Jurnal Pengurusan 11 (1992) 75-94

Corporate Takeover and Market Efficiency The Malaysian Experience

Fauzias Mat Nor

ABSTRAK

Tujuan kajian ini ialah untuk menguji kecekapan pasaran saham Malaysia bertindak terhadap pengumuman tentang pengambilalihan. Keputusan yang didapati ialah sisa purata positif adalah tidak ketara pada tarikh pengumuman bagi syarikat sasaran dan sisa purata adalah juga tidak ketara dari hari -1 hingga hari +1 bagi syarikat penawar harga. Keputusan tadi menunjukkan bahawa pasaran saham Malaysia adalah agak cekap dari segi tindakbalasnya terhadap tawaran pengambilalihan yang berikutnya berjaya. Walaupun sisa purata kumulatif syarikat penawar adalah pada tahap tertinggi pada tarikh pengumuman dan kemudian menurun secara yang ketara dengan tiba-tiba selepas itu, yang menunjukkan bahawa pasaran saham Malaysia adalah agak cekap dari segi kecepatan menyerap maklumat, namun ia tidak mencerminkan implikasi sebenar maklumat terhadap nilai saham. Ini juga mungkin membawa maksud bahawa penawar membuat anggaran berlebihan terhadap nilai sebenar syarikat sasaran yang mengakibatkan pembayaran yang berlebihan bagi asetnya. Kenaikan pada harga saham sebelum pengumuman dibuat mungkin disebabkan oleh pembocoran maklumat kepada pasaran ataupun disebabkan oleh sokongan pembelian oleh penawar yang menyebabkan harga naik sebelum pengumuman dibuat.

ABSTRACT

The purpose of this study is to test the efficiency of the Malaysian stock market reaction with regard to acquisition announcement. The result on insignificant cumulative average residuals from day -1 to +1 for bidders indicates that the Kuala Lumpur Stock Exchange market is reasonably efficient in its response to takeover bids that are subsequently successful. But, with the bidder's highest cumulative average residuals reported on the announcement date, and declines significantly immediately after the announcement indicates that the Kuala Lumpur Stock Exchange is reasonably efficient in terms of the speed of information, but it does not accurately reflect the true implication on the value of the shares. This may also suggest that the bidder has over estimated the value of the target which may result in paying too much for its assets. The increase in share prices prior to the announcement may be due to the information leakage to the market or to buying support by the bidder which forcing the prices up before the announcement.

INTRODUCTION

The purpose of this study is to test the efficiency of the Malaysian stock market reaction with regard to acquisition announcement. It is assumed that the market correctly values all shares acording to the information available to it, and its value is reflected in the share prices. If investors can consistently obtain above normal returns by trading at the time of acquisition announcement, then the stock market will be inefficient with regard to this information. The cumulative abnormal returns should not change after the announcement since the firms should have nothing in common other than the event day. If the returns of the stock-holders are abnormal beyond the announcement date, then the failure of share prices to incorporate the information on the acquisition are inconsistent with the semi-strong form of the efficient market hypothesis.

CORPORATE TAKEOVER AND MARKET EFFICIENCY

In an efficient market, the abnormal return measure ε_{it}, if correctly specified, can be described mathematically (Brown & Warner 1980 : 209) ;

$$E(\tilde{\varepsilon}_{i,t}) = [E(\tilde{\varepsilon}_{i,t}|I=0)]\, p(I=0) + E[\tilde{\varepsilon}_{i,t}|I=1]\, p(I=1)=0$$

or must be such that the expected value of the unexpected component, $\tilde{\varepsilon}_{it}$ of a security's return cannot systematically differ from zero. That is, returns in an efficient market cannot systematically differ from those which are predicted. It must be such that there is no difference of abnormal return between conditional on the event that can systematically be non zero, and conditional on no event. Thus, if the model is correct, the abnormal performance measure for every security has an unconditional mean of O.

Keane (1985) refers market efficiency to two aspects - the speed at which new information is impounded into security prices, and the quality or correctness (direction and magnitude) of the price adjustment in reflecting new information. Keane argues that if the market is deficient in terms of the speed and quality of its reaction, the informed and alert observer would have little difficulty in profiting from the situation.

Fama (1970), in his discussion of information concerning stock prices, divides the information into three potential levels of efficiency:

1. Weak-form, which holds that present stock market prices reflect all known information with respect to past stock prices, trend, and volume. It implies that there should be no relationship between past price changes and future price changes.

2. Semi-strong form, which holds that present stock market prices instantaneously reflect all publicly known information which includes all past market information plus other non-market information or firm-specific events such as the

announcements on earnings, dividend, stock splits, messages about the future prospect of the firm which include the acquisition announcement and macro economic data such as changes in monetary or fiscal policies, economic forecast, and political news. It implies that investors who act on relevant information after it is publicly available cannot derive above average profit from the transaction.

3. Strong form, which holds that no group of investors has a monopolistic access to information on prices. It implies that no group of investors should be able to consistently derive above average profit.

The fact that the Capital Asset Pricing Model (CAPM) and capital market efficiency are joint and inseparable hypotheses, then if capital markets are inefficient, the assumptions of the CAPM are invalid, and a different model is required. If the CAPM is inappropriate, even though capital markets are efficient, then the CAPM is the wrong tool to use in order to test for efficiency (Copeland & Weston 1988). Measuring performance using the CAPM is however, subject to Roll's critique (Roll 1977) that the market portfolio cannot be observed directly. However, Mayers and Rice (1979), argues that such measurement error need not introduce any systematic error in event studies. That is, the residual analysis which is designed to measure the effects of information events on security prices, using the market portfolio as the index is valid. Roll (1979) replies that residual analysis should give approximately correct estimates of the abnormal returns caused by specific events if it is conducted by the market model.

In most merger event studies, a study is made to estimate stock's excess return in the vicinity of events. In the case of merger event studies, the first public announcement of a takeover is more appropriate to study than using the effective date (Dodd & Ruback 1977). Since the only thing the stocks in the sample have in common is the event, the other factors influencing their prices should cancel out in the averaging. The movement of the accumulated response or cumulative excess return as it approaches the announcement date should give an indication of the average speed and quality, or accuracy, of the response of stock prices to the merger event.

