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Free Float and Volatility Effect on Stock Liquidity in Indonesia Stock Exchange

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Liquidity is one of the important things in investing in the stock market. The Indonesia Stock Exchange as a regulator makes and establishes regulations in the capital market to conduct trading in an orderly, fair and efficient manner. One of the amended provisions in the regulation is regarding the free float or the percentage of the number of shares outstanding in the public with the aim of increasing the liquidity of the listed shares. In addition to free float, the risk in investing also needs to be considered. Behind a high return there is a high risk as well. High risk in the volatility of stock returns. High volatility attracts investors to invest in the stock market. Investors with risk-taking tendencies prefer this high-volatility condition because it allows them to earn higher returns, thereby increasing liquidity through the trading volume of these shares. This study involves a number of control variables that together determine market liquidity, namely Stock Return, Firm Size and Stock Price. The analysis was carried out on property and construction sector companies listed in the 2016-2020 period. The analytical method used is multiple linear regression analysis using the E-Views 10 application. The results of the analysis found that free float and volatility have a positive effect on stock liquidity, either by including or including control variables. These results indicate that information about free float and volatility is a consideration in capital market investment decisions.

Keywords: Indonesia stock exchange; liquidity; free float; risk; return; firm size and stock price.

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1. INTRODUCTION

The liquidity aspect is important for investors to decide which stocks to invest in. Liquidity in stock trading is the ease of selling assets without drastic changes in the selling price as a result [1]. Trading data on the IDX still shows serious market liquidity problems, both based on the number of liquid shares and the number of idle shares [2]. By looking at these conditions, the IDX implements regulations on free floats with the aim of increasing market liquidity. This is stated in Regulation No. Kep-00101/BEI/12-2021 (stipulation V.1). Free Float is the total shares owned by the public with ownership of less than 5%, excluding controlling and strategic shareholders. The Free Float ratio is calculated from the comparison of the number of Free Float shares relative to the total listed shares. In addition to free float, the risk in investing in stocks is also something that needs to be considered. Behind a high return there is a high risk as well. High risk is reflected in the volatility of stock returns. High volatility attracts investors to invest in the stock market, especially investors with a risk-loving profile, this can increase liquidity through the trading volume of these shares [3].

There are several studies examining the effect of Free Float and Volatility on market liquidity that have been carried out in various countries. Research that discusses the impact of Free Float on market liquidity, among others, by Chan et al. [4], Brockman et al [5], Sioud and Yosra [6], Bostanci and Kilic [7], alişkan and Kerestecioğlu [8], Tahernia and Reazei [9], Wang and Zhang [10], Ding et al. [11], Nader G [12], Fitriani et al. [12], while research that discusses the impact of volatility on market liquidity was carried out by Wang et al. [14], Fong and Chan [15], Chung and Brockman [16], Pereira and Zhang [17], Nayak and Kalimipalli [18] and Wahyuliantini and Suarjaya [19]. Each of these studies uses different methods so as to give different conclusions.

Chan et al. [4] who examined the relationship between Free Float and market liquidity on Hong Kong government intervention in August 1998, the results of this study indicate that government intervention that causes a decrease in Free Float affects the liquidity of the HSI index shares. Brockman et al. [5] explained that there is an adverse relationship between Block Ownership and liquidity, Block Ownership significantly reduces market trading activities which reduces liquidity. Meanwhile, high volatility can increase liquidity. Sioud and Yosra [6] tested the relationship between Free Float and Volatility with Liquidity in shares on the Tunisian Stock Exchange with the results showing that companies with concentrated ownership (low Free Float) and high volatility can cause a decrease in liquidity. Bostanci and Kilic [7] examined the effect of the Free Float ratio on stock returns, volatility and liquidity on the Istanbul Stock Exchange. The results show that the market appreciation is higher for stocks with a higher floating ratio. Çalişkan and Kerestecioğlu [8] examined the effect of the Free Float ratio on the daily average stock return, stock price volatility and transaction activity on the Istanbul Stock Exchange. They found that a higher Free Float ratio value would have an effect on a higher price return value, lower price volatility, and increased transaction activity or liquidity. While research conducted by Tahernia and Reazei [9] on company shares on the Iran Stock Exchange (TSE) shows the greater the company's Free Float ratio, the greater the liquidity.

