






# “Market efficiency of dividend-paying firms under hawkish monetary policy: The case of Indonesia”

<b>AUTHORS</b>	Novi Swandari Budiarmo   Winston Pontoh  
<b>ARTICLE INFO</b>	Novi Swandari Budiarmo and Winston Pontoh (2025). Market efficiency of dividend-paying firms under hawkish monetary policy: The case of Indonesia. <i>Investment Management and Financial Innovations</i> , 22(4), 335-344. doi: <a href="https://doi.org/10.21511/imfi.22(4).2025.26">10.21511/imfi.22(4).2025.26</a>
<b>DOI</b>	<a href="http://dx.doi.org/10.21511/imfi.22(4).2025.26">http://dx.doi.org/10.21511/imfi.22(4).2025.26</a>
<b>RELEASED ON</b>	Friday, 05 December 2025
<b>RECEIVED ON</b>	Monday, 14 July 2025
<b>ACCEPTED ON</b>	Wednesday, 19 November 2025
<b>LICENSE</b>	 This work is licensed under a <a href="https://creativecommons.org/licenses/by/4.0/">Creative Commons Attribution 4.0 International License</a>
<b>JOURNAL</b>	"Investment Management and Financial Innovations"
<b>ISSN PRINT</b>	1810-4967
<b>ISSN ONLINE</b>	1812-9358
<b>PUBLISHER</b>	LLC “Consulting Publishing Company “Business Perspectives”
<b>FOUNDER</b>	LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

54



NUMBER OF FIGURES

0



NUMBER OF TABLES

6

© The author(s) 2026. This publication is an open access article.



## BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives"  
Hryhorii Skovoroda lane, 10,  
Sumy, 40022, Ukraine  
[www.businessperspectives.org](http://www.businessperspectives.org)

**Type of article:** Research Article

**Received on:** 14<sup>th</sup> of July, 2025

**Accepted on:** 19<sup>th</sup> of November, 2025

**Published on:** 5<sup>th</sup> of December, 2025

© Novi Swandari Budiarmo, Winston Pontoh, 2025

Novi Swandari Budiarmo, Lecturer,  
Economics and Business Faculty,  
Accounting Department, Sam  
Ratulangi University, Indonesia.  
(Corresponding author)

Winston Pontoh, Lecturer, Professor,  
Economics and Business Faculty,  
Accounting Department, Sam  
Ratulangi University, Indonesia.



This is an Open Access article,  
distributed under the terms of the  
[Creative Commons Attribution 4.0  
International license](https://creativecommons.org/licenses/by/4.0/), which permits  
unrestricted re-use, distribution, and  
reproduction in any medium, provided  
the original work is properly cited.

**Conflict of interest statement:**

Author(s) reported no conflict of interest

Novi Swandari Budiarmo (Indonesia), Winston Pontoh (Indonesia)

# MARKET EFFICIENCY OF DIVIDEND-PAYING FIRMS UNDER HAWKISH MONETARY POLICY: THE CASE OF INDONESIA

## Abstract

Throughout 2024, interest rate changes and dividend announcements have become crucial information for investors in determining their investment portfolios. These two factors have different impacts on stock price movements in the market. This study aims to examine weak-form market efficiency based on these factors. The sample consists of companies that regularly announce and distribute dividends, as they are considered to attract significant investor attention. To test market efficiency, this study applies the runs test and variance ratio test to analyze time series data of stock returns adjusted for risk-free rates. The findings indicate that the Indonesian stock market in 2024 is relatively efficient, particularly in its weak form. The implication is that interest rate changes and dividend announcements play a crucial role in determining market efficiency. This condition is supported by rational investor behavior in allocating their investments between stocks and risk-free assets, assuming that dividends remain sufficiently profitable. This study contributes to the development of the efficient market hypothesis, particularly regarding the simultaneous entry of interest rate and dividend announcement information into the market. However, this study is limited by the sample criteria within a specific period. Therefore, future research is expected to expand the scope of analysis by incorporating additional factors.

## Keywords

returns, dividends, weak form, efficient, interest rates

## JEL Classification

G11, G14

## INTRODUCTION

The concept of an efficient market has become an urgent topic in response to the recent global economic changes that have significantly impacted capital markets. Market efficiency is closely tied to the available information, such as dividends and the effective interest rate. In the financial context, investment decisions are generally driven by the expectation of profitable returns. Dividends, alongside capital gains, are among the most anticipated forms of returns by investors. As such, dividends are often viewed as a reflection of shareholder prosperity. Dividend announcements and interest rate hikes tend to have different impacts on stock prices. This dynamic occurs as investment decisions are shaped by the behavior of investors seeking optimal returns. If dividends are assumed to be certain and more profitable than the interest rate, investor choices are likely to remain stable. Under this assumption, the stability in investor behavior will create increased demand, thereby driving stock prices up in the capital market. Conversely, if it is assumed that dividends are uncertain and less profitable than the interest rate, investors tend to favor investments with guaranteed returns, such as bonds or bank products. In this scenario, investor preferences are likely to result in divestment, thereby decreasing stock values in the market.