A market that is efficient prevents investors with special information from making abnormal profits. New information that becomes available is quickly reflected in a security's price. On the day of an announcement, most of the stock in the sample should experience a significant positive value, although some may not because of the incidence of a different negative piece of information on the day of the announcement. Simply by a takeover process, the targets and the bidders may be disclosing other information about themselves, information not related to the takeover. The cumulative excess return should not change after the announcement since the firm should have nothing in common other than the event day. If the returns of the stockholders are abnormal beyond the announcement date, then the failure of share prices to incorporate the information on the acquisition would be inconsitent with the semi-strong of the efficient market hypothesis.

On the other hand, if there is an significant positive residual prior to the announcement period, it cannot be considered to be evidence in itself of information leakage (Frank 1978), or the presence of insider trading. As also noted by Keane (1985), at times there must inevitably be a delay between the occurrence of a relevant event and its transmission to the market and absorption into the market price. In order to test a hypothesis of insider trading, it would be necessary first to consider whether or not a certain monopoly position exists, or can be created, wherein access to private information which can be exploited for above normal profit is available. Second, if a monopoly position does exist, consideration must be given to determine how many are present in the market system, that is whether the returns accruing to bidders with pre-merger interest differ from those earned by bidder who did not make any such purchases prior to the bid. If a large number of these monololistic situations exist, it would damage the validity of the efficient market model. Since shareholders in Malaysia are compelled by Section 3A of the Companies Act 1965 to disclose share-holdings in other companies in excess of five per cent of the aggregate of the nominal amounts of all the voting share in the companies, there should be a limit to the gains on pre-announcement purchases of shares.

METHODOLOGY

DATA COLLECTION

This study uses the daily common stock returns of the Kuala Lumpur Stock Exchange for 200 days before the acquisition announcement date and 200 days after. The study includes all acquisition news announced by bidders listed on the Kuala Lumpur Stock Exchange to acquire listed and non-listed target firms. The news were only those which were first announced, and the bidder subsequently carried out the acquisition programme as announced. The period covered in this study is from January 1st, 1977 through December 31st, 1989. The data for the target firms however, include only the listed firms which were acquired by the listed bidding firms. January 1st, 1977 was chosen as the beginning period because the current administrator of the Kuala Lumpur Stock Exchange, began its duty as the administrator of the exchange.

The date of announcement which was chosen as the event date, is the announcement date as recorded on the first press release of takeover kept in the companies' file of the Kuala Lumpur Stock Exchange library.

The daily prices which were obtained from The Securities Clearing Automated Network Sendirian Berhad (SCAN) database, must be available over the analysis and estimation period. The price relatives used were adjusted for capital adjustment (stock splits, stock dividend, and rights). No adjustment for cash dividends were made on ex-dividend dates.

ANALYSIS OF DATA

The basic methodology of this study involves the use of the following one factor market model or single index model;

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t} \qquad (1)$$

where, $R_{i,t}$ = the daily return of either the bidding or the target firm i at time t,
$R_{m,t}$ = the daily returns at time t of the market index, the Kuala Lumpur Stock Exchange composite index,
$\alpha_i = E(R_{i,t}) - \beta_i E(R_{m,t})$
β_i = covariance $(R_{i,t}, R_{m,t})$/variance $(R_{m,t})$
$\varepsilon_{i,t}$ = stochastic error term.

This model is assumed to satisfy the normal requirements of a linear regression model. That is,

1. all $\varepsilon_{i,t}$ has a mean (or expectation) of zero; $E(\varepsilon_{i,t})=0$,
2. all $\varepsilon_{i,t}$ have a common constant and finite variance for σ^2_i for all t,
3. error terms are serially independent and
4. the distribution of $\varepsilon_{i,t}$ is independent of the explanatory variables, $R_{m,t}$.

Some of the studies using the market model include Dodd and Ruback (1977), Dodd (1980), and Bradley, Desai and Kim (1983).

EXCLUSION PERIOD

Initially, the return data during the 401 interval period beginning at 200 days and ending at 200 days before the announcement date were used to estimate the parameters of the market model and capital asset pricing model. However, the effects are more appropriate if they are measured by comparing a security's return, when the information about the acquisition occurs, to the ex ante expected return. Hence, the estimates should be computed on data excluding an interval of time on either side of the acquisition announcement date when the residents are thought to behave abnormally. Failure to exclude these data could result in biased estimates of the parameters (Frank 1978). Thus, the exclusion criterion for this study is based on visual examination of the residuals when they behave abnormally. A number of different periods were tested and a visual examination of the residuals indicated that abnormal price movement was largely confined within the 7 days prior to 6 days after the acquisition announcement. As a result, the parameters were estimated using the data from the last 200 days through 200 days after but, excluding the period 7 days prior to and 6 days after the acquisition announcement for both the targets and bidders.

MEASURING ABNORMAL PERFORMANCE

To measure the abnormal performance, the residuals for each firm, $AR_{i,t}$ are calculated based on the market model. This model is used as the benchmark to measure the security's price performance.

$$AR_{i,t} = R_{i,t} - (\tilde{\alpha}_{i,t} + \tilde{\beta}_{i,t} R_{m,t}),$$

where, $\tilde{\alpha}_{i,t}$, $\tilde{\beta}_{i}$ are estimates of $\alpha_{i,t}$, $\beta_{i,t}$ in equation (1), that is,

$$R_{i,t} = \alpha_{i,t} + \beta_{i,t} R_{m,t} + \varepsilon_{i,t}$$

SIGNIFICANCE TEST ON ABNORMAL PERFORMANCE

The following t-statistic is employed to determine whether $\overline{AR_t}$ differs significantly from zero for any event day. The test statistic is the ratio of the average residual to its estimated standard deviation (a statistic of this form is widely used in event studies, e.g Masulis (1980).

$$t = \frac{\overline{AR_t}}{\tilde{\sigma}_{(\overline{AR_t})}}$$

where,

the standard deviation σ is estimated from times series of average residual

$$\tilde{\sigma}_{(\overline{AR_t})} = \left[\frac{1}{N-1} \sum_{t=-200}^{+200} (\overline{AR_t} - \overline{AAR})^2 \right]^{1/2}$$

$\overline{AAR}$ is estimated as

$$\overline{AAR} = \frac{1}{N} \sum_{t=-200}^{+200} \overline{AR_t}$$

where, N = number of average residuals in the estimation period,
$\overline{AAR}$ = average measure of average residuals in the estimation period.