Wang and Zhang [10] examined the effect of trading activities carried out by retail investors on the market liquidity of stocks in the NYSE index with the result that trading activities carried out by retail investors could increase market liquidity by reducing information asymmetry, while also explaining that high volatility increase market liquidity. While Ding et al. [11] examine the relationship of Free Float with stock market liquidity in several parts of the world. The results show that stocks with higher Free Float have higher liquidity. The study also explains that volatility has a negative relationship to liquidity. El-Nader [12] examines the relationship between Free Float and market liquidity in the UK stock market and finds that stocks with high Free Float have a positive effect on liquidity levels.

Research conducted on domestic objects by Fitriani et al [13] on manufacturing companies on the IDX by adding other variables such as EPS, Stock Return, PBV and PER, found that Free Float has a positive effect on increasing market liquidity on the IDX. Wang et al (2018) conducted research on two financial futures and two metal futures in the US, The results show that there is a positive relationship between trading volume and volatility. Fong and Chan [15] examined the role of the number of trades, trade size, and the Balance Order in explaining the relationship between volume and volatility with the results of research explaining that volatility has a positive

and significant relationship to transaction volume (liquidity). This is in line with the results of research conducted by Pereira and Zhang [17] and Nayak and Kalimipalli [18] which explain that high volatility can increase liquidity, both company shares and corporate bonds. This is different from the results from the research of Chung and Brockman [5] and Wahyuliantini and Suarjaya [19] which explain that volatility has no relationship to liquidity.

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Based on the descriptions and explanations above, it can be seen that research that examines the relationship between Free Float and Volatility on Liquidity has been carried out in many countries. There are different results from several previous studies that are inconsistent. On this basis, researchers are encouraged to conduct research with similar themes to different objects and periods. The objects used are property and construction sector companies listed on the IDX for the 2016-2020 period. Research with this group of objects can also add empirical evidence that is considered lacking in this group. Free Float can affect liquidity by changing a company's trading activity. This also applies to volatility, the higher the risk, the higher the return obtained. it will be attractive to investors with risk-taking tendencies so as to increase trading volume. The next section will explain the study of theory and formulation of hypotheses, research methods, results of data analysis and hypothesis testing, and ends with a statement of conclusions.

2. LITERATURE REVIEW

2.1 Capital Market

The capital market is a market for various long-term financial instruments that can be traded, both debt securities (bonds), equities (stocks), mutual funds, derivative instruments and other instruments. The capital market is a means of funding for companies and other institutions (eg the government), and as a means for investing activities. Thus, the capital market facilitates various facilities and infrastructure for buying and selling activities and other related activities. Financial instruments traded in the capital market are long-term instruments (terms of more than 1 year) such as stocks, bonds, warrants, rights, mutual funds, and various derivative instruments such as options, futures, and others.

2.2 Free Float

IDX defines free float as the number of shares owned by non-controlling shareholders and not major shareholders or shares outstanding in the public. Based on the provisions of IDX Rule V.1 Number I-A, it is stated that "the number of shares owned by non-controlling shareholders and non-major shareholders is at least 50,000,000 (fifty million) shares and at least 7.5% (seven point five percent) of the number of shares in the paid-up capital". According to the Black Law Dictionary, free float is a portion of shares outstanding in the market that can be traded publicly in daily stock transactions by investors. The number of listed shares is different from the number of floating shares. so that not all shares that have the number of shares listed are the same as the number of shares outstanding. Based on this explanation, an understanding can be drawn that Free float is a number of shares that can be traded by the public. So that when the number of Free floats is getting bigger, it will show that there are more shares that can be transacted by public investors in the stock market [20].

