Stock Market Reaction towards Capital Expenditure Announcements: Malaysia Case for Servicing and Manufacturing Industry

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This paper investigates the capital expenditure decisions of Malaysian listed firms and the announcements impact on shareholder wealth. Overall, we find significant positive unadjusted raw returns on the day of 43 capital expenditure announcements during the period 1998 – 2010 for the servicing and manufacturing industries in Malaysia. There are also signs of information leakage for the Malaysian Stock Exchange 2 days before the actual announcement date at 1.68% positive and significant average returns. However, after considering the market risks, by employing the market model for estimating the abnormal returns, we find no positive returns around the announcement days. To tackle the nature of developing countries stock exchange that is prompt to non-synchronous trading small sample sizes, we have employed the generalized sign Z-test of Cowan (1992), a non-parametric test for the test of significance. The findings support Del-Brio et al. (2003) findings of information leakage and positive significant returns before the announcements date in developing countries. The study also revealed that caution is necessary when making inferences on stock market reactions towards announcement when employing market model for estimating the abnormal returns.

Field of Research: Capital expenditure announcements, event study methodology, abnormal returns

1. Introduction

The objective of this study is to find out whether the Malaysian stock market would display similar trends of reactions towards capital expenditure announcements of listed companies in Kuala Lumpur Stock Exchange as compared to previous research done in other stock markets.

This study shall contribute first in adding to the growing body of international evidence on the stock market reaction pattern for the Malaysian Stock Exchange – *Main Board* and *Second Board* upon the arrival of capital expenditure announcements. There has been no significant study done on Malaysia stock market reactions to capital expenditure announcements. It would be of interest to take the initial steps of looking into Malaysia stock market reactions before further research in detail on other potential factors influencing the reactions. Secondly, different from previous literature, this study shall present both the unadjusted returns and adjusted returns for more robust inferences on market reactions and whether there are abnormal returns around the announcement date. Thirdly, the presentation of results for raw returns shall provide practical implications to stock market investors. Fourthly, different from previous literature, news from the servicing industry are considered as well.

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Various studies on stock market reaction to the investment type announcements document statistically significant and positive abnormal returns around the announcement period. However, the magnitude and direction of the abnormal returns vary due to different firm characteristics as documented in past studies.

However, in general, traditional valuation theory posits that the market value of the 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 (Miller & Modligliani 1961).

Thus, for whichever projects or investment managers of public listed companies are taking and make known to the public through announcements, there would have been a positive signal to the market and positive reactions from the stock market. This would be in line with the *Value Maximization Hypothesis*, where managers would only take in investments that have positive NPV to bring in additional wealth to the companies and shareholders (Fama and Jensen 1985).

The remainder of this paper shall look into the literature in detail in Section 2. Hypothesis is developed after the literature review at the end of Section 2. Section 3 contains description of the capital expenditure news, sources of collected news and stock data and also methodology employed for this study. Section 4 discusses the results and analysis on the compiled data. The last section offers some concluding remarks and limitations of the study.

2. Literature Review

Capital expenditure has been treated as part of the strategic investment decision and it is one of the important financial decisions that a firm makes to increase its value or size (Brailsford and Yeoh 2004; Akbar et al. 2008). By definition, strategic investment decisions are major commitments of current resources made in anticipation of generating future payoffs (Woolridge and Snow 1990).

Woolridge and Snow (1990) have treated capital expenditures as production capacity expansion, plant modernization and capital budget changes as capital expenditure.

The earliest empirical studies on the relationship between capital expenditure announcements and stock prices have been done by McConnell and Muscarella (1985). They investigated stocks response towards US firms' future capital expenditure plans announcements from 1975 - 1981. They have identified 658 capital expenditure plans announcements and categorize them into announcements from public utility firms and industrial firms. They find that announcements of increases (decreases) in planned capital expenditures are associated with significant positive (negative) excess stock returns. This is inconsistent with the hypothesis that managers act in the best interest of shareholders by maximizing the market value of their firms through capital expenditure decisions.

Woolridge & Snow (1990) examine the US stock market response for 767 strategic investment announcements over the period 1972 – 1984. They reported a significant positive abnormal return of 0.71% for overall investment

announcements. They have categorized the investment announcements into a few types: joint venture, R&D project, and product / market diversification and capital expenditure. They have considered investment characteristics (investment size and duration) to study the differences of stock market response. The market reacted positively and significantly on long-term investments (> 3 years).

