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Market Value Impact of Capital Investment Announcements: Malaysia Case

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Abstract — **The aim of this paper is to analyze the stock market reaction to capital expenditure announcements of Malaysia listing firms. With current data set, capital expenditure announcements over the period of 2008 – 2010 are examined for their impact on stock market. The result suggests sign of information leakage two days before the announcement at 1.68% of mean unadjusted return. When market factors are considered for adjusted returns, the outcome is not consistent with the findings of past literature for developing countries stock exchange. Result reveals that caution is necessary when making inferences on market reaction base on the adjusted returns.**

Keywords: Event-study methodology, stock returns, market model, capital expenditure, generalized sign test, Malaysia Stock Exchange

I. INTRODUCTION

Traditional valuation theory posits that the market value of a firm is equal to the discounted value of future earnings expected to be generated by assets already in place, plus the discounted net present value of investment opportunities that are expected to be available to the firm in future [1].

Thus, when managers take in new investment projects that would add value to both company and shareholder, the stock market would have reacted positively and significantly.

However, there are factors to be considered that would predict market response to be otherwise or as foreseen base on three hypotheses.

Fama and Jensen [2] stated that market forces would oblige managers to take in investments that are value maximizing for company. Thus, this *shareholder value maximization* hypothesis predicts that the stock market will react positively to corporate investment announcements when they perceive the investment decisions are able to generate positive future cash flows.

Another hypothesis predicts that upon the arrival of investment announcements from companies, the stock market would react negatively, referred as *Institutional Investor* hypothesis. Ellsworth [3] argued that larger and powerful institutions focus more on instant earnings. Managers would thus opt for investments that generate immediate cash flows.

Rational expectations hypothesis predict that there shall be null reaction from the stock market upon the arrival of the news. The logic is that the investments serve to maintain firm's competitiveness rather than being more advantage than the competitors.

This study contributes to the extant literature by employing current set of data for Malaysia listing companies during 2008 - 2010. Secondly, no significant studies have been found on examining Malaysia stock market response to capital expenditure announcements. This study shall shed some light on the literature. Thirdly, the findings shall give policy implications to management of Malaysia listing firms on the impact of their investment decision makings on firm's market value.

II. LITERATURE REVIEW

Capital expenditure decision falls under corporate strategic investment decisions [4]. A positive response to capital expenditures could indicate shareholders confidence with the management investment decisions.

Past literature reveals that overall market react significantly and positively to the capital expenditure announcements of listing firms in UK [5], US [4][6], Spanish [7] and Singapore [8].

Earliest study on capital expenditure announcements impact to firm market value was done by McConnell and Muscarella [6]. They investigated stocks response towards US firms' planned capital expenditure announcement from 1975 - 1981. 658 planned capital expenditure announcements were studied and categorized into public utility firms and industrial firms. They find that announcement of increases (decreases) in planned capital expenditures are associated with significant positive (negative) excess stock returns.

Followed by Woolridge & Snow [4], they examine US stock market response for 767 strategic investment announcements across the period 1972 – 1984. They reported a significant positive abnormal return of 0.71% for overall investment announcements. They categorized the investment announcement into four: joint venture, research and development, product/market diversification and capital expenditure. Two investment characteristics - investment size and investment duration, were examined in this study.

The market reacted positively and significantly on long-term investments (more than 3 years), and there's no difference of significant positive response with regards to the investment sizes.

Studies also found that varied magnitude of the market response may be due to shareholder confidence towards the management and the investments. Firm characteristics were examined as the indicators for varied shareholders response to capital expenditure announcements.

Chan and Ho [8] suggest that the market only react positively at close to 1% mean abnormal returns to the announcements of firms with good investment opportunities. A total of 164 product strategies and capital expenditure announcements have been examined for Singapore Stock Exchange during 1983-1991.

Chung et al. [9] research outcome is consistent with Chen and Ho [8] findings where only firms with good investment opportunities experience positive market response at 1% abnormal return. Their study is conducted on 308 capital expenditure announcements for 1981 - 1995 US stocks.

