Market Response to Policy Announcements: An Analysis of Capital Market Reactions to the Introduction of Battery Electric Vehicle Incentives in Indonesia

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ABSTRACT

Information entering the market can influence investor behavior, as reflected in abnormal returns and fluctuations in trading volume activity. This study aims to analyze the market's reaction to the announcement of Minister of Finance Regulation Number 38 of 2023. Drawing on the efficient market hypothesis, specifically the semi-strong form, this research employs an event study methodology over a 15-day window (t-7 to t+7). The sample consisted of 10 companies within the automotive and components subsectors, evaluated using one-sample t-tests, one-sample Wilcoxon signed-rank tests, and paired-sample Wilcoxon signed-rank tests. The findings revealed significant abnormal returns and changes in trading volume activity surrounding the announcement. These outcomes suggest that the market perceived the announcement positively, significantly impacting investor reactions.

Keywords: Capital market reactions; government regulations; battery electric vehicles; abnormal return; trading volume activity.

Reaksi Pasar Modal Terhadap Pengumuman Kebijakan Insentif Kendaraan Bermotor Listrik Berbasis Baterai di Indonesia

ABSTRAK

Informasi yang masuk ke pasar mampu memengaruhi reaksi investor yang dicerminkan dengan adanya abnormal return dan perubahan trading volume activity. Penelitian ini bertujuan untuk menganalisis reaksi pasar terhadap pengumuman PMK No. 38 Tahun 2023. Penelitian ini bertumpu pada grand theory efficiency market hypothesis, khususnya efisiensi pasar bentuk setengah kuat yang dianalisis menggunakan event study selama 15 hari (t-7 hingga t+7). Sampel penelitian ini adalah 10 perusahaan subsector otomotif dan komponen yang dianalisis menggunakan one sample t-test, one sample Wilcoxon signed rank test, dan paired sample Wilcoxon signed rank test. Hasil penelitian menunjukkan terdapat abnormal return dan perubahan trading volume activity yang signifikan di sekitar pengumuman peristiwa. Hasil ini mengindikasikan bahwa pengumuman dianggap sebagai good news sehingga mampu mempengaruhi reaksi pasar secara signifikan.

Kata Kunci: *Reaksi pasar modal; peraturan pemerintah; kendaraan bermotor listrik berbasis baterai; abnormal return; trading volume activity*

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INTRODUCTION

Intergovernmental Panel on Climate Change (2022) in its Sixth Assessment Report highlighted that Indonesia recorded the most substantial rise in global net carbon emissions from 1990 to 2018. Notably, Chapter 10 of the report underscores that transportation ranks as the fourth-largest source of greenhouse gas emissions globally, trailing behind the energy, industry, and agriculture, forestry, and land use sectors. Within the transportation domain, land vehicles—specifically, private vehicles (40%) and trucks (30%)—are the principal emitters of carbon dioxide, the predominant greenhouse gas.

In response to these challenges, there is a pressing need for concrete measures to curb greenhouse gas emissions within the transportation sector. Transitioning to renewable energy sources and diversifying from fossil fuels to electric energy for vehicles emerge as viable strategies. The development and adoption of electric motorized vehicles, recognized for their relatively low emissions, represent a promising alternative (Jones, 2019). Milev et al. (2021) articulate the benefits of electric cars, noting their efficient energy use and zero-emission production. Moreover, Nerlinger & Utz (2022) argue that with fossil fuels contributing to a quarter of all global emissions of ozone-depleting substances, the shift towards renewable energy sources is essential.

The demand and adoption of battery electric vehicles (BEVs) are anticipated to rise progressively. This is evidenced by a marked surge in electric vehicle sales globally, which saw BEV sales more than triple over three years, increasing from approximately 4% in 2020 to 14% in 2022 (International Energy Agency, 2023). Correspondingly, data from the Indonesian Automotive Industry Association (Gaikindo) indicates a significant uptick in BEV purchases in Indonesia, with a 2,851% increase from 2019 to 2023 (Putri, 2023).

Government initiatives aimed at bolstering the development and production of BEVs are crucial to making these vehicles more appealing to consumers. Plananska et al. (2023) suggest that policies tailored to a country's cultural nuances could enhance the efficiency of electric vehicle adoption. Traditional interventions, such as financial incentives, tax reductions, and the expansion of charging infrastructure, remain pivotal in addressing the principal obstacles to electric vehicle adoption (Plananska et al., 2023).

