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WEAK FORM MARKET EFFICIENCY OF STRUCTURED WARRANTS IN INDONESIA STOCK EXCHANGE

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Abstract

Research on the Efficient Market Hypothesis has been widespread, but few studies have examined market efficiency in other financial markets such as structured warrants recently issued by the Indonesia Stock Exchange. This study is devoted to examining the market efficiency in the weak form of structured warrants using 13 structured warrants listed on the Indonesia Stock Exchange. This study aims to analyze the weak efficiency of structured warrants. The data used in this study is the daily closing price data of structured warrants that have been listed on the stock exchange for more than 3 months at the time of this research on March 18, 2023. This data was obtained from RHB Warrant. The analytical tools used are Runs Test, followed by Unit Root Test and Correlogram for Robustness Checking. The result of this study is that structured warrants are efficient in weak form. This indicates that the price of structured warrants is a random walk; therefore, technical analysis cannot be applied to predict the price of structured warrants. The results of this study suggest that traders or investors of structured warrants in trading structured warrants on the Indonesian stock exchange do not use technical analysis.
Keywords: Indonesia Stock Exchange; Structured Warrants; Market Efficiency; Runs Test; Weak Form.

INTRODUCTION

According to Muhammad and Rahim (2015), a capital market is a meeting place for parties who need funds and offer funds in various capital market products provided. Furthermore, the products offered can be money markets, bonds, stocks, and derivatives issued by issuers and directly supervised by the Financial Services Authority (OJK). The capital market is an alternative for people to develop their assets through investing by utilizing asset price volatility. The volatility of asset prices makes investors irrational, whereas the Efficient Market Hypothesis (EMH) theory explains that in making investment decisions investors should behave rationally.

Research on Efficient Market Hypothesis (EMH) has been rampant in Indonesia, but not many investors understand what the Efficient Market Hypothesis (EMH) is. According to Fama (1970), an efficient market is a market where the price of the market is fully described through overall information, thus making investors act objectively through the information obtained. However, in the capital market, not all investors get the same advantage in getting information, so each investor's actions are different. Thus, there is an abnormal return with a difference in actual and expected returns. This makes investors must know how important the Efficient Market Hypothesis (EMH) is as a theory that sometimes prices can describe the value of an asset or not describe it.

The Efficient Market Hypothesis (EMH) has three forms: weak form, semi-strong form, and strong form based on the information available in the market (Onwukwe and Ali, 2018). Onwukwe and Ali (2018) have viewed the weak form as asset prices in the market have been described through information about previous historical prices, which cannot predict or forecast the future price movements of an asset. Weak market efficiency also follows the random walk theory (Yadirichukwu & Ogochukwu, 2014). The semi-strong form indicates that published information about the company has been reflected through price movements (Yadirichukwu & Ogochukwu, 2014). Pulungan et al. (2018) state that the market is classified as a strong form when an asset's price reflects all public and private information.

Types of Structured Warrants are allowed to be listed on the stock exchange, which is Call Warrants and Put Warrants by the Indonesia Stock Exchange (IDX, 2022). Structured Warrants are a new capital market instrument on the Indonesia Stock Exchange which is a breakthrough to provide options for investors in managing their assets or diversifying their assets to get more profit. On the official website of IDX (2022), one of the Structured Warrants, Call Warrant is an option to buy underlying securities (Shares or Securities Index) at a certain price within a certain period, while Put Warrant is an option to sell underlying securities (Shares or Securities Index). However, at this time the Structured Warrants issued in the Indonesian Capital Market are still Call Warrants and the issuers are PT RHB SEKURITAS Indonesia and PT MAYBANK SEKURITAS INDONESIA. What makes the difference between warrants issued by a company and warrants from third parties other than the issuer is the Underlying that is used as collateral in the issuance of warrants and also the term of the warrant itself.

Most research on the Efficient Market Hypothesis (EMH) examines more about several capital market instruments such as stocks, bonds, and commodities, and even examines financial markets. Research by Robiyanto et al. (2015) examines precious metals, research by Pulungan et al. (2018) examines CPO, research from Yadirichukwu and Ogochukwu (2014) examines the stock market in Nigeria, and research from Qoyum et al. (2018) examines the stock market in Indonesia. Meanwhile, there is a new instrument on the Indonesia Stock Exchange, namely Structured Warrants. This instrument was just issued by the Indonesia Stock Exchange on September 19, 2022.

Based on the explanation above, there has been no research on new instruments in the Indonesian capital market in the form of Structured Warrants due to the new issuance of Structured Warrants. Thus, this study examined the market efficiency in the weak form of Structured Warrants. This study uses the Runs Test analysis tool, followed by Unit Root Test using the Augmented Dickey-Fuller test and Correlogram. The results of the study are expected to provide theoretical benefits to investors and academics in expanding knowledge and financial literacy regarding capital market instruments and provide practical benefits for investors in diversifying portfolios of assets to be invested.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1. STRUCTURED WARRANT

Structured Warrant is a new instrument in the Indonesian capital market. However, Structured Warrants are commonly traded assets on various stock exchanges. Structured

Warrants traded on the Indonesia Stock Exchange are the same asset as "covered warrant" in the United Kingdom, "derivative warrant" in Thailand, and "structured warrant" in Singapore and Malaysia (Murad Samsudin et al., 2022). Structured warrants are similar to the options market, as there is call and put options. Through RHB Securities (2022), Call options in Structured Warrants aim to give investors the right to buy assets at a predetermined price (exercise price) on or before a certain date (expiry date), while Put options aim to give investors the right to sell assets at a predetermined price (exercise price) on or before a certain date (expiry date).

Only Structured Warrant Call options with the underlying IDX30 Stock Index Constituent Shares are valid in the Indonesian capital market. The maturity of Structured Warrants ranges from 2 months to 2 years. The trading time of Structured Warrants also follows the trading time of shares in the secondary market, except that Structured Warrants do not have a maximum price change limit. Auto Rejection of Structured Warrants occurs when the price of the Structured Warrant equals or exceeds the price of the underlying security. Structured Warrants on the Indonesia Stock Exchange are European-style which means the ability to exercise their rights on the Exercise Date. Trading of Structured Warrants is supported by the Structured Warrant Liquidity Provider. The Structured Warrant Liquidity Provider is a member of the stock exchange who is the issuer or a member of the stock exchange that signs an agreement with the Issuer to carry out the sale and purchase of Structured Warrants, either for its benefit or for the benefit of the Issuer and is obliged to conduct buy requests and sell offers of Structured Warrants on each trading day to support the liquidity of Structured Warrant trading. Liquidity Providers for the Structured Warrants on the Indonesia Stock Exchange are currently PT RHB SEKURITAS INDONESIA and PT MAYBANK SEKURITAS Indonesia.

2.2. EFFICIENT MARKET HYPOTHESIS

The Efficient Market Hypothesis which is well-known to many people explains that an efficient market is when changes in the price of a market or asset follow the information available in the market (Qoyum et al., 2018). The rationality of an investor will be tested when market price movements are sometimes by existing information or when market price movements do not reflect existing information. Experience will determine how investment decisions are made by each investor so that investors know what is meant by the Efficient Market Hypothesis. Information that can affect market or asset price movements can be in the form of past information, current information, information that can create a sentiment or rational public opinion that can be obtained by investors which will affect price movements, and even insider information from the company (Juta Hase and Asandimitra Haryono, 2018). According to Lekhal and El Oubani (2020) that fully reflecting the price of an asset makes investors unable to exploit all information circulating to obtain abnormal returns. Research from Fama (1970) categorizes market efficiency into 3 forms: market efficiency in weak form, market efficiency in semi-strong form, and efficiency in strong form.

Robiyanto (2017) has the view that an efficient capital market is when the movement of stock prices or the price of an asset is unpredictable or random (random walk). The random walk itself is often used to test whether the market is in a weak form or not such as research by Pulungan et al. (2018) who examined market efficiency in a weak form for CPO. Market efficiency in weak form uses historical data of an asset as a means of information in forecasting

stock price movements, which is somewhat futile because many studies state that historical data is not able to predict stock or asset price movements in the idea of an efficient market (Yadirichukwu and Ogochukwu, 2014). According to (Hersugondo et al., 2016), market efficiency in semi-strong form is when the capital market is said to be efficient if the price of a stock or an asset reflects all information that can be obtained through public information. Then, the market is said to be efficient in strong form when the stock price or price of an asset reflects all available private and public information (Pulungan et al., 2018).

RESEARCH METHOD

The type of data used in this study is secondary data which will be analyzed using quantitative techniques. The population and secondary data used in this study are historical data from Structured Warrants that have been listed on the Indonesia Stock Exchange. The data source used is daily Structured Warrant closing price data from https://waran.rhbtradesmart.co.id/id/WarrantDetails. The sample will be taken using the Purposive Sampling Method so that the data is determined and selected through several requirements and criteria that have been adjusted. The criteria used are Structured Warrants that have been listed on the Indonesia Stock Exchange for at least 3 months from the first day of trading. The data processed is backward daily data before the research was conducted on March 18, 2023.

