

## Market Anomaly (*January Effect*) in the Indonesian Capital Market

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### ABSTRACT

The company's strategy to improve its financial performance is to sell stocks that are expected to incur losses. This study uses secondary data on closing stock prices on the Indonesia Stock Exchange (IDX30) for the study period of 2020 to 2024. The January effect occurs when there is a difference in return values in January compared to other months. The variables used in this study include stock returns, abnormal returns, and trading volume activity. A company's strategy to improve its financial performance involves divesting stocks projected to incur losses at low prices at the end of the year and repurchasing large amounts, boosting the prices of stocks deemed to have good future prospects. The market anomaly discussed in this study is the January Effect. Investors and financial managers will divest stocks projected to incur losses. Another reason is to reduce taxes on stock ownership. When January is optimistic and data analysis is strong, they will repurchase large amounts, boosting the prices of stocks deemed to have good future prospects. This study was conducted to determine the best ARIMA model for the January Effect anomaly, reflecting the differences in stock returns in January compared to other months for companies listed on the Indonesia Stock Exchange (IDX). The dynamic market conditions in each research period illustrate the need for a study on testing market anomalies in the Indonesian Capital Market by providing important information regarding the potential and a real picture of the prospects and potential returns at the beginning of the year. The study results show several model estimations for abnormal return including ARMA (2,0), ARMA (0,3) and ARMA (2,3). The best ARIMA model estimation is ARMA (2,3) represented by the equation  $Y_t = \beta_0 + \beta_1 Y_{(t-1)} + \beta_2 Y_{(t-2)} + \alpha_1 e_{(t-1)} + \alpha_2 e_{(t-2)} + \alpha_3 e_{(t-3)}$ . The January effect is indicated by the discovery of abnormal returns, fitting within the semi strong form of the efficient market hypothesis. Meanwhile, the best model for trading volume activity is ARMA (1,1) with the equation for the model being  $Y_t = \beta_0 + \beta_1 Y_{(t-1)} + \alpha_0 e_t + \alpha_1 e_{(t-1)}$ . Market anomalies are indicated by the discovery of abnormal returns, which is in line with the efficient market hypothesis.

**Keywords:** Capital Markets; January effect; Market anomalies; Stock Return; Trading volume activity

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### INTRODUCTION

A company's strategy to improve its financial performance is to sell stocks projected to incur losses. This study uses secondary data in the form of closing prices of stocks on the Indonesia Stock Exchange (IDX) during the study period of 2020 to 2024. Market anomalies occur when there is a difference in return values in January compared to other months. The company's strategy to improve financial performance is implemented by divesting stocks projected to incur losses at low prices at the end of the year and conducting large repurchases, thereby driving up the prices of stocks deemed to have good future prospects (Maulani & Hurriyaturrahman, 2020). The market anomaly discussed in this study is the January Effect. Investors and financial managers will divest stocks projected to incur losses. Another reason is to reduce the tax burden on share ownership. When entering January with optimistic conditions and supported by strong data analysis, they will conduct large repurchases, thereby increasing share prices (Kiky, 2020; Ulfarizty & Komariah, n.d.)

One analytical technique to examine stock movements is ARIMA modelling with Box-Jenkins model testing. According to the model, there are four models, namely the Autoregressive (AR), Moving Average (MA), Autoregressive Moving Average (ARMA) and Autoregressive Integrated Moving Average (ARIMA) models (Banan & Tristiarto, n.d.; Kamila et al., 2025; Lq et al., 2010; Suprayetno et al., 2023). The requirements for ARIMA modelling include stationary data, meaning average value and variance data research are constant during the research period (Firdaus, 2018a, p. 48). In technical analysis, an autoregressive model the aims to anticipating the risk of losses by using historical stock data. This model analyzes time series data by considering the lag that is formed and the absence of data anomaly (no abnormal return). The purpose of this modeling is to predict stock price movements effectively in order to anticipate risks in general (Muis, 2019, pp. 3–5).

## **THEORETICAL BASIS AND HYPOTHESIS DEVELOPMENT**

This study uses one of the grand theories, namely the Efficient Market Hypothesis. This theory is related to the concept of efficient markets. Categorizes market efficiency into three levels known as weak form, semi strong form and strong form. The Efficient Market Hypothesis (EMH) is when important information is received regarding certain stocks, causing the price of securities/stocks to be corrected quickly. While in a less efficient market, the disseminated information is not fully reflected, resulting in a lag or delay in price adjustments. This lag allows investors to profit from the inefficiencies (Tandelilin, 2018, p. 226).