Chen and Ho (1997) examine market response to 164 product strategies announcements and capital expenditure announcements for the Singapore stock exchange from 1983 to 1991. Different from previous literature, they studied market response to announcements according to two firm characteristics – free cash flow and investment opportunities. Their studies reveal that only firms perceived as having high investment opportunities react significantly positively to the announcements around 1% abnormal returns.

Chung et al.'s (1998) research is inconsistent with Chen and Ho (1997) findings where firms with good investment opportunities would react positively and significantly towards capital expenditure announcements. Their study is conducted on 308 capital expenditure announcements for 1981 - 1995 US stocks. They found significant positive returns for firms with high q-ratio on day of announcement at less than 1% abnormal returns.

Burton's (1999) study is different distinctively from previous studies by categorizing the capital expenditure announcements into 3 main categories – joint venture, immediate cash-generating expenditure (ICG) and non-immediate cash-generating expenditure (NICG). There are 499 capital expenditure announcements studied for UK stocks for 1981 – 1991. Results reveal a 1.5% significant mean abnormal return for joint venture investments, but none for the ICG and NICG.

Brailsford and Yeoh (2004) examined the impact of free cash flow and growth opportunities on the Australian stock market upon the arrival of 170 capital expenditure announcements between 1995 and 1997. Their finding is consistent with past literature that firms with high growth opportunities would have higher stock market reaction upon the release of capital expenditure announcements. Furthermore, different from previous literature, they have also employed the *randomization approach* by further grouping announcing firms into different quartiles of cash flow ratio based on the already sorted growth opportunities ratio, their finding is in support of the cash flow hypothesis, inconsistent with findings of Chen and Ho (1997) and Chung et al. (1998).

Jones and Danbolt (2005) focused on 88 product and market diversification announcements, and the impact on the UK listed firms' market value between 1991 -1996. On average, the results exhibit significant positive 1.1% return on the day of announcement. Different from previous literature, they have further categorized the announcements into those formed under joint venture or not. Those investment strategies that are undertaken without joint venture have demonstrated significant and positive abnormal returns around 0.02%.

Chen (2006) has expanded the literature by investigating the stock market response to 246 capital investment announcements of focused firms and diversified firms during 1989-1999. The results reveal that focused firms have higher significant positive reactions from the stock market upon the release of the

announcements, at around 1% abnormal returns. The reason is that focused firms have been associated with firms with good investment opportunities. Hence, such findings have shown that not all capital investment announcements would cause positive reactions from the market. Firm characteristics also play an important role in determining the magnitude and sign of the market reactions.

Following the previous study, Chen (2008) examined again the stock market response to 794 corporate new product strategies announcements, for both focused firms and diversified firms for 1989-1999. Different from previous studies, organizational forms in terms of announcing firms' characteristics, industry characteristics and product announcement characteristics are accounted for as control variables for the cross-sectional regression to study if the responses varied. The findings are consistent with previous finding that firms with focused activities still exhibit significant positive market response when the announcement is released after controlling for other effects.

Akbar et al. (2008) has a more up-dated study period for UK stock market reactions towards capital expenditure announcements year 1990 – 2003 for 884 announcements. Their findings are support McConnell and Muscarella (1985) and Chan et al. (1995) with an abnormal return of 0.27% at 1% significance level on Day 0. Their capital expenditure announcements fall under 4 categories where the intended investments are for plant and equipment, development, retail stores and others.

A number of observations can be made from the review of the literature. First, there is some inconsistency in the empirical results. Overall, the findings find reactions from the stock market upon the arrival of the announcements. However, they vary according to different firm characteristics. Second, there has been no study done on Malaysian stock market reactions. It would be of interest to take the initial steps of looking into Malaysian stock market reactions before further research into the detail on firms' characteristics.

Hence, it is hypothesized that:

$H1_0$: There is no reaction from the Malaysian stock market upon the arrival of capital expenditure announcements from Malaysian listed firms.

In the case that Malaysian stock market does react positively and significantly, the null would be rejected. This would be in support of Woolridge and Snow's (1990) findings in conforming to the *Value Maximization Hypothesis*. The *Value Maximization Hypothesis* predicts a positive reaction from the stock market to capital expenditure announcements for rewarding the managers in taking positive NPV investment strategies that would increase shareholder wealth.