On April 1, 2023, the Indonesian government enacted Minister of Finance Regulation (MFR) Number 38 of 2023, focusing on the provision of Value Added Tax (VAT) exemptions for the purchase of BEVs that meet specific criteria (Menteri Keuangan RI, 2023). This regulatory measure serves as an extension of Presidential Regulation No. 55/2019 on Accelerating the BEV Program, particularly Article 3, which stipulates that the BEV program's acceleration can be facilitated through tax incentives. The introduction of such incentives is expected to stimulate BEV purchases and usage, thereby accelerating the transition from fossil fuels to more sustainable energy sources.

Various information releases and new policy announcements can significantly influence capital market reactions, which can be measured by abnormal returns (AR) and changes in trading volume activity (TVA) (Fama, 1970). If investors perceive the incoming information as favorable, it may lead to an increase or decrease in TVA, affecting the company's returns, subsequently

causing a positive AR, and vice versa. The provision of tax subsidies through specific regulations may boost demand for electric vehicles and their parts and components, potentially impacting the prospects of companies within the automotive and components subsectors—those most directly associated with these regulations.

Several prior studies have explored capital market responses to external company information in the form of government regulations or decisions, such as the research conducted by Hanindipto et al. (2022), Aldhepis et al. (2022), Borghesi et al. (2022), and Safitri et al. (2019), which, demonstrated significant AR or changes in TVA surrounding the announcement of government policies. Conversely, findings from Pham et al. (2023), Anggara & Andari (2022), Sri Utami & Purbawangsa (2021), and Ardani (2019) suggest no significant AR or TVA changes around the time of government policy announcements. This discrepancy highlights that community response to government regulations and policy enactments is still mixed.

According to the Efficient Market Hypothesis proposed by Fama (1970), information entering the market should reveal a significant reaction, as evidenced by AR. The variance between previous study outcomes and established theories underscores the need for further investigation. This research aims to determine whether the market responds to the announcement of Minister of Finance Regulation (MFR) Number 38 of 2023, as indicated by significant AR.

Furthermore, this study seeks to examine the presence of Abnormal Return and any differences in Trading Volume Activity surrounding the announcement of battery-based electric motor vehicle (BEV) incentive policies in Indonesia. Given that research related to BEV incentives, particularly the announcement of MFR Number 38 of 2023, has not been previously conducted, this study is poised to offer new insights into the effectiveness of these incentive policies by analyzing market reactions around the policy announcements.

The detection of Abnormal Returns (AR) following the dissemination of external information, such as government policy announcements, signifies that such announcements contain information capable of eliciting market responses. According to the Efficient Market Hypothesis (EMH), the dissemination of an announcement is anticipated to exert a substantial impact, manifested either as a positive or negative AR. Previous studies by Borghesi et al. (2022), Liu et al. (2022), Petrakis et al. (2022), Yulane Talumewo et al. (2021), Gbanador (2021), Antoniuk & Leirvik (2021), Ding et al. (2020), Vinod et al. (2020), and Nirajenani & Merkusiwati (2018) have identified significant ARs following policy announcements. Conversely, research by Suryani & Noviari (2023), Lelengboto & Suwena (2022), Sri Utami & Purbawangsa (2021), Gani et al. (2021), and Gursida & Indrayono (2019) indicates the absence of significant ARs resulting from policy announcements. Given the theoretical underpinnings of the EMH and the disparities among various studies concerning policy announcements, this research will investigate the presence of significant ARs surrounding the announcement of Minister of Finance Regulation (MFR) Number 38 of 2023.

H_1: There is a significant AR around the announcement of MFR Number 38 of 2023.