In Indonesia, changes in the effective interest rate are closely related to global economic dynamics. By the end of 2023, the effective interest

rate stood at 6% and continued into the beginning of 2024. Throughout 2024, there were three distinct phases of interest rate changes: (1) from the start of the year to mid-April, the rate remained at 6%; (2) from mid-April to mid-September, the rate increased to 6.25%; and (3) from mid-September to the end of December, the rate reverted to 6%. In 2024, the average market return based on the composite index was -0.01% (rounded), while the average risk-free investment return rate was 0.02% (rounded). The motivation for this study focuses on the market's reaction to two opposing types of information, which are: (1) dividend announcements, and (2) changes in interest rates. Therefore, this study aims to examine weak-form efficiency in Indonesia based on dividend announcements and changes in interest rates.

## 1. LITERATURE REVIEW

The Efficient Market Hypothesis (EMH) emphasizes that a set of information is fully reflected in stock prices in a timely manner (Fama, 1970; Malkiel, 2003). In the context of EMH, relevant information is classified into three main forms: weak form, semi-strong form, and strong form (Fama, 1970). Specifically, Fama (1970) and Malkiel (2003) classify them as follows: (1) the weak form refers to a set of information derived from historical prices; (2) the semi-strong form refers to a set of information derived from historical prices with adjustments based on other internal information; and (3) the strong form refers to a set of information that is fully accessible to investors. For example, Hájek (2007), Kok and Munir (2015), Diallo et al. (2021), and Elangovan et al. (2022) use historical prices to detect market efficiency from a weak form perspective. In the context of the semi-strong form, Syed and Bajwa (2018), Gbanador (2021), da Silva (2022), and Krishnan and Periasamy (2022) show that information such as earnings, monetary policy, profitability, and dividends can determine market efficiency. Evidence from Bustanji (2020) suggests that full disclosure of investment strategies can detect market efficiency from a strong-form perspective.

For investors, dividends are considered a certain return for consumption purposes, rather than for reinvestment or the 'bird in the hand' theory (Bhattacharya, 1979; Easterbrook, 1984). Dividends often serve as a signal of profitability when investors lack complete information about the true condition of a company (Hayunga & Stephens, 2009; Franc-Dąbrowska et al., 2020). Empirical evidence shows that dividend policy is strongly influenced by profitability (Almeida et al., 2015; Basri, 2019; Zelalem & Abebe, 2022; Santosa et al., 2023; Salah & Jarbou, 2024). Dividend poli-

cy is also frequently associated with company maturity (Grullon et al., 2002; Fairchild et al., 2014; AlGhazali et al., 2024). Dividend payouts by companies are seen as a way to neutralize issues arising from asymmetric information, which is a key problem between managers as insiders and investors as outsiders (Miller & Rock, 1985; Asquith & Mullins, 1986b; Maquieira et al., 2023). According to Asquith and Mullins (1986a; 1986b), asymmetric information occurs when investors view the firm as a 'black box'.

Dividend announcements are considered important information that influences stock reactions in the market (Aharony & Swary, 1980; La Porta et al., 2000; Michayluk et al., 2022). Phan and Tran (2019) and Lotto (2021) found that profit distribution through dividend policy can reduce stock volatility in the market. Therefore, financial information related to dividend policy can significantly affect stock volatility (Zobi & Al-Dhaimesh, 2021). Black (1976) explains that the amount of dividend paid is often accompanied by a rise in stock prices. Empirical evidence from Singh and Tandon (2019), Kapons et al. (2023), and Chettri and Kharkongor (2024) shows that dividend payouts tend to positively impact stock value. These findings imply that the amount of dividend announced and paid is a key consideration for investors when determining investment allocation.

Another piece of information that determines stock price fluctuations in the market is the effective interest rate. In the context of economics, the implementation of interest rate policies is divided into two types: hawkish or high interest rates, and dovish or low interest rates (Carvalho et al., 2013; Sutherland, 2023). Specifically, interest rate policies are typically implemented to control inflation rates (Carvalho & Muinhos, 2023; Sutherland, 2023;

Yemidi et al., 2023). In the context of the capital market, the set interest rate has consequences for stock price fluctuations (Mouna & Anis, 2016; Gu et al., 2021; Guenich et al., 2022; Aawaar et al., 2023; Schrank, 2024). For example, findings from Eldomiaty et al. (2020) suggest a positive response in stock prices, even when interest rates increase. Alsharif (2023) also found that high interest rates in Saudi Arabia significantly increased stock returns, despite the accompanying increase in market volatility. However, Keswani et al. (2024) show that there is a non-directional relationship between interest rates and stock prices. This condition is consistent with evidence from Tursoy (2019) in Turkey, which indicates divestment actions by investors due to their preference for risk-free investments. Based on the literature review, previous empirical evidence has primarily focused on sample characteristics and types of information. Addressing this gap, the present study extends the examination within the framework of the EMH by incorporating interest rate information and dividend distributions, particularly among dividend-paying firms. This focus is motivated by the tendency of long-term-oriented investors to concentrate their portfolios on dividend-paying stocks.

## 2. METHODS

This study observes stocks throughout the year 2024, or 237 market days, with a selected sample of 60 listed firms in Indonesia. The criteria for the selected sample are firms that have consistently announced dividends from 2020 to 2024, or for the last 5 years. The variable used in this study is stock returns after the risk-free rate (RT-RF). Stock returns are calculated based on the difference between the current market price and the previous market price, divided by the previous market price. The risk-free rate is the effective interest rate from the Central Bank of Indonesia, with daily conversion based on a 365-day year.