3. Data and Methodology

3.1 Sample Characteristics

The main objective of this article is to analyze the share prices of firms around the time at which they release information about their investment announcements. A

sample of firms that made investment announcements around the period Year 2008 to mid-Year 2010 is constructed.

The announcements were gathered from the official website of *Malaysian Industrial Development Authority* (MIDA) that archives news of all Malaysian manufacturing and servicing sectors companies from different sources of local newspapers – Bernama, New Straits Time, The Edge and The Star. The period of the archived news listed on the MIDA official website begins at the end-Year 2008 and runs to the present.

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

1. Only investment announcements of Malaysian listed companies are considered. Announcement on corporate acquisitions or tender offers are not considered in this study.
2. Announcements must be made in isolation of other announcements (for example, earnings, dividends, and equity or debt offerings, top management changes).

The daily prices collected for this study are supplied by the Kuala Lumpur Stock Exchange Information Service Department that range from year 2007 to 2010.

Campbell, Cowan and Salotti (2010) revealed that for event studies performed in multi-countries (Asia, Europe, America etc.), local market indexes employed in the market-model methods without conversion to a common currency still give robust test specification and power. Thus, FTSE Bursa Malaysia KLCI Index is employed as the benchmark market index of the Kuala Lumpur Stock Exchange.

Table 1 Frequency Distribution of Capital Expenditure Announcements for Year 2008 - Mid-2010

| Announcement	Number of Announcements	Percentage
Capital Expenditure Announcement		
i. Facility Upgrading	3	7%
ii. Production Capacity Expansion	27	63%
iii. Facility Upgrading & Production Capacity Expansion	8	19%
iv. Servicing Capacity Expansion	4	9%
v. Servicing Capacity Expansion & Facility Upgrading	1	2%
Total	**43**	**100%**

Table 1 exhibit the frequency distribution of capital expenditure announcements with its sub-categories. It can be seen that the majority of the capital expenditure announcements collected from the announcing listing companies in the manufacturing and servicing sectors are mainly for the purpose of production capacity expansion, during the collection period of 2008 to 2010.

3.2 Methodology

Event study methodology is one of the methodological approaches to research on stock market reactions towards an event and it has been extensively studied for its statistical power for stock exchanges of well-developed and developing countries (Campbell et al. 2010; Corrado et al. 2008, Bartholdy et al. 2007, Khothari et al. 2005, Campbell et al. 1997, Ball and Brown 1968).

The parameters of the expected return models rae estimated using the period between Day -205 and Day -6.   As Khotari (2001) and Kothari and Warner (2005) indicate, the length of the estimation period is arbitrary. It has to be long enough to contain a reasonable number of observations to estimate the parameters of the model and short enough to avoid an eventual instability of the parameters. In general, the literature uses a length between 120 days and 250 days (Dyckman et al 1984) and 250 days (MacKinlay, 1997). We follow the literature in adopting 200 days of estimation period and follow Akbar et al. (2008) method in analyzing a (-5,+5) days event window for this study.

Figure 1 Event window
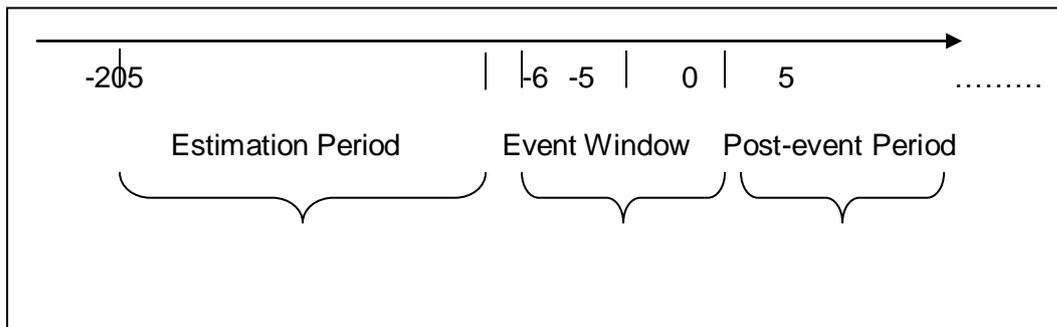
In this study, both adjusted market model returns and raw un-adjusted returns shall be used for generating the results and testing for the significance. Both results shall be contrasted for the robustness of the inferences on the Malaysian stock market reaction towards the announcements studied.

