

# **INFLUENCE OF INVESTORS' ATTENTION ON STOCK RETURN, LIQUIDITY, AND RETURN VOLATILITY COMPARISON BETWEEN MANUFACTURE COMPANIES IN INDONESIA AND INDIA**

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## **ABSTRACT**

This research aims to examine the influence of investors' attention of company stock on stock return, liquidity, and return volatility comparison between manufacture companies in Indonesia and India in the year of 2011-2013. Investors' attention is measured by a direct proxy which is Google Search Volume Index from Google trends. This research uses secondary data and processed by regression analysis. The samples are gathered from Indonesia stock exchange and India stock exchange. The result of this research concludes that the investors' attention measured using Google search volume index has significantly influenced the stock liquidity and return volatility of manufacture companies in Indonesia. Meanwhile the result for India shows that Investors' attention has only significantly influenced the return volatility of manufactures companies.

**Keywords:** Investors' attention, return, liquidity, return volatility, Google trends

## **I. Introduction**

### **A. Research Background**

Many investors choose stocks that have first caught their attention. Barber and Odean (2008) and Da *et al.* (2009) said that attention is a scarce resource. Attention is the cognitive process of selectively concentrating on one aspect of the environment while ignoring other things (Anderson, 2004 as cited in Chen and Yu 2013). Investors have to make a decision to where and when they invest their resources by considering the risk, expected return and which securities they choose. Basically, when we want to choose the stock, we can consider about two analyses, which are fundamental and technical analyses. Investors have to get enough information to do the two analyses. Individual investor will rationally use all of the available relevant information to buy stocks that they might to buy. This makes adequate and reliable financial information important in financial decision.

Nowadays, the advance information technology is growing rapidly, especially for the internet development. People can easily get information and data from the internet about what they search, and update their current information to understand what happen around them. This also gives impact for investor behavior. Digitized communication through the internet make investors equipped with powerful new tools such as advance gadgets to easily get information about stocks that they want to buy, as well as company performance, annual report and everything published in the internet to do analysis before they decide to make an investment. According to Liaw (2004) millions of customers conduct their banking, stock, bond, and trading using online systems.

According to Da *et al.* (2011) abnormal return, abnormal turnover, media reports, and advertising expenditure are the indirect proxies of investors' attention. Information about listed firms reported in the media cannot give guarantee that the investor receives attention, except that the investor has read it. Investors' attention can be seen from the search activity done by the investor. When the investors try to find information or search all the information about that stock, it means that the investor give attention to that stock.

This study is using Google search volume index as a direct proxy of investors' attention. It can be accessed in Google Trends. Google Trends is a tool that provides the volume of queries on many kinds of industries that will be helpful to predict the subsequent data release (Choi Hyunyoung and Varian Hall, 2009). According to Da *et al.* (2009) the reason that this study is using Google Search Volume as a direct proxy of investors' attention is the popularity of Google among the internet users as the search engine sources to collect information and also the capability of Google search volume index to capture public attention which is not capture by news. Google search volume captures the attention of individual investor or retail investor who has limited sources of information. Usually, the institutional investor has more detailed source of information.

Cited from Antaranews, APJII (Asosiasi Penyelenggara Jasa Internet Indonesia) stated that internet user in Indonesia keeps increasing (<http://www.antaranews.com>). In the year 2013 it reach 71,19 million users or the increase is up to 13% compare to the year 2012 that reaches 63 million users. According to web sources of techcircle.in, internet users in India reaches about 150 million people and India has become the 3<sup>rd</sup> largest internet population in the world after China (<http://techcircle.vccircle.com>).

The reasons that researcher is interested to study on these two countries, Indonesia and India are because both of them have some similarities. Indonesia and India are emerging market that become a members of G20 (<http://internasional.kompas.com>) and the growth of internet users in these two countries are similar (<https://www.google.com/publicdata>).

## B. Problem Statement

Based on the research background, the problem statements are:

1. Does investors' attention of company stock information influence the stock return of manufacture companies in Indonesia and India?
2. Does investors' attention of company stock information influence the stock liquidity of manufacture companies in Indonesia and India?
3. Does investors' attention of company stock information influence the return volatility of manufacture companies in Indonesia and India?

4. Does any differences between investors' attention of company stock information in Indonesia and India in term of return, liquidity, and return volatility?

### C. Research Objectives

1. To examine the influence of investors' attention of company stock information on stock return of manufacture companies in Indonesia and India
2. To examine the influence of investors' attention of company stock information on stock liquidity of manufacture companies in Indonesia and India
3. To identify whether the investors' attention of company stock information influence the return volatility of manufacture companies in Indonesia and India
4. To identify any differences between investors' attention of company stock information in Indonesia and India in term of return, liquidity, and return volatility?

## II. Theoretical Background and Hypotheses Development

### A. Theoretical Background

#### 1. Efficient Market Hypothesis

According to Bodie *et al.* (2008) random walk theory is the notion that stock price changes randomly and unpredictable. If stock price movement were predictable, that would be damning evidence of stock market inefficiency. Bodie *et al.* (2008) define that efficient market hypothesis is the hypothesis that prices of securities fully reflect available information about securities. It is clearly defined by McMillan *et al.* (2011) that an efficient market is a market in which asset prices fully reflect all past and present information; market in which asset prices reflect the new information quickly and rationally. The important point of efficient market is the price should be expected to react only to the elements information release such as unexpected or surprise information and investors process the unexpected information and revise expectation.

Rose, Peter S. and Marquis, Milton H. (2008) explains that if efficient market hypothesis is correct, investors will react to temporary underpricing or temporary overpricing of assets and make changes in their portfolios because any temporary deviation of actual returns from expected returns should be eliminated.