This research is classified as event studies. In a semi-strong form efficient market, testing can be done using event studies that aim to observe stock price movements due to release of certain information. According to Handini & Astawinetu (2020), event studies can mean studying the impact of an event on stock prices in the market, either when it occurs or shortly afterward, including testing the existence of the January effect.

## **RESEARCH METHODS**

This study uses a quantitative approach with time series analysis to examine stock return behavior and trading activity in the Indonesian capital market. The data used are secondary data in the form of stock returns, abnormal returns, and Trading Volume Activity (TVA) obtained from officially published capital market data. The initial stage of the analysis is conducted by testing stationarity using the Unit Root Test to ensure that the data does not contain a unit root and meets the stationarity assumption, a key prerequisite in ARIMA modeling (Maulani & Hurriyaturrahman, 2020; Maulani & Riani, n.d.). After the data is declared stationary, initial model identification is carried out through correlogram analysis by examining the Autocorrelation Function (ACF) and Partial Autocorrelation Function (PACF) patterns to determine the appropriate autoregressive (AR) and moving average (MA) orders. Based on the identification results, several potential alternative ARIMA/ARMA models are estimated. Next, this study recapitulates and evaluates the ARMA model on the Trading Volume Activity (TVA) variable by comparing several resulting model specifications. The best model is selected based on statistical criteria and the level of model fit. Once the best model is obtained, a residual diagnostic test is performed to ensure that the residuals are white noise, do not contain autocorrelation, and meet the assumptions of a good model. All stages of this analysis are carried out systematically to obtain the most optimal ARIMA/ARMA model in explaining the dynamics of returns, abnormal returns, and stock trading volume activity, as well as supporting empirical testing of market anomaly phenomena for stocks considered to have good future prospects (Khoidah et al., 2017; Lq et al., 2010; Oriana Surjoko, n.d.). Based on the purposive sampling method, 15 companies met the research criteria. These companies are listed on the Indonesia Stock Exchange (IDX) and have complete stock price data for the 2020–2024 study period, making them suitable for use in the January Effect analysis. (Banan & Tristiarto, n.d.; Oriana Surjoko, n.d.).

**Table 1. Determining Research Samples**

Criteria	Total
Stocks listed in the IDX30 index for the 2020-2024 period	30
inconsistently included in the IDX30 index during the 2020–2024 research period	(8)
Companies that do not have complete research data during the study period	(7)
Total Sampel	15

Source: Indonesia Stock Exchange (IDX)(2025)

**Table 2. Research Samples**

No	Stock Code	Company
1	ADRO	PT Adaro Energy Indonesia Tbk
2	AKRA	PT AKR Corporindo Tbk
3	AMRT	PT Sumber Alfaria Trijaya Tbk
4	ANTM	PT Aneka Tambang Tbk
5	ASII	PT Astra International Tbk
6	BBCA	PT Bank Central Asia Tbk
7	BBNI	PT Bank Negara Indonesia (Persero) Tbk
8	BBRI	PT Bank Rakyat Indonesia (Persero) Tbk
9	BMRI	PT Bank Mandiri (Persero) Tbk
10	BRPT	PT Barito Pacific Tbk
11	CPIN	PT Charoen Pokphand Indonesia Tbk
12	INDF	PT Indofood Sukses Makmur Tbk
13	TLKM	PT Telkom Indonesia (Persero) Tbk
14	UNTR	PT United Tractors Tbk
15	UNVR	PT Unilever Indonesia Tbk

Source: Data processed by the author (2025)

## RESULTS AND DISCUSSION

### Normality Test

**Table 3. Normality Test**

Variable	Jarque-Bera	Probability	Conclusion
Abnormal Return	126,4143	0,0000	Abnormal
Trading Volume Activity	212,2841	0,0000	Abnormal

Table 3 presents the results of normality test using the Jarque Bera method on two research variables. The abnormal return is 126,4143 with a probability of 0.0000 which is less than 0.05. The conclusion is to accept H<sub>0</sub>, indicating AR data is not normally distributed. In trading volume activity, the Jarque Bera value is 212,2841. While the probability value is 0.0000 which means less than the critical value (0.05). The conclusion is to accept H<sub>0</sub>, indicating TVA data is not normally distributed.

