SETIA BERHAD
KYM	KYM HOLDINGS BERHAD
L&G	LAND & GENERAL BERHAD
LANDMRK	LANDMARKS BERHAD
LARUT	LARUT CONSOLIDATED BERHAD
LEADER	LEADER UNIVERSAL HOLDINGS BERHAD
LHH	LEONG HUP HOLDINGS BERHAD
LIENHOE	LIEN HOE CORPORATION BERHAD
LINGUI	LINGUI DEVELOPMENTS BERHAD
LION	LION CORPORATION BERHAD
LLB	LION LAND BERHAD
MAA	MALAYSIAN ASSURANCE ALLIANCE BHD
MAGNUM	MAGNUM CORPORATION BERHAD
MAICA	MALAYSIA AICA BERHAD
MALAKOF	MALAKOFF BERHAD
MALPAC	MALPAC HOLDING BERHAD
MARUICH	MARUICHI MALAYSIA STEEL TUBE BERHAD
MAS	MALAYSIAN AIRLINE SYSTEM
MAYBANK	MALAYAN BANKING BERHAD
MBF CAP	MBF CAPITAL BERHAD
MCBH	MCB HOLDINGS BERHAD
MCEMENT	MALAYAN CEMENT BERHAD
MECHMAR	MECHMAR CORPORATION (MALAYSIA) BERHAD
MENANG	MENANG CORPORATION (MALAYSIA) BERHAD
MET'PLX	METROPLEX BERHAD
METROJ	METROJAYA BERHAD

MFCB	MEGA FIRST CORPORATION BERHAD
MFLOUR	MALAYAN FLOUR MILLS BERHAD
MISC	MALAYSIA INTERNATIONAL SHIPPING CORPORATION
MMC	MALAYSIAN MINING CORPORATION
MMCE	MMC ENGINEERING GROUP BERHAD
MOSAIC	MALAYSIAN MOSAICS BERHAD
MOX	MALAYSIAN OXYGEN BERHAD
MPHB	MULTI-PURPOSE HOLDINGS BERHAD
MPI	MALAYSIAN PACIFIC INDUSTRIES BERHAD
M PLANTG	MALAYSIAN PLANTATIONS
MRCB	MALAYSIAN RAILWAY CORPORATION BERHAD
M'SHITA	MATSUSHITA ELECTRIC COMPANY (MALAYSIA) BERHAD
MTC	MALAYSIAN TOBACCO COMPANY BERHAD
MUIB	MALAYAN UNITED INDUSTRIES BERHAD
MULPHA	MULPHA INTERNATIONAL BERHAD
M'WATA	MALAYAWATA STEEL BERHAD
MWE	MWE HOLDINGS BERHAD
MYCOM	MYCOM BERAHD
NAMFATT	NAM FATT BHD
NANYANG	NANYANG PRESS (MALAYA) BERHAD
NEGARA	NEGARA PROPERTIES (M) BERHAD
NEICO	NEICO INDUSTRIES (M) BERHAD
NESTLE	NESTLE (MALAYSIA) BERHAD
NSOP	NEGRI SEMBILAN OIL PALMS BERHAD
NSTP	THE NEW STRAITS TIME PRESS (M) BHD
NYLEX	NYLEX (MALAYSIA) BHD
ORIENT	ORIENTAL HOLDINGS BERHAD
OSK	OSK HOLDINGS BERHAD
OYL	O.Y.L. INDUSTRIES BERHAD
PACIFIC	PACIFIC BANK BERHAD
PALMCO	PALMCO HOLDINGS BERHAD