The return rate of Structured Warrants in this study uses the following calculation formula:

$$Return\ Structured\ Warrant\ Index\ X = \frac{(Index\ X_t - Index\ X_{t-1}}{Index\ X_{t-1}} \quad \text{.....(1)}$$

Where :

Index X_t = Closing price of the Structured Warrant index on the Indonesia Stock Exchange on day t

Indeks X_{t-1} = Closing price of the Structured Warrant index on the Indonesia Stock Exchange on day t-1

X = Structured Warrant Return

To determine market efficiency, the data analysis tool used is the Runs Test using the mean and median cut points. The hypothesis formulated in this study will be accepted if it has a significant Z statistical value at the 0.05 significance level. There are also other tests, namely the Unit Root Test using the Augmented Dickey-Fuller test and Correlogram. The Correlogram used contains 36 lags through Eviews software. Other studies test weak market efficiency using the Runs Test and Unit Root Test including (Pulungan et al., 2018) which examines the CPO market in weak form market efficiency using Correlogram, (Khan and Khan, 2016) which examines the Pakistan stock market weak form market efficiency using the Unit Root Test through the Augmented Dickey-Fuller test and Runs Test.

RESULTS AND DISCUSSION

4.1. RUNS TEST ANALYSIS

The results of the Runs Test can be seen in Table 1. Based on the results of the Runs Test using the mean and median at the significance level of 0.10, 0.05, and 0.01, there are 12 Structured Warrants whose null hypothesis is accepted so that the 12 Structured Warrants include efficient markets in a weak form, namely BBRIDRCM3A, ADRODRCM3A, UNVRDRCM3A, ANTMDRCM3A, BMRIDRCK3A, MDKADRCK3A, PGASDRCK3A, BBCADRCK3A, HRUMDRCM3A, ICBPDRCM3A, TLKMDRCM3A, and INCODRCM3A. For BRPTDRCM3A, it is an inefficient market because the Runs Test value using the mean (0.022) and median (0.022) is smaller than the significance level of 0.10 and 0.05. Thus it can be seen that the majority of Structured Warrants follow the random walk theory so it can be ascertained that the Structured Warrants circulating on the Indonesia Stock Exchange are an efficient market in weak form. This is also supported by research on other financial markets from Juta Hase and Asandimitra Haryono (2018) and Onwukwe and Ali (2018), which state that the stock market is in a form of weak market efficiency.

Table 1. Runs Test Result

Structured Warrant	Runs Test	
	Mean	Median
BBRIDRCM3A	0.214	0.214
ADRODRCM3A	0.238	0.375
UNVRDRCM3A	0.774	0.478
ANTMDRCK3A	0.738	0.289
BMRIDRCK3A	0.136	0.138
MDKADRCK3A	0.798	0.832
PGASDRCK3A	0.211	0.289
BBCADRCK3A	0.280	0.525
HRUMDRCM3A	0.557	0.557
BRPTDRCM3A	0.022**	0.022**
ICBPDRCM3A	0.235	0.235
TLKMDRCM3A	0.725	0.725
INCODRCM3A	0.472	0.476

Source: RHB Structured Warrant, Data has been processed

4.2. CORRELOGRAM and UNIT ROOT TEST ANALYSIS

The next test conducted is the Unit Root Test using the Augmented Dickey-Fuller test and Correlogram with 36 lags. The results of the Unit Root Test can be seen in that of the 13 Structured Warrants tested with a significance level of 0.05 no Unit Root was found. For the

Correlogram Test with a significance level of 0.05, 10 Structured Warrants indicate an efficient market because the prob value in the Correlogram is higher than the significance or H0 is accepted which means the market is efficient, but of the 10 Structured Warrants, there is 1 Structured Warrant that does not pass the Runs Test, namely BRPTDRCM3A so it remains confirmed that BRPTDRCM3A is an inefficient market. 9 Structured Warrants that are efficient markets are BBRIDRCM3A, ADRODRCM3A, UNVRDRCM3A, BMRIDRCK3A, MDKADRCK3A, BBCADRCK3A, ICBPDRCM3A, TLKMDRCM3A, and INCODRCM3A.

Table 2. Correlogram and Unit Root Test Result

Structured Warrant	Robustness Check	
	Correlogram	Unit Root Test
BBRIDRCM3A	0 lag	0.0000
ADRODRCM3A	0 lag	0.0000
UNVRDRCM3A	0 lag	0.0000
ANTMDRCK3A	6 lags	0.0000
BMRIDRCK3A	0 lag	0.0000
MDKADRCK3A	0 lag	0.0000
PGASDRCK3A	1 lag	0.0002
BBCADRCK3A	0 lag	0.0000
HRUMDRCM3A	4 lags	0.0000
BRPTDRCM3A	0 lag	0.0001
ICBPDRCM3A	0 lag	0.0000
TLKMDRCM3A	0 lag	0.0000
INCODRCM3A	0 lag	0.0000

Source: RHB Structured Warrant, Data has been processed

CONCLUSION

Based on the research conducted, it is concluded that there is market efficiency in the weak form of Structured Warrants even though Structured Warrants are a new capital market instrument on the Indonesia Stock Exchange. This study tests market efficiency in a weak form with a sequence of Runs Tests followed by the Unit Root Test and Correlogram. Of the 13 Structured Warrants only 12 Structured Warrants passed the Runs Test and of the 12 Structured Warrants only 9 Structured Warrants meet the criteria that market efficiency is in a weak form because it follows the random walk theory. In this study, there was also no pattern of Structured Warrant price movements in the 9 Structured Warrants tested with the Unit Root

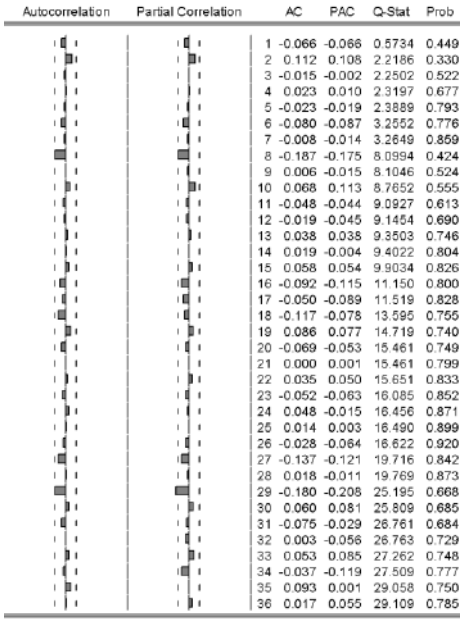
Test and Correlogram. Through the explanation above, it indicates that 9 Structured Warrants, namely BBRIDRCM3A, ADRODRCM3A, UNVRDRCM3A, BMRIDRCK3A, MDKADRCK3A, BBCADRCK3A, ICBPDRCM3A, TLKMDRCM3A, and INCODRCM3A are by Random Walk Theory which makes it inappropriate for traders or investors to use technical analysis on these 9 Structured Warrants. The prices of Structured Warrants follow Random Walk Theory because the market is very active or can be called volatile. As a new capital market instrument, Structured Warrants are strongly influenced by the movement of the underlying asset, namely stocks in the IDX30 Index. This study found evidence that the Efficient Market Hypothesis (EMH) can be applied to Structured Warrants which Efficient Market Hypothesis (EMH) is also proven in the capital market because many previous studies have been conducted. Thus, it can be concluded that the Efficient Market Hypothesis (EMH) in weak form can apply to the capital market, one of which is the Structured Warrant instrument.

It is recommended when trading on Structured Warrants, especially BBRIDRCM3A, ADRODRCM3A, UNVRDRCM3A, BMRIDRCK3A, MDKADRCK3A, BBCADRCK3A, ICBPDRCM3A, TLKMDRCM3A, and INCODRCM3A not to use technical analysis. That is because technical analysis is not appropriate when applied in an efficient market in a weak form so investors and traders in Structured Warrant instruments should consider other analytical tools such as fundamental analysis and also the price movements of the Underlying Asset of the Structured Warrant. For researchers who want to research Structured Warrants, they can use a longer period and also a different time series because this study uses daily time series and can add new Structured Warrants in the future.