Following past literature, we perform analysis using daily data. This is needed for consistent comparison of the results with other existing studies.

Daily returns are constructed as shown in equation (1).

$$Rt = \frac{(Pt + Dt - Pt\text{-}1)}{Pt} \tag{1}$$

Where,
Rt   : raw unadjusted return observed at the end of period t
Pt   : market price of share i, at end of period t
Pt-1   : market price of share i, at end of period t-1
Dt   : dividends paid on share i during the period t

Abnormal returns are constructed using the standard equation:

$$ARit = Rit - E[Rit] \tag{2}$$

Where,
ARit   : abnormal returns of ith stock at period t
Rit   : observed returns of ith stock at period t
E(R)it   : expected returns of ith stock at period t

Corrado and Truong (2008) and Strong (1992) mentioned that abnormal returns constructed from the market model have become an almost universal return measure used in short-term event studies. Thus, this study shall employ the market model to construct the expected return E[R]it as shown in equation (3).

$$E[Rit] = Rit - \alpha i + \beta i \, [Rmt] \qquad \qquad \textbf{(3)}$$

Where,
E(R)it   : expected returns of ith stock at period t
αi & βi   : Parameters of regressions intercept and slope
Rmt   : market returns of ith stock at period t

Cumulative abnormal returns (CAR) are represented as follows:

$$CARt = \sum_{t}^{T} AAR_{it}$$

Where,
AARit   : Average abnormal returns of all stock events at period t

Unadjusted raw cumulative returns (CR) are represented as follows:

$$CRt = \sum_{t}^{T} R_{it}$$

Where,
Rit   : Average raw unadjusted returns of all stock events at period t

3.2.1 Statistical Test

Fama (1976) documents evidence that the distributions of daily returns exhibit substantial departures from normality, suggesting that they are fat-tailed relative to a normal distribution. The Campbell et al.(1993) and Cowan et al. (1996) studies also review that in a thin trading stock market, there is a significant degree of non-normality in stocks daily return that still persists at portfolio level.

Thus, caution is necessary when making inferences on the significance of stock returns when using parametric test statistics, such as the t-statistics. Since our sample size is small, with only 45 sample news, it would not be justifiable to adopt the t-statistic for evaluating the significance of our results while at the same time assuming that the (adjusted- or unadjusted-) returns are normally and independently distributed.

Corrado and Truong (2008) also revealed that parametric test statistics are prone to misspecification with Asia-Pacific daily returns data. Their findings depicted that both the rank test introduced in Corrado et al (1992) and the generalized sign test (Cowan 1992, Cowan and Sergeant 1996) were the best performers overall with market model excess returns computed using an equally weighted index.

Montalvan et al. (2006) favour the generalized sign test over the rank test due to the possibility of an increase in event-induced variance. Furthermore, it is also mentioned that in the presence of non-normality both the rank test and the

generalized sign test are well specified and equally powerful in detecting abnormal performance.

Thus, in this study, the generalized sign test that was introduced and tested by McConnell and Muscarella (1985) and Cowan (1992) shall be employed for the significance tests.

Generalized sign test is one of those non-parametric tests that allow for a relaxed assumption of non-symmetric excess-return distributions. This would avoid the upward bias of inferences made when using the parametric tests, which hold the assumptions that the returns distributions are normally distributed.

The basis of the generalized sign test is that, under the null hypothesis, the fraction of positive returns is the same as the expected number of positive returns in the estimation period (Cowan 1992). The test statistic uses the normal approximation to the binomial distribution and is calculated as:

The expected number of positive abnormal returns along a 200-days estimation window is given by:

$$\hat{p} = \frac{1}{N} \sum_{i=1}^{N} \frac{1}{M_i} \sum_{t=-205}^{-6} S_{i,t}$$

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

$M_i \leq 200$ is the number of non-missing returns in the estimation period for security- event i.

The test statistic uses the normal approximation of a binomial distribution with parameters $\hat{p}$. The generalized sign test statistic may be written as:

$$Z_s = \frac{\omega - N\hat{p}}{\sqrt[2]{N\hat{p}(1-\hat{p})}} \quad where:\ Z_s \sim N(0,1)$$

If ω is now defined as the number of securities in the event window with a positive raw unadjusted returns **(R)** or abnormal return **(AR)**, it also applies to the testing for the raw un-adjusted cumulative return **(CR)** and cumulative abnormal return **(CAR)**.