2.3 Liquidity

Liquidity in stock trading is the ease of selling assets without drastic changes in the selling price as a result [1]. Stock liquidity is a measure of the number of transactions of a stock in the capital

market in a certain period [21]. So, the more liquid the stock, the higher the frequency of stock transactions [22]. And according to Wiyani and Wijayanto [23] for investors the level of stock liquidity can be described from the trading volume of a stock. The larger the transaction, the faster and easier it is for a stock to be traded so that the change in shares into cash is faster. Liquidity measures are divided into one-dimensional and multi-dimensional measurements. One-dimensional liquidity measurement measures only take into account one variable[24].

2.4 Risk/Volatility

Risk / price volatility is a measure that states how much fluctuation in the price of an asset within a certain period of time. The greater the volatility of the price of an asset, the more volatile the price of the asset. According to Tandelilin [25], volatility (variation of returns) is representative of risk in Markowitz analysis and expected return is representative of reward. Stock price volatility based on past stock price movements (historical data) over a certain period of time. Historical volatility is calculated using a statistical measure, namely the standard deviation of the closing price of the stock, the more volatile the stock is [26].

2.5 Stock Return

Stock return is the amount of investment gains and losses over a certain period of time which is usually measured as a change in value plus the money allocated during a certain period and is expressed as a percentage of the initial investment value (Gitman and Zutter, 2015). Return is the result obtained from investment [27]. Stock returns can be in the form of realized returns or have occurred and expected returns that have not occurred in the future. The measurement of realized/historical returns is important for investors to determine how well the selected financial assets perform as well as to estimate future returns[28].

2.6 Firm Size

Firm size is a measure of the size of a company seen from the amount of equity value, sales value or asset value (Riyanto, 2008). The size of the company can be measured by the total assets or assets of the company by calculating the logarithmic value of total assets. A large company size will easily obtain additional funds in the capital market when compared to small companies (Sartono, 2010). Investors will be more confident in large-sized companies to invest their excess funds, because large-sized companies make investors more confident to entrust their business continuity to be more secure and there is very little possibility of bankruptcy than investing in small companies[29].

2.7 Stock Price

The stock price is the price formed on the stock exchange and changes at any time. Changes in stock prices occur due to changes in supply and demand on the stock exchange [30]. Stock prices that appear describe a reflection of the value of a company and become a measuring tool for company performance as a determinant of return and risk in the future [31,32]. A relatively high stock price can be a signal that the company is experiencing growth and has good prospects in the future, in addition, stock price fluctuations also occur at a certain time related to the prospect of the company experiencing changes in conditions and new information obtained by investors [33].

3. METHODOLOGY

This study is a quantitative study that examines the causal relationship between the independent variables (free float and volatility) and the dependent variable (stock liquidity). There are a number of control variables that act as controllers, namely Stock Return, Firm Size and Stock Price. The research data was obtained from the IDX through the website www.idx.co.id. The causal relationship between variables is formulated in the form of a hypothesis formulation, which is then tested based on empirical data. Property and construction sector companies listed on the IDX for the 2016-2020 period as a population and obtained a sample of 43 companies, and 215 observation data can be formed. Furthermore, all data were collected and analyzed in order to determine the significance of the causal relationship between the independent-dependent variables [34].