Figure

1. BBRIDRCM3A (19 September 2022 – 17 March 2023)

Figure 1.1 Correlogram Result



Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	-0.066	-0.066	0.5734	0.449
		2	0.112	0.108	2.2186	0.330
		3	-0.015	-0.002	2.2502	0.522
		4	0.023	0.010	2.3197	0.677
		5	-0.023	-0.019	2.3889	0.793
		6	-0.080	-0.087	3.2552	0.776
		7	-0.008	-0.014	3.2649	0.859
		8	-0.187	-0.175	8.0994	0.424
		9	0.006	-0.015	8.1046	0.524
		10	0.068	0.113	8.7652	0.555
		11	-0.048	-0.044	9.0927	0.613
		12	-0.019	-0.045	9.1454	0.690
		13	0.038	0.038	9.3503	0.746
		14	0.019	-0.004	9.4022	0.804
		15	0.058	0.054	9.9034	0.826
		16	-0.092	-0.115	11.150	0.800
		17	-0.050	-0.089	11.519	0.828
		18	-0.117	-0.078	13.595	0.755
		19	0.086	0.077	14.719	0.740
		20	-0.069	-0.053	15.461	0.749
		21	0.000	0.001	15.461	0.799
		22	0.035	0.050	15.651	0.833
		23	-0.052	-0.063	16.085	0.852
		24	0.048	-0.015	16.456	0.871
		25	0.014	0.003	16.490	0.899
		26	-0.028	-0.064	16.622	0.920
		27	-0.137	-0.121	19.716	0.842
		28	0.018	-0.011	19.769	0.873
		29	-0.180	-0.208	25.195	0.668
		30	0.060	0.081	25.809	0.685
		31	-0.075	-0.029	26.761	0.684
		32	0.003	-0.056	26.763	0.729
		33	0.053	0.085	27.262	0.748
		34	-0.037	-0.119	27.509	0.777
		35	0.093	0.001	29.058	0.750
		36	0.017	0.055	29.109	0.785

Figure 1.2 Unit Root Test Result

Null Hypothesis: RETURN has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-11.42679	0.0000
Test critical values:	1% level	-3.482453	
	5% level	-2.884291	
	10% level	-2.578981	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RETURN)
Method: Least Squares
Date: 03/18/23 Time: 09:22
Sample (adjusted): 9/21/2022 3/17/2023
Included observations: 127 after adjustments

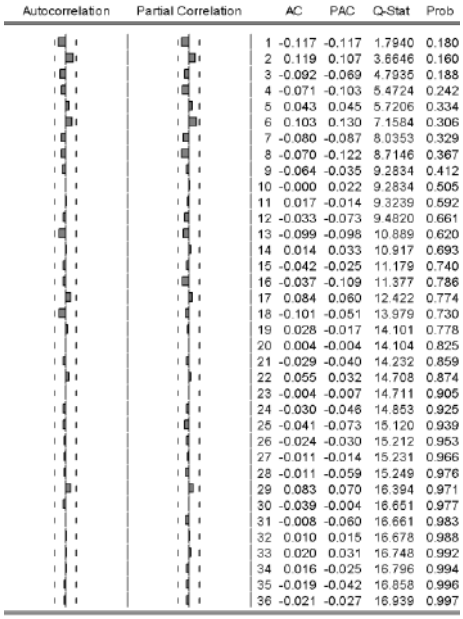
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RETURN(-1)	-1.073293	0.093928	-11.42679	0.0000
C	-0.002193	0.003242	-0.676579	0.4999

R-squared	0.510900	Mean dependent var	0.001029
Adjusted R-squared	0.506987	S.D. dependent var	0.051837
S.E. of regression	0.036397	Akaike info criterion	-3.773037
Sum squared resid	0.165593	Schwarz criterion	-3.728247
Log likelihood	241.5878	Hannan-Quinn criter.	-3.754839
F-statistic	130.5716	Durbin-Watson stat	1.876977
Prob(F-statistic)	0.000000		

Source: RHB Structured Warrant, Data has been processed

2. ADRODRCM3A (19 September 2022 – 17 March 2023)

Figure 2.1 Correlogram Result



Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	-0.117	-0.117	1.7940	0.180
		2	0.119	0.107	3.6646	0.160
		3	-0.092	-0.069	4.7935	0.188
		4	-0.071	-0.103	5.4724	0.242
		5	0.043	0.045	5.7206	0.334
		6	0.103	0.130	7.1584	0.306
		7	-0.080	-0.087	8.0353	0.329
		8	-0.070	-0.122	8.7146	0.367
		9	-0.064	-0.035	9.2834	0.412
		10	-0.000	0.022	9.2834	0.505
		11	0.017	-0.014	9.3239	0.592
		12	-0.033	-0.073	9.4820	0.661
		13	-0.099	-0.098	10.889	0.620
		14	0.014	0.033	10.917	0.693
		15	-0.042	-0.025	11.179	0.740
		16	-0.037	-0.109	11.377	0.786
		17	0.084	0.060	12.422	0.774
		18	-0.101	-0.051	13.979	0.730
		19	0.028	-0.017	14.101	0.778
		20	0.004	-0.004	14.104	0.825
		21	-0.029	-0.040	14.232	0.859
		22	0.055	0.032	14.708	0.874
		23	-0.004	-0.007	14.711	0.905
		24	-0.030	-0.046	14.853	0.925
		25	-0.041	-0.073	15.120	0.939
		26	-0.024	-0.030	15.212	0.953
		27	-0.011	-0.014	15.231	0.966
		28	-0.011	-0.059	15.249	0.976
		29	0.083	0.070	16.394	0.971
		30	-0.039	-0.004	16.651	0.977
		31	-0.008	-0.060	16.661	0.983
		32	0.010	0.015	16.678	0.988
		33	0.020	0.031	16.748	0.992
		34	0.016	-0.025	16.796	0.994
		35	-0.019	-0.042	16.858	0.996
		36	-0.021	-0.027	16.939	0.997

Figure 2.2 Unit Root Test Result

Null Hypothesis: RETURN has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-11.80528	0.0000
Test critical values:	1% level	-3.482453	
	5% level	-2.884291	
	10% level	-2.578981	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RETURN)
Method: Least Squares
Date: 03/18/23 Time: 09:24
Sample (adjusted): 9/21/2022 3/17/2023
Included observations: 127 after adjustments

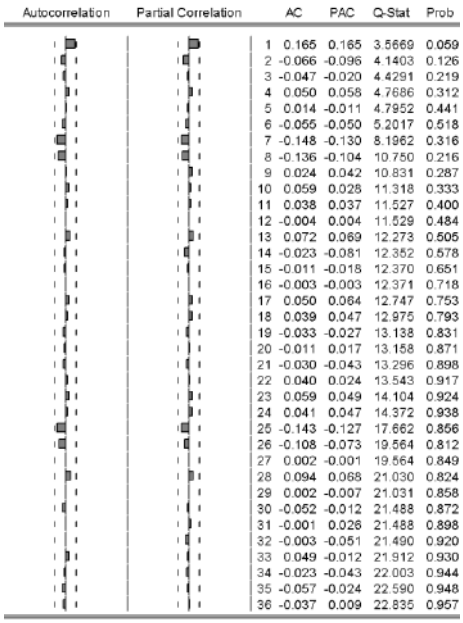
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RETURN(-1)	-1.138177	0.096413	-11.80528	0.0000
C	-0.011352	0.004853	-2.339394	0.0209

R-squared	0.527168	Mean dependent var	0.001870
Adjusted R-squared	0.523386	S.D. dependent var	0.077073
S.E. of regression	0.053209	Akaike info criterion	-3.013562
Sum squared resid	0.353897	Schwarz criterion	-2.968772
Log likelihood	193.3612	Hannan-Quinn criter.	-2.995365
F-statistic	139.3647	Durbin-Watson stat	1.847414
Prob(F-statistic)	0.000000		

Source: RHB Structured Warrant, Data has been processed

3. UNVRDRCM3A (19 September 2022 – 17 March 2023)

Figure 3.1 Correlogram Result



Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.165	0.165	3.5669	0.059
		2	-0.066	-0.096	4.1403	0.126
		3	-0.047	-0.020	4.4291	0.219
		4	0.050	0.058	4.7686	0.312
		5	0.014	-0.011	4.7952	0.441
		6	-0.055	-0.050	5.2017	0.518
		7	-0.148	-0.130	8.1962	0.316
		8	-0.136	-0.104	10.750	0.216
		9	0.024	0.042	10.831	0.287
		10	0.059	0.028	11.318	0.333
		11	0.038	0.037	11.527	0.400
		12	-0.004	0.004	11.529	0.484
		13	0.072	0.069	12.273	0.505
		14	-0.023	-0.081	12.352	0.578
		15	-0.011	-0.018	12.370	0.651
		16	-0.003	-0.003	12.371	0.718
		17	0.050	0.064	12.747	0.753
		18	0.039	0.047	12.975	0.793
		19	-0.033	-0.027	13.138	0.831
		20	-0.011	0.017	13.158	0.871
		21	-0.030	-0.043	13.296	0.898
		22	0.040	0.024	13.543	0.917
		23	0.059	0.049	14.104	0.924
		24	0.041	0.047	14.372	0.938
		25	-0.143	-0.127	17.662	0.856
		26	-0.108	-0.073	19.564	0.812
		27	0.002	-0.001	19.564	0.849
		28	0.094	0.068	21.030	0.824
		29	0.002	-0.007	21.031	0.858
		30	-0.052	-0.012	21.488	0.872
		31	-0.001	0.026	21.488	0.898
		32	-0.003	-0.051	21.490	0.920
		33	0.049	-0.012	21.912	0.930
		34	-0.023	-0.043	22.003	0.944
		35	-0.057	-0.024	22.590	0.948
		36	-0.037	0.009	22.835	0.957