4. Results and Analysis

Table 2 shows the cross-sectional statistical properties of the sample daily returns from day (-5) to day (5), where Day 0 is the day of news announced from different sources of newspaper agency. Two measures of returns are studied and presented in each separate panel, with the unadjusted raw returns in Panel A and the market-model abnormal returns in Panel B.

Results in Table 2 Panel A indicate that for the case of the Malaysian stock market, the unadjusted raw daily returns on Day (-2) are positively skewed with mean return of 1.68% and maximum return at 34.21%. From Day (-2) onwards all the mean kurtosis substantially deviated from normality, except Day (+3). It demonstrate a sign of stock market response and information leakage since Day (-2) that cause the market, on average, to react positively towards the news.

Conversely, after considering the market factor, Table 2 Panel B abnormal returns from Day (-5) to Day (+5) are negatively skewed with negative mean abnormal returns except for Day (-2) positively skewed. This is inconsistent with previous literature where significant positive abnormal returns are detected around or during the announcement day. Also, Day(-2) again exhibits a sign of information leakage. The results are consistent with the findings of those for emerging stock markets - Del Brio et al. (2003) for the Spanish Stock Exchange and Bhattarcharya et al. (2000) for the Mexican Stock Exchange.

Table 2 Descriptive Statistic of Day (-5) to Day (5) Returns around Capital Expenditure Announcements period

Panel A: Unadjusted Returns

Days	Mean	Median	Max	Min	SD	Kurtosis	Skewness
-5.00	-0.24	0.00	3.93	-8.72	2.40	2.51	-0.92
-4.00	0.16	0.00	7.63	-8.33	2.97	1.58	0.13
-3.00	0.20	0.00	6.72	-5.51	2.50	0.53	0.42
-2.00	1.68	0.00	34.21	-9.09	6.81	12.17	3.04
-1.00	0.47	0.49	5.88	-9.05	2.72	3.30	-1.07
0.00	0.78	0.00	10.00	-10.81	3.41	3.44	0.04
1.00	-0.05	0.00	9.09	-8.93	2.56	5.81	0.03
2.00	0.04	0.00	16.31	-8.33	3.92	6.40	1.34
3.00	0.64	0.00	7.69	-6.12	2.63	1.56	0.52
4.00	-0.67	0.00	6.67	-9.05	2.74	3.49	-0.86
5.00	-0.51	0.00	5.21	-15.63	3.59	7.70	-2.25

Panel B: Market Model Adjusted Abnormal Returns

Days	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	33.85	-33.98	10.21	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	13.92	-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

Table 3 reveals both the raw returns and abnormal returns and the mean cumulative adjusted returns associated with 43 capital expenditure announcements over the period 2008-2010. It displays the associated test statistics for each day across the event period (-5, +5).

Panel A, with results based on raw returns, highlights that the mean returns before the actual date of the announcements have been leaked out since Day (-2) into the market. The reactions are positive with a significance level of 5% on Day (-3) and Day (-2) at an increasing trend and go back down to 0.47% on Day (-1) with a positive significance level of 1%. On the day of capital expenditure news announcment, the return increases again to 0.78% at 1% significance level, showing that the reaction may come from those market participants who were unaware of the news before its official release. The stock market movement across event-securities i over the event period Day (-5, +5) is shown in Figure 2.

Table 3. Tests of Significance for Mean Unadjusted Raw Returns (R), Mean Cumulative Unadjusted Raw Returns (CR), Mean Abnormal Returns (AR) and Mean Cumulative Abnormal Returns (CAR) across Day(-5) to Day(+5) Event Window of Capital Expenditure Announcements