Changes in Trading Volume Activity (TVA) are reflective of investor interest in executing transactions following a policy announcement. An uptick in TVA may suggest that the market perceives the announcement as having a significant potential impact on the company, while a downturn in TVA could indicate investor belief in the announcement's capacity to deliver anticipated benefits, thus influencing a reduction in TVA (Li et al., 2022). An announcement is expected to significantly influence TVA, either by amplifying or diminishing it around the event. Previous research by Suryani & Noviari (2023), Alexakis et al. (2023), Yulane Talumewo et al. (2021), Indrayuda & Sukartha (2019), Putra & Wirawati (2019), and Boonvorachote & Lakmas (2016) has documented significant changes in TVA due to policy announcements. In contrast, studies by Pham et al. (2023), Tanza et al. (2023), Fauziah & Venusita (2021), and Ardani (2019) have found no significant changes in TVA following policy announcements. Leveraging the EMH framework and addressing the research gaps related to policy announcements, this study will assess whether significant changes in TVA occur in conjunction with the announcement of MFR Number 38 of 2023.

H_2: There is a significant change in TVA around the announcement of MFR Number 38 of 2023.

RESEARCH METHOD

This study addresses two primary questions: whether there are Abnormal Returns (AR) and whether there are differences in Trading Volume Activity (TVA) surrounding the announcement of battery-based electric motor vehicle incentive policies in Indonesia. It is grounded in the Efficient Market Hypothesis, focusing on the semi-strong form of market efficiency, and utilizes an event study methodology. The event study analysis considers AR and TVA as variables that are expected to be significantly impacted by the announcement of Minister of Finance Regulation (MFR) Number 38 of 2023. Data collection for this study was conducted through a non-participant observation method, with sampling via a non-probability sampling method and the purposive sampling technique. The sample comprises 10 automotive and component subsector companies listed on the Indonesia Stock Exchange (IDX): Multi Prima Sejahtera Tbk, Garuda Metalindo Tbk, Indo Kordsa Tbk, Goodyear Indonesia Tbk, Gajah Tunggal Tbk, Indospring Tbk, Multistrada Arah Sarana Tbk, Prima Alloy Steel Universal Tbk, Selamat Sempurna Tbk, and Astra Otoparts Tbk.

MFR Number 38 of 2023 was officially announced on April 1, 2023, via the Ministry of Finance's official website. However, as April 1, 2023, was not a trading day, the study designated April 3, 2023, as the event date. The observation period or event window spans 15 trading days, encompassing 7 days before the announcement (t-7) starting on March 21, 2023, through to 7 days after the announcement (t+7) on April 13, 2023. This 15-day event period aligns with previous studies, such as those by Shafiq & Qureshi (2022), Susanti & Ery Setiawan (2019), and Ghani & Chaudhary (2017).

For the AR variable, this study performs descriptive statistics, normality tests, and significance tests using AR and Cumulative Abnormal Return (CAR) as proxies within the 15-day event window. Furthermore, a robustness check will be conducted through a normality test and a paired sample test on Pre-Event II and

Post-Event II, utilizing the CAR proxy. To facilitate a deeper understanding of the AR test period, an illustrative diagram (referred to as Figure 1) is provided.

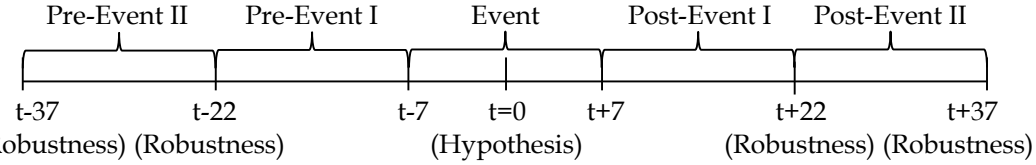

Figure 1. Abnormal Return Variabel Test Period

Source: Data processed, 2024

In the academic analysis of financial markets, the calculation of Abnormal Returns (AR) is pivotal for understanding market reactions to specific events, such as policy announcements. This study employs a set of formulas to determine the variables related to AR, including the Actual Return, Expected Return, Abnormal Return, and Cumulative Abnormal Return (CAR). The methodology for calculating these variables is outlined below. The Actual Return is the real return observed on a stock or portfolio over a specific period. It is calculated using the formula:

$$R_{i,t} = \frac{(P_{i,t} - P_{i,t-1})}{P_{i,t-1}} \quad \text{.....(1)}$$

Where:

$R_{i,t}$ = Actual Return of the i-th company in the t-th event period
$P_{i,t}$ = Stock price of the i-th company in the t-event period
$P_{i,t-1}$ = Stock price of the i-th company in the t-1 event period

