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Is there Wealth Impact from Capital Expenditure Announcements?: Malaysia Listing Firms of Industrial Products Sector

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This paper investigates the capital expenditure decisions of Malaysia listing firms and the announcements impact on shareholder wealth. Overall, we find no significance positive reactions on the day of 14 capital expenditure announcements during the period 2005 – 2010 for industrial products sector in Malaysia. To tackle the nature of developing countries stock exchange that is prompt to non-synchronous trading and small sample sizes, we have employed both generalized sign test Cowan (1992) and rank test (Corrado, 1989) non-parametric tests for the test of significance. Under the assumption that the announcements are a surprise to the market, the market reacted at an insiginifance negative - 0.75% raw returns and – 0.83% market model adjusted returns. The findings is inconsistent with previous literature conducted in other countires where significant positive adjusted returns are found to exist on the day of capital expenditure announcements released. By employing both non parametric tests, each exhibited different inferences on the significance of the returns. This implies caution is needed when making inferences base on sole tests of significance.

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

1. Introduction

The objective of this exploratory study is to find out whether Malaysia stock market would display similar trend of reaction towards capital expenditure announcements of industrial product sector's listing companies in *Kuala Lumpur Stock Exchange* as compared to previous research done in other stock markets.

Different from previous literature, formal capital expenditure announcements from the Kuala Lumpur Stock exchange are manually filtered and retrieved from the Kuala Lumpur Stock Exchange official websites, which have not yet been documented in the literature for Malaysia stock market.

With such samples, this study shall contribute first in adding growing body of international evidence on the stock market reaction pattern for Malaysia Stock Exchange – *Main Board* upon the arrival of capital expenditure announcements for industrial products sector. There has been no significant study done on Malaysia stock market reactions to formal capital expenditure announcements collected from the offical stock exchange websites.

Thirdly, the presentation of results for raw returns shall provide practical implications to stock market investors.

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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.

In general, traditional valuation theory posits that 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 listing companies are taking and make known to the public through announcements, there would have been a positive signals to the market and causes 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 decisions 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.

Earliest empirical studies on the relationship between capital expenditure announcements and stock prices have been done by McConnell and Muscarella (1985). They investigate stocks response towards US firms' future capital expenditure plans announcement 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 announcement of increases (decreases) in planned capital expenditures are associated with significant positive (negative) excess stock returns. This is in consistent 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) examines 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 announcement into few

types: Joint venture, R&D project, and product / market diversification and capital expenditure. They have considered investment characteristic (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 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 positive to the announcements around 1% abnormal returns.

Chung et al. (1998) research is in consistent with Chen and Ho (1997) findings where firms with good investment opportunities would reaction positive 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 announcements at less than 1% abnormal returns.

Burton (1999) studies 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 returns for joint venture investments, but non for the ICG and NICG.

Brailsford and Yeoh (2004) examined the impact of free cash flow and growth opportunities on Australia stock market upon the arrival of 170 capital expenditure announcements between the periods of 1995 to 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 quartile of cash flow ratio base on the already sorted growth opportunities ratio, their findings is in support of the cash flow hypothesis, inconsistent with findings of Chen and Ho (1997) and Chung et al. (1998).

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

Following previous study, Chen (2008) examine 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 as control variables for the cross-sectional regression to study if the response 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 updated study period for UK stock market reactions towards capital expenditure announcements from year 1990 – 2003 for 884 announcements. Their findings are in support for McConnell and Muscarella (1985), Chan et al. (1995) with an abnormal return of 0.27% at 1% significance level on Day 0. Their capital expenditure announcements falls 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 Malaysia stock market reactions. It would be of interest to take the initial steps of looking into Malaysia stock market reactions before further down in detail on firms' characteristics.

Hence, it is hypothesized that:

H10: There is no reaction from the Malaysia stock market upon the arrival of capital expenditure announcements from Malaysia listing firms.

In the case that Malaysia stock market does react positively and significantly, the null would be rejected. This would be in support of Woolridge and Snow (1990) findings in conforming to the *Value Maximization Hypothesis*. *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 the shareholder wealth.