	Panel A: Unadjusted Raw Returns				Panel B: Abnormal Returns			
Day	Mean Return	Sign-t	Mean CR	Sign t	Mean AR	Sign t	Mean CAR	Sign t
-5	-0.24	1.41	0.35	1.41	-4.63	1.03	-4.63	1.03
-4	0.16	1.09	1.12	1.73	-4.23	1.48	-8.86	-0.76
-3	0.20	**2.06***	1.92	2.38*	-4.18	0.14	-13.05	-0.76
-2	1.68	**2.06***	4.10	**4.00****	-2.80	1.03	-15.85	-0.76
-1	0.47	**3.68****	5.21	**4.98****	-3.88	**2.83****	-19.73	-0.76
0	0.78	**3.03****	6.61	**5.30****	-3.59	**3.72****	-23.32	-0.76
1	-0.05	1.73	7.20	**5.63****	-4.40	0.58	-27.72	0.14
2	0.04	1.09	7.83	**4.33****	-4.35	1.93	-32.07	-0.31
3	0.64	**2.71****	9.11	**5.30****	-3.71	0.58	-35.78	-0.31
4	-0.67	0.11	9.09	**4.65****	-5.02	0.58	-40.80	-0.76
5	-0.51	0.11	9.17	**4.00****	-4.89	1.03	-45.69	-1.21

*Notes: R, CR, AR and CAR are tested for statistical significance using a nonparametric binomial test – Sign-t (Generalized Sign Test, where *, ** denotes 5% and 1% levels of significance, respectively*

Figure 2. Cross-section mean unadjusted raw returns and mean cumulative unadjusted returns over the event period Day (-5, +5)
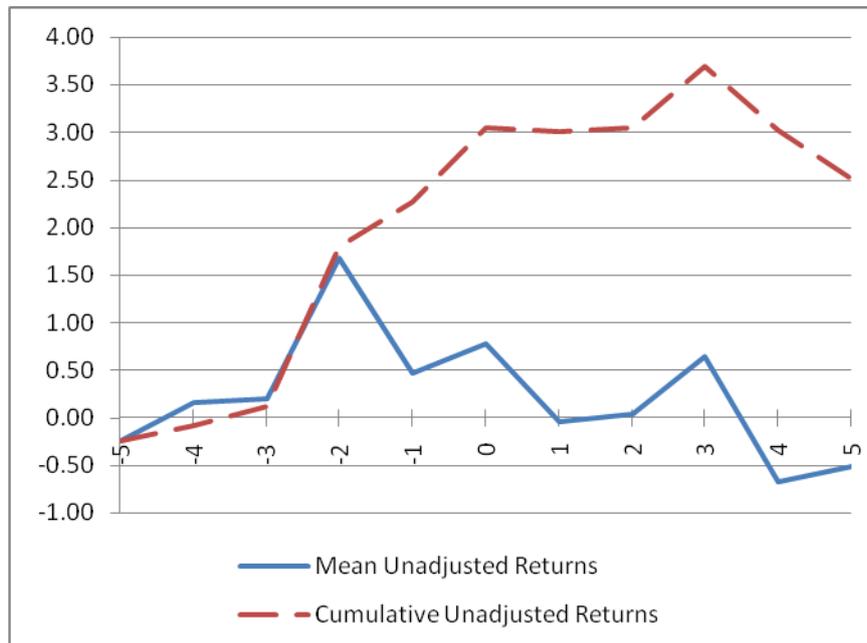

Figure 2 shows that the Malaysian stock market reacts positively towards capital expenditure announcements on Day 0. However, there is a sign of leakages on Day (-2) with a shock but the market slowly adjusts back to its supposing market value. The price actually decreases on Day (+1) but increases again on Day (+3) at a returns level close to Day 0 returns level.

5. Conclusions and Limitations

Overall, there are reactions from the Malaysian stock market upon the release of capital expenditure news at a significantly positive level. The objective has been achieved in detecting positive reactions from the Malaysian stock market, in support of the *Shareholder Value Maximization* Theory. However, when the returns are adjusted with the market model, there are no abnormal returns, which is inconsistent with previous literature (Akbar et al. 2008, Kim et al. 2005, Chan et al.1995, McConnell and Muscarella 1985). Therefore, the null cannot be rejected when adjusted returns are considered.

However, it is consistent with the study of Del-brio (2003) where there are signs of information leakage before the actual announcements days in Malaysia stock market based on the unadjusted returns.

There are limitations in this study. First, more models should be employed for estimating the expected returns for robust inferences. Second, a larger sample size should be employed. Furthermore, there are reactions from the Malaysian stock market based on the unadjusted returns. Thus, future research can be extended to consider different prominent firm-characteristics that may affect the magnitude of stock market reactions.

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