Several analytical procedures are undertaken to determine whether the stock returns of firms that consistently announce dividends are efficient in the weak form. First, the event windows are defined by dividing the observation period into

three sub-periods, based on interest rate changes. The returns are classified according to these sub-periods as follows: (1) January 1, 2024, to April 23, 2024, when the interest rate is 6% (RT-RF 1); (2) April 24, 2024, to September 17, 2024, when the interest rate is 6.25% (RT-RF 2); and (3) September 18, 2024, to December 31, 2024, when the interest rate returns to 6% (RT-RF 3). Second, the Kolmogorov-Smirnov (KS) test is used to detect the normality of the data. The formula for the KS test is expressed as follows.

$$D_n = \sup |F_n(x) - F(x)|, \quad (1)$$

where  $D_n$  is the KS test statistic,  $\sup$  is the supremum or the maximum absolute difference between the two distributions,  $F_n(x)$  is the empirical cumulative distribution function of stock returns over the period, and  $F(x)$  is the cumulative distribution function of the theoretical distribution being tested. Third, if the data follow a normal distribution, the mean difference test will use the following formula.

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}, \quad (2)$$

where  $t$  is the mean difference,  $s$  is the variance, and  $n$  is the sample size. Fourth, the return pattern is tested to determine whether it exhibits white noise. In this step, the procedure of the Autoregressive Integrated Moving Average (ARIMA) model is employed. The formula for ARIMA is given as follows.

$$\Delta_{y_t}^d = \alpha + \sum_{i=1}^p \phi_i \Delta_{y_{t-1}}^d + \sum_{j=1}^q \theta_j \varepsilon_{t-j} + \varepsilon_t, \quad (3)$$

where  $\Delta_{y_t}^d$  is differenced time series to ensure stationarity,  $\alpha$  is the constant,

$$\sum_{i=1}^p \phi_i \Delta_{y_{t-1}}^d$$

is the autoregressive (AR) component that captures the effect of past values,

$$\sum_{j=1}^q \theta_j \varepsilon_{t-j}$$

is the moving average (MA) component that captures the effect of past errors,  $\varepsilon_t$  is the error term,

$p$  is number of AR lags,  $d$  is differencing order to remove trends, and  $q$  is the number of MA lags. Since ARIMA requires a stationary time series, the Augmented Dickey-Fuller (ADF) test is applied to verify stationarity before implementing the model. The formula for the ADF test is given as follows.

$$\Delta y_t = \alpha + \beta t + \gamma y_{t-1} + \sum_{i=1}^p \delta_i \Delta y_{t-i} + \varepsilon_t, \quad (4)$$

where  $y_t$  is the time series variable at time  $t$ ,  $\Delta y_t$  is the first difference of  $y_t$ ,  $\alpha$  is the constant,  $\beta t$  represents the time trend,  $\gamma$  is the key coefficient used to test for the presence of a unit root,  $p$  is the number of lags of the differenced term  $\Delta y_t$ ,  $\delta_i$  is the coefficient of the lagged differenced terms, and  $\varepsilon_t$  is the error term. Furthermore, the Ljung-Box (LB) test is applied to assess whether there is significant autocorrelation in the residuals. The formula for the LB test is given as follows.

$$Q = n(n+2) \sum_{k=1}^h \frac{\hat{\rho}_k^2}{n-k}, \quad (5)$$

where  $Q$  is the LB test statistic,  $n$  is the number of observations,  $h$  is the number of lags tested, and  $\hat{\rho}_k$  is the sample autocorrelation at lag  $k$ . Fifth, the runs test and the variance ratio (VR) test are used to determine whether stock returns are random. For the runs test, this study follows Borges (2010) and Vasileiou (2021) to estimate the  $z$ -statistics with the formula as follows.

$$z = \frac{U - \mu}{\sigma}, \quad (6)$$

where  $U$  is the number of runs,  $\mu$  is the expected number of runs, and  $\sigma$  is the expected deviation number of runs. Furthermore, following Lo and MacKinlay (1988), this study employs the formula VR test as follows.

$$VR(k) = \frac{\sigma^2(k)}{\sigma^2(1)}, \quad (7)$$

where  $\sigma^2(k)$  is the variance of a  $k$ -period return, and  $\sigma^2(1)$  is the variance of a period return, where  $k$  is the lag of 12, 24, 36, and 48 at a 10% significance level.

### 3. RESULTS

Table 1 presents the descriptive statistics of excess returns (RT-RF) across three sub-periods. The mean returns for all sub-periods are negative, indicating that, on average, stock returns adjusted for the risk-free rate were below zero. Sub-period 3 recorded the lowest mean return ( $-0.00108$ ), whereas sub-period 2 had the least negative value ( $-0.00002$ ). In terms of volatility, measured by standard deviation, sub-period 2 exhibited the highest value (0.00552), suggesting greater fluctuations in returns compared to sub-periods 1 and 3. Conversely, sub-period 1 had the lowest volatility (0.00419), indicating relatively stable returns.

The skewness values for all sub-periods are negative, reflecting a left-skewed distribution with a longer left tail. Sub-period 2 has the most pronounced negative skewness ( $-1.32$ ), suggesting a higher likelihood of extreme negative returns. Regarding kurtosis, sub-period 2 displays the highest value (5.11), indicating a leptokurtic distribution with more frequent extreme values. Sub-period 3 has a kurtosis value close to zero ( $-0.01$ ), suggesting a distribution that closely resembles normality.

The KS test results show that the statistics for all sub-periods are relatively low and above the 0.05 threshold. These results suggest no strong evidence against the null hypothesis, implying that the return distributions do not significantly deviate from the tested theoretical distribution. In summary, sub-period 2 demonstrates the highest volatility and extreme return characteristics, while sub-period 3 experiences the most substantial negative returns. Sub-period 1 appears to be the most stable in terms of both return level and distribution shape.