The test statistic on the cumulative average residual is the ratio of the cumulative average residual to its standard deviation which is given by;

$$t = \frac{CAR}{\sigma_{CAR}}$$

where, $\sigma_{CAR} = \sigma_{AR}\sqrt{K}$ and where, σ_{AR} is the standard error of the daily return over the estimation period excluding the exclusion period, and K is the number of days in the CAR statistic. The test statistic of this form was used by Bradley, Desai and Kim (1988).

FINDINGS

TARGET FIRMS

The results of estimated average residual (AR) and cumulative average residuals (CAR) are plotted on the graph shown in Figures 1 and 2 respectively.

The average residual graph which represents the average return of a one day holding period shows an approximately constant variation with and indefinite pattern, but with obvious evidence of positive abnormal performance which starts to occur in day - 42. This is statistically significant (t=3.08).

The cumulative average residual shows a clear picture with an obvious definite pattern. The unusual price performance in the form of cumulative average residual comes in the period starting 116 days before the acquisition announcement and continues to increase dramatically until the announcement date itself. In fact, during the last 116 days prior to the date of the acquisition announcement, price performance shows a dramatic rise of about 25.80 percent (t = 3.58). This is statistically significant at 5 percent. It reflects that merger announcements are poorly kept secrets due to information leakage to the market.

The cumulative average residuals also show that target firms experience a decline prior to the leakage of information and that the bidding firm is assumed to be motivated by information on the inefficency of the target firms.

The random walk pattern one day after the announcement indicates that no new information is released. Thus, it could be interpreted as evidence in support of a hypothesis that the Kuala Lumpur Stock Exchange is reasonably efficient in its response to takeover announcements.

In addition, the tail anomaly around day +160 might indicate the bid-ask errors in transaction prices rather than market overreaction due to measurement problems with the daily returns computed, based on the 'closing price' provided by SCAN of Kuala Lumpur Stock Exchange. This closing price can deviate from the true price and will result in a bid-ask effect, or bid-ask errors. However, as also noted by Kaul and Nimalendran (1990), a more detailed investigation is necessary to test the validity of this conjecture and such an investigation is the topic of future research.

The summary of the results with a significant t-value residuals at 5 or 10 percent or both, and the results from -12 to +12 days are shown in Table 1.

The average residuals for day - 42, - 41, - 40, - 12, - 8, - 6, - 5 and - 1 show a strong upward movement and are significant at the 5 percent level. This may indicate that for some acquisitions, positive information concerning a forthcoming