Figure 3.2 Unit Root Test Result

Null Hypothesis: RETURN has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-9.395984	0.0000
Test critical values:	1% level	-3.482453	
	5% level	-2.884291	
	10% level	-2.578981	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RETURN)
Method: Least Squares
Date: 03/18/23 Time: 09:32
Sample (adjusted): 9/21/2022 3/17/2023
Included observations: 127 after adjustments

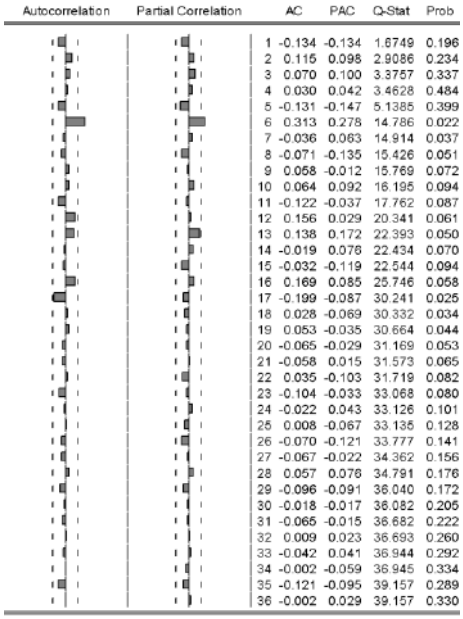
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RETURN(-1)	-0.832248	0.088575	-9.395984	0.0000
C	-0.006446	0.004858	-1.326886	0.1870

R-squared	0.413928	Mean dependent var	0.000190
Adjusted R-squared	0.409240	S.D. dependent var	0.070472
S.E. of regression	0.054165	Akaike info criterion	-2.977924
Sum squared resid	0.366737	Schwarz criterion	-2.933134
Log likelihood	191.0982	Hannan-Quinn criter.	-2.959726
F-statistic	88.28451	Durbin-Watson stat	1.950380
Prob(F-statistic)	0.000000		

Source: RHB Structured Warrant, Data has been processed

4. ANTMDRCK3A (10 November 2022 – 17 March 2023)

Figure 4.1 Correlogram Result



Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	-0.134	-0.134	1.6749	0.196
		2	0.115	0.098	2.9086	0.234
		3	0.070	0.100	3.3757	0.337
		4	0.030	0.042	3.4628	0.484
		5	-0.131	-0.147	5.1385	0.399
		6	0.313	0.278	14.786	0.022
		7	-0.036	0.063	14.914	0.037
		8	-0.071	-0.135	15.426	0.051
		9	0.058	-0.012	15.769	0.072
		10	0.064	0.092	16.195	0.094
		11	-0.122	-0.037	17.762	0.087
		12	0.156	0.029	20.341	0.061
		13	0.138	0.172	22.393	0.050
		14	-0.019	0.076	22.434	0.070
		15	-0.032	-0.119	22.544	0.094
		16	0.169	0.085	25.746	0.058
		17	-0.199	-0.087	30.241	0.025
		18	0.028	-0.069	30.332	0.034
		19	0.053	-0.035	30.664	0.044
		20	-0.065	-0.029	31.169	0.053
		21	-0.058	0.015	31.573	0.065
		22	0.035	-0.103	31.719	0.082
		23	-0.104	-0.033	33.068	0.080
		24	-0.022	0.043	33.126	0.101
		25	0.008	-0.067	33.136	0.128
		26	-0.070	-0.121	33.777	0.141
		27	-0.067	-0.022	34.362	0.156
		28	0.057	0.076	34.791	0.176
		29	-0.096	-0.091	36.040	0.172
		30	-0.018	-0.017	36.082	0.205
		31	-0.065	-0.015	36.682	0.222
		32	0.009	0.023	36.693	0.260
		33	-0.042	0.041	36.944	0.292
		34	-0.002	-0.059	36.945	0.334
		35	-0.121	-0.095	39.157	0.289
		36	-0.002	0.029	39.157	0.330

Figure 4.2 Unit Root Test Result

Null Hypothesis: RETURN has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=11)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-10.59809	0.0000
Test critical values:	1% level	-3.505595	
	5% level	-2.894332	
	10% level	-2.584325	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RETURN)
Method: Least Squares
Date: 03/18/23 Time: 09:27
Sample (adjusted): 11/14/2022 3/17/2023
Included observations: 89 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RETURN(-1)	-1.153677	0.108857	-10.59809	0.0000
C	-0.009310	0.005947	-1.565472	0.1211

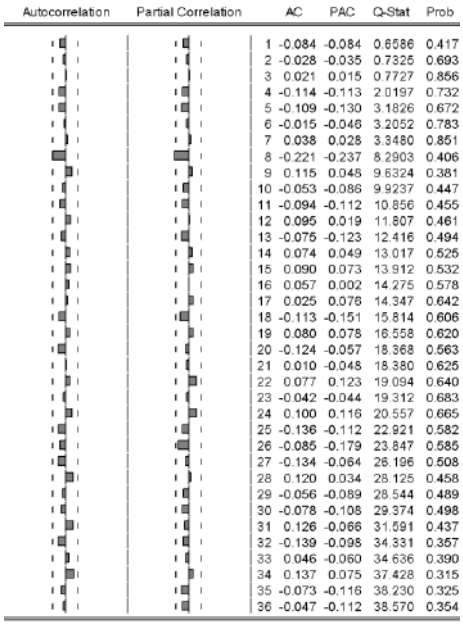
R-squared	0.563515	Mean dependent var	0.000473
Adjusted R-squared	0.558498	S.D. dependent var	0.083410
S.E. of regression	0.055422	Akaike info criterion	-2.925464
Sum squared resid	0.267229	Schwarz criterion	-2.869540
Log likelihood	132.1832	Hannan-Quinn criter.	-2.902923
F-statistic	112.3195	Durbin-Watson stat	1.861790
Prob(F-statistic)	0.000000		

Source: RHB Structured Warrant, Data has been processed

5. BMRIDRCK3A (10 November 2022 – 17 March 2023)

Figure 5.1 Correlogram Result

Figure 5.2 Unit Root Test Result



Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	-0.084	-0.084	0.6586	0.417
		2	-0.028	-0.035	0.7325	0.693
		3	0.021	0.015	0.7727	0.856
		4	-0.114	-0.113	2.0197	0.732
		5	-0.109	-0.130	3.1826	0.672
		6	-0.015	-0.046	3.2052	0.783
		7	0.038	0.028	3.3480	0.851
		8	-0.221	-0.237	8.2903	0.406
		9	0.115	0.048	9.6324	0.381
		10	-0.053	-0.086	9.9237	0.447
		11	-0.094	-0.112	10.856	0.455
		12	0.095	0.019	11.807	0.461
		13	-0.075	-0.123	12.416	0.494
		14	0.074	0.049	13.017	0.525
		15	0.090	0.073	13.912	0.532
		16	0.057	0.002	14.275	0.578
		17	0.025	0.076	14.347	0.642
		18	-0.113	-0.151	15.814	0.606
		19	0.080	0.078	16.558	0.620
		20	-0.124	-0.057	18.368	0.563
		21	0.010	-0.048	18.380	0.625
		22	0.077	0.123	19.094	0.640
		23	-0.042	-0.044	19.312	0.683
		24	0.100	0.116	20.557	0.665
		25	-0.136	-0.112	22.921	0.582
		26	-0.085	-0.179	23.847	0.585
		27	-0.134	-0.064	26.196	0.508
		28	0.120	0.034	28.125	0.458
		29	-0.056	-0.089	28.544	0.489
		30	-0.078	-0.108	29.374	0.498
		31	0.126	-0.066	31.591	0.437
		32	-0.139	-0.098	34.331	0.357
		33	0.046	-0.060	34.636	0.390
		34	0.137	0.075	37.428	0.315
		35	-0.073	-0.116	38.230	0.325
		36	-0.047	-0.112	38.570	0.354

Null Hypothesis: RETURN has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=11)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-10.06372	0.0000
Test critical values:	1% level	-3.505595	
	5% level	-2.894332	
	10% level	-2.584325	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RETURN)
Method: Least Squares
Date: 03/18/23 Time: 09:49
Sample (adjusted): 11/14/2022 3/17/2023
Included observations: 89 after adjustments