3. Data and Methodology

3.1 Sample Announcements Description and Characteristics

The main objective of this article is to analyze the share prices of firms around the time at which capital expenditure announcements are released to the public formally. The collected sample announcements range from the period Year 2005 to 2010 from *Kuala Lumpur Stock Exchange* listing firms of Main Board.

The capital expenditure announcements were manually filtered and retrieved from the official website of *Kuala Lumpur Stock Exchange*. These formal announcements have been released directly from the listing firms and filed with *Kuala Lumpur Stock Exchange* pursuant to the *Kuala Lumpur Stock Exchange listing requirement Chapter 9.03*.

Chapter 9.03 requires all listing firms with Kuala Lumpur Stock Exchange to make immediate public disclosure of any material information that are reasonably

expected to have material effect on the price, value or market activity of the listing firms or effect on the decision of the investors and stockholders. 9.04 have listed out examples of events that require immediate disclosure.

As the announcements are manually filtered and retrieved, it is more plausible for the filtering to be done from one company's whole lists of announcements to another company's. We initiate this research by focusing on listing companies in the *industrial products sector*.

The retrieved capital expenditure announcements must folloing criteria:-

1. Only investment announcements of Malaysia listing companies are considered. Announcement on corporate acquisition 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) on the announcement day.

Table 1: Frequency Distribution of Capital Expenditure Announcements for Year 2005 - 2010

Year	Frequency	Purpose of Capital Expenditure
2005	1	Land acquisition for future industrial building constructions
2006	3	Land acquisition for future expansion project
2007	4	Land or Land & building acquisition for future expansion plan
2008	2	Land or Land & building acquisition for capacity expansion
2009	1	Land and building acquisition for capacity expansion
2010	3	Land acquisition for capacity or business expansion
Total	**14**	

Table 1 exhibit the frequency distribution of capital expenditure announcements from Year 2005 to 2010. About 80% of our sample events collected is announcements on land acquisitions or land and buildling acquisitions with the rationale mentioned, as required by the *Kuala Lumpur Stock Exhcnage* listing requirements. The purpose of acquisition is mostly for their future plan for building new factories for capacity expansion or business expansion at different region.

3.2 Methodology

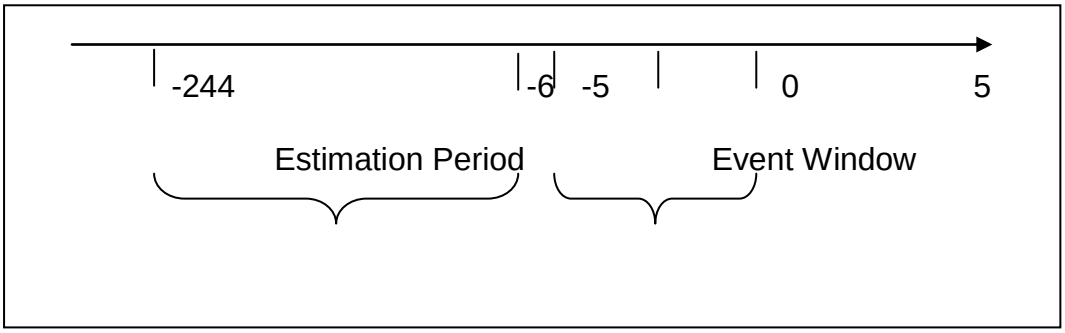
Event study methodology is one of the methodological approaches to research on stock market reactions towards an event and it has been extensively studied for its statistical power for stock exchange of well-developed and developing countries (Campbell et al. 2010; Corrado et al. 2008, Bartholdy et al.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

There are underlying assumptions necessary for making such studies, which are (i) the outcome of the capital expenditure announcements came as a surprise and so its impact was not incorporated into stock prices before the announcement (ii) that

markets are efficient so that the market's reaction to the announcement captures the "true" impact of the announcements on the firms in question (iii) that no other events occurred during the event window that migh affect firms' abnormal return.