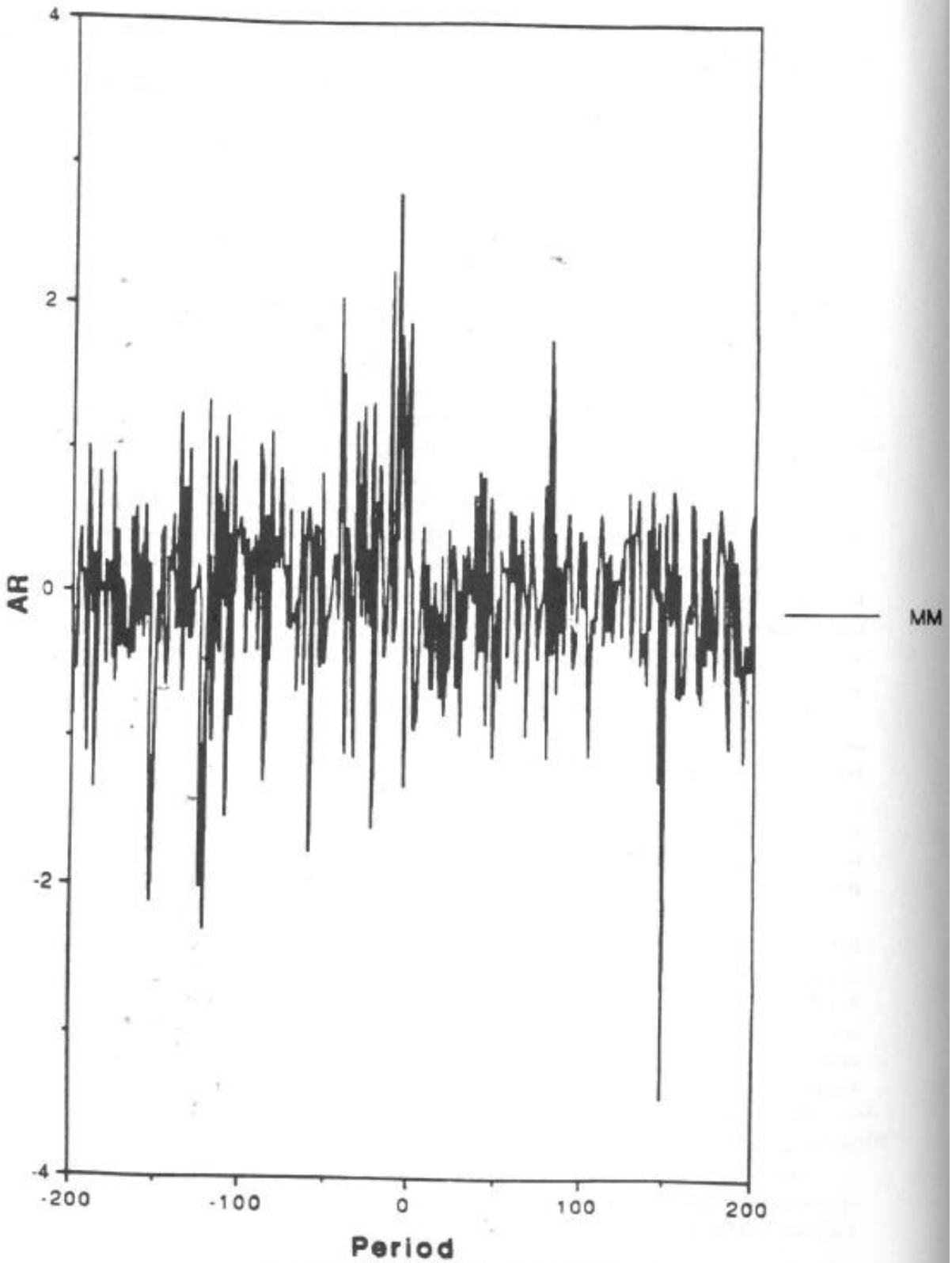

FIGURE 1. AR using Market Model - Targets

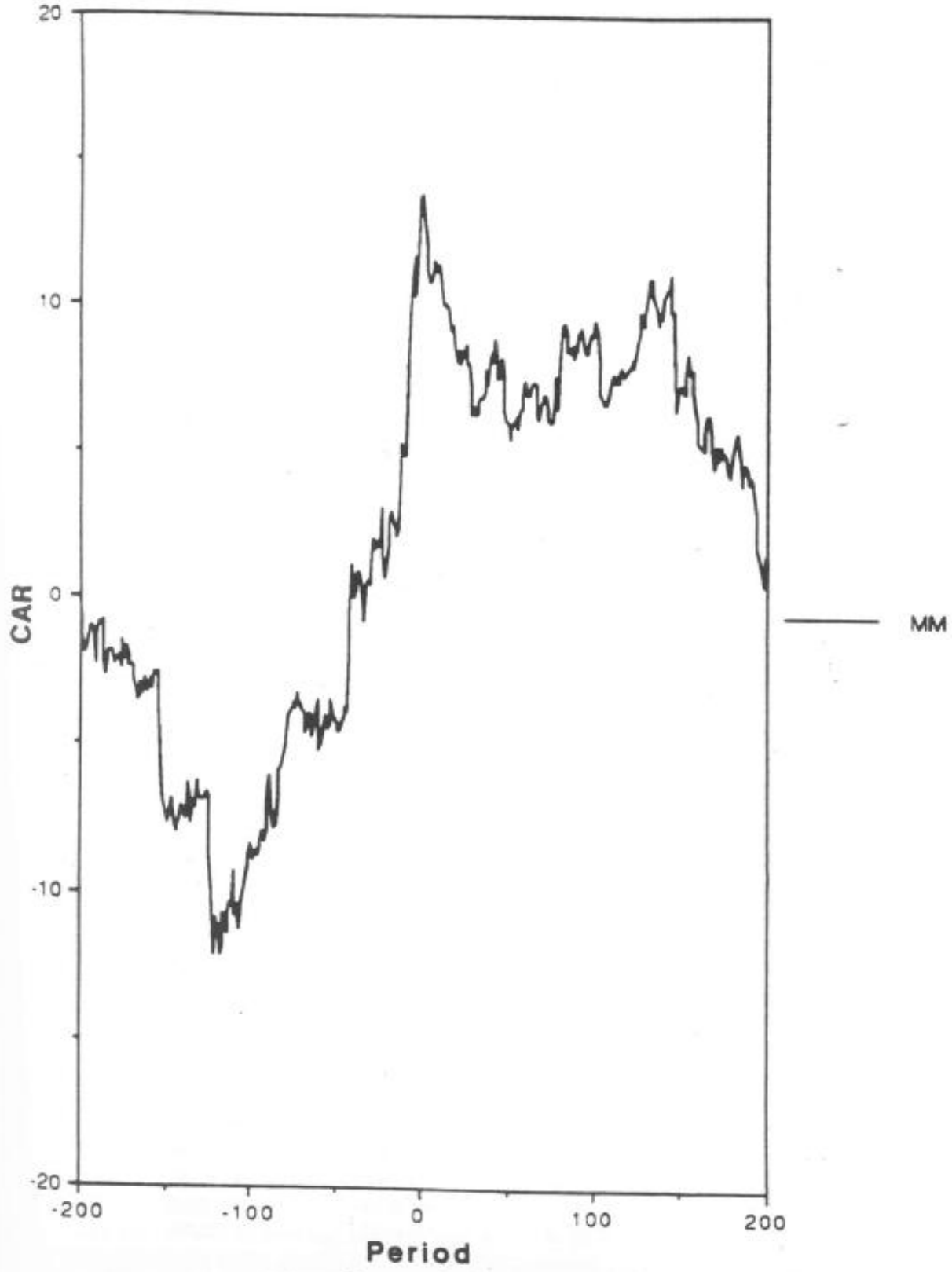

FIGURE 2. CAR using Market Model - Targets

TABLE 1. Summary of AR and CAR targets

Period	AR	T	CAR
-200	0.0150	0.0226	0.0150
-191	-1.1142	-1.6727	- 2.3231
-186	-1.3570	-2.0372	- 2.1607
-152	-2.1214	-3.1847	- 5.6907
-151	-1.2712	-1.9084	- 6.9619
-136	1.2388	1.8597	- 6.3154
-123	-2.0289	-3.0458	- 8.8002
-121	-2.3103	-3.4683	-12.165
-120	1.3306	1.9976	-10.834
-108	-1.5434	-2.3171	-10.795
- 87	-1.2967	-1.9467	- 7.3049
- 83	1.1114	1.6684	- 6.6970
- 59	-1.7855	-2.6805	- 5.2300
- 42	2.0499	3.0775	- 1.8596
- 41	1.4348	2.1541	- 0.4247
- 40	1.5309	2.2982	1.1061
- 39	-1.1042	-1.6577	0.0019
- 34	-1.1333	-1.7014	- 0.6212
- 32	1.1953	1.7945	0.3784
- 28	1.2989	1.9499	2.0480
- 23	1.3252	1.9895	3.0985
- 22	-1.6189	-2.4304	1.4796
:	:	:	:
- 12	2.2418	3.3654	4.6170
- 11	0.6851	1.0286	5.3021
- 10	-0.3318	-0.4982	4.9703
- 9	-0.1595	-0.2395	4.8107
- 8	2.7909	4.1898	7.6017
- 7	0.3803	0.5709	7.9819
- 6	1.7967	2.6973	9.7786
- 5	1.3473	2.0226	11.1259
- 4	0.5718	0.8585	11.6978
- 3	-1.3293	-1.9956	10.3685
- 2	1.1558	1.7352	11.5243
- 1	1.8884	2.8349	13.4127
0	0.2751	0.4129	13.6877
1	0.1347	0.2022	13.8225
2	-0.9426	-1.4151	12.8798
3	-0.7770	-1.1664	12.1029
4	-0.8780	-1.3182	11.2248
5	-0.4556	-0.6840	10.7692
6	0.0914	0.1372	10.8605