Inconsistent with previous findings, Vogt [10] studied US market response towards 561 capital expenditure changes announcements of companies with different firm-specific characteristics, on investment opportunities, cash flow, firm size and insider ownership across 1979 - 1993. Their findings reveal that stock market reacts significantly and positively to firms with high cash flow.

For UK firms, Burton, Lonie and Power [5] findings reveal that stock market only react positive to announcements relevant to joint venture investments. Those categorized under immediate - or non-immediate cash generating investments does not exhibit good news to the market. Akbar [12] employed more comprehensive and up-to-date capital expenditure announcements for 1990 – 2003, a total of 884 announcements. Their study revealed positive abnormal returns on the day of announcements.

A number of observations can be made from previous literature. First, there are varied responses from the stock market to capital expenditure announcements. Firm characteristics can be one of the indicators of varied response. Secondly, there have been inconsistent findings of market response to different type of investment announcement of different firm characteristics at different region.

As a consequence, we would like to address the issue in Malaysia context using relatively updated sample and employ the fairly standard event study approach for comparison purpose.

III. METHODOLOGY

A. *Samples description*

The announcements were gathered from the official website of *Malaysian Industrial Development Authority* (MIDA) that achieve news of all Malaysia manufacturing and servicing firms from different sources of local newspaper – Bernama, New Straits Time, The Edge and The Star.

The historical stock prices are retrieved from Kuala Lumpur Stock Exchange Information Centre.

Campbell, Cowan and Salotti [11] study revealed that for event studies performed in Asia, local market indexes employed in the market model shall give out robust test specification and power. Thus, FTSE Bursa Malaysia KLCI Index is employed in this study for few parameters estimation that is necessary for event study methodology.

Only announcements from companies listed in Kuala Lumpur Stock Exchange are considered for research and they must follow the criteria as mentioned below:-

1. Only capital expenditure announcements are considered. News containing keywords facility upgrading and production capacity expansion are examined.
2. Announcements must be made in isolation of other announcements on earnings, dividends, equity or debt offerings and top management change.

B. *Methodology*

Standard event study methodology is employed to examine the response of Malaysia stock market upon the arrival of capital expenditure news.

The period -205 to -6 of each series (200 days) is the estimation period, in which the parameters of expected returns models are estimated. We shall employ Akbar, Shah and Saadi [12] method to analyze a (-5, +5) days of event window for this study.

Following past literature, daily returns are generated from historical price, defined as R_{it}.

Abnormal returns are defined as $AR_{it} = R_{it} – E[R_{it}]$. This study shall follow past literature and employ two models to estimate $E[R_{it}]$ separately.

$E[R_{it}]$ are constructed as shown in (1) and (2).

$$E[R_{it}] = R_{it} - \alpha_i + \beta_i [R_{mt}] \quad (1)$$

,where α_i and β are the estimated parameters during the estimation period. $[R_{mt}]$ is the KLCI index returns during the estimation period.

$$[ER_{it}] = R_{it} - \left(\frac{1}{T}\sum_{t=-205}^{-6} R_{it}\right) \quad (2)$$

,where T is the length of the estimation period used to calculate the average return for each security-event.

This study shall construct the cumulative returns from both unadjusted and market-model adjusted returns for comparisons. The cumulative abnormal returns can be defined in (3).

$$CAR_t = \sum_{t}^{T} AAR_{it} \quad (3)$$

CAR_t refers to cumulative abnormal returns. AAR_{it} is the average abnormal returns of each firm event. The

cumulative returns of unadjusted returns shall be computed in an identical way.

C. *Tests of Significance*

Corrado and Truong [13] study revealed that parametric test statistics are prone to misspecification with Asia-Pacific daily returns data. Thus, caution is necessary when employing a significance test on the outcome. Both Rank Test and Generalized Sign Test were the best performers overall with market model excess returns.

Montalvan (2006) favor the generalized sign test over the rank test due to the possibility of an increase in event-induced variance. This study employ generalized sign test for the test of significance, for a relaxed assumption of non-symmetric excess-return distributions. This would avoid the upward bias inferences made when using the parametric tests.