The period -244 through - 5 of each series (240 days) is the estimation period, in which the parameters of expected return models are estimated. As indicated by Kothari and Warner (2005), 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 adopt 240 days of estimation period and follow Akbar et al. (2008) method in analyzing a (-5,+5) days event window for this study.

Figure 1: 250 Days Event Window



3.3 Sample Returns Description and Characteristics

The listing firms' daily prices collected for this study are sourced from Kuala Lumpur Stock Exchange Information Service Department that range from year 2003 to 2010.

Campbell, Cowan and Salotti (2010) study 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 our robust test specification and power. Thus, FTSE Bursa Malaysia KLCI Index is employed as the benchmark market index of Kuala Lumpur Stock Exchange. The KLCI Index employed for the purpose of parameters estimation range from Year 2003 – Year 2010.

In this study, both market model adjusted returns and raw un-adjusted returns are used for generating the results and testing for the significance. Both results shall be contrasted for making inferences on Malaysia 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).

$$R_{it} = \frac{P_{it} + D_{\iota\, it} - P_{i\, t-1}}{P_{it}} \quad \textbf{(1)}$$

Where,

R*it*	: raw unadjusted return observed at the end of period t
P*it*	: market price of share i, at end of period t
P*it-1*	: market price of share i, at end of period t-1
D*it*	: dividends paid on share i during the period t

Abnormal returns are constructed using the standard equation:

$$AR_{it} = R_{it} - E[R]_{it} \quad \textbf{(2)}$$

Where,

AR*it*	: abnormal returns of ith stock at period t
R*it*	: 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 market model to construct the expected return E[R]*it* as shown in equation (3).

$$E[R]_{it} = R_{it} - \alpha_i + \beta_i[R_{mt}] \quad \textbf{(3)}$$

Where,

E[R]*it*	: expected returns of ith stock at period t
α_i & β_i	: Parameters of regressions intercept and slope
R*mt*	: market returns of ith stock at period t

Cumulative abnormal returns (CAR*t*) are represented as follows:

$$\text{CAR}t = \sum_{t}^{T} AAR_{\text{it}}$$

Where,

AAR*it*	: Average abnormal returns of all stock events at period t

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

$$\text{CR}t = \sum_{t}^{T} R_{\text{it}}$$

Where,

R*it*	: Average raw unadjusted returns of all stock events at period t

3.4 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. 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 persist 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 17 sample news, it would not be justifiable to adopt 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.

Thus, we shall follow Corrado and Truong (2008) findings by employing both generalized sign tests and rank test for this study. Their studies revealed that parametric test statistics are prone to misspecification with Asia-Pacific daily returns data and furthermore both rank test introduced in Corrado et al (1992) and generalized sign test (Cowan 1992, Cowan and Sergeant 1996) were the best performers overall with market model excess returns computed using equally weighted index (Corrado and Truong, 2008).

3.4.1 Generalized Sign Test (Cowan, 1992)

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 of a binomial distribution with parameters $\hat{\rho}$. The generalized sign test statistic may be written as:

$$Z_g = \frac{\omega - N\hat{\rho}}{\sqrt{N\hat{\rho}(1-\hat{\rho})}} \quad where:\ Z_g \sim N(0,1)$$

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

$\hat{\rho}$, the expected number of positive abnormal returns along a 200-days estimation window is given by:

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

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

Mi ≤ 200 is the number of non-missing return in the estimation period for security- event *i*.

3.4.2 Rank Test (Corrado, 1989)

Rank test involves first transforming each security's time series of abnormal returns into their respective ranks.