(*continued*)

TABLE 1 (*continued*)

7	0.4622	0.6939	11.3228
8	0.2414	0.3624	11.5642
9	-0.3667	-0.5506	11.1974
10	0.2168	0.3255	11.4143
11	-0.6560	-0.9848	10.7583
12	-0.0680	-0.1021	10.6903
:	:	:	:
80	-1.1225	-1.6851	6.4728
81	1.7806	2.6731	8.2534
82	1.1303	1.6969	9.3837
105	-1.1014	-1.6535	6.9945
146	-1.2743	-1.9130	9.7991
148	-3.4426	-5.1683	6.4088
200	0.5670	0.8513	1.4930

corporate takeover is considered 'good' news for the shareholders of target firms. This increase in share prices prior to the announcement may also be due to the information leakeage to the market or to buying support by the bidder which forcing the prices up before the announcement. Unfortunately, it was impossible to quantify these factors with existing data. In order to test a hypothesis of insider trading it would be necessary to isolate the bidders, who were in posession of premerger equity interest or 'toehold' interest and made abnormal returns around the merger announcement date (Frank 1978; Frank & Harris 1989).

With the highest cumulative average residuals and insignificant average residuals reported on the day after the announcement date, it indicates that the market appears to adjust immediately to the acquisiition announcement. Subsequently, on the second day after the announcement date, it began to decline gradually, and, in fact, a test on most of the remaining average residuals is not statistically significant. This result may suggest that no new indormation is released, and the market reaction to this new public information is complete on the second day after the announcement. Thus, it could be interpreted as evidence in support of a hypothesis that the Kuala Lumpur sock Exchange is reasonably efficient in its response to takeover announcements.

INTERVAL HOLDING PERIOD ANALYSIS FOR TARGETS

Table 2 summaries the cumulative average residuals for various holding periods before and after the acquisition announcement for target firms.

The data show that targets' shareholders, on average, realise significant positive abnormal returns before the announcement date, with 25.85 percent (t=3.53) of the cumulative average residual at 120 days before to the date of announcement being the highest return. The data also show that shareholders on

TABLE 2. Interval holding period for targets

Interval period	CAR	t-value
-200 to 0	13.69%	1.45
-180 to 0	15.54%	1.73
-150 to 0	20.65%	2.52
-120 to 0	25.85%	3.53
- 90 to 0	21.99%	3.46
- 60 to 0	17.47%	3.36
- 30 to 0	13.07%	3.53
- 20 to 0	13.00%	4.26
- 10 to 0	8.39%	3.80
- 5 to 0	3.91%	2.40
- 2 to 0	3.32%	2.16
- 1 to 0	2.16%	2.30
- 1 to +1	2.30%	1.99
- 2 to +1	3.45%	2.59
- 2 to +2	2.51%	1.69
- 5 to +5	0.99%	0.45
- 10 to +10	6.11%	2.00
- 20 to +20	7.87%	1.85
- 30 to +30	5.65%	1.09
1 to +5	-2.70%	-1.96
1 to +10	-2.23%	-1.06
1 to +20	-5.13%	-1.72
1 to +30	-7.43%	-2.04
1 to +60	-6.75%	-1.31
1 to +90	-5.43%	-0.86
1 to +120	-5.99%	-0.82
1 to +150	-6.60%	-0.81
1 to +180	-9.30%	-1.04
1 to +200	-12.19%	-1.29

average, realise significant (either at 5 or 10 percent, or both) positive abnormal returns around the announcement data except at 5 days before to 5 days after, and 30 days before to 30 days after the announcement date. However, after the announcement date the abnormal returns of the target firms decline gradually from -2.70 percent for 1 to 5 days after the announcement to -12.19 percent at 1 to 200 days afterwards. All the post cumulative average residuals for the various holding periods are not significant enough except for the 1 to 5 days holding periods with t=1.96, and 1 to 30 days holding periods with t=2.04. These results could be interpreted as evidence in support of a hypothesis that the Kuala Lumpur Stock Exchange is reasonably efficient in responding to takeover announcements.

BIDDERS

The results of estimated average residuals and cumulative average residuals are plotted in graph form in Figures 3 and 4 respectively.

The average residual's graph which represents the average return of the one day periods shows an approximate constant variation with an indefinite pattern. The cumulative average residual also shows a clear picture with an abvious definite pattern. The unusual share price performance in the form of average residuals arose during the period starting from 101 days before the announcement. Statistical tests indicate that the average residuals on this day suggest that it is significant with t=2.07. However, the unusual share price performance in the form of cumulative average residuals began as early as 107 days before the announcement and continued to increase dramatically until the announcement date itself. During the last 107 days prior to the announcement date price performance also shows a dramatic rise of about 10.89 percent (t=3.50). This result reflects that merger announcements are poorly kept secrets and that there is an information leakage to the market.

The cumulative average residuals also show that there is a random walk pattern indicating that bidding firms experience normal cumulative average residuals before the leakage of information.

The anomalous decline after the announcement might suggest that the bidder has over estimated the value of the target which may result in paying too much for the target's assets. However, if there is an overreaction to the acquisition announcement, it could be due to the bid-ask errors in transaction prices using the daily returns computed, based on the 'closing price' provided by SCAN of the Kuala Lumpur Stock Exchange. This closing price can deviate from the true price and will result in a bid-ask effect or bid-ask errors. As also noted by Kaul and Nimalendran (1990) a more more detailed investigation is necessary to test the validity of this conjecture and such an investigation is the topic of future research.

Nonetheless, the random walk pattern around 60 days after the announcement date indicates that no new information is released, and the stock's return has reverted to its normal relationship with market returns. But, the tail anomaly around 160 days after the announcement might again indicate the bid-ask errors in transaction prices rather than market over reaction due to measurement problems with the daily returns computed based on the 'closing price' provided by SCAN of the Kuala Lumpur Stock Exchange. This closing price can deviate from the true price and will result in a bid-ask effect or bid-ask errors. However, as also noted by Kaul and Nimalendran (1990) a more detailed investigation is necessary to test the validity of this conjecture and such an investigation is the topic of future research.