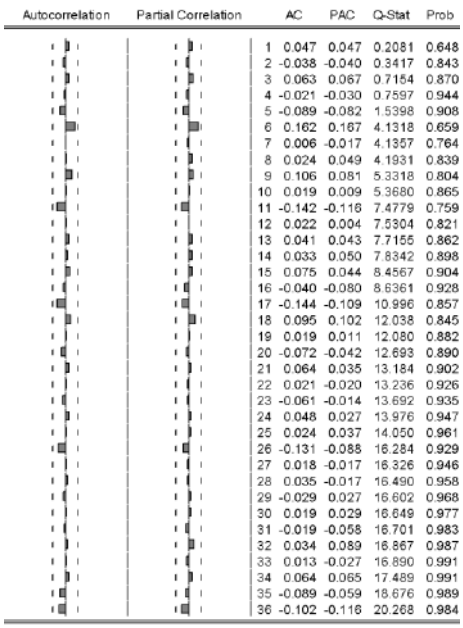
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RETURN(-1)	-1.086958	0.108008	-10.06372	0.0000
C	-0.006995	0.007430	-0.941499	0.3491

R-squared	0.537918	Mean dependent var	0.000598
Adjusted R-squared	0.532607	S.D. dependent var	0.101994
S.E. of regression	0.069729	Akaike info criterion	-2.466176
Sum squared resid	0.423010	Schwarz criterion	-2.410252
Log likelihood	111.7448	Hannan-Quinn criter.	-2.443635
F-statistic	101.2784	Durbin-Watson stat	1.971178
Prob(F-statistic)	0.000000		

Source: RHB Structured Warrant, Data has been processed

6. MDKADRCK3A (10 November 2022 – 17 March 2023)

Figure 6.1 Correlogram Result



Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.047	0.047	0.2081	0.648
		2	-0.038	-0.040	0.3417	0.843
		3	0.063	0.067	0.7154	0.870
		4	-0.021	-0.030	0.7597	0.944
		5	-0.089	-0.082	1.5398	0.908
		6	0.162	0.167	4.1318	0.659
		7	0.006	-0.017	4.1357	0.764
		8	0.024	0.049	4.1931	0.839
		9	0.106	0.081	5.3318	0.804
		10	0.019	0.009	5.3680	0.865
		11	-0.142	-0.116	7.4779	0.759
		12	0.022	0.004	7.5304	0.821
		13	0.041	0.043	7.7155	0.862
		14	0.033	0.050	7.8342	0.898
		15	0.075	0.044	8.4567	0.904
		16	-0.040	-0.080	8.6361	0.928
		17	-0.144	-0.109	10.996	0.857
		18	0.095	0.102	12.038	0.845
		19	0.019	0.011	12.080	0.882
		20	-0.072	-0.042	12.693	0.890
		21	0.064	0.035	13.184	0.902
		22	0.021	-0.020	13.236	0.926
		23	-0.061	-0.014	13.692	0.935
		24	0.048	0.027	13.976	0.947
		25	0.024	0.037	14.050	0.961
		26	-0.131	-0.088	16.284	0.929
		27	0.018	-0.017	16.326	0.946
		28	0.035	-0.017	16.490	0.958
		29	-0.029	0.027	16.602	0.968
		30	0.019	0.029	16.649	0.977
		31	-0.019	-0.058	16.701	0.983
		32	0.034	0.089	16.867	0.987
		33	0.013	-0.027	16.890	0.991
		34	0.064	0.065	17.489	0.991
		35	-0.089	-0.059	18.676	0.989
		36	-0.102	-0.116	20.268	0.984

Figure 6.2 Unit Root Test Result

Null Hypothesis: RETURN has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=11)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-9.328704	0.0000
Test critical values:	1% level	-3.505595	
	5% level	-2.894332	
	10% level	-2.584325	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RETURN)
Method: Least Squares
Date: 03/18/23 Time: 09:51
Sample (adjusted): 11/14/2022 3/17/2023
Included observations: 89 after adjustments

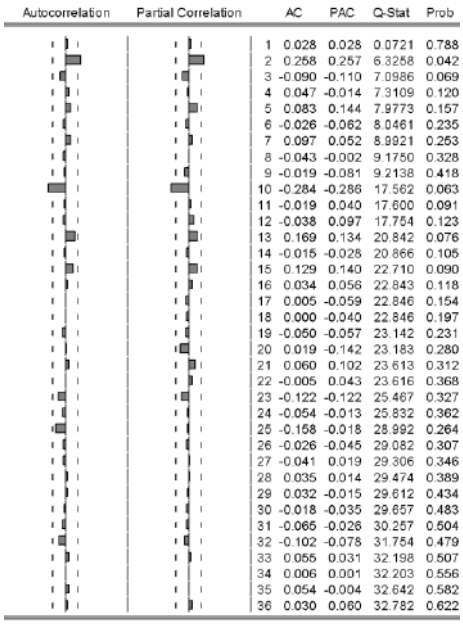
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RETURN(-1)	-0.952759	0.102132	-9.328704	0.0000
C	-0.009961	0.008230	-1.210374	0.2294

R-squared	0.500071	Mean dependent var	-0.002250
Adjusted R-squared	0.494325	S.D. dependent var	0.108631
S.E. of regression	0.077249	Akaike info criterion	-2.261356
Sum squared resid	0.519161	Schwarz criterion	-2.205432
Log likelihood	102.6304	Hannan-Quinn criter.	-2.238815
F-statistic	87.02471	Durbin-Watson stat	2.021273
Prob(F-statistic)	0.000000		

Source: RHB Structured Warrant, Data has been processed

7. PGASDRCK3A (10 November 2022 – 17 March 2023)

Figure 7.1 Correlogram Result



Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.028	0.028	0.0721	0.788
		2	0.258	0.257	6.3258	0.042
		3	-0.090	-0.110	7.0986	0.069
		4	0.047	-0.014	7.3109	0.120
		5	0.083	0.144	7.9773	0.157
		6	-0.026	-0.062	8.0461	0.235
		7	0.097	0.052	8.9921	0.253
		8	-0.043	-0.002	9.1750	0.328
		9	-0.019	-0.081	9.2138	0.418
		10	-0.284	-0.286	17.562	0.063
		11	-0.019	0.040	17.600	0.091
		12	-0.038	0.097	17.754	0.123
		13	0.169	0.134	20.842	0.076
		14	-0.015	-0.028	20.866	0.105
		15	0.129	0.140	22.710	0.090
		16	0.034	0.056	22.843	0.118
		17	0.005	-0.059	22.846	0.154
		18	0.000	-0.040	22.846	0.197
		19	-0.050	-0.057	23.142	0.231
		20	0.019	-0.142	23.183	0.280
		21	0.060	0.102	23.613	0.312
		22	-0.005	0.043	23.616	0.368
		23	-0.122	-0.122	25.467	0.327
		24	-0.054	-0.013	25.832	0.362
		25	-0.158	-0.018	28.992	0.264
		26	-0.026	-0.045	29.082	0.307
		27	-0.041	0.019	29.306	0.346
		28	0.035	0.014	29.474	0.389
		29	0.032	-0.015	29.612	0.434
		30	-0.018	-0.035	29.657	0.483
		31	-0.065	-0.026	30.257	0.504
		32	-0.102	-0.078	31.754	0.479
		33	0.055	0.031	32.198	0.507
		34	0.006	0.001	32.203	0.556
		35	0.054	-0.004	32.642	0.582
		36	0.030	0.060	32.782	0.622

Figure 7.2 Unit Root Test Result

Null Hypothesis: RETURN has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=11)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.764590	0.0002
Test critical values:	1% level	-3.506484	
	5% level	-2.894716	
	10% level	-2.584529	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RETURN)
Method: Least Squares
Date: 03/18/23 Time: 09:54
Sample (adjusted): 11/15/2022 3/17/2023
Included observations: 88 after adjustments

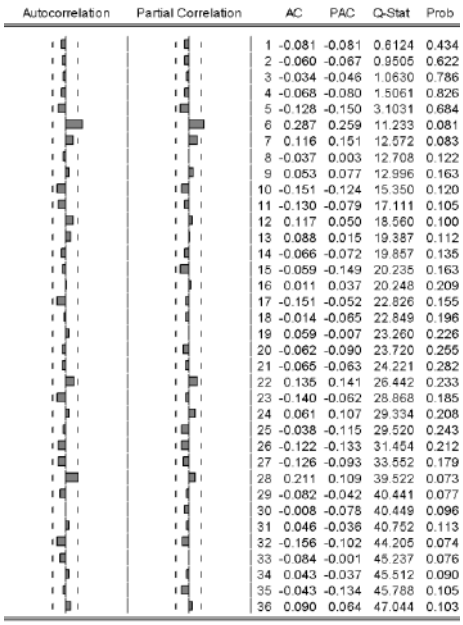
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RETURN(-1)	-0.702805	0.147506	-4.764590	0.0000
D(RETURN(-1))	-0.280757	0.108273	-2.593044	0.0112
C	-0.017847	0.008731	-2.044046	0.0440

R-squared	0.523876	Mean dependent var	0.000194
Adjusted R-squared	0.512673	S.D. dependent var	0.108386
S.E. of regression	0.075663	Akaike info criterion	-2.291553
Sum squared resid	0.486619	Schwarz criterion	-2.207098
Log likelihood	103.8283	Hannan-Quinn criter.	-2.257528
F-statistic	46.76250	Durbin-Watson stat	1.935305
Prob(F-statistic)	0.000000		