Generalized sign test implies that, under the null hypothesis, the fraction of positive returns is the same as the expected number of positive returns in the estimation period [14].

The generalized sign test is represented in (4). The test statistic uses the normal approximation of a binomial distribution.

$$Z_s = \frac{\omega - N\hat{p}}{\sqrt{N\hat{p}\,(1-\hat{p})}} \quad where:\ Z_s \sim N(0,1) \tag{4}$$

If ω is now defined as the number of securities in the event window with a positive unadjusted returns or abnormal returns, it also applies to the testing for the cumulative unadjusted returns and cumulative abnormal returns.

The expected number of positive abnormal returns along the 200-days estimation window is given in (5).

$$\hat{p} = \frac{1}{N}\sum_{i=1}^{N}\frac{1}{M_i}\sum_{t=-206}^{-6} S_{i,t} \tag{5}$$

, where Mi ≤ 200 is the number of non-missing returns in the estimation period for security-event i. Sit is referred in (6).

$$S_{i,t} = \begin{bmatrix} 1 & if\ R_{i,t} > 0 \\ 0 & otherwise \end{bmatrix} \tag{6}$$

IV. RESULTS AND ANALYSIS

To determine whether the Malaysia stock market reacts to capital expenditure announcements, we test the null hypothesis of

H0: Zero returns on the announcement day. The returns are represented by both unadjusted and adjusted abnormal returns.

A. *Descriptive Statistic*

Table 1 shows the cross-sectional statistical properties of the sample daily returns from day (-5) to day (5), where day 0 is the day of capital expenditure news made to the public.

Panel A: Unadjusted Returns

Day	Mean	Median	Max	Min	SD	Kurtosis	Skewness
-5	-0.24	0.00	3.93	-8.72	2.40	2.51	-0.92
-4	0.16	0.00	7.63	-8.33	2.97	1.58	0.13
-3	0.20	0.00	6.72	-5.51	2.50	0.53	0.42
-2	1.68	0.00	34.2	-9.09	6.81	12.17	3.04
-1	0.47	0.49	5.88	-9.05	2.72	3.30	-1.07
0	0.78	0.00	10.0	-10.81	3.41	3.44	0.04
1	-0.05	0.00	9.09	-8.93	2.56	5.81	0.03
2	0.04	0.00	16.3	-8.33	3.92	6.40	1.34
3	0.64	0.00	7.69	-6.12	2.63	1.56	0.52
4	-0.67	0.00	6.67	-9.05	2.74	3.49	-0.86
5	-0.51	0.00	5.21	-15.63	3.59	7.70	-2.25

Panel B: Market-Model-Adjusted Returns

Day	Mean	Median	Max	Min	SD	Kurtosis	Skewness
-5	-4.63	-2.94	2.88	-33.36	7.15	7.14	-2.46
-4	-4.23	-3.00	6.54	-33.93	7.51	6.88	-2.31
-3	-4.18	-2.20	5.87	-32.91	7.28	6.83	-2.42
-2	-2.80	-2.73	33.8	-33.98	10.2	5.30	0.19
-1	-3.88	-1.87	5.53	-32.91	7.41	6.65	-2.43
0	-3.59	-2.76	9.90	-33.42	8.19	5.26	-2.00
1	-4.40	-2.73	8.99	-33.14	7.24	7.18	-2.30
2	-4.35	-3.07	13.9	-33.42	8.06	4.92	-1.61
3	-3.71	-2.00	6.03	-34.60	7.56	7.90	-2.58
4	-5.02	-3.47	4.42	-33.25	7.15	6.86	-2.40
5	-4.89	-3.59	4.60	-33.36	7.59	5.23	-2.11