**Table 1.** Descriptive statistics

Statistic	RT-RF 1	RT-RF 2	RT-RF 3
Mean	-0.00040	-0.00002	-0.00108
Standard deviation	0.00419	0.00552	0.00478
Skewness	-0.72	-1.32	-0.51
Kurtosis	0.87	5.11	-0.01
KS statistic	0.079	0.077	0.107
KS test p-value	0.755	0.592	0.361

A further analysis was conducted to identify whether there were significant differences in re-

turn values across sub-periods. Table 2 reports the results of the mean difference test on returns across sub-periods. The mean difference test results indicate that all comparisons yield significance levels exceeding the 1%, 5%, and 10% thresholds. This suggests that the variations in return values between sub-periods are statistically insignificant. Additionally, the effect sizes, as measured by Cohen's *d*, range from -0.075 to 0.202, which, according to Cohen (1992), indicate negligible to small effects. These findings suggest that variations in return values across sub-periods are minimal and have little economic significance.

**Table 2.** Mean difference test

Returns	Mean difference	t-stat.	p-value	Cohen's <i>d</i>
RT-RF 1 & RT-RF 2	-0.00038	-0.477	0.634	-0.075
RT-RF 1 & RT-RF 3	0.00068	0.894	0.373	0.151
RT-RF 2 & RT-RF 3	0.00106	1.295	0.197	0.202

Table 3 presents the results of the ADF test for returns in the three sub-periods. The ADF test statistic for all sub-periods is highly negative, indicating strong evidence against the null hypothesis of a unit root. Additionally, the p-values for all sub-periods are 0.0000, which confirms that the null hypothesis is rejected at any conventional significance level. This suggests that the return series in each sub-period is stationary.

**Table 3.** ADF test

Statistic	RT-RF 1	RT-RF 2	RT-RF 3
ADF test statistic	-8.286453	-8.785326	-6.224132
ADF test p-value	0.0000	0.0000	0.0000

Table 4 presents the results of the LB test applied to residuals from ARIMA models. The findings indicate that for RT-RF1, which follows an ARIMA (1,0,0) model, the chi-square (CS) statistics at all lags are not statistically significant at the 10% level. Similar results are observed for RT-RF2 (modeled using ARIMA (0,0,2)) and RT-RF3 (modeled using ARIMA (1,0,0)). The lack of statistical significance suggests that the return series across the three sub-periods exhibit characteristics consistent with white noise, implying no significant autocorrelation in the residuals.

**Table 4.** LB test based on ARIMA

Lags	RT-RF 1 (ARIMA 1,0,0)		RT-RF 2 (ARIMA 0,0,2)		RT-RF 3 (ARIMA 1,0,0)	
	CS	Sig.	CS	Sig.	CS	Sig.
Lag 12	7.46	0.682	2.68	0.976	7.96	0.633
Lag 24	13.09	0.931	12.57	0.923	15.60	0.835
Lag 36	21.81	0.947	28.50	0.691	35.88	0.380
Lag 48	47.14	0.426	38.90	0.727	42.11	0.636

Table 5 presents the results of the runs test and the joint VR test on the returns from the three sub-periods. The runs test results show that the observed number of runs in each period is close to the expected value under the null hypothesis of randomness. The corresponding p-values (0.682, 0.668, and 0.201) are all greater than the conventional significance thresholds, indicating no significant deviation from randomness in the return sequences. Similarly, the joint test from the VR test yields test statistics of 0.711, 0.837, and 1.531, with p-values of 0.925, 0.873, and 0.416, respectively. These results indicate that the variance ratios do not significantly deviate from the expected values under the null hypothesis, suggesting an absence of strong autocorrelation in the return series. Taken together, the results from both tests consistently fail to reject the null hypothesis of randomness, implying that the return series across the three sub-periods exhibit characteristics of a random walk process.

**Table 5.** Runs and VR tests (joint)

Statistic	RT-RF1	RT-RF2	RT-RF3
Number of runs			
Observed	37	47	31
Expected	35.32	49.08	36.32
Sig.	0.682	0.668	0.201
Joint tests			
Stat.	0.711	0.837	1.531
Sig.	0.925	0.873	0.416

Table 6 presents the results of the individual VR test as a confirmation of the runs test and joint VR test findings on the return patterns of the three sub-periods. Consistent with the runs test and joint VR test results, the returns in all three sub-periods at each lag exhibit test statistics with significance levels above 10%. This suggests that there is no strong evidence against the random walk hypothesis in any sub-period.

**Table 6.** VR test (individual)

Lags	RT-RF1			RT-RF2			RT-RF3		
	VR	Stat.	Sig.	VR	Stat.	Sig.	VR	Stat.	Sig.
Lag 12	1.142	0.291	0.771	1.051	0.145	0.884	1.696	1.531	0.126
Lag 24	0.686	-0.484	0.628	1.408	0.837	0.403	1.708	1.134	0.257
Lag 36	0.849	-0.201	0.841	1.063	0.108	0.914	1.874	1.174	0.240
Lag 48	0.405	-0.711	0.477	1.427	0.626	0.531	1.691	0.822	0.411

For RT-RF1, the VR at lag 12 is 1.142, with a test statistic of 0.291 and a significance level of 0.771, indicating no significant deviation from the expected value under the random walk hypothesis. At lag 24, the VR decreases to 0.686, with a test statistic of -0.484 and a significance level of 0.628. At lag 36, the VR slightly increases to 0.849, with a test statistic of -0.201 and a significance level of 0.841. Finally, at lag 48, the VR further declines to 0.405, with a test statistic of -0.711 and a significance level of 0.477. These results indicate a shift from positive autocorrelation at lag 12 to negative autocorrelation from lag 24 to lag 48.