Let Kit denote the rank of abnormal return ARit in security *i*'s time series of 250 abnormal return:

K_{it} = rank (AR_{it}). t = -244, …, +5

Where $A_{it} \geq A_{ij}$ implies $K_{it} \geq K_{ij}$ and $250 \geq K_{ij} \geq 1$. By construction, the average rank is one-half the number of observed returns, or 125.5. The rank statistic substitutes (K_{it} – 125.5) for the abnormal returns AR_{it}, yielding day t test statistic:

$$Z_{rank} = \frac{\frac{1}{N}\sum_{i=1}^{N}(K_{it} - 125.5)}{S(K)}$$

Where S(K) is calculated using the entire 250-day sample period:

$$S(K) = \sqrt{\frac{1}{250}\sum_{t=-244}^{+5}\left(\frac{1}{N}\sum_{i=1}^{N}(K_{it} - 125.5)\right)^2}$$

The ranking procedure shares the power and specification of the Wilcoxon two-sample rank test that does not require symmetry distributions due to the transformation of the abnormal returns into a uniform distribution across the ranked values.

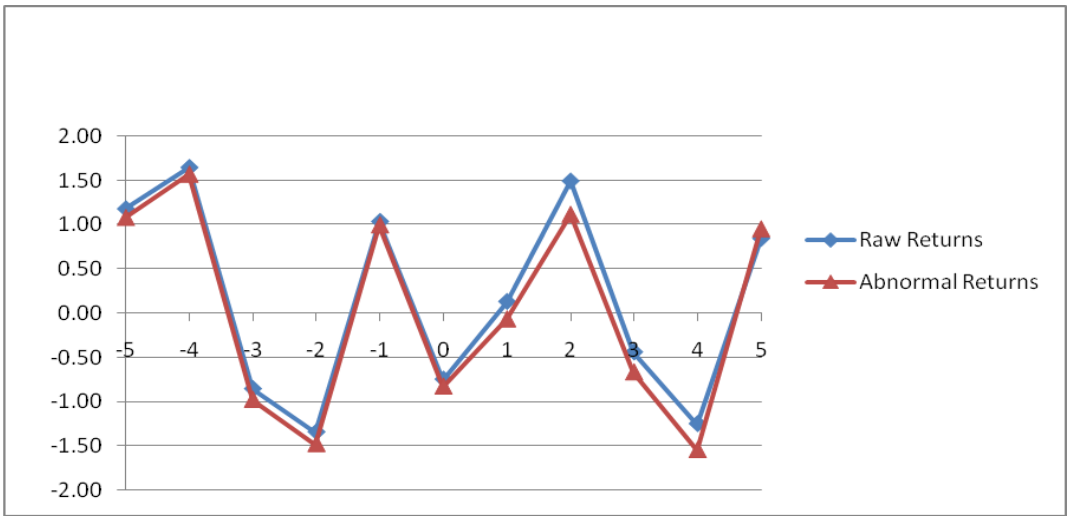
The test statistic for cumulative raw returns and cumulative abnormal returns is given by:

$$Z_{rank}^{Cum} = \frac{\sum_{T1}^{T2}\frac{1}{N}\sum_{i=1}^{N}(K_{it} - 125.5)}{S(K) \times \sqrt{T2 - T1 + 1}}$$

The difference between T1 and T2 is the time length of the cumulative returns examined and computed.

4. Results and Analysis

Figure 2: Percentage returns across Day (-5) to Day (+5). Day 0 represent the day of capital expenditure announcements released.



Overall, from graphical view of Figure 2, it can be observed that the returns patters for both unadjusted and adjusted returns exhibit a random walk, which somehow support the notion of efficient market hypothesis.

On the other hand, under the assumption that the announcements are treated as a surprise to the stock market, on Day 0, the stock market has reacted negatively to capital expenditure announcements. On average, the decision of industrial product sector companies in acquiring lands and buildings for future business expansion or capacity expansion are not favored by investors.

This is inconsistent with previous studies where upon the release of capital expenditure announcements, the stock market on average has reacted positively (McConnell and Muscarella, 1985, Woolridge and Snow 1990, Chen and Ho, 1997, Burton, 1999, Brailsford and Yeoh, 2004 and Akhbar, 2008).

The other explanation would be that by chance, the 14 sample announcements collected exhibit similar firm characteristics that lead to the average negative response from the market.