Panel C: Mean-Adjusted Returns

Day	Mean	Median	Max	Min	SD	Kurtosis	Skewness
-5	-0.53	-0.30	3.58	-8.77	2.35	2.38	-0.92
-4	-0.12	-0.20	7.28	-8.64	3.01	1.46	0.14
-3	-0.08	-0.30	6.56	-5.86	2.49	0.64	0.46
-2	1.30	-0.09	33.9	-9.39	6.78	12.62	3.12
-1	0.22	0.29	5.61	-9.39	2.73	3.38	-1.15
0	0.52	-0.01	9.70	-11.25	3.42	3.54	-0.07
1	-0.30	-0.12	8.79	-9.20	2.54	5.85	-0.06
2	-0.26	-0.43	15.7	-8.64	3.91	6.14	1.29
3	0.41	-0.12	7.35	-6.28	2.66	1.42	0.38
4	-0.86	-0.34	6.10	-9.74	2.86	3.31	-1.09
5	-0.82	-0.17	4.68	-15.84	3.53	8.06	-2.36

Results in *Table 1 Panel A* indicate that unadjusted returns from Day (-5) to Day (-3) are close to normal distribution with kurtosis between 0.03 to 3.04, with close-to-zero mean and all positively skewed. On Day (-2), there is a sign of information leakage with mean return of 1.68% and maximum return of 33.85%. The distribution of returns on Day (-2) also substantially deviated from normality with high standard deviation. On Day (0), there is still postivie mean returns at 0.75%.

When market risk factors are considered, by employing market model, using local market index as the benchmark of market returns, the result is not consistent at all with past literature. *Panel B* reveals that all the mean abnormal returns

from Day (-5) to Day (+5) deviate substantially from the theoretical mean kurtosis of 3. No positive significant abnormal returns are shown in *Panel B*. The returns are all in negatives.

Surprisingly, when mean-adjusted returns are used to generate the abnormal returns, the outcome in *Panel C* is very similar to that of *Panel A*. On Day (0), is exhibit a positive abnormal returns of 0.52% with kurtosis close to 3. The results also reveal that on Day (-2) there is also a sign of information leakage at 1.30% abnormal returns.

When the results are compared among the adjusted and unadjusted returns, it shows that market does react to announcements on average, and positively. Also, this signify that caution is necessary when making inferences on market response using event study methodology as different employed models exhibit different results.

B. *Tests of Significance*

Table 2 reveals the results from the tests of significance for mean unadjusted returns, mean cumulative unadjusted returns, mean abnormal returns and mean cumulative abnormal returns across the event period (-5,+5) of announcements date.

Table 2: Tests of Significance for Mean Unadjusted Returns, Mean Cumulative Unadjusted Returns, Mean Abnormal Returns and Mean Cumulative Abnormal Returns

Panel A: Unadjusted Raw Returns

Day	Mean Return	Sign-*t*	Mean CR	Sign *t*
-5	-0.24	1.41	0.35	1.41
-4	0.16	1.09	1.12	1.73
-3	0.20	**2.06***	1.92	2.38*
-2	1.68	**2.06***	4.10	**4.00****
-1	0.47	**3.68****	5.21	**4.98****
0	0.78	**3.03****	6.61	**5.30****
1	-0.05	1.73	7.20	**5.63****
2	0.04	1.09	7.83	**4.33****
3	0.64	**2.71****	9.11	**5.30****
4	-0.67	0.11	9.09	**4.65****
5	-0.51	0.11	9.17	**4.00****

Panel B: Market-Model-Adjusted Abnormal Returns

Day	Mean AR	Sign *t*	Mean CAR	Sign *t*
-5	-4.63	1.03	-4.63	1.03
-4	-4.23	1.48	-8.86	-0.76
-3	-4.18	0.14	-13.05	-0.76
-2	-2.80	1.03	-15.85	-0.76
-1	-3.88	**2.83****	-19.73	-0.76
0	-3.59	**3.72****	-23.32	-0.76
1	-4.40	0.58	-27.72	0.14
2	-4.35	1.93	-32.07	-0.31
3	-3.71	0.58	-35.78	-0.31
4	-5.02	0.58	-40.80	-0.76
5	-4.89	1.03	-45.69	-1.21

