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Moderating Effect of Investment Opportunity in the Association of Market Response and Capital Expenditure

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Abstract: This study aims to reveal empirical evidence related to the market response to investment spending associated with investment opportunities, considering that investment opportunities is a crucial factor in capital expenditure decisions. This study used data from the Indonesia Stock Exchange in 2016-2021. The sample is only devoted to large-cap companies because this kind of company concerns investors more. The sample does not exclude the business sector, as in previous studies. Following previous research, investment opportunities are measured by Tobin's Q (TQ); a TQ of more than 1 indicates a higher investment opportunity and vice versa. The results show that the market responds negatively to investment spending, and investment opportunities moderate the market's response to investment spending. In addition, it was revealed that the industrial sector strengthened the influence of investment spending on market response. Therefore, management needs to consider investment opportunities before making investment expenditures to avoid getting caught up in over-investing or under-investing, both of which are detrimental to the company. This study also adds empirical evidence in developing countries where the information gap between management and external parties (markets) is still vast.

Keywords: Investment spending, Investment opportunities, Market response, Large capitalization

Introduction

Empirical evidence on the market response to the announcement of additional capital expenditures has grown significantly in recent years. For example, Woolridge (1988) reported positive and significant market reactions to more than 600 long-term-oriented investment projects announced from 1972 to 1984 in America. The study also noted a significant average return in the announcement period, which was 0.78% per sector. In comparison, Burton et al. (1999) found an increase in stock returns in 499 CAPEX announcements from 1989-1991. These two studies support previous findings by McConnell and Muscarella (1985) on the effect of changes in capital expenditure levels, including highlighting the market response to news of investments made as part of a joint venture. In contrast, Burton et al. (1999) found the mean abnormal return for investments declared as part of a joint venture to be higher than the sample as a whole, particularly in the case of Burton et al. (1999), where the investment made by each company proved to have a negligible impact on equity.

Some researchers added more detailed information related to CAPEX. Burton (2006) examines the effect of capital expenditures on market reactions simultaneously with the announcement of corporate alliances. The

results show that the market response is highest when the new investment is not part of the alliance's activities. The findings are consistent with the scenario that the market is concerned about the dangers of over-commitment from partnerships. Khanal and Mishra (2017) found a significant increase in stock prices when dividends were announced. The increase in stock prices around the announcement date was due to increasing market expectations of future cash flow increases, consistent with the market signaling hypothesis.

Although much research on market response to CAPEX investment news has been conducted, more is needed to know about the role of investment opportunities in the relationship between CAPEX and market response. Investment opportunities are an essential characteristic of companies and significantly influence how companies are viewed by managers, owners, investors, and creditors (Kallapur, 2001). Furthermore, investment opportunities have been shown to theoretically be an important determinant of firm risk characteristics (Miles, 1986; Skinner, 1993), results confirmed empirically by Riahi-Belkaoui (1999). Consistent with what was predicted, Chung et al. (1998) found that capital expenditures were positively and negatively related to stock prices, excluding investment opportunities. Furthermore, Chung et al. (1998) found that the quality of investment opportunities determines the market reaction to investment decisions compared to industry affiliation.

Market responses need to be contextualized within the path of growth opportunities (Brailsford & Yeoh, 2004). Therefore, it is essential to integrate new capital expenditure decisions with growth opportunities when analyzing market reactions. This study will integrate capital expenditure decisions with growth opportunities. Failure to control the aspect of growth opportunities will appear as if the market is not responding or responding negatively to the company's capital expenditure decisions (Brailsford & Yeoh, 2004). Companies with higher investment opportunities will receive a higher value for investors because such companies have a higher probability of success related to their capital expenditure decisions. In addition to accommodating investment opportunities, this research is applied to large-cap companies, considering that large-cap companies are more at the center of investors' attention than small-cap companies. Small-cap companies also experience limited access to internal funding, which is not a problem for large-cap companies (Guariglia & Carpenter, 2008). If these groups of companies are combined, the results will be biased because investors may not care about the capital expenditure decisions of small-cap companies, so they do not respond not because of these decisions but because low-cap companies that make these decisions

Capital Expenditure Decisions and Market Response

The capital market hypothesis argues that when managers use the capital market to obtain external funding, it puts the company in market monitoring. This is because the market will monitor the company's ability to generate profits in the future. On the other hand, management tries to influence market valuations through some corporate actions to impress the company's commitment to continue to grow and generate positive returns (Bae et al., 2018).