For RT-RF2, the VR values remain relatively stable across different lags. At lag 12, the VR is 1.051 (test statistic = 0.145, significance = 0.884). At lag 24, the VR increases to 1.408 (test statistic = 0.837, significance = 0.403), and at lag 36, it slightly declines to 1.063 (test statistic = 0.108, significance = 0.914). At lag 48, the VR remains relatively high at 1.427, with a test statistic of 0.626 and a significance level of 0.531. Since all VR values are greater than 1, RT-RF2 exhibits positive autocorrelation across all lags. However, as the test statistics do not indicate strong deviations from theoretical expectations, the results remain consistent with the random walk hypothesis.

For RT-RF3, the VR at lag 12 is 1.696 (test statistic = 1.531, significance = 0.126). At lag 24, the VR decreases to 1.708 (test statistic = 1.134, significance = 0.257), followed by a slight increase at lag 36 to 1.874 (test statistic = 1.174, significance = 0.240). At lag 48, the VR drops to 1.691, with a test statistic of 0.822 and a significance level of 0.411. As with RT-RF2, all VR values for RT-RF3 exceed 1, indicating persistent positive autocorrelation across all lags. Nonetheless, the overall results do not provide sufficient evidence to reject the random walk hypothesis.

## 4. DISCUSSION

This study examines the market efficiency of dividend-paying firms in response to interest rate changes and dividend announcements. The findings indicate that the average return was negative, with varying levels of risk. This suggests that investors tend to adopt a cautious approach when processing information related to interest rate fluctuations and announced dividend amounts. This cautious behavior is further confirmed by the mean difference test, which shows that returns across the three sub-periods exhibit no significant differences. These results indicate that dividend announcements under changing interest rate conditions across sub-periods exert only a minor influence on return behavior. However, these findings do not align with the results of previous studies, including Aharony and Swary (1980), La Porta et al. (2000), Phan and Tran (2019), Eldomiaty et al. (2020), Lotto (2021), Zobi and Al-Dhaimesh (2021), Michayluk et al. (2022), and Alsharif (2023), which suggest stronger reactions to dividend and interest rate changes.

Further analysis using the ARIMA model reveals that return patterns across all three sub-periods closely resemble white noise characteristics. However, results from the runs test and VR test confirm that the randomness in returns is not solely attributed to white noise, suggesting a more complex stochastic process. This finding indicates that the return patterns observed in all three sub-periods are consistent with weak-form efficiency. Consistent with Fama (1970) and Malkiel (2003), these results suggest that changes in interest rates and dividend announcements are promptly incorporated into stock prices, reinforcing the principles of the EMH. Moreover, in line with Syed and Bajwa (2018), Gbanador (2021), da Silva (2022), and Krishnan and Periasamy (2022), this study confirms that the synergy between dividend announcements and interest rate changes plays a crucial role in determining market efficiency.

A more detailed examination of each sub-period provides additional insights into return behavior. In the first sub-period, the market initially exhibited a positive response to interest rate and dividend information at lag 12. However, from lag 24 to lag 48, returns moved in the opposite direction, seemingly indicating a negative reaction. Nevertheless, these changes were not statistically significant, providing insufficient evidence to suggest market inefficiency. In the second sub-period, market responses to interest rate hikes and dividend distribution appeared to be more neutral. This condition was reflected in a slightly negative average return close to zero, accompanied by a high level of risk. However, the downward trend was not strongly supported by statistical evidence, making it difficult to conclude that the market was inefficient during this period. In the third sub-period, the market tended to respond negatively to interest rate cuts accompanied by dividend announcements. This reaction was reflected in the lowest negative average return and relatively high risk. However, the observed decline in stock returns lacked strong statistical support, meaning that there was insufficient evidence to reject the weak-form efficiency hypothesis.

These findings imply that investor caution during interest rate changes is often accompanied by a preference for risk-free investments, even while maintaining holdings in dividend-paying stocks. This assumption remains reasonable, given that dividend income is still perceived as more favor-

able compared to capital gains. In this context, the results of this study remain relevant to the findings of Singh and Tandon (2019), Kapons et al. (2023), and Chettri and Kharkongor (2024). This assumption is also in line with the fundamental view that dividends serve as an informative signal reflecting a firm's strong profitability (Hayunga & Stephens, 2009; Almeida et al., 2015; Basri, 2019; Franc-Dąbrowska et al., 2020; Zelalem & Abebe, 2022; Santosa et al., 2023; Salah & Jarbou, 2024). Regarding interest rate fluctuations, investors' tendency to shift toward risk-free investments remains consistent with Tursoy (2019). This study also confirms that changes in interest rates generally lead to a decline in stock prices, a finding similar to those of Mouna and Anis (2016), Gu et al. (2021), Guenich et al. (2022), Aawaar et al. (2023), and Schrank (2024). Additionally, this study identifies a non-directional relationship between interest rates and stock prices, as observed in Keswani et al. (2024), suggesting that interest rate changes do not always produce a uniform impact on stock prices. By integrating macroeconomic (interest rate) and firm-specific (dividend announcement) information, this study contributes to the broader EMH literature by demonstrating how these factors interact to shape weak-form market efficiency. Future research is encouraged to extend the sample coverage beyond dividend-paying firms, incorporate additional economic variables such as market liquidity and investor sentiment, and explore sector-specific differences in market efficiency.