Panel C: Mean-Adjusted Abnormal Returns

Day	Mean Return	Sign-*t*	Mean CR	Sign *t*
-5	-0.53	1.20	-0.53	1.20
-4	-0.12	1.20	-0.12	1.20
-3	-0.08	**2.20***	-0.08	**2.54***
-2	1.30	**2.87***	1.30	**2.20***
-1	0.22	**4.21****	0.22	**2.87***
0	0.52	**3.21****	0.52	**3.21****
1	-0.30	**2.20***	-0.30	**2.87***
2	-0.26	0.87	-0.26	1.87
3	0.41	**2.20***	0.41	**2.87***
4	-0.86	0.20	-0.86	1.54
5	-0.82	0.54	-0.82	1.87

**, ** denotes 5% and 1% levels of significance, respectively*

From *Table 2 Panel A*, the outcome highlights that there is a sign of information leakage since Day (-2) into the Malaysia stock markets, where the unadjusted returns are positively significant at 5% level. It shows that the market treated the announcements as good news and begin to react positively since Day (-3) until Day (0). The unadjusted return on Day (0) is also positively significant at 1% level with 0.78%. Similar results are shown in *Table 2 Panel B* for Day (-1) and Day 0. Even though the adjusted returns are on average negative for both days, however, according to the generalized sign test model, the portion of positive returns are significantly more than the expected portion of positive returns during the estimation period. Again *Table 2 Panel C* exhibit result that has similar implication of that of *Table 2 Panel A*. Both mean-adjusted returns and the cumulative returns are positively significant around since Day (-2) until Day (0). This shows that market does react positively to the announcement and treat them as good news, on average.

C. *Chart*

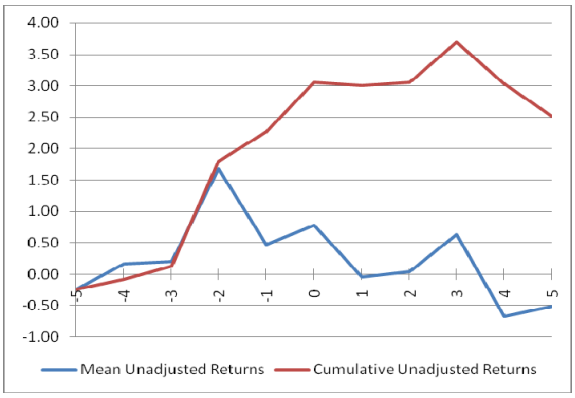

Figure 1. Day (-5,+5) Unadjusted and Cumulative Returns

Figure 1 again shows that the market reacts positively to capital expenditure announcement on Day (0) base on the unadjusted returns. There is a sign of information arriving earlier in the market and thus the market reacted positively

two days before the official news releases. The reaction is positively higher than Day (0).

Figure 1 also reveals that the firm's market price are volatile on Day 1 and 2, thus showing the fact that the market is readjusting to its actual market value upon the arrival of news. Uncertainty on the investments future outcome may be one of the factors causing such trend of volatile stock prices among those 2 days.

V. DISCUSSION

Overall, base on the results, there are reactions from Malaysia stock market upon the arrival of capital expenditure news at significant positive level. It is shown that Malaysia stock exchange investors treat capital expenditure announcement from listing firms as good news. This is in support of the *shareholder value maximization* theory.

Furthermore, the positive stock market reactions also reveal that the planned capital expenditure of listing firms are on average perceived as positive net present value investments.

However, when market risks are considered through market model, there are no abnormal returns at all. The positive returns serve as compensation for the extra risks taken by the investors during the studied event period.

The results are inconsistent with the previous literature where significant positive abnormal returns are detected on Day (0) of the announcements or during the studied event period base on the commonly employed market model in event study. However, base on the result of mean-adjusted return model, the results are consistent with the past literature that market does react positively and significantly on Day (0) to capital expenditure announcement.

With comparison between the adjusted and the unadjusted returns, this study reveals that caution is necessary when employing models for estimated parameters and returns.

A model misspecification may lead to misleading inferences on stock market reactions to the announcements.

Thus, it is within the limitation of this study that, different expectation models for returns can be employed in future for further analysis and for robust inferences.

More announcements should be collected for significance testing, using both parametric and non-parametric assessment.

The study can also be extended by incorporating firms' characteristics and investment characteristics into the analysis. Differed discoveries may be found.

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