Capital expenditure decisions are operational and strategic because of their long-term implications (Kothari et al., 2002; Canace et al., 2018). As a strategic decision, the company will carefully choose which investment provides a commensurate return (Kim et al., 2020). Capital expenditure information provides an essential signal to the market about potential future cash inflows. The act of companies investing their resources in certain capital expenditures is captured as an opportunity to increase value in the future (Kaur & Kaur, 2019). Sophisticated managers will send messages to the market through corporate actions to influence the market's assessment of the company, which less sophisticated managers cannot imitate.

This corporate action signals the company's future growth, in line with the efficient securities market hypothesis, so this information immediately moves to the securities market price. Therefore, an efficient securities market mechanism will test the market reaction to information on capital expenditures made by the company. Previous results support that the market responds to capital expenditure announcements characterized by increasing stock returns around the announcement date (Kerstein & Kim, 1995; Burton et al., 1999; Vafeas & Shenoy,2005; Akbar, 2008; Bhanna, 2008; Luo, 2016). However, some others find that the market responds negatively to the actions of companies doing capital expenditures (Qhandari, 2016; Chen & Chang, 2020).

H1. The market responds positively to capital expenditure

The role of investment opportunities in the relationship between market response and capital expenditure

The company's market value can be identified through the following two things: the present value of assets in place and the value of investment opportunities (Myers, 1977). The value of investment opportunities depends on future investment policies, while the value of assets in place does not. Many previous studies have tried to construct investment opportunities by using the correlation measurement of cash flow and investment (Bond et al., 2004; Cummins et al., 2006). Another alternative is to use Tobin's Q; this alternative is based on the argument that the measurement of Q is more forward-looking and can be captured by market participants who are also naturally forward-looking (Guariglia & Carpenter, 2008).

Several subsequent studies expanded the research on market responses to capital expenditures by considering the role of investment opportunities (Szewczyk et al.,1996; Chen & Ho, 1997; Chung et al.,1998). Using the well-known Q ratio as a proxy for investment opportunities, these studies prove an increase in abnormal returns around the announcement date of capital expenditures in companies with high investment opportunities. However, the market response to capital expenditures on capital expenditures in companies with a negative Q is still not diverse (Chen & Ho, 1997; Chung et al.,1998).

By using a sample of companies classified as big companies whose corporate actions get more attention from market analysts than non-big companies (Botosan, 1997; Sengupta, 1998). This study will examine the moderating impact of opportunity. Investment in the relationship between market response and capital expenditure. Therefore, the hypotheses proposed in this research are:

H2. Investment opportunities moderate the effect of market response on capital expenditures.

Method

Sample

This study aims to identify how the market responds to investment spending with investment opportunities as moderating variable. Capital expenditure is measured by the growth of fixed assets for the current period, with companies whose fixed assets are growing, indicating that capital expenditures are being made. The market response is measured by the market-to-book ratio to evaluate a company's current market value relative to its book value. Investment opportunities are measured by Tobin's Q (TQ). The industrial sector, companies' industrial sales, debt, returns, and competitiveness are important to control variables used in this study. The sample was selected using purposive sampling on large-cap companies listed on the Indonesia Stock Exchange in 2016-2021. The total samples used in this study are 232 company data from six years. The selection of big-cap companies is a sample because big-cap companies are generally more active in making capital expenditures, and this kind of company is more of a concern to investors.

Model Analysis

The proposed model in this study uses market-to-book (MTB) to measure market response to capital expenditure. MTB reflects the market's value to a company's equity relative to the book value and could be used as a predictor of market returns (Pontiff, 1998). The independent variable capital expenditure growth (GCAPEX) is the accumulation of capital spending in the current and previous periods divided by the prior period. Our model then assesses the moderating effect of investment opportunity (TQCAPEX) on the relationship between market response and capital expenditure. The investment opportunity is measured using Tobin's Q, which is percept as a more forward-looking measurement fit with the search for opportunity in future investment (Guariglia & Carpenter, 2008). Tobin's q is arguably the most common regressor in corporate finance and has a usual role as a proxy for investment opportunities (Erickson & Whited, 2012).

The control variables are classified into two groups, these are firm characteristics and operational characteristics. The firm characteristics group consists of control variables related to the firm's identity, which includes variables related to its position in the industry, including capital expenditure, compared to the industry (CAPEXSC), and the firm's sales compared to the industry (SALESSIC). In addition, ownership structure has been known to influence market performance (al Farooque et al., 2020; Madyan et al., 2020; Din et al., 2021;) and also included in the model; namely, the percentage of public-owned shares (PUBLIC) and management owned shares (MANOWNER) (Brailsford & Yeoh, 2004). The rest of the firm characteristics groups also

includes sector, firm size (Corvino et al., 2019; Chen & Chang, 2020; Kim et al., 2021), competition intensity (Javeed et al., 2020; Juniarti, 2020) and reputation of audit firm (REPUTATION) (Al-ahdal & Hashim, 2022).