Similarly, the Expected Return value is calculated using the Capital Asset Pricing Model (CAPM), as follows:

$$E[R_{i,t}] = R_f + \beta_i[R_{m,t} - R_f] \quad \text{.....(2)}$$

Where:

$E[R_{i,t}]$ = Expected return of the i-th company in the t-th period
R_f = The rate of return on risk-free assets
β_i = beta of the t-th company
$R_{m,t}$ = Market index return in the tth period

This research employs the Capital Asset Pricing Model (CAPM) to calculate the Expected Return due to its recognized accuracy in formulating expected returns. This approach is corroborated by studies from Sindhuarta et al. (2023), Zhao (2022), Bandawaty (2020), and Safitri et al. (2019).

The Abnormal Return (AR) value is determined using the following formula:

$$AR_{i,t} = R_{i,t} - E[R_{i,t}] \quad \text{.....(3)}$$

Where:

$AR_{i,t}$ = Abnormal Return of the i-th company in the t-th period
$R_{i,t}$ = Actual Return of the i-th company in the t-period
$E[R_{i,t}]$ = Expected Return of the i-th company in the t-period

The cumulative abnormal return value calculated using the following formula:

$$CAR_i = \Sigma_{t=-n}^{t=+n} AR_i \quad \text{.....(4)}$$

Where:

CAR_i = Accumulated abnormal return of i-th company
AR_i = Abnormal return of the i-th company

In this study, the analysis of the Trading Volume Activity (TVA) variable includes descriptive tests using TVA and Average Trading Volume Activity (ATVA) as proxies within a 15-day event window. To determine significant differences, a t-test will be conducted to compare the Event period with both Pre-Event I and Post-Event I, using the ATVA proxy for these comparisons. Furthermore, a robustness check will involve a normality test and a comparative analysis between the Event period and both Pre-Event II and Post-Event II periods. This robustness assessment for the TVA variable utilizes the ATVA proxy. An illustrative diagram (referred to as Figure 2) is provided for a clearer understanding of the TVA test period.

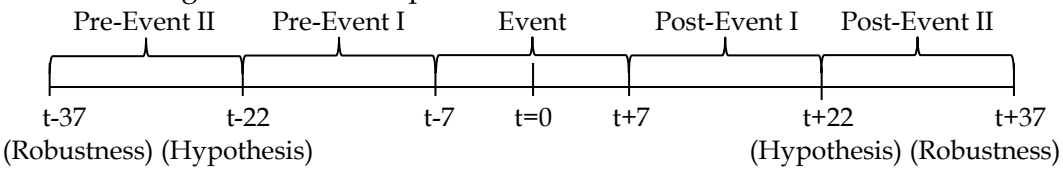

Figure 2. Trading Volume Activity Variabel Test Period

Source: Data processed, 2024

In this study, the methodology for analyzing the Trading Volume Activity (TVA) variable involves two key calculations: the determination of the Trading Volume Activity value and the computation of the Average Trading Volume Activity value. The formula for calculating the Trading Volume Activity (TVA) value is as follows:

$$TVA_{i,t} = \frac{\text{stock that trade on day t}}{\text{stock that revolved on day t}} \quad \ldots\ldots(5)$$

Where:

$TVA_{i,t}$ = Trading volume activity of the i-th stock on day t

Consistently, the Average Trading Volume Activity (ATVA) value is calculated using the following formula:

$$ATVA_{i,t} = \frac{\sum_{i=1}^{N} TVA_{i,t}}{N} \quad \ldots\ldots(6)$$

Where:

$ATVA_{i,t}$ = Average trading volume activity on day t

$TVA_{i,t}$ = Trading volume activity of the i-th stock on day t

N = Number of security samples

RESULT AND DISCUSSION

The announcement of the battery-based electric motor vehicle incentive policy can be considered to contain significant information if it triggers a market reaction, as reflected by Cumulative Abnormal Returns (CAR), a proxy used to measure the capital market's reaction (Suryani & Noviari, 2023). An Abnormal Return (AR) with a positive value suggests a positive market reaction, indicating that the information is perceived as favorable and thus likely to increase the company's stock price, leading to an increase in AR value. Conversely, an AR with a negative value signifies a negative market reaction, implying that the information is perceived as unfavorable and likely to decrease the company's stock price, resulting in a decrease in AR value. The presence of significant AR, whether positive or negative, around the event indicates that the market responds to the announcement of government regulations (Anggara & Andari, 2022). Moreover,

the existence of AR suggests that investors have the opportunity to generate abnormal returns during policy announcement periods (Antoniuk & Leirvik, 2021).