Source: RHB Structured Warrant, Data has been processed

8. BBCADRCK3A (10 November 2022 – 17 March 2023)

Figure 8.1 Correlogram Result



Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	-0.081	-0.081	0.6124	0.434
		2	-0.060	-0.067	0.9505	0.622
		3	-0.034	-0.046	1.0630	0.786
		4	-0.068	-0.080	1.5061	0.826
		5	-0.128	-0.150	3.1031	0.684
		6	0.287	0.259	11.233	0.081
		7	0.116	0.151	12.572	0.083
		8	-0.037	0.003	12.708	0.122
		9	0.053	0.077	12.996	0.163
		10	-0.151	-0.124	15.350	0.120
		11	-0.130	-0.079	17.111	0.105
		12	0.117	0.050	18.560	0.100
		13	0.088	0.015	19.387	0.112
		14	-0.066	-0.072	19.857	0.135
		15	-0.059	-0.149	20.235	0.163
		16	0.011	0.037	20.248	0.209
		17	-0.151	-0.052	22.826	0.155
		18	-0.014	-0.065	22.849	0.196
		19	0.059	-0.007	23.260	0.226
		20	-0.062	-0.090	23.720	0.255
		21	-0.065	-0.063	24.221	0.282
		22	0.135	0.141	26.442	0.233
		23	-0.140	-0.062	28.868	0.185
		24	0.061	0.107	29.334	0.208
		25	-0.038	-0.115	29.520	0.243
		26	-0.122	-0.133	31.454	0.212
		27	-0.126	-0.093	33.552	0.179
		28	0.211	0.109	39.522	0.073
		29	-0.082	-0.042	40.441	0.077
		30	-0.008	-0.078	40.449	0.096
		31	0.046	-0.036	40.752	0.113
		32	-0.156	-0.102	44.205	0.074
		33	-0.084	-0.001	45.237	0.076
		34	0.043	-0.037	45.512	0.090
		35	-0.043	-0.134	45.788	0.105
		36	0.090	0.064	47.044	0.103

Figure 8.2 Unit Root Test Result

Null Hypothesis: RETURN has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=11)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-10.05881	0.0000
Test critical values:	1% level	-3.505595	
	5% level	-2.894332	
	10% level	-2.584325	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RETURN)
Method: Least Squares
Date: 03/18/23 Time: 09:56
Sample (adjusted): 11/14/2022 3/17/2023
Included observations: 89 after adjustments

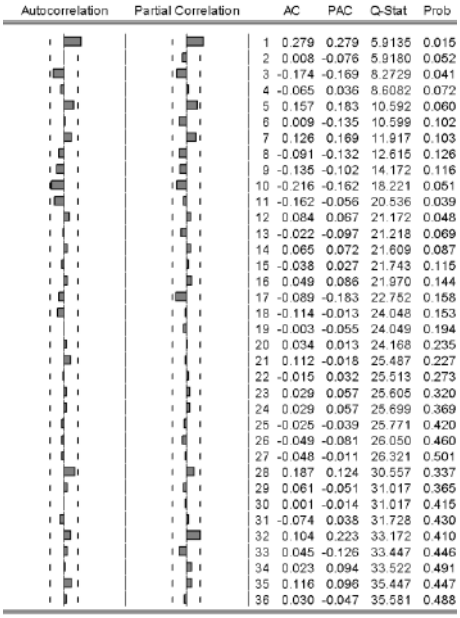
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RETURN(-1)	-1.083019	0.107669	-10.05881	0.0000
C	-0.010342	0.005357	-1.930607	0.0568

R-squared	0.537676	Mean dependent var	0.000351
Adjusted R-squared	0.532362	S.D. dependent var	0.072429
S.E. of regression	0.049530	Akaike info criterion	-3.150269
Sum squared resid	0.213428	Schwarz criterion	-3.094345
Log likelihood	142.1870	Hannan-Quinn criter.	-3.127728
F-statistic	101.1796	Durbin-Watson stat	1.989195
Prob(F-statistic)	0.000000		

Source: RHB Structured Warrant, Data has been processed

9. HRUMDRCM3A (5 December 2022 – 17 March 2023)

Figure 9.1 Correlogram Result



Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.279	0.279	5.9135	0.015
		2	0.008	-0.076	5.9180	0.052
		3	-0.174	-0.169	8.2729	0.041
		4	-0.065	0.036	8.6082	0.072
		5	0.157	0.183	10.592	0.060
		6	0.009	-0.135	10.599	0.102
		7	0.126	0.169	11.917	0.103
		8	-0.091	-0.132	12.615	0.126
		9	-0.135	-0.102	14.172	0.116
		10	-0.216	-0.162	18.221	0.051
		11	-0.162	-0.056	20.536	0.039
		12	0.084	0.067	21.172	0.048
		13	-0.022	-0.097	21.218	0.069
		14	0.065	0.072	21.609	0.087
		15	-0.038	0.027	21.743	0.115
		16	0.049	0.086	21.970	0.144
		17	-0.089	-0.183	22.752	0.158
		18	-0.114	-0.013	24.048	0.153
		19	-0.003	-0.055	24.049	0.194
		20	0.034	0.013	24.168	0.235
		21	0.112	-0.018	25.487	0.227
		22	-0.015	0.032	25.513	0.273
		23	0.029	0.057	25.605	0.320
		24	0.029	0.057	25.699	0.369
		25	-0.025	-0.039	25.771	0.420
		26	-0.049	-0.081	26.050	0.460
		27	-0.048	-0.011	26.321	0.501
		28	0.187	0.124	30.557	0.337
		29	0.061	-0.051	31.017	0.365
		30	0.001	-0.014	31.017	0.415
		31	-0.074	0.038	31.728	0.430
		32	0.104	0.223	33.172	0.410
		33	0.045	-0.126	33.447	0.446
		34	0.023	0.094	33.522	0.491
		35	0.116	0.096	35.447	0.447
		36	0.030	-0.047	35.581	0.488

Figure 9.2 Unit Root Test Result

Null Hypothesis: RETURN has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=11)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.222179	0.0000
Test critical values:	1% level	-3.524233	
	5% level	-2.902358	
	10% level	-2.588587	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RETURN)
Method: Least Squares
Date: 03/18/23 Time: 10:01
Sample (adjusted): 12/07/2022 3/17/2023
Included observations: 72 after adjustments

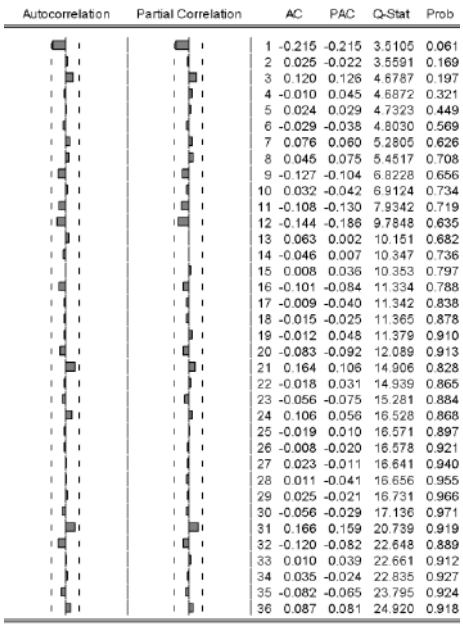
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RETURN(-1)	-0.717430	0.115302	-6.222179	0.0000
C	-0.009500	0.006819	-1.393175	0.1680

R-squared	0.356118	Mean dependent var	0.000408
Adjusted R-squared	0.346919	S.D. dependent var	0.069620
S.E. of regression	0.056262	Akaike info criterion	-2.890202
Sum squared resid	0.221581	Schwarz criterion	-2.826961
Log likelihood	106.0473	Hannan-Quinn criter.	-2.865025
F-statistic	38.71551	Durbin-Watson stat	1.893478
Prob(F-statistic)	0.000000		