---

## CONCLUSION

In 2024, Indonesia's effective interest rate ranged between 6% and 6.25%. During the same period, information regarding dividend distributions was disseminated in the market, raising questions about its impact on market efficiency. This study aims to examine the effects of interest rate changes and dividend announcements on weak-form market efficiency. The findings indicate that the combination of interest rate changes and dividend announcements tends to cause the returns of dividend-paying firms to follow a random walk pattern. This result aligns with the EMH in its weak form, suggesting that stock prices fully reflect all available historical information. In other words, the findings imply that the market becomes more efficient in its weak form when macroeconomic and firm-specific information is processed simultaneously by market participants.

The key implication of this study is that interest rate changes, as a macroeconomic factor, combined with dividend announcements, as a firm-specific factor, contribute to a more efficient market mechanism. This suggests that investors' reactions to interest rate and dividend information are rational, preventing the formation of predictable return patterns. This study contributes to the EMH literature by highlight-

ing the interaction between macroeconomic information and firm-specific factors in shaping weak-form market efficiency. However, the scope of this research is limited to dividend-paying firms, preventing generalization to non-dividend firms. Future research is encouraged to expand the sample coverage, include a more diverse range of sectors, and incorporate additional factors such as market volatility and stock liquidity to gain a more comprehensive understanding of market efficiency.

## AUTHOR CONTRIBUTIONS

Conceptualization: Novi Swandari Budiarmo.  
Data curation: Winston Pontoh.  
Formal analysis: Novi Swandari Budiarmo.  
Funding acquisition: Winston Pontoh.  
Investigation: Winston Pontoh.  
Methodology: Novi Swandari Budiarmo.  
Project administration: Winston Pontoh.  
Resources: Winston Pontoh.  
Software: Winston Pontoh.  
Supervision: Novi Swandari Budiarmo.  
Validation: Winston Pontoh.  
Visualization: Winston Pontoh.  
Writing – original draft: Winston Pontoh.  
Writing – review & editing: Novi Swandari Budiarmo.

## ACKNOWLEDGMENT

The authors would like to express their sincere gratitude to Universitas Sam Ratulangi for the financial support provided for this study.

## REFERENCES

1. Aawaar, G., Logogye, L., & Domeher, D. (2023). Equity return volatility in Africa's stock markets: A dynamic panel approach. *Cogent Economics & Finance*, 11(2). <https://doi.org/10.1080/23322039.2023.2258704>
2. Aharony, J., & Swary, I. (1980). Quarterly dividend and earnings announcements and stockholders' returns: An empirical analysis. *The Journal of Finance*, 35(1), 1-12. <https://doi.org/10.2307/2327176>
3. AlGhazali, A., Al-Yahyaee, K. H., Fairchild, R., & Guney, Y. (2024). What do dividend changes reveal? Theory and evidence from a unique environment. *Review of Quantitative Finance and Accounting*, 62, 499-552. <https://doi.org/10.1007/s11156-023-01211-x>
4. Almeida, L. A. G., Pereira, E. T., & Tavares, F. O. (2015). Determinants of dividend policy: Evidence from Portugal. *Review of Business Management*, 17(54), 701-719. <https://doi.org/10.7819/rbgn.v17i54.1943>
5. Alsharif, M. (2023). Interest rate, foreign exchange and stock performance in a dual banking industry: Evidence from Saudi Arabia. *Journal of Money and Business*, 3(1), 60-73. <https://doi.org/10.1108/JMB-10-2022-0052>
6. Asquith, P., & Mullins, D. W. (1986a). Equity issues and offering dilution. *Journal of Financial Economics*, 15(1-2), 61-89. [https://doi.org/10.1016/0304-405X\(86\)90050-4](https://doi.org/10.1016/0304-405X(86)90050-4)
7. Asquith, P., & Mullins, D. W. (1986b). Signalling with dividends, stock repurchases, and equity issues. *Financial Management*, 15(3), 27-44. Retrieved from <https://www.jstor.org/stable/3664842>
8. Basri, H. (2019). Assessing determinants of dividend policy of the government-owned companies in Indonesia. *International Journal of Law and Management*, 61(5/6), 530-541. <https://doi.org/10.1108/IJLMA-09-2017-0215>
9. Bhattacharya, S. (1979). Imperfect information, dividend policy, and "the bird in the hand" fallacy. *The Bell Journal of Economics*, 10(1), 259-270. <https://doi.org/10.2307/3003330>
10. Black, F. (1976). The dividend puzzle. *The Journal of Portfolio Management*, 2(2), 5-8. <https://doi.org/10.3905/jpm.1976.408558>
11. Borges, M. R. (2010). Efficient market hypothesis in European stock markets. *The European Journal of Finance*, 16(7), 711-726. <https://doi.org/10.1080/1351847X.2010.495477>