Table 1 Cumulative Abnormal Return Signification Test

	Sig. Value	Description	Test Method
CAR Pre-Event II (Robustness Test)	0.333	Insignificant	Wilcoxon
CAR Pre-Event I (Robustness Test)	0.575	Insignificant	Wilcoxon
CAR Event (Hypothesis Test)	0.022	Significant	Wilcoxon
CAR Post-Event I (Robustness Test)	0.043	Significant	T-test
CAR Post-Event II (Robustness Test)	0.415	Insignificant	T-test

Source: Data Processed, 2024

The test results, utilizing the Cumulative Abnormal Returns (CAR) proxy as presented in Table 1, indicate that Indonesian investors quickly and accurately respond to the announcement of Minister of Finance Regulation Number 38 of 2023. The presence of significant CAR values during the event period suggests that the announcement of the Battery-Based Electric Motor Vehicle Incentive Policy conveys valuable information, thereby eliciting a significant market reaction, as evidenced by the significant CAR. This outcome further demonstrates the market's capacity to anticipate and analyze the implications of the announcement swiftly and accurately, as reflected by the significant CAR surrounding the policy announcement.

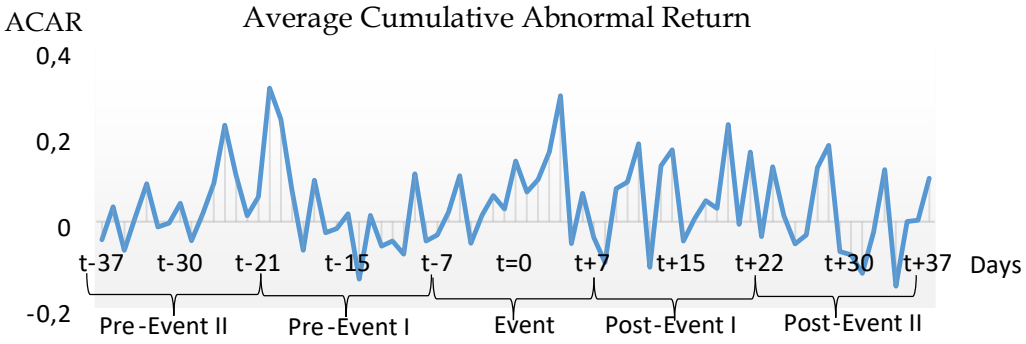

Figure 3. Average Cumulative Abnormal Return Graphic
Source: Data Processed, 2024

As illustrated in Figure 3, the Cumulative Abnormal Returns (CAR) during the Event period (t-7 to t+7) exhibit a notably high value in comparison to the period preceding the event, particularly Pre-Event I. The Abnormal Returns (AR) peaked on the third and fourth days following the announcement, with this trend persisting into the Post-Event I period. The significant contributors to the highest AR during the Event were Goodyear Indonesia Tbk., Multistrada Arah Sarana

Tbk., and Prima Alloy Steel Universal Tbk. Notably, Goodyear Indonesia Tbk. has emerged as a leader in the Asia Pacific region for manufacturing tires specifically designed for electric vehicles. Simultaneously, Prima Alloy is intensifying its efforts to supply the necessary equipment and components for electric cars.

Table 2 Abnormal Return Signification Test

Event Period	Sig. Value	Description	Test Method
t-7	0.456	Insignificant	t-test
t-6	0.528	Insignificant	t-test
t-5	0.030	Significant	t-test
t-4	0.070	Insignificant	t-test
t-3	0.878	Insignificant	Wilcoxon
t-2	0.360	Insignificant	t-test
t-1	0.241	Insignificant	Wilcoxon
t=0	0.013	Significant	Wilcoxon
t+1	0.386	Insignificant	Wilcoxon
t+2	0.646	Insignificant	Wilcoxon
t+3	0.110	Insignificant	t-test
t+4	0.721	Insignificant	Wilcoxon
t+5	0.959	Insignificant	Wilcoxon
t+6	0.631	Insignificant	t-test
t+7	0.721	Insignificant	Wilcoxon