Source: RHB Structured Warrant, Data has been processed

10. BRPTDRCM3A (5 December 2022 – 17 March 2023)

Figure 10.1 Correlogram Result



Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	-0.215	-0.215	3.5105	0.061
		2	0.025	-0.022	3.5591	0.169
		3	0.120	0.126	4.6787	0.197
		4	-0.010	0.045	4.6872	0.321
		5	0.024	0.029	4.7323	0.449
		6	-0.029	-0.038	4.8030	0.569
		7	0.076	0.060	5.2805	0.626
		8	0.045	0.075	5.4517	0.708
		9	-0.127	-0.104	6.8228	0.656
		10	0.032	-0.042	6.9124	0.734
		11	-0.108	-0.130	7.9342	0.719
		12	-0.144	-0.186	9.7848	0.635
		13	0.063	0.002	10.151	0.682
		14	-0.046	0.007	10.347	0.736
		15	0.008	0.036	10.353	0.797
		16	-0.101	-0.084	11.334	0.788
		17	-0.009	-0.040	11.342	0.838
		18	-0.015	-0.025	11.365	0.878
		19	-0.012	0.048	11.379	0.910
		20	-0.083	-0.092	12.089	0.913
		21	0.164	0.106	14.906	0.828
		22	-0.018	0.031	14.939	0.865
		23	-0.056	-0.075	15.281	0.884
		24	0.106	0.056	16.528	0.868
		25	-0.019	0.010	16.571	0.897
		26	-0.008	-0.020	16.578	0.921
		27	0.023	-0.011	16.641	0.940
		28	0.011	-0.041	16.656	0.955
		29	0.025	-0.021	16.731	0.966
		30	-0.056	-0.029	17.136	0.971
		31	0.166	0.159	20.739	0.919
		32	-0.120	-0.082	22.648	0.889
		33	0.010	0.039	22.661	0.912
		34	0.035	-0.024	22.835	0.927
		35	-0.082	-0.065	23.795	0.924
		36	0.087	0.081	24.920	0.918

Figure 10.2 Unit Root Test Result

Null Hypothesis: RETURN has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=11)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-10.30684	0.0001
Test critical values:	1% level	-3.524233	
	5% level	-2.902358	
	10% level	-2.588587	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RETURN)
Method: Least Squares
Date: 03/18/23 Time: 10:04
Sample (adjusted): 12/07/2022 3/17/2023
Included observations: 72 after adjustments

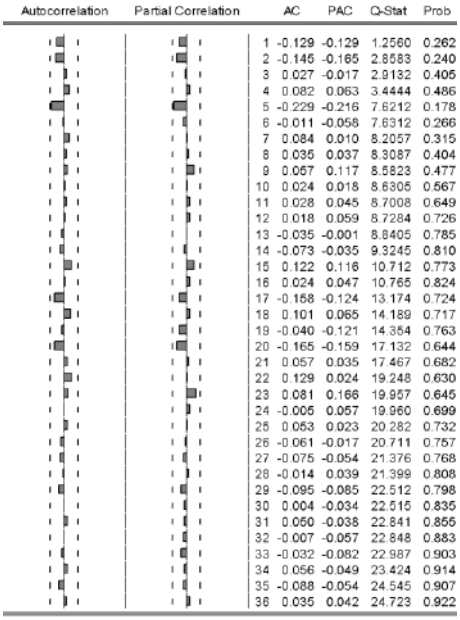
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RETURN(-1)	-1.222043	0.118566	-10.30684	0.0000
C	-0.004221	0.009882	-0.427137	0.6706

R-squared	0.602794	Mean dependent var	0.001736
Adjusted R-squared	0.597119	S.D. dependent var	0.131874
S.E. of regression	0.083704	Akaike info criterion	-2.095666
Sum squared resid	0.490450	Schwarz criterion	-2.032426
Log likelihood	77.44399	Hannan-Quinn criter.	-2.070490
F-statistic	106.2309	Durbin-Watson stat	1.979140
Prob(F-statistic)	0.000000		

Source: RHB Structured Warrant, Data has been processed

11. ICBPDRCM3A (5 December 2022 – 17 March 2023)

Figure 11.1 Correlogram Result



Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	-0.129	-0.129	1.2560	0.262
		2	-0.145	-0.165	2.8583	0.240
		3	0.027	-0.017	2.9132	0.405
		4	0.082	0.063	3.4444	0.486
		5	-0.229	-0.216	7.6212	0.178
		6	-0.011	-0.058	7.6312	0.266
		7	0.084	0.010	8.2057	0.315
		8	0.035	0.037	8.3087	0.404
		9	0.057	0.117	8.5823	0.477
		10	0.024	0.018	8.6305	0.567
		11	0.028	0.045	8.7008	0.649
		12	0.018	0.059	8.7284	0.726
		13	-0.035	-0.001	8.8405	0.785
		14	-0.073	-0.035	9.3245	0.810
		15	0.122	0.116	10.712	0.773
		16	0.024	0.047	10.765	0.824
		17	-0.158	-0.124	13.174	0.724
		18	0.101	0.065	14.189	0.717
		19	-0.040	-0.121	14.354	0.763
		20	-0.165	-0.159	17.132	0.644
		21	0.057	0.035	17.467	0.682
		22	0.129	0.024	19.248	0.630
		23	0.081	0.166	19.957	0.645
		24	-0.005	0.057	19.960	0.699
		25	0.053	0.023	20.282	0.732
		26	-0.061	-0.017	20.711	0.757
		27	-0.075	-0.054	21.376	0.768
		28	-0.014	0.039	21.399	0.808
		29	-0.095	-0.085	22.512	0.798
		30	0.004	-0.034	22.515	0.835
		31	0.050	-0.038	22.841	0.855
		32	-0.007	-0.057	22.848	0.883
		33	-0.032	-0.082	22.987	0.903
		34	0.056	-0.049	23.424	0.914
		35	-0.088	-0.054	24.545	0.907
		36	0.035	0.042	24.723	0.922

Figure 11.2 Unit Root Test Result

Null Hypothesis: RETURN has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=11)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-9.245874	0.0000
Test critical values:	1% level	-3.525618	
	5% level	-2.902953	
	10% level	-2.588902	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RETURN)
Method: Least Squares
Date: 03/26/23 Time: 23:06
Sample (adjusted): 12/07/2022 3/17/2023
Included observations: 71 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RETURN(-1)	-1.139180	0.123210	-9.245874	0.0000
C	-0.009939	0.005473	-1.815996	0.0737

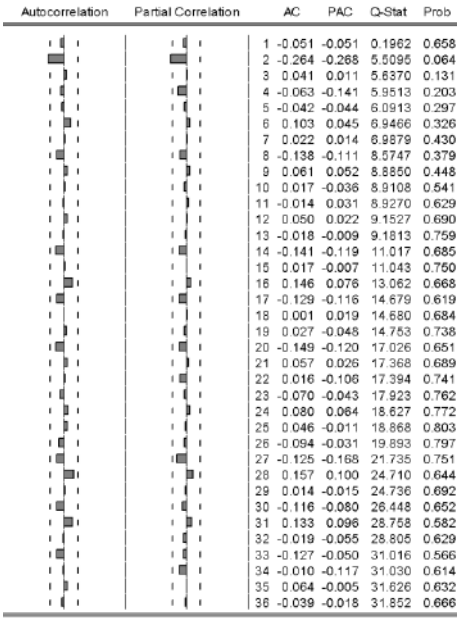
R-squared	0.553358	Mean dependent var	0.001997
Adjusted R-squared	0.546885	S.D. dependent var	0.066578
S.E. of regression	0.044816	Akaike info criterion	-3.344720
Sum squared resid	0.138587	Schwarz criterion	-3.280982
Log likelihood	120.7375	Hannan-Quinn criter.	-3.319373
F-statistic	85.48618	Durbin-Watson stat	1.963257
Prob(F-statistic)	0.000000		

Source: RHB Structured Warrant, Data has been processed

12. TLKMDRCM3A (5 December 2022 – 17 March 2023)

Figure 12.1 Correlogram Result

Figure 12.2 Unit Root Test Result



Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	-0.051	-0.051	0.1962	0.658
		2	-0.264	-0.268	5.5095	0.064
		3	0.041	0.011	5.6370	0.131
		4	-0.063	-0.141	5.9513	0.203
		5	-0.042	-0.044	6.0913	0.297
		6	0.103	0.045	6.9466	0.326
		7	0.022	0.014	6.9879	0.430
		8	-0.138	-0.111	8.5747	0.379
		9	0.061	0.052	8.8850	0.448
		10	0.017	-0.036	8.9108	0.541
		11	-0.014	0.031	8.9270	0.629
		12	0.050	0.022	9.1527	0.690
		13	-0.018	-0.009	9.1813	0.759
		14	-0.141	-0.119	11.017	0.685
		15	0.017	-0.007	11.043	0.750
		16	0.146	0.076	13.062	0.668
		17	-0.129	-0.116	14.679	0.619
		18	0.001	0.019	14.680	0.684
		19	0.027	-0.048	14.753	0.738
		20	-0.149	-0.120	17.026	0.651
		21	0.057	0.026	17.368	0.689
		22	0.016	-0.106	17.394	0.741
		23	-0.070	-0.043	17.923	0.762
		24	0.080	0.064	18.627	0.772
		25	0.046	-0.011	18.868	0.803
		26	-0.094	-0.031	19.893	0.797
		27	-0.125	-0.168	21.735	0.751
		28	0.157	0.100	24.710	0.644
		29	0.014	-0.015	24.736	0.692
		30	-0.116	-0.080	26.448	0.652
		31	0.133	0.096	28.758	0.582
		32	-0.019	-0.055	28.805	0.629
		33	-0.127	-0.050	31.016	0.566
		34	-0.010	-0.117	31.030	0.614
		35	0.064	-0.005	31.626	0.632
		36	-0.039	-0.018	31.852	0.666