12. Bustanji, M. (2020). Testing strong form market efficiency of Jordanian Capital Market: Performance appraisal of mutual funds a comparable study case with Saudi Arabia. *Theory, Methodology, Practice-Review of Business and Management*, 16(02), 3-15. <https://doi.org/10.18096/TMP.2020.02.01>
13. Carvalho, C., Cordeiro, F., & Vargas, J. (2013). Just words? A quantitative analysis of the communication of the Central Bank of Brazil. *Revista Brasileira de Economia*, 67(4), 443-455. <https://doi.org/10.1590/S0034-71402013000400004>
14. Carvalho, F. G., & Muinhos, M. K. (2023). The Central Bank of Brazil's time-varying Taylor rule. *Revista Brasileira de Economia*, 77, 512-532. <https://doi.org/10.5935/0034-7140.20220022>
15. Chettri, N., & Kharkongor, M. J. (2024). Dividend payout and firm value relationship: Role of age and size. *Emerging Economy Studies*, 8(2), 71-81. <https://doi.org/10.1177/23949015241235036>
16. Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112(1), 155-159. <https://doi.org/10.1037/0033-2909.112.1.155>
17. da Silva, P. P. (2022). Market efficiency and the capacity of stock prices to track a firm's future profitability. *Borsa Istanbul Review*, 22(3), 452-464. <https://doi.org/10.1016/j.bir.2021.06.010>
18. Diallo, O. K., Mendy, P., & Burlea-Schiopoiu, A. (2021). A method to test weak-form market efficiency from sectoral indices of the WAEMU stock exchange: A wavelet analysis. *Heliyon*, 7(1), e05858. <https://doi.org/10.1016/j.heliyon.2020.e05858>
19. Easterbrook, F. H. (1984). Two agency-cost explanations of dividends. *The American Economic Review*, 74(4), 650-659. Retrieved from <http://www.jstor.org/stable/1805130>
20. Elangovan, R., Irudayasamy, F. G., & Parayitam, S. (2022). Testing the market efficiency in Indian stock market: Evidence from Bombay Stock Exchange broad market indices. *Journal of Economics, Finance and Administrative Science*, 27(54), 313-327. <https://doi.org/10.1108/JEFAS-04-2021-0040>
21. Eldomiatiy, T., Saeed, Y., Hammam, R., & AboulSoud, S. (2020). The associations between stock prices, inflation rates, interest rates are still persistent: Empirical evidence from stock duration model. *Journal of Economics, Finance and Administrative Science*, 25(49), 149-161. <https://doi.org/10.1108/JEFAS-10-2018-0105>
22. Fairchild, R., Guney, Y., & Thanatawee, Y. (2014). Corporate dividend policy in Thailand: Theory and evidence. *International Review of Financial Analysis*, 31, 129-151. <https://doi.org/10.1016/j.irfa.2013.10.006>
23. Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *The Journal of Finance*, 25(2), 383-417. <https://doi.org/10.2307/2325486>
24. Franc-Dąbrowska, J., Mađra-Sawicka, M., & Ulrichs, M. (2020). Determinants of dividend payout decisions – the case of publicly quoted food industry enterprises operating in emerging markets. *Economic Research-Ekonomska Istraživanja*, 33(1), 1108-1129. <https://doi.org/10.1080/1331677X.2019.1631201>
25. Gbanador, M. A. (2021). An empirical test for semi-strong form efficient market hypothesis of the Nigeria Stock Market. *Asian Journal of Economics, Business and Accounting*, 21(23), 42-53. <https://doi.org/10.9734/ajeba/2021/v21i2330532>
26. Grullon, G., Michaely, R., & Swaminathan, B. (2002). Are dividend changes a sign of firm maturity? *The Journal of Business*, 75(3), 387-424. <https://doi.org/10.1086/339889>
27. Gu, G., Zhu, W., & Wang, C. (2021). Time-varying influence of interest rates on stock returns: evidence from China. *Economic Research-Ekonomska Istraživanja*, 35(1), 2510-2529. <https://doi.org/10.1080/1331677X.2021.1966639>
28. Guenich, H., Hamdi, K., & Chouaibi, N. (2022). Asymmetric response of investor sentiment to economic policy uncertainty, interest rates and oil price uncertainty: Evidence from OECD countries. *Cogent Economics & Finance*, 10(1), 1-18. <https://doi.org/10.1080/23322039.2022.2151113>
29. Hájek, J. (2007). Czech capital market weak-form efficiency, selected issues. *Prague Economic Papers*, 16(4), 303-318. <https://doi.org/10.18267/j.pep.310>
30. Hayunga, D. K., & Stephens, C. P. (2009). Dividend behaviour of US equity REITs. *Journal of Property Research*, 26(2), 105-123. <https://doi.org/10.1080/09599910903441549>
31. Kapons, M., Kelly, P., Stoumbos, R., & Zambrana, R. (2023). Dividends, trust, and firm value. *Review of Accounting Studies*, 28, 1354-1387. <https://doi.org/10.1007/s11142-023-09795-4>
32. Keswani, S., Puri, V., & Jha, R. (2024). Relationship among macroeconomic factors and stock prices: cointegration approach from the Indian stock market. *Cogent Economics & Finance*, 12(1), 1-20. <https://doi.org/10.1080/23322039.2024.2355017>
33. Kok, S. C., & Munir, Q. (2015). Malaysian finance sector weak-form efficiency: Heterogeneity, structural breaks, and cross-sectional dependence. *Journal of Economics, Finance and Administrative Science*, 20(39), 105-117. <https://doi.org/10.1016/j.jefas.2015.10.002>
34. Krishnan, P., & Periasamy, M. N. (2022). Testing of semi-strong form of efficiency: An empirical study on stock market reaction around dividend announcement. *International Journal of Professional Business Review*, 7(2), 1-18. <https://doi.org/10.26668/business-review/2022.v7i2.483>
35. La Porta, R., Florencio Lopez-Silanes, Shleifer, A., & Vishny, R. W. (2000). Agency problems and dividend policies around the world. *The Journal of Finance*, 55(1), 1-33. <http://www.jstor.org/stable/222549>
36. Lo, A. W., & MacKinlay, A. C. (1988). Stock market prices