Source: Data Processed, 2024

Table 2 reveals the presence of significant Abnormal Returns (AR) during the observation period, notably in the event period five days before the announcement (t-5) and on the announcement date itself (t=0). The statistical test results and the processed data align with the semi-strong form of the Efficient Market Hypothesis, which posits that external company information, such as government announcements, impacts sectors closely related to the announcement. This finding is consistent with the perspective offered by Wicki et al. (2022), which underscores the importance of government actions in supporting the acceleration of Battery Electric Vehicle (BEV) development to stimulate consumer interest and adoption.

Investors perceive the announcement of Minister of Finance Regulation Number 38 of 2023 as indicative of good prospects and potential for future profit generation, thereby increasing trading activity and resulting in notably high and positive AR. This study's outcomes align with Borghesi et al. (2022), which examined the impact of environmentally friendly policies on the stock market and found that policy announcements can positively shift perspectives, contributing to positive Cumulative Abnormal Returns (CAR) stemming from the policy. Similarly, research by Aldhepis et al. (2022) on capital market reactions to a tax amnesty policy illustrated that such policy announcements are received as good news, fostering a positive public perception and leading to significant AR. Additionally, Petrakis et al. (2022) explored the effects of monetary policy intervention, indicating that conventional monetary policies influence market reactions, as evidenced by significant CAR around the announcement. Research by Vinod et al. (2020) on the impact of monetary policy announcements on the Indian stock market also highlighted significant Average Abnormal Returns (AAR) and Cumulative Average Abnormal Returns (CAAR).

These findings validate the first hypothesis that there is a significant AR surrounding the policy announcement, indicating that the market positively responds to the announcement of MFR Number 38 of 2023, reflecting investor optimism about the prospects and profitability of such policy initiatives.

The detection of Abnormal Returns (AR) is accompanied by alterations in Trading Volume Activity (TVA). The disclosure of Minister of Finance Regulation Number 38 of 2023 is perceived as a pivotal event capable of stimulating investor engagement in stock trading. The enactment of this policy facilitates a shift towards more sustainable energy sources, thereby unveiling promising prospects, particularly for the automotive sector and its ancillaries (Borghesi et al., 2022). A surge in investor enthusiasm for share trading is observable, attributed to the dissemination of information that has the potential to influence market efficiency in a semi-strong form. This influence is manifested through observable changes in TVA surrounding the announcement event.

Table 3 Average Trading Volume Activity Signification Test

	Asymp.Sig (2 Tailed)	Description	Test Method
ATVA Pre-Event II - ATVA Event (Robustness Test)	0.001	Significant	Wilcoxon
ATVA Pre-Event I - ATVA Event (Hypothesis Test)	0.031	Significant	Wilcoxon
ATVA Event – ATVA Post-Event I (Hypothesis Test)	0.394	Insignificant	Wilcoxon
ATVA Event – ATVA Post-Event II (Robustness Test)	0.691	Insignificant	Wilcoxon

Source: Data Processed, 2024

The results of the Average Trading Volume Activity (ATVA) statistical test comparing the Event period with the 15 days preceding the Event (Pre-Event I), as presented in Table 3, reveal a significant difference. The ATVA value during Pre-Event I was 0.00725, while during the Event, it increased to 0.01852. This significant increase demonstrates that the announcement of Minister of Finance Regulation Number 38 of 2023 positively impacts the stock trading activities of companies within the automotive and components subsector, as indicated by the notable difference between Pre-Event I and the Event period.

Conversely, the ATVA statistical test comparing the Event period with the 15 days following the Event (Post-Event I) indicates no significant difference. The processed data shows that the ATVA value during Post-Event I was 0.02218, compared to 0.01852 during the Event. This outcome suggests that the market's enthusiastic response to the announcement persists, attributed to the policy's applicability from the tax period of April to December 2023.

The difference test utilizing the ATVA proxy supports the initial hypothesis, demonstrating that there is a significant change in TVA around the policy announcement. The data depicted in Picture 4 highlights an increase in ATVA from the Event period extending to 15 days after the Event (Post-Event I).