The summary of results with significant t-value of average residuals at 5 or 10 percent or both, and the results of average residuals from -12 to + 12 days are shown in Table 3. The significant positive average residuals either at the 5 or 10 percent level or both, on day -128, -123, -101, -59, -20, -18, -7, -6, - 2, and on the

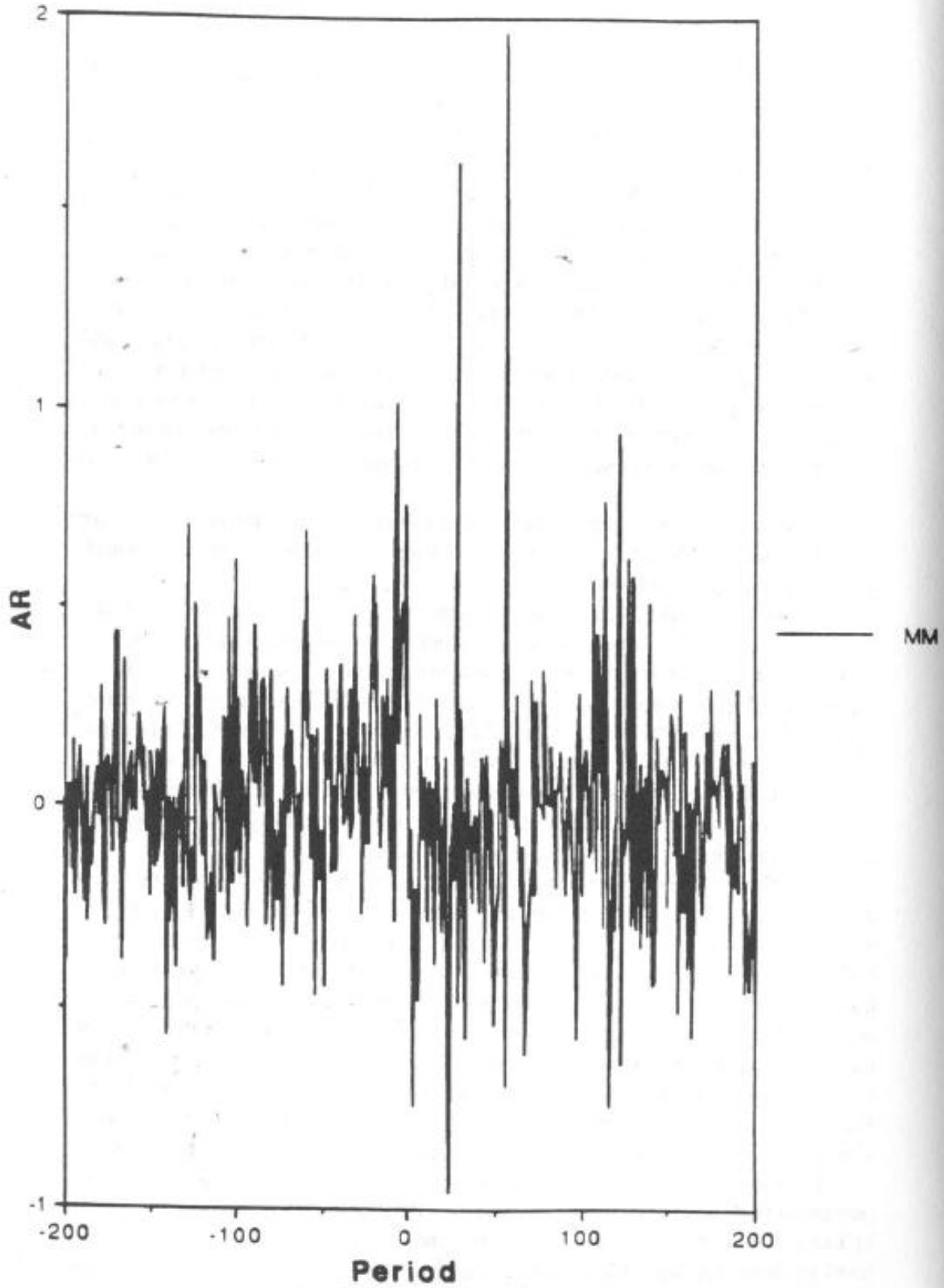

FIGURE 3. AR using Market Model - Bidders

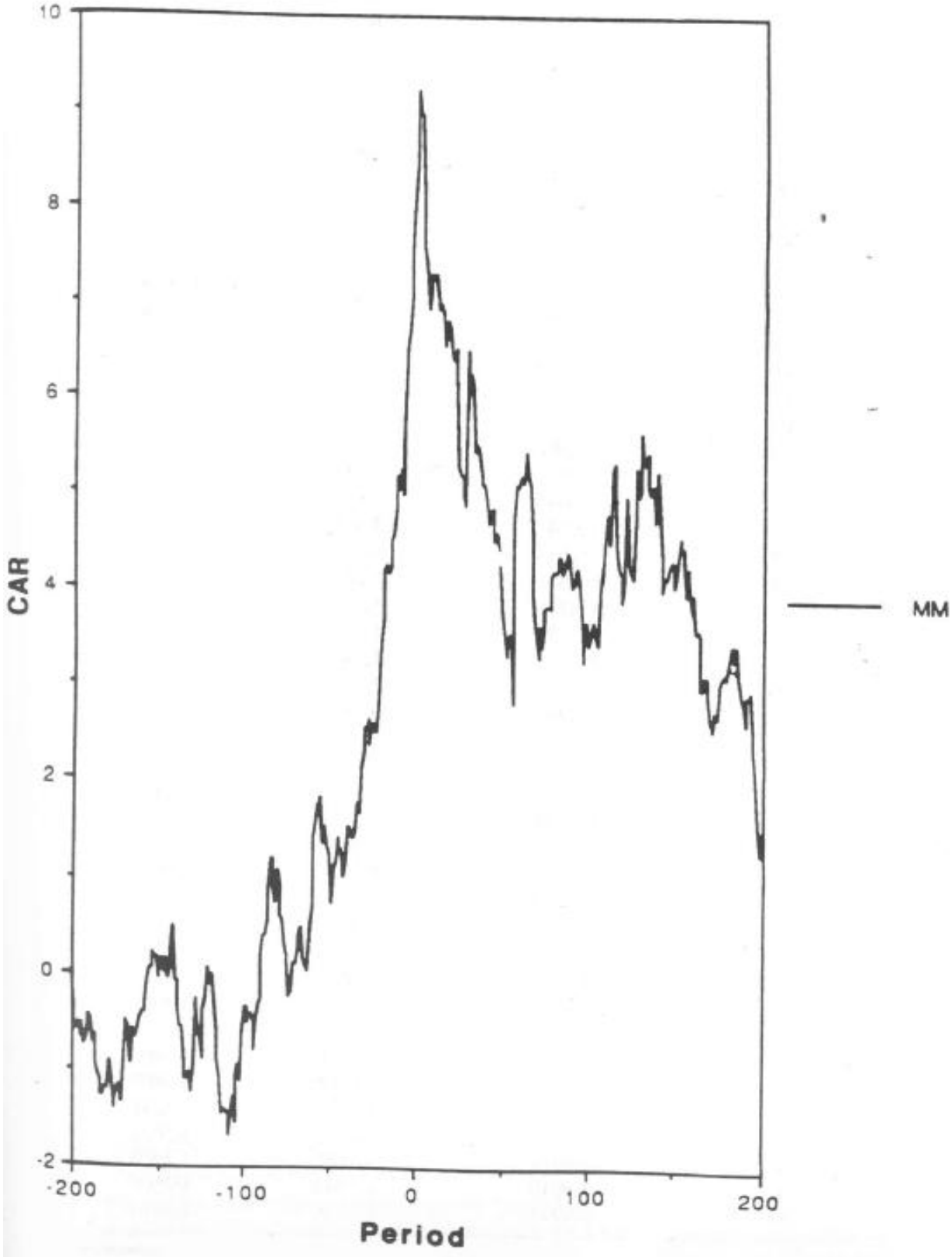

FIGURE 4. CAR using Market Model - Bidders

TABLE 3. Summary of AR and CAR for bidders

Period	AR	T	CAR
-200	0.0157	0.0526	0.0157
-140	-0.5710	-1.9057	-0.0840
-128	0.7023	2.3436	-0.2569
-123	0.5035	1.6802	-0.3810
-101	0.6194	2.0671	-0.5051
- 59	0.6898	2.3022	1.4157
- 20	0.5838	1.9482	3.4068
- 18	0.5087	1.6977	4.2119
:	:	:	:
- 12	0.2869	0.9576	4.8440
- 11	0.3246	1.0832	5.1686
- 10	-0.1483	-0.4949	5.0203
- 9	0.2282	0.7615	5.2485
- 8	-0.2825	-0.9428	4.9660
- 7	0.5649	1.8853	5.5309
- 6	1.0145	3.3855	6.5454
- 5	0.1615	0.5391	6.7069
- 4	0.3828	1.2776	7.0897
- 3	0.4339	1.4480	7.5236
- 2	0.5152	1.7193	8.0388
- 1	0.4142	1.3824	8.4530
0	0.7597	2.5353	9.2127
1	-0.2254	-0.7521	8.9874
2	-0.0556	-0.1855	8.9318
3	-0.7447	-2.4854	8.1870
4	-0.5824	-1.9438	7.6046
5	-0.2028	-0.6769	7.4018
6	-0.4820	-1.6087	6.9197
7	0.2328	0.7770	7.1526
8	0.1570	0.5240	7.3096
9	-0.0800	-0.2669	7.2296
10	0.0778	0.2595	7.3073
11	-0.2821	-0.9414	7.0253
12	-0.0988	-0.3297	6.9265
:	:	:	:
24	-0.9580	-3.1969	5.2603
29	1.6290	5.4365	6.4809
33	-0.5782	-1.9295	5.5241
50	-0.5394	-1.8002	3.7822
56	-0.6939	-2.3157	2.7980
57	1.9610	6.5444	4.7590
67	-0.4944	-1.6498	4.5914