The second group is operational characteristics which consist of control variables related to the company's operational conditions that reflect the firm's financial condition. These include total investment in the current year (INVESTED), return on asset, return on equity, earning after tax, and debt-to-equity ratio, which are important metrics that influence a company's profitability (Chen & Ho, 1997; Chen & Chang, 2020; Kim et al., 2021).

The research model of this study is as follows:

$$MTB_{i,t} = \beta_0 + \beta_1 GCAPEX_{i,t-1} + \beta_2 TQCAPEX_{i,t-1} + \beta_3 CAPEXSC_{i,t-1} + \beta_4 INVESTED_{i,t-1} + \beta_5 ROA_{i,t-1} + \beta_6 ROE_{i,t-1} + \beta_7 DER_{i,t-1} + \beta_8 FISIZE_{i,t-1} \beta_9 REPUTATION_{i,t-1} + \beta_{10} PUBLIC_{i,t-1} + \beta_{11} MANOWNER_{i,t-1} + \beta_{12} SALESSIC_{i,t-1} + \beta_{13} SECTOR_{i,t-1} + \beta_{14} COMP_{i,t-1} + \varepsilon \quad (1)$$

Dependent Variable:

Market response in this study is proxied by MTB. Market to Book (MTB) compares a company's market value to its book value and reflects the value that the market percept to a company's equity relative to the book value. A stock's market value is a forward-looking metric that reflects a company's future cash flows. The book value of equity is an accounting measure based on the historical cost principle and reflects past equity issuances. Therefore, the ratio of market-to-book values could be used as a predictor of market returns (Pontiff, 1998).

Independent Variable:

Capital Expenditure Growth (GCAPEX) is the accumulation of capital spending in the current and previous periods and then divided by the prior period.

Moderating Variable:

Tobin's Q. measures Investment Opportunity. This measurement is based on the argument that the measurement of investment opportunity using Q is more forward-looking and can be captured by market participants who are also naturally forward-looking (Guariglia & Carpenter, 2008)

Control Variables:

Berikut sejumlah variabel kontrol yang mewakili karakterisktik perusahaan dan karakteristik operasional:

1. Capital expenditure in the industry (CAPEXSC) is the company's capital expenditure on industrial capital.
2. The amount of investment (INVESTED): is the amount of investment for the current year.
3. The return on assets (ROA) with earnings after tax as the denominator is measured by total assets divided by earnings after tax.
4. The return on equity (ROE), with earnings after tax as the denominator, is measured by total equity divided by earnings after tax.
5. Debt to equity ratio (DER) measures a company's risk, obtained from total liabilities divided by total equity.
6. Firm size (FISIZE) shows the company's size and is measured by the log market value of equity.
7. The type of audit firm (REPUTATION) refers to the quality of auditor used by the company, whether big four or non-big four.
8. Public ownership (PUBLIC) is the percentage of publicly owned shares measured by publicly owned shares divided by total shares.
9. Managerial ownership (MANOWNER) is the percentage of management-owned shares
10. Sales industry (SALESSIC) refers to a firm's sales compared to its industry.
11. The industrial sector (SECTOR) is the industrial sector of the firm sample.
12. The market competitiveness (COMP) shows the competitive level in the industry, the measurement was adopted from the Herfindahl index (HHI) using the following formula (Li et al., 2008).

$$HHI_{it} = S1^2 + S2^2 + S3^2 + \ldots + Sn^2$$

where:

S1; S2 . . . Sn = market share of a firm in a similar industry.

Results and Discussion

The profiles of the research variables are presented in Table 1 below. The average CAPEX is positive, this indicates that the sample companies have continuously made capital expenditures in the last five years. The average sample has a reasonably high growth opportunity; this is indicated by the mean TQ value, which is close to 1. The company makes a reasonably high investment expenditure in the current year, as indicated by the high mean LOGINVEST value. In general, the sample companies can generate a high return on equity, which is 0.142 and 0.07 for the return on total assets. The composition of debt to equity needs attention because the mean DER value is close to 0.50, which means that, on average, the company's leverage is protected by equity. The average sample company provides broad opportunities for managers and the public to own a company. The level of competition in all industrial sectors is very tight with an average HH Index of 0.05.