This trend underscores the swift response of investors to policy announcements, indicating their readiness to act upon new information.

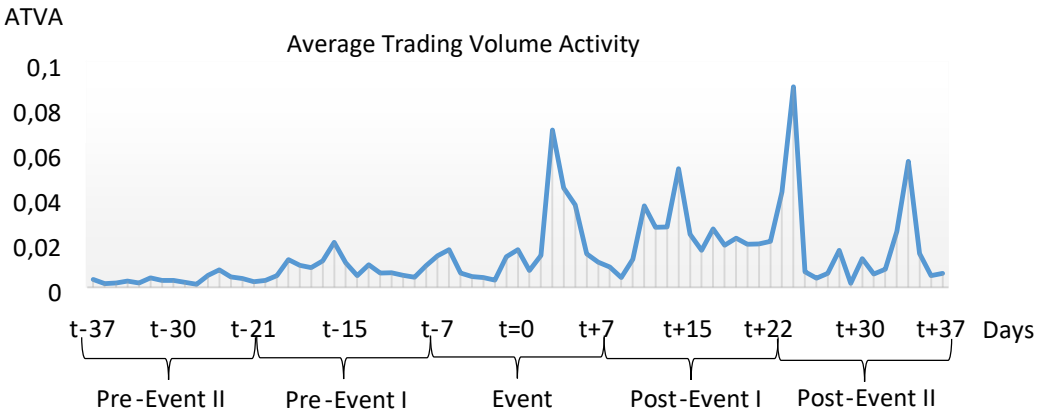

Figure 4 Average Trading Volume Activity Graphic

Source: Data Processed, 2024

As depicted in Picture 4, the Average Trading Volume Activity (ATVA) during the Event period (t-7 to t+7) exhibits a significant change from the period before the Event (Pre-Event II and Pre-Event I). The most pronounced increases are observed 3 days and 24 days after the announcement. This pattern suggests that investors are actively evaluating the announcement's implications and potential future opportunities (Suryani & Noviari, 2023), leading to the most substantial increases in ATVA shortly after the announcement has been processed. The ATVA data correspond with Cumulative Abnormal Returns (CAR) findings, indicating that the highest CAR values during the event period occur 3 and 4 days post-announcement. This is corroborated by the highest ATVA increases noted on the 3rd and 4th days following the announcement within the Event period. Prima Alloy Steel Universal Tbk. is identified as the company contributing the most to the TVA value on these days and is also among the entities recording the highest AR values.

The observed increase in Average Trading Volume Activity (ATVA) is attributed to the market's perception that the announcement of Minister of Finance Regulation Number 38 of 2023 significantly impacts companies within the automotive and components subsector. The policy is seen as having substantial potential to influence the prospects and performance of companies in this industry, thereby altering investors' perspectives and their interest in engaging in stock trading. The test results for the TVA variable align with the semi-strong form of the Efficient Market Hypothesis, which posits that the announcement of MFR Number 38 of 2023 constitutes information capable of influencing market efficiency, as demonstrated by the significant difference between the Pre-Event and Event periods. This variance arises from investors' anticipation of potential future profit increases due to the policy announcement. The processed data further supports this, showing that the ATVA value during the Event exceeds that of the Pre-Event I, suggesting that the announcement of MFR Number 38 of 2023 precipitates a market reaction, evidenced by a significant change in ATVA. The

analysis confirms the second hypothesis, asserting significant changes in TVA around the policy announcement.

This study's findings resonate with those of Suryani & Noviari (2023), who examined capital market reactions to the announcement of incentive policies on luxury goods and found that such announcements stimulate investor interest in purchasing shares of related companies, leading to significant changes in TVA. Additionally, research by Aldhepis et al. (2022) on capital market reactions to tax amnesty for banking companies indicated that the policy is perceived as positive news, catalyzing investors' willingness to engage in stock trading within the banking sector.