Null Hypothesis: RETURN has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=11)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-9.525873	0.0000
Test critical values:	1% level	-3.525618	
	5% level	-2.902953	
	10% level	-2.588902	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RETURN)
Method: Least Squares
Date: 03/26/23 Time: 23:09
Sample (adjusted): 12/07/2022 3/17/2023
Included observations: 71 after adjustments

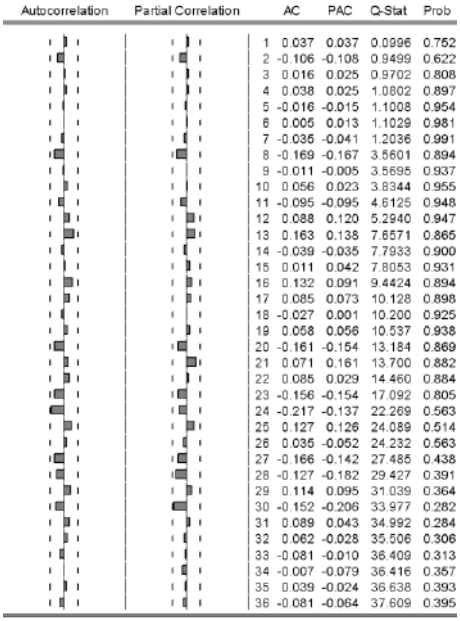
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RETURN(-1)	-1.050985	0.110330	-9.525873	0.0000
C	0.001407	0.005549	0.253668	0.8005

R-squared	0.568054	Mean dependent var	0.002760
Adjusted R-squared	0.561794	S.D. dependent var	0.070603
S.E. of regression	0.046737	Akaike info criterion	-3.260776
Sum squared resid	0.150723	Schwarz criterion	-3.197039
Log likelihood	117.7576	Hannan-Quinn criter.	-3.235430
F-statistic	90.74225	Durbin-Watson stat	1.931886
Prob(F-statistic)	0.000000		

Source: RHB Structured Warrant, Data has been processed

13. INCODRCM3A (5 December 2022 – 17 March 2023)

Figure 13.1 Correlogram Result



Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.037	0.037	0.0996	0.752
		2	-0.106	-0.108	0.9499	0.622
		3	0.016	0.025	0.9702	0.808
		4	0.038	0.025	1.0802	0.897
		5	-0.016	-0.015	1.1008	0.954
		6	0.005	0.013	1.1029	0.981
		7	-0.035	-0.041	1.2036	0.991
		8	-0.169	-0.167	3.5601	0.894
		9	-0.011	-0.005	3.5695	0.937
		10	0.056	0.023	3.8344	0.955
		11	-0.095	-0.095	4.6125	0.948
		12	0.088	0.120	5.2940	0.947
		13	0.163	0.138	7.6571	0.865
		14	-0.039	-0.035	7.7933	0.900
		15	0.011	0.042	7.8053	0.931
		16	0.132	0.091	9.4424	0.894
		17	0.085	0.073	10.128	0.898
		18	-0.027	0.001	10.200	0.925
		19	0.058	0.056	10.537	0.938
		20	-0.161	-0.154	13.184	0.869
		21	0.071	0.161	13.700	0.882
		22	0.085	0.029	14.460	0.884
		23	-0.156	-0.154	17.092	0.805
		24	-0.217	-0.137	22.269	0.563
		25	0.127	0.126	24.089	0.514
		26	0.035	-0.052	24.232	0.563
		27	-0.166	-0.142	27.485	0.438
		28	-0.127	-0.182	29.427	0.391
		29	0.114	0.095	31.039	0.364
		30	-0.152	-0.206	33.977	0.282
		31	0.089	0.043	34.992	0.284
		32	0.062	-0.028	35.506	0.306
		33	-0.081	-0.010	36.409	0.313
		34	-0.007	-0.079	36.416	0.357
		35	0.039	-0.024	36.638	0.393
		36	-0.081	-0.064	37.609	0.395

Figure 13.2 Unit Root Test Result

Null Hypothesis: RETURN has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=11)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.385261	0.0000
Test critical values:	1% level	-3.528515	
	5% level	-2.904198	
	10% level	-2.589562	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RETURN)
Method: Least Squares
Date: 03/26/23 Time: 23:14
Sample (adjusted): 12/07/2022 3/17/2023
Included observations: 69 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RETURN(-1)	-0.955048	0.129318	-7.385261	0.0000
C	-0.009555	0.006142	-1.555561	0.1245

R-squared	0.448751	Mean dependent var	0.003748
Adjusted R-squared	0.440523	S.D. dependent var	0.065214
S.E. of regression	0.048779	Akaike info criterion	-3.174495
Sum squared resid	0.159416	Schwarz criterion	-3.109738
Log likelihood	111.5201	Hannan-Quinn criter.	-3.148804
F-statistic	54.54207	Durbin-Watson stat	1.877495
Prob(F-statistic)	0.000000		

Source: RHB Structured Warrant, Data has been processed

REFERENCE

Fama, E. F. (1970). Efficient Capital Markets: A Review of Theory and Empirical Work. *The Journal of Finance*, *25*(2), 383. https://doi.org/10.2307/2325486

Hersugondo, H., Robiyanto, R., Wahyudi, S., & Irene, R. D. P. (2016). The test of day of the week effect and turn-of-month effect by using a garch approach: Evidence from Indonesia capital market. *International Journal of Economic Research*, *13*(1), 153–163. https://eprints2.undip.ac.id/id/eprint/3090/

IDX. (2022). *Waran Terstruktur*. https://www.idx.co.id/id/produk/structured-warrant-sw/

Juta Hase, G., & Asandimitra Haryono, N. (2018). Pengujian Efisiensi Pasar Pada Pasar Modal Indonesia Periode Juni 2009 - Juni 2015 (Studi Pada Indeks Harga Saham Gabungan). *Jurnal Ilmu Manajemen (JIM)*, *6*(4), 550–558. https://ejournal.unesa.ac.id/index.php/jim/article/view/24830

Khan, N. U., & Khan, S. (2016). Weak Form of Efficient Market Hypothesis – Evidence from Pakistan. *Business & Economic Review*, *8*(Special Edition), 1–18. https://doi.org/10.22547/ber/8.se.1

Lekhal, M., & El Oubani, A. (2020). Does the Adaptive Market Hypothesis explain the evolution of emerging markets efficiency? Evidence from the Moroccan financial market. *Heliyon*, *6*(7), e04429. https://doi.org/10.1016/j.heliyon.2020.e04429

Muhammad, T. T., & Rahim, S. (2015). Pengaruh Tingkat Likuiditas dan Profitabilitas Terhadap Harga Saham Pada Perusahaan Manufaktur Yang Terdaftar di Bursa Efek Indonesia (BEI). *Jurnal Akuntansi Aktual*, *3*(2), 117–126. http://journal2.um.ac.id/index.php/jaa/article/view/7171

Murad Samsudin, N. I., Mohamad, A., Sifat, I. M., & Hamid, Z. (2022). Predictive power of implied volatility of structured call warrants: Evidence from Singapore. *International Journal of Finance and Economics*, *27*(4), 4412–4430. https://doi.org/10.1002/ijfe.2379

Onwukwe, E. K., & Ali, P. I. (2018). Weak Form Efficiency of the Insurance Industry: Empirical Evidence from Nigeria. *Jurnal Keuangan Dan Perbankan*, *22*(1), 14–22. https://doi.org/10.26905/jkdp.v22i1.1800

Pulungan, D. P., Wahyudi, S., & Suharnomo, S. (2018). Does The Crude Palm Oil Market Walk Randomly? *Jurnal Keuangan Dan Perbankan*, *22*(2), 211–218. https://doi.org/10.26905/jkdp.v22i2.2023

Qoyum, A., Mardiya, M., & Sakti, M. R. P. (2018). Indonesian Capital Market Efficiency: Islamic vis-a-vis Conventional. *Shirkah: Journal of Economics and Business*, *2*(3). https://doi.org/10.22515/shirkah.v2i3.171

RHB Sekuritas. (2022). *Pemahaman Waran Terstruktur*. https://waran.rhbtradesmart.co.id/id/LearnWarrants

Robiyanto, Hersugondo, & Puryandani, S. (2015). Chinese zodiac effect and precious metals returns of 1900-2013. *International Journal of Applied Business and Economic Research*, *13*(5), 2759–2773. https://ssrn.com/abstract=2721291

Robiyanto, R. (2017). Month of the Year Effect pada Pasar Obligasi di Indonesia. *Jurnal Ekonomi Dan Bisnis*, *20*(2), 291. https://doi.org/10.24914/jeb.v20i2.1093

Yadirichukwu, E., & Ogochukwu, O. J. (2014). Evaluation of The Weak Form of Efficient Market Hypothesis: Empirical Evidence From Nigeria. *International Journal of Development and Sustainability*, *3*(5), 1199–1244. www.isdsnet.com/ijds