Table 2: Mean Adjusted and Unadjusted Returns. Day 0 refers to the day of announcement released.

	Capital Expenditure Announcements					
	Unadjusted Returns (R)			Market Model Adjusted Returns		
	Mean	*Zrank*	*Zsign(+)*	Mean	*Zrank*	*Zsign(+)*
-5	1.18	0.0807	0.4786	1.08	0.8416	0.7055
-4	1.65	0.1355	1.0520	1.57	0.8090	0.7055
-3	-0.86	-1.1417	-1.2814	-0.98	-0.3359	-0.3824
-2	-1.34	-1.5136	-1.2814	-1.48	-0.9896	-0.9263
-1	1.04	-0.0086	0.4686	1.00	1.2172	0.7055
0	-0.75	-1.5193	-0.6981	-0.83	-0.9355	-0.9263
1	0.13	-0.4353	0.4686	-0.07	-0.1336	0.7055
2	1.49	0.4699	1.6353*	1.12	0.9282	1.2495
3	-0.44	-0.7092	0.4686	-0.67	-0.4840	-0.3824
4	-1.25	-1.4819	-0.6981	-1.55	-1.2461	-0.9263
5	0.84	0.3287	1.6353*	0.95	0.8343	1.2495

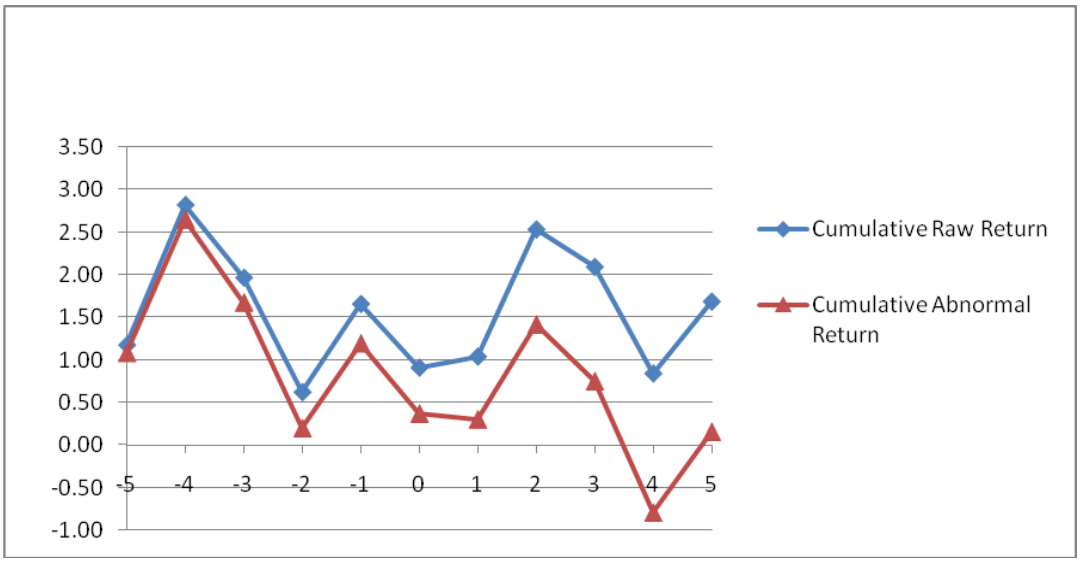
*Note: Zrank refers to test of significance using Corrado (1989) rank test and Zsign(+) refers to test of significance using Cowan (1992) generalized sign test. *, ** refers to 10% and 5 % levels of significance, respectively.*

Table 2 presents the results for test of significance on the raw returns and the market model adjusted returns using both non-parametric tests, rank test and generalized sign test.

Base on the results exhibited, unfortunately, there's no significance of positive returns during the examined event windows, with a -0.75% raw returns and -0.83% of adjusted returns on Day 0.