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

Y = Liquidity
α = Constant
β = Coefficient Parameter
X_1 = Free Float
X_2 = Volatiltas/risk
X_3 = Stock Return
X_4 = Firm Size
X_5 = $StockPrice$
ε = Error term

3.1 Dependent Variable

3.1.1 Stock liquidity

Measurement of liquidity in this study using Trading Volume Activity which is the number of shares traded as a percentage of the total number of shares outstanding, referring to the research of Datar et al [35] it can be formulated:

$$TradingVolumeActivity = \frac{NumberofSharesTraded}{NumberofSharesOutstanding}$$

3.2 Independent Variable

Free Float : Outstanding shares excluding ownership by management, government, other companies, and other strategic investors. Referring to the research of Ding et al [11], it can be formulated as follows:

$$FreeFloat = \frac{NumberofSharesavailabletobetradedonasecuritiesexchange}{NumberofSharesOutstanding}$$

Volatility (Risk): Volatility as the level of fluctuation of the return of a security or portfolio in a certain period and can be used to measure the risk of a stock. Referring to the research of Pereira and Zhang [17], the measurement of Volatility uses the standard deviation of changes in stock prices and is formulated as follows:

$$Volatility = StdDevStockPriceChange$$

3.3 Control Variable

Stock Return: Amout of investment gains and losses over a certain period of time which is measured as a change in the value added of money distributed over a certain period and is expressed as a percentage of the initial investment value. Referring to the research of Biktimirov and Barnes [36] and Rusliati and Farida [37] this study uses the HPY (Holding Period Yield) return formula as follows:

$$StockReturn = (HPY) = \frac{P_t - P_{t-1}}{P_{t-1}}$$

Information :

P_t = Share price closing for the current period
P_{t-1}= Share price closing the previous period

Firm Size: The size of a company is seen from the amount of equity value, sales value or asset value. The firm size formula referring to Duy and Phuoc [38] research is as follows:

$$FirmSize = LnofTotalAsset$$

Stock Price: The price formed on the stock exchange and changes at any time. The stock price used in this study is the closing price at the end of the year or better known as the closing price. The closing price is considered the most accurate valuation of a stock or security until trading resumes on the next business day and is also used as the basis for calculating a company's stock index.

3.4 Data Analysis

The data obtained are described in advance with the aim of obtaining an overview of each research variable.. Descriptive data create a general picture of the trend of research results. Statistics of minimum value, maximum value, mean value, and standard deviation. Furthermore, on the multiple regression model, classical assumption tests were performed (normality test, autocorrelation test, multicollinearity test and heteroscedasticity test).

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistics

Descriptive data from a sample of 43 companies and 215 observational data are presented in Table 1. It can be seen in the table that the stock liquidity number on the IDX (0.00 – 5.787) with a standard deviation of 0.69. This figure shows that the stock liquidity level on the IDX is still relatively low, only 0.369 on average. The free float variable also shows an identical pattern to the liquidity data, which is between 0.030 and

0.764 with a standard deviation of 0.17. Meanwhile, the volatility variable also shows a value between 0.00 and 0.572 with a standard deviation of 0.081. To gain confidence that free float and volatility affect stock liquidity on the IDX, it is still necessary to test the hypothesis.

The descriptive statistics table also shows that the average value of free float is around 31.8%. From this value, it can be said that the average company engaged in the property and construction sector in Indonesia has implemented the provisions regarding the number of shares owned by non-controlling shareholders and non-major shareholders of at least 7.5% of the total shares in the paid-up capital in accordance with with the provisions stated in regulation Number: Kep-00101/BEI/12-2021.

Data descriptive analysis of other independent variables (control variables) is also described in table 1, namely Return, Size and Stock Price. All control variables can be said to have the same pattern as the free float pattern and stock liquidity. From the similarity of this pattern can be an indication of a causal relationship between the control variable and the independent variable.

4.2 Empirical Results

The focus of this researchon testing the effect of free float and volatility on stock liquidity on the IDX. Therefore, the formulated hypothesis states that free float and volatility have a positive effect on market liquidity on the Indonesia Stock Exchange. Reviews in the descriptive statistics section indicate that the effect is real and in a positive direction. The validity of these indications is tested by using statistical data and tools.

Based on Table 2, it can be seen that the Prob-F value is 0.0000 where this value is smaller than the significant value (alpha) which is 5%. So it can be said that the independent variables (free float and volatility) and all other control variables used in this study (*Returnn*, Size and Price) together have a positive and significant effect on stock liquidity.