Table 1. Descriptive analysis

	N	Minimum	Maximum	Mean	Std. Deviation
GCAPEX	232	-0,299	1,676	0,106	0,204
TQ	232	0,604	1,236	0,919	0,109
LOGINVEST	230	9,000	12,000	10,426	0,538
ROA	232	-0,141	0,498	0,066	0,090
ROE	232	-0,285	1,451	0,142	0,219
DER	232	0,000	5,155	0,459	0,622
FSIZE	232	9,461	12,237	10,725	0,575
MANOWNER	232	0,470	0,980	0,690	0,145
PUBOWNER	232	0,020	0,530	0,311	0,145
SALESSIC	232	0,000	1,000	0,172	0,209
COMP	232	0,034	0,254	0,057	0,046

The results of hypothesis testing are presented in Table 2 below. Hypothesis 1 states that the market responds positively to capital expenditures; the test results show the opposite, where the market responds negatively to capital expenditures. The t value is significantly negative at the level <0.01. Apart from the results of a number of previous studies which found that the market responded positively to capital expenditure activities, the results of this study contradicted a number of previous studies. The findings of this study add to the diversity of previous research results, some of which found positive results (Kerstein & Kim, 1995; Burton et al., 1999; Vafeas & Shenoy,2005; Akbar, 2008; Bhanna, 2008; Luo, 2016) and others found negative results (Qhandari, 2016; Chen & Chang, 2020).

Testing hypothesis 2, that investment opportunities moderate the market response to capital expenditure measures is proven. CAPEX conducted by companies that have high investment opportunities responded positively to the market and vice versa. The test results show the TQCAPEX moderating coefficient with a positive coefficient value (0.070) and significant at the <0.1 level, meaning that investment opportunities moderate the effect of capital expenditure on market response. This finding contributes to the diversity of the results of previous studies, where capital expenditures are responded positively or negatively by the market. The results of this study confirm that the market is considering investment opportunities. Companies that have high investment opportunities indicate a high success rate of investment decisions compared to companies with low investment opportunities.

The managerial implication of this finding is that the market responds to capital expenditure actions by paying attention to future growth opportunities. Capital expenditures cannot cover market concerns about the company's future performance for companies in a declining industry. Capital expenditures under conditions of low investment opportunities are counterproductive. Investment expenditure must be proportional to the company's ability to generate revenue in the future.

Table 2. Hypothesis results

	Coefficient	t-stat	p	
Constant	3.471	0,626	0,532	
GCAPEX	-0,113	-3,033	0,003	***
CAPEXSC	0,070	1,869	0,063	*
TQCAPEX	0,034	1,684	0,094	*
INVESTED	0,051	0,924	0,356	
ROA	0,132	2,702	0,007	***
ROE	-0,092	-2,247	0,026	**
DER	0,975	43,753	0,000	***
FISIZE	0,038	0,928	0,355	
REPUTATION	-0,033	-1,639	0,103	
PUBLIC	-0,697	-0,497	0,620	
MANOWNER	-0,730	-0,520	0,604	
SALESSIC	-0,308	-5,762	0,000	***
SECTOR	-0,068	-2,793	0,006	***
COMP	0,270	4,858	0,000	***
Adj R2		0,923		
F		179,673	0,000	***
Dependent variable: MTB				

This study has several limitations; it does not distinguish whether the sample is in a growth or decline phase. The phase of the life cycle can affect the company's investment opportunities. Macroeconomic indicators also can influence the market response to capital expenditures, so macro aspects need to be considered in addition to company characteristics. Issues that have not been covered in this study leave an opportunity for future research.

Conclusion

This study examines investment opportunities as a moderator in the effect of market response on capital expenditures. The research sample is specifically for large-cap companies on the Indonesia Stock Exchange. The test results prove that the market responds negatively to capital expenditures, which is consistent with a number of previous studies. Furthermore, this study proved that investment opportunities moderate the effect of market response on capital expenditures.

This finding provides critical implications for managers to consider the company's investment opportunities when making capital expenditures. First, the market appreciates capital expenditures from companies with good investment opportunities. Conversely, investment spending in conditions of low investment opportunities will be counterproductive.

This research model has included many control variables related to company-specific and operational characteristics. However, this study has yet to include macroeconomic indicators that have the potential to influence market response, such as industry prospects and inflation index. Future research can address these issues, thus providing more complete results.

Scientific Ethics Declaration

The authors declare that the scientific ethical and legal responsibility of this article published in EPESS journal belongs to the authors.

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