However, it can be observed that on Day (2) and Day (5), there is a 10% significant of raw returns at 1.49% and 0.84% raw returns respectively, base on the test-statistic results from generalized sign test. It can be due to other noises and announcements released during those days, causing stock market's ongoing adjustments.

Figure 3: Percentage cumulated returns across Day (-5) to Day (+5). Day 0 represent the day of capital expenditure announcements released.



Base on Figure 3, when returns are cumulated across Day (-5) and Day (+5), there's no significant pattern of cumulation. On Day 0, due to the average negative response, the cumulative returns for both unadjusted and adjusted returns dropped to 0.91% and 0.37% respectively.

Base on table 3, the cumulated raw returns exhibited significance according to the results from generalized sign test at 5% and 10% significance level. Due to the cumulative effect, Day 0 has an averaged 0.91% cumulated raw returns at 5% significance level. For the market model adjusted returns, there's no significance exhibited except for Day -1 1.19% cumulative abnormal returns at 10% significance level base on generalized sign test.

Table 3: Mean Cumulative Adjusted and Unadjusted Returns. Day 0 refers to the day of announcement released

	Cumulative Unadjusted Returns (R)			Cumulative Market Model Adjusted Returns		
	R	*Zrank*	*Zsign(+)*	AR	*Zrank*	*Zsign(+)*
-5	1.18	0.0807	0.4686	1.08	0.8416	0.7055
-4	2.82	0.1529	2.2187**	2.65	1.1672	0.7055
-3	1.97	-0.5343	2.2187**	1.67	0.7590	0.7055
-2	0.62	-1.2195	2.2187**	0.20	0.1625	0.7055
-1	1.66	-1.0946	3.9687***	1.19	0.6897	1.7934*
0	0.91	-1.6195	2.2187**	0.37	0.2477	-0.3824
1	1.04	-1.6639*	1.6353*	0.30	0.1788	0.1616
2	2.54	-1.3903	1.6353*	1.41	0.4955	0.7055
3	2.10	-1.5472	1.6353*	0.75	0.3058	-0.3824
4	0.84	-1.9364*	2.2187**	-0.80	-0.1039	0.1616
5	1.69	-1.7472*	1.6353*	0.15	0.1525	0.1616

*Note: Zrank refers to test of significance using Corrado (1989) rank test and Zsign(+) refers to test of significance using Cowan (1992) generalized sign test. *, **, *** refers to 10%, 5 % and 1% levels of significance, respectively.*

5. Conclusions

This paper investigates the capital expenditure decisions of Malaysia listing firms and the announcements impact on shareholder wealth. Overall, we find no significance positive reactions on the day of 14 capital expenditure announcements during the period 2005 – 2010 for industrial products sector in Malaysia. To tackle the nature of developing countries stock exchange that is prompt to non-synchronous trading and small sample sizes, we have employed both generalized sign test Cowan (1992) and rank test (Corrado, 1989) non-parametric tests for the test of significance. Under the assumption that the announcements are a surprise to the market, the market reacted at an insignificance negative - 0.75% raw returns and – 0.83% market model adjusted returns. The finding is inconsistent with previous literature conducted in other countries where significant positive adjusted returns are found to exist on the day of capital expenditure announcements released. By employing both non parametric tests, each exhibited different inferences on the significance of the returns. This implies caution is needed when making inferences base on sole tests of significance.

As this is an exploratory study, the sample size employed is small. Significance inference cannot be made at this point. However, it can be observed that on average, the market exhibited random walk patterns and do not care significantly towards capital expenditure announcements, as documented in previous literature in other countries.

The results exhibited can be due to the small sample size and also the possible similar characteristics shared by the sampled firms being in the same industries.

Furthermore, by employing two methods of tests of significance, different significance results are exhibited. This implies that in future, different measure of tests of significance should be employed for testing the market impact for more robust inferences.

In conclusion, the null cannot be rejected even though the market on average has exhibited negative reaction, but it is not so significantly positive or negative, base on the two non-parametric tests. However, the sign of negativity allows us to further future research in finding out reasons of its inconsistency with previous literature conducted in other countries.

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