(*continued*)

TABLE 3 (*continued*)

68	-0.6147	-2.0513	3.9767
97	-0.5755	-1.9206	3.2202
107	0.5710	1.9057	3.9920
114	0.7697	2.5686	5.2539
117	-0.7458	-2.4889	4.3932
122	0.9442	3.1510	4.9732
123	-0.6380	-2.1291	4.3352
127	0.6304	2.1039	4.7523
128	0.5049	1.6848	5.2572
131	0.5829	1.9453	5.6205
140	0.5152	1.7193	5.2188
165	-0.5711	-1.9060	2.9560
200	0.1176	0.3925	1.5004

announcement date may be due to an information leakage to the market. Unfortunately, it was impossible to quantify this factor as insider trading, with existing data. In order to test a hypothesis of such trading, it would first consider whether or not certain monopoly positions exist or could be created whereby bidders would have access to private information which could be exploited for above normal profit.

With the highest cumulative average residual reported on the day 0, that is on the announcement date itself, it shows that the market appears to respond immediately to the acquisition announcement. But, 3 days (at 5 percent level) and 4 days (at 10 percent level) after the announcement date, it began to decline significantly. Thus, with significant negative average residuals immediately after the announcement date, this result is obviously inconsistent with the efficient market hypothesis because the intial reaction does not accurately reflect the true implication of the information on shares values.

INTERVAL HOLDING PERIOD ANALYSIS FOR BIDDERS

Table 4 summarises the cumulative average residuals for various holding periods before and after the acquisition announcement for bidders.