PANTAI	HOSPITAL PANTAI BERHAD
PARKMAY	PARK MAY BERHAD
PBB	PUBLIC BANK BERHAD
P CHEM	PACIFIC CHEMICALS BERHAD
PELANGI	PELANGI BERHAD
PENGCAP	PENGKALEN CAPITAL BERHAD
PERDANA	PERDANA INDUSTRI HOLDINGS BERHAD
PERLIS	PERLIS PLANTATIONS BHD
P'GKALE	PENGKALEN HOLDINGS BERHAD
PGLOBAL	PANGLOBAL BERHAD
PHILAND	PHILEO LAND BERHAD
PHILEO	PHILEO ALLIED BERHAD
PILECON	PILECON ENGINEERING BERHAD
PJ BHD	PJ DEVAELOPMENT HOLDINGS BERHAD
PMI	PAN MALAYSIAN INDUSTRIES BERHAD
P'MOUNT	PARAMOUNT CORPORATION BERHAD
PTG TIN	PETALING TIN BERHAD
PUTERA	PUTERA CAPITAL BERHAD
RENONG	RENONG BERHAD
RESORTS	RESORTS WORLD BHD
RHB	RASHID HUSSAIN BERHAD
RJR	RJ REYNOLDS BERHAD
ROTH	ROTHMANS OF PALL MALL (MALAYSIA) BHD
R'VIEW	RIVERVIEW RUBBER ESTATES BERHAD
SAB	SOUTHERN ACIDS (M) BERHAD
SAPURA	SAPURA TELECOMMUNICATIONS BERHAD
SARAWAK	SARAWAK ENTERPRISE CORPORATION BHD
SATERAS	SATERAS RESOURCES (MALAYSIA) BERHAD
S.BANK	SOUTHERN BANK BERHAD
SCB DEV	SCB DEVELOPMENTS BERHAD
S DARBY	SIME DARBY BERHAD

S DRED	SELANGOR DREDGING BERHAD
SETRON	SETRON (MALAYSIA) BERHAD
SG WAY	SUNGEI WAY HOLDINGS BERHAD
SHELL	SHELL REFINING COMPANY (F.O.M.) BHD
SITATT	SITT TATT BERHAD
SJA	SOUTH JOHORE AMALGAMATED HOLDINGS BERHAD
SMI	SOUTH MALAYSIA INDUSTRIES BERHAD
SOP	SARAWAK OIL PALMS BERHAD
SPK	SPK - SENTOSA CORPORATION BERHAD
S PROP	SELANGOR PROPERTIES BERHAD
SRIWANI	SRIWANI HOLDINGS BERHAD
TA	TA ENTERPRISE BERHAD
TAIPING	TAIPING CONSOLIDATED BERHAD
TALAM	TALAM CORPORATION BERHAD
TANCO	TANCO HOLDINGS BERHAD
TANJONG	TANJONG PUBLIC LIMITED COMPANY
T CHONG	TAN CHONG MOTOR HOLDINGS BHD
TDM	TDM BERHAD
TELEKOM	TELEKOM MALAYSIA BERHAD
TIME	TIME ENGINEERING BHD
TNTT	TIONG NAM TRANSPORT HOLDINGS BERHAD
TONGKAH	TONGKAH HOLDINGS BERHAD
TRACTOR	TRACTORS MALAYSIA HOLDINGS BERHAD
TR IND	TECHNOLOGY RESOURCES INDUSTRIES BHD
TRONOH	TRONOH MINES MALAYSIA BERHAD
TV3	SISTEM TELEVISYEN MALAYSIA BERHAD
T'WINDS	TRADEWINDS (M) BERHAD
UAC	UAC BERHAD
UE(M)	UNITED ENGINEERS (MALAYSIA) BHD
U M'CCA	THE UNITED MALACCA RUBBER ESTATES BERHAD
UMW	UMW HOLDINGS BERHAD

UNIPHON	UNIPHONE TELECOMMUNICATIONS BERHAD
UTD PLT	UNITED PLANTATIONS BERHAD
WESLAND	WESTMONT LAND (ASIA) BERHAD
WWHB	WORLDWIDE HOLDINGS BERHAD
WTHB	WING TIEK HOLDINGS BERHAD
WTK	WTK HOLDINGS BERHAD
YHS BHD	YEO HIAP SENG (MALAYSIA) BHD
YTL	YTL CORPORATION BERHAD