- do not follow random walks: Evidence from a simple specification test. *The Review of Financial Studies*, 1(1), 41-66. <https://doi.org/10.1093/rfs/1.1.41>
37. Lotto, J. (2021). Does earnings distribution policy influence corporate stock price instability? Empirical evidence from Tanzanian listed industrial firms. *Cogent Economics & Finance*, 9(1), 1-11. <https://doi.org/10.1080/23322039.2021.1953737>
38. Malkiel, B. G. (2003). The efficient market hypothesis and its critics. *The Journal of Economic Perspectives*, 17(1), 59-82. <https://doi.org/10.1257/089533003321164958>
39. Maquieira, C. P., Arias, J. T., & Espinosa-Méndez, C. (2023). The relationship between dividend payout and economic policy uncertainty (EPU), ownership concentration and free cash flow in Chile. *Economic Research-Ekonomska Istraživanja*, 36(3), 1-19. <https://doi.org/10.1080/1331677X.2023.2203208>
40. Michayluk, D., Neuhauser, K., & Walker, S. (2022). When no news is good news: Failing to increase dividends. *International Journal of Managerial Finance*, 18(1), 138-155. <https://doi.org/10.1108/IJMF-10-2019-0387>
41. Miller, M. H., & Rock, K. (1985). Dividend policy under asymmetric information. *The Journal of Finance*, 40(4), 1031-1051. <https://doi.org/10.2307/2328393>
42. Mouna, A., & Anis, J. (2016). Market, interest rate, and exchange rate risk effects on financial stock returns during the financial crisis: AGARCH-M approach. *Cogent Economics & Finance*, 4(1), 1-16. <https://doi.org/10.1080/23322039.2015.1125332>
43. Phan, T. K. H., & Tran, N. H. (2019). Dividend policy and stock price volatility in an emerging market: Does ownership structure matter? *Cogent Economics & Finance*, 7(1), 1-29. <https://doi.org/10.1080/23322039.2019.1637051>
44. Salah, O. B., & Jarboui, A. (2024). The relationship between dividend policy and earnings management: A causality analysis. *Journal of Economics, Finance and Administrative Science*, 29(57), 166-185. <https://doi.org/10.1108/jefas-09-2021-0198>
45. Santosa, P. B., Pangestuti, I. R. D., Wahyudi, S., & Muharam, H. (2023). Dividend policy in Indonesian banking sector during COVID-19 pandemic period. *Cogent Social Sciences*, 9(2), 1-16. <https://doi.org/10.1080/23311886.2023.2272657>
46. Schrank, J. (2024). The impact of a crisis on monetary policy's influence on financial markets: Evidence from the COVID-19 pandemic. *Cogent Economics & Finance*, 12(1), 1-15. <https://doi.org/10.1080/23322039.2024.2322874>
47. Singh, N. P., & Tandon, A. (2019). The effect of dividend policy on stock price: Evidence from the Indian Market. *Asia-Pacific Journal of Management Research and Innovation*, 15(1-2), 7-15. <https://doi.org/10.1177/2319510X19825729>
48. Sutherland, C. S. (2023). Forward guidance and expectation formation: A narrative approach. *Journal of Applied Econometrics*, 38(2), 222-241. <https://doi.org/10.1002/jae.2948>
49. Syed, A. M., & Bajwa, I. A. (2018). Earnings announcements, stock price reaction and market efficiency – The case of Saudi Arabia. *International Journal of Islamic and Middle Eastern Finance and Management*, 11(3), 416-431. <https://doi.org/10.1108/IMEFM-02-2017-0044>
50. Tursoy, T. (2019). The interaction between stock prices and interest rates in Turkey: Empirical evidence from ARDL bounds test cointegration. *Financial Innovation*, 5(7), 1-12. <https://doi.org/10.1186/s40854-019-0124-6>
51. Vasileiou, E. (2021). Behavioral finance and market efficiency in the time of the COVID-19 pandemic: does fear drive the market? *International Review of Applied Economics*, 35(2), 224-241. <https://doi.org/10.1080/02692171.2020.1864301>
52. Yemidi, S., Asante, G. N., & Takyi, P. O. (2023). Inflation and interest rate dynamics in Ghana: The supply-side perspective. *African Journal of Economic and Management Studies*, 14(4), 776-791. <https://doi.org/10.1108/AJEMS-09-2022-0373>
53. Zelalem, B. A., & Abebe, A. A. (2022). Balance sheet and income statement effect on dividend policy of private commercial banks in Ethiopia. *Cogent Economics & Finance*, 10(1), 1-16. <https://doi.org/10.1080/23322039.2022.2035917>
54. Zobi, M. K. A., & Al-Dhaimesh, O. H. (2021). The impact of cash flow statement components on stock volatility: Evidence from Qatar. *Investment Management and Financial Innovations*, 18(2), 365-373. [http://dx.doi.org/10.21511/imfi.18\(2\).2021.29](http://dx.doi.org/10.21511/imfi.18(2).2021.29)