**Table 4. Unit Root Test Results**

Variable	t-Statistic	Probability	Conclusion
Abnormal Return	-5,267786	0,0015	Stationary
Trading Volume Activity	-5,170469	0,0019	Stationary

Source: E-views 12 (2025)

Table 4 shows the results of the unit root test at the level level on the abnormal return variable using Augmented Dickey-Fuller (ADF). The ADF value is -5.267786, which is smaller than the 1% critical value. It can be concluded that the data does not contain a unit root. Furthermore, the probability is 0.0015, which is significant and the data is stationary. Meanwhile, for the trading volume activity variable, the ADF value was -5.170469, which is smaller than the 1% critical value, so the data does not contain a unit root. Furthermore, the probability is 0.0019, which is significant and the data is stationary.

ARIMA Model Estimations, based on the correlogram results, the suitable model can be estimated by examining the autocorrelation function (ACF) and partial autocorrelation function (PACF). In the abnormal return graph, it is observed that at the lag level of both the ACF and PACF exceed their autocorrelation limits. Therefore, the tentative ARMA model is estimated for abnormal returns at the 4th lag level. For trading volume activity, the estimated ARMA model that fits occurs at the 2nd lag level in the ACF plot and at the 1st lag the PACF plot.

**Table 5. ARMA Model Recapitulation of AR**

Model	Prob	R <sup>2</sup>	AIC
ARMA (2,0)	<0,05	0,100614	-5,043159
ARMA (0,3)	<0,05	0,081718	-5,066140
ARMA (2,3)	<0,05	0,188815	-5,636446

Source: E-views 12 (2025)

Table 5 above is a recapitulation of several ARMA models. In the table, the highest R2 value is 0.188815 and the smallest AIC value is -5.636446. Based on the criteria for the best tentative model, namely having the largest R2 and the smallest AIC, it is concluded that the most appropriate model for abnormal returns is ARMA (2,3) with the equation  $Y_t = \beta_0 + \beta_1 Y_{(t-1)} + \beta_2 Y_{(t-2)} + e_t + \alpha_0 e_{t-1} + \alpha_1 e_{(t-1)} + \alpha_2 e_{(t-2)} + \alpha_3 e_{(t-3)}$ . The equation is constructed based on time series literature, based on understanding and data processing because it is not explicitly available.

**Table 6. ARMA Model Recapitulation of TVA**

Model	Prob	R <sup>2</sup>	AIC
ARMA (1,0)	<0,05	0,267794	-10,27626
ARMA (0,1)	<0,05	0,256076	-10,34509
ARMA (0,2)	<0,05	0,046581	-9,567472
ARMA (1,1)	<0,05	0,695648	-12,24662

Source: E-views 12 (2025)

Table 6 shows the summary results of several ARIMA models with probabilities  $<0.05$ . The table shows the highest R2, at 0.695648, and the lowest AIC value, at -12.24662. Based on the criteria for the best tentative model, the model for trading volume activity is ARMA (1,1) with the equation  $Y_t = \beta_0 + \beta_1 Y_{(t-1)} + \alpha_0 e_t + \alpha_1 e_{(t-1)}$ .

## CONCLUSION

The ARIMA model estimation for abnormal return variables with probability values  $<0.05$  includes ARMA (2.0), ARMA (0.3) and ARMA (2.3). The best ARIMA model estimation is ARMA (2.3) represented by the equation  $Y_t = \beta_0 + \beta_1 Y_{(t-1)} + \beta_2 Y_{(t-2)} + e_t + \alpha_1 e_{(t-1)} + \alpha_2 e_{(t-2)} + \alpha_3 e_{(t-3)}$ . Meanwhile, the best model for trading volume activity is ARMA (1,1) with the equation for the model being  $Y_t = \beta_0 + \beta_1 Y_{(t-1)} + \alpha_0 e_t + \alpha_1 e_{(t-1)}$ . Market anomalies are indicated by the discovery of abnormal returns, which is in line with the efficient market hypothesis. The January effect is indicated by the discovery of abnormal returns, fitting within the semi strong form of the efficient market hypothesis. Common causes of the January effect are window-dressing, tax-loss selling and small stock's beta.

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