Table 1. Descriptive statistics

	Mean	Maximum	Minimum	Std. Dev	Observations
Liquidity (Y)	0.369	5.787	0.00001	0.694	215
Free Float (X1)	0.318	0.764	0.030	0.171	215
Volatility (X2)	0.125	0.572	0.000	0.081	215
Return (X3)	-0.010	6.727	-0.886	0.592	215
Size (X4)	29.380	32.454	23.245	1.581	215
Price (X5)	1,869	36,500	50	4,517	215

Table 2. F test

		Weighted Statistics	
R-squared	0.347215	Mean dependent var	0.217483
Adjusted R-squared	0.331599	S.D. dependent var	0.598280
S.E. of regression	0.489129	Sum squared resid	50.00263
F-statistic	22.23337	Durbin-Watson stat	1.593668
Prob(F-statistic)	0.000000		

Table 3. T-test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
X1 (Free Float)	1.2322	0.3150	3.9120	0.0001
X2 (Volatility)	2.0777	0.4561	4.5552	0.0000
X3 (Return)	0.4853	0.0609	7.9641	0.0000
X4 (Size)	0.0050	0.0346	0.1457	0.8843
X5 (Price)	0.0000	0.0000	-1.5026	0.1345

Based on Table 3, it is known that the independent variables X1 (Free Float) and X2 (Volatilty) partially have a positive and significant effect on the dependent variable with prob-values of 0.0001 and 0.000 because the prob-values in the independent variables are less than the significant level value (alpha) 5%. Based on these results, it can be concluded that the free float ratio and volatility have a positive and significant impact on stock liquidity in the secondary market. So it can be concluded that the free float ratio and volatility have a positive and significant effect on stock liquidity either by testing simultaneously (F test) or by testing separately (T test).

This study also includes several control variables to determine other variables that affect stock liquidity, the variables used are*Returnn*, Size and Price. Based on the regression results, the Return variable has a positive and partially significant effect on liquidity because the prob-value of the variable is smaller than the significant alpha value of 0.005 (5%). Meanwhile, Size and Price have a prob-value greater than a significant value of 0.005 (5%), it shows that company size and stock price do not have a positive relationship to stock liquidity.

5. CONCLUSION

Research of this study seeks to obtain empirical evidence that free float and volatility have a positive influence on increasing stock liquidity on the IDX by involving a number of other independent variables that function as controls including Return, Size and Price.

Based on the test results, it can be concluded that Free Float has a significant positive effect on stock liquidity on the Indonesia Stock Exchange. Free float is one of the things that investors consider when making investment decisions in the Indonesian capital market. The higher the Free Float ratio, the greater the number of shares available in the market, thereby increasing trading activity, which in turn increases liquidity [39].

Volatility variables also have a positive effect on stock liquidity on the Indonesia Stock Exchange. High volatility can mean that the stock is actively traded. The more active a stock is, the investors will not hold their shares for too long, thereby motivating investors to trade (buy or sell shares) [40]. High volatility can also attract investors with an aggressive profile to invest in a stock because it allows them to earn high returns, thereby increasing the trading volume of the stock

Free Float and Volatility has a positive effect on stock liquidity either by testing independently or by including control variables such as Return, Size and Price. Free float has proven to be a policy that is able to reduce the information asymmetry by forming a dispersed share ownership structure. Practically, the results of this study can add confidence to the regulator, namely the Indonesia Stock Exchange, which is correct in regulating the minimum limit for the number of shares owned by non-major and non-controlling shareholders or free float as an effort to increase market liquidity on the IDX. For companies, the results of this study can be taken into consideration in deciding company policies, especially in deciding the free float ratio of shares listed on the IDX. For investors, the results of this study can be used as a consideration in determining the shares to be selected by paying attention to how many shares are outstanding and can be transacted (Free Float) and how much return is obtained by taking into account the volatility of stock prices.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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