To mitigate the influence of AR resulting from events other than the announcement of Minister of Finance Regulation Number 38 of 2023, researchers segmented the observation period into Pre-Event and Post-Event phases. The Cumulative Abnormal Returns (CAR) analysis in both Pre-Event I and Pre-Event II periods revealed no significant CAR, affirming that the market reaction during the event period was specifically attributable to the announcement of MFR Number 38 of 2023, and not conflated with other events. Conversely, the CAR analysis in Post-Event I indicated a significant CAR, suggesting prolonged market enthusiasm following the announcement. The sustained significant CAR from the Event through to Post-Event I period is attributed to the announcement's potential to positively impact future prospects, thereby enticing investors to purchase shares, significantly affecting CAR. This observation aligns with the semi-strong form of the Efficient Market Hypothesis, which posits that the announcement of MFR Number 38 of 2023 constitutes market-efficient information, as evidenced by the presence of AR surrounding the announcement.

Further, the CAR testing in Post-Event II indicated an absence of significant CAR, with data in Picture 3 showing a decrease in CAR values, hence no significant CAR during Post-Event II (Gbanador, 2021). This decline is attributed to the market's swift absorption and response to policy announcement information, resulting in the absence of significant AR in Post-Event II. The robustness test outcomes affirm the CAR observed around the Event and Pre-Event I periods was indeed triggered by the announcement of MFR Number 38 of 2023. These robustness test results ensure that the detected significant CAR is not incidental or swayed by external variables potentially affecting the analysis.

To mitigate the influence of Trading Volume Activity (TVA) attributable to events other than the announcement of Minister of Finance Regulation Number 38 of 2023, researchers segmented the observation period into Pre-Event II and Post-Event II for robustness testing. This segmentation aims to verify that the observed reactions are specifically in response to the announcement of MFR Number 38 of 2023, without interference from external events. The robustness test, employing the Average Trading Volume Activity (ATVA) proxy, revealed a significant difference between Pre-Event II and the Event period. This finding aligns with the results of hypothesis testing, which also indicated a significant difference between Pre-Event I and the Event. The data illustrated in Picture 4 further corroborates that the ATVA value during the Pre-Event is markedly lower than that during the Event period. These outcomes validate that the market's reaction is directly

attributable to the announcement of MFR Number 38 of 2023, and not diluted by concurrent external events.

Additionally, the robustness testing comparing the Event period with Post-Event II, using the ATVA proxy, found no significant difference. This parallels the hypothesis test findings, where no significant difference was observed between the Event and Post-Event I period, suggesting prolonged market enthusiasm following the announcement. This prolonged effect is further confirmed by robustness tests using the Cumulative Abnormal Returns (CAR) proxy, which also detected no significant difference in Post-Event II, indicating that market enthusiasm for the policy announcement subsided after Post-Event I.

Based on these robustness test results, it can be concluded that the variance in ATVA between the Event and Pre-Event periods is directly caused by the announcement of MFR Number 38 of 2023. The robustness testing ensures that the identification of significant ATVA changes is not incidental or swayed by external factors that could impact the results.

CONCLUSION

Based on the test results and analyses, the significant Cumulative Abnormal Returns (CAR) and Average Trading Volume Activity (ATVA) values demonstrate that investors are assessing future risks and profits in light of the announcement of Minister of Finance Regulation No. 38 of 2023. This anticipation is reflected in significant metric values around the time of the announcement, evidencing investor actions in response to the policy. The study's outcomes vividly illustrate the market's reaction to the implementation of this policy, particularly the incentives for motor vehicle purchases, highlighting its impact on the risk and profit projections within the automotive subsector and its ancillaries. Both sets of test results affirm the research hypotheses, indicating the presence of significant Abnormal Returns (H1) and substantial changes in Trading Volume Activity (H2) surrounding the policy announcement, thereby supporting both hypotheses.

The robustness tests further confirm that the significant CAR and ATVA values are directly attributable to the announcement of Minister of Finance Regulation No. 38 of 2023. These tests validate that the significant findings are not coincidental or influenced by external variables that could skew the results. Moreover, this research aligns with the semi-strong form of the Efficient Market Hypothesis, underscoring that the announcement is a piece of information capable of influencing market efficiency.

Given these findings and conclusions, the study recommends that investors consider the announcement of Minister of Finance Regulation No. 38 of 2023 and similar events as opportunities to achieve above-average profits in the capital market. Furthermore, it suggests that future research on market reactions to similar information, especially regarding government policies, should employ the same testing methodology. This approach has proven effective in validating the semi-strong form of the Efficient Market Hypothesis with accuracy.

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