The data show that bidders' shareholders on average, realise a significant positive abnormal return before the announcement date, with 10.39 percent (t=2.58) of cumulative average residual at 180 days before to the date of announcement being the highest return. The data also show that shareholders on average, realise a significant (either at 5 or 10 percent, or both) positive abnormal return around the day of announcement, except from day 5 to +5 and -10 to +10. However, after the announcement date all the abnormal returns of the bidding firms decline significantly from -1.81 percent for 1 to 5 days after announcement to -7.71 percent for 1 to 200 days. This increase in share prices prior to the announcement may also be due to the information leakage to the market and may indicate that for some acquisitions, positive information concerning the forthcoming corporate takeover

TABLE 4. Interval holding period for bidders

Interval period	CAR	t-value
-200 to 0	9.21%	2.17
-180 to 0	10.39%	2.58
-150 to 0	9.03%	2.45
-120 to 0	9.16%	2.78
- 90 to 0	9.53%	3.33
- 60 to 0	8.70%	3.71
- 30 to 0	7.06%	4.23
- 20 to 0	6.39%	4.70
- 10 to 0	4.04%	4.07
- 5 to 0	2.67%	3.63
- 2 to 0	1.69%	3.25
- 1 to 0	1.17%	2.76
- 1 to +1	0.95%	1.86
- 2 to +1	1.46%	2.44
- 2 to +2	1.41%	2.10
- 5 to +5	0.86%	0.86
- 10 to +10	2.14%	1.57
- 20 to +20	3.61%	1.88
- 30 to +30	3.84%	1.64
1 to +5	-1.81%	-2.70
1 to +10	-1.91%	-2.01
1 to +20	-2.78%	-2.08
1 to +30	-3.22%	-1.96
1 to +60	-4.14%	-1.79
1 to +90	-4.97%	-1.75
1 to +120	-5.35%	-1.63
1 to +150	-5.18%	-1.41
1 to +180	-6.10%	-1.52
1 to +200	-7.71%	-1.82

is considered 'good' news for the bidders' shareholders. The immediate response on the announcement date shows that the Kuala Lumpur Stoock Exchange market is reasonably efficient. But, significant negative abnormal returns after the announcement date may suggest that there ia an overreaction to the acquisition announcement.

CONCLUSION

The result on insignificant positive average residuals on the announcement date for the targets and insignificant cumulative average residuals from day -1 to +1 for bidders indicates that the Kuaa Lumpur Stock Exchange market is reasonably

efficient in its response to takeover bids that are subsequently successful. But, with the highest cumulative average residuals reported on the day and one day after the announcement date for bidders and targets respectively, but which immediately after declines, indicates that the Kuala Lumpur Stock Exchange is reasonably efficient in terms of the speed of information but it does not accurately reflect the true implication of the information of the value of the shares. This may also suggest that the bidder has over estimated the value of the target which may result in paying too much for the target's asset. However, Jensen and Ruback (1983) note that the post-outcome negative abnormal returns to bidders are unsettling because they are inconsistent with market efficiency and suggest that changes in stock price during takeovers overestimate the future efficiency gains from mergers. But, even Magenheim and Mueller (1988) has identified significant cumulative net losses over a longer post acquisition period, that is a three-year period. The post-outcome negative abnormal returns for both targets and bidders in this study could be due to a measurement problem on the daily returns computed based on the 'closing price' provided by SCAN of the Kuala Lumpur Stock Exchange. This closing price can deviate from the true price and will result in a bid-ask effect or bid-ask errors. Kaul and Nimalendran (1990) show that the bid-ask errors in transaction prices are the predominant source of price reversal in the short term and find little evidence of market overreaction. They noted that all existing 'theories' of overreaction imply that if the error component ε_t is due solely to mispricing errors caused by traders' overreaction to the arrival of new information, observed returns will be negatively autocorrelated up to unspecified higher-order lags. They also noted that a more detailed investigation is necessary to test the validity of this conjecture and such an ivestigation is the topic of future research.

The unusual price performance in the form of cumulative average residuals comes in the period starting from -116 days for targets and -107 days for bidders and continues to increase until the announcement date itself. This result reflects that merger announcements are poorly held secrets, and that there is an information leakage to the market.

REFERENCES

Bradley, M., Desai, A. & Kim, E.H. 1983. The relationale behind interfirm tender offers-information or synergy. *Journal of Financial Economics* 11: 183-206

Bradley, M., Desai, A. & Kim, E.H. 1988. Synergistic gains from corporate acquisitions and their division between the stockholders of target and acquiring firms. *Journal of Financial Economics* 21: 3-40.

Brenner, M. 1979. The sensitivity of the efficient market hypothesis to alternative specifications of the market model. *Journal of Finance* 34: 915-929

Brown, S.J. & Warner, J.B. 1980. Measuring security price performance. *Journal of Financial Economics* 8: 205-257.

Dodd, P. 1980. Merger proposal, management discretion and stock holder wealth. *Journal of Financial Economics* 8. 105-137.

Dodd, P. & Ruback, R. 1977. Tender offers and stockholder returns. *Journal of Financial Economics*: 351-373.

Fama, E.F. 1970. Efficient capital markets: A review of theory and empirical work. *Journal of Finance* 25 (2): 383-417.

Fama, E.F., Fisher, L., Jensen, M.C., & Roll, R. 1969 (February). The adjustment of stock proces to new information. *International Economic Review*, 1-21.

Frank J.R. 1978. Insider information and the efficiency of the acquisitions' market. *Journal of Banking and Finance* 2: 379-393.

Frank, J.R. & Harris R.S. 1989. Shareholder wealth effects of corporate takeover - The U.K. experience 1955-1985. *Journal of Financial Economics* 23: 225-249.

Jensen M.C. & Ruback R.S. 1983. The market for corporate control: The scientific evidence. *Journal of Financial Economics* 11: 225-249.

Kaul, G & Nimalendran, M. 1990. Price reversals - bid-ask errors or market overreaction? *Journal of Financial Economics* 28: 67-93.

Keane, S.M. 1985. *Stock Market Efficiency - Theory, Evidence, Implication*. Oxford: Philip Allan Publishers Limited.

Magenheim, E.B. & Mueller, D.C. 1988. Are acquiring firm shareholders better off after an acquisition. In *Knights, Raiders and Targets*, ed. John Coffee et al. New York: Oxford University Press.

Masulis, R.W. 1980. The effects of capital structure change on security prices: A study of exchange offers. *Journal of Financial Economics* 8: 139 - 178.

Mayers, D. & Rice, E. M. 1979. Measuring portfolio performance and the empirical content of asset pricing models. *Journal of Financial Economics*: 3-28.

Roll, R. 1977. A critique of the asset pricing theory's test. *Journal of Financial Economics* 4: 129 - 176.

Roll, R. 1979. A reply to Myers and Rice (1979). *Journal of Financial Economics* 7: 391 - 400.

Jabatan Kewangan
Fakulti Pengurusan Perniagaan
Universiti Kebangsaan Malaysia
43600 UKM Bangi
Selangor D.E.