According to Bodie *et al.* (2008) in market equilibrium, efficient informational gathering should be beneficial, because when information cost investors' money to uncover and analyze. Investors will expect the investment analysis result can increase the expected return and investor will have an incentive to spend time and resources to analyze and uncover new information only if that activity can generate higher investment return.

#### 2. Aymmetric Information

According to Rose, Peter S. and Marquis, Milton H. (2008) asymmetric information views that disputes in the financial marketplaces contain pockets of inefficiency in the availability and the use of information. According to Investopedia, definition of asymmetric information is a situation in which one party in a transaction has more or superior information compared to another (<http://www.investopedia.com>). Another web sources (<http://www.economicshelp.org>) also stated that asymmetric information is a situation where there is an imperfect knowledge. In particular, it occurs where one party has different

information to another. Asymmetric information should be eliminated through the increase of advanced technology because more people easily get information (investopedia.com). Many analysts agree that asymmetric information is harder to come by in developed markets than developing ones because information in developed markets easily spread timely in everywhere.

According to Rose, Peter S. and Marquis, Milton H. (2008) asymmetric information give consequences for the financial marketplace because there will be variations in both quantity and quality of the information available. However, the important point is that not all the information is good. Just having information that others do not have does not make the information more valuable or even correct (<http://www.investinganswers.com>). It is supported by Rose, Peter S. and Marquis, Milton H. (2008) that market inefficiency can be created by the presence of imperfect or bad information.

This is the theory where there are two kinds of investors, namely informed investor and uninformed investors. It can give unequal condition because the informed investor can have more information and knowledge that can give them a better understand and result in decision making to do investment as stated in web sources (<http://www.investinganswers.com>). It is supported by Rose, Peter S. and Marquis, Milton H. (2008) that in the real world there is no market that either completely efficient or completely asymmetric, this book split the real world market into two segments, which are a highly efficient market that trade by well-informed individuals and institutions trader. The other segment consists of less-well-informed small investors' trader, where information is asymmetrically distributed.

### 3. Google Trends

According to WhatIs.com, the definition of Google trend is an online search tool that allows the user to see how often specific keywords, subjects and phrases have been quires over a specific period of time. The result is called "search volume index" that is displayed in the graph. The data can be saved as .csv file and opened in excel (<http://whatis.techtarget.com>). Google trends is similar with Google Insight, according to Scheitle (2011) this search tool will provide data on the relative frequency of search terms entered by Google users across time and geographic units. Scheitle (2011) also explain that the number of searches within a particular ecological case (e.g., a state) for a particular term or group of terms during a time period is determined and then will be normalized. Google.com define that the result in Google Trends are normalized to make it easier in comparing the search data and cancel out the variable's effect on the data. Being normalized means sets of search data are divided by common variable such as total search. Without being normalized, a region with the most search volume would always rank highest (<https://support.google.com>). Scheitle (2011) also explain that the search that has highest rate with the "search term" will give a score of 100, the scale is from 0-100. These data are obviously based on the population using the Internet or, more precisely, the population of Internet users conducting searches on Google.

The researcher interested to use the search volume index from Google trends as the direct proxy for attention because from the search volume index we can see the frequency for a term that searched by the people, its supported by Scheitle (2011) that if people are concerned or interested in a particular issue, they will be more likely to search for resources, news, websites, discussion boards, and other types of information related to that issue. As interest goes up or goes down over time, these searches will increase or decrease as well.

Below is the formula of Google search volume from Webproworld.com:

$$SVI = \text{Actual Number of Searches} / \text{Average Number of Searches over Period}$$

Another formula comes from GTrends (<http://gtrends.w-shadow.com/>), the equation is :

$$\text{keyword\_searches} = (\text{keyword\_bar\_size} / \text{reference\_bar\_size}) * \text{reference\_searches}$$

#### 4. Liquidity

According to Bodie *et al.* (2008) liquidity is the speed and ease with which an asset can be converted to cash. Liquidity is characterized by a high level of trading activity. Assets that can be easily bought or sold are known as liquid assets.

According to Rose, Peter S. and Marquis, Milton H. (2008) a liquid financial asset is readily marketable, which means that the assets can be sold quickly. It is related to assets' price and generally carries lower yields, stable price and reversibility. Liquidity can be measure by bid-ask spread, trading volume, frequency of trades, and average trade size. Liquid instrument will have higher in trading volume, trading frequency, and average daily trade size.

According to Tripathy, naliniprava (2011) trading volume tends to be higher when stock prices are increasing; its changes reflect the available set of relevant information perceived by the market. This research found significant contemporaneous relationship between return volatility and trading volume that indicate the information may flow simultaneously rather than sequentially into the market. The study also found that trading volume is associated with an increase in return volatility and this relationship is asymmetrical. The study revealed that shocks in stock returns impact trading volume in the expected direction over a short horizon. According to Pathirawasam, C. (2011). Higher volume in the market leads to a shorter time needed for trading a predefined amount of shares. Thus when trading volume is high this is a sign of high liquidity. According to Bank *et al.* (2011) the formula of trading volume used as the proxy of liquidity is:

$$TV_{iyd} = \ln (VO_{iyd} P_{iyd})$$

TV<sub>iyd</sub> = Trading Volume of stock I on month d of year y

VO<sub>iyd</sub> = Number shares of traded

P<sub>iyd</sub> = Respective price

#### 5. Return and Risk

According to McMillan *et al.* (2011) return is defined as the reward for undertaking the investment, it is the motivating forces in the investment process. There are two components of return, i.e.; the yield that is the income component of a security's return and the capital gain (loss) which is the change in price on a security over some period of time.

According to Drake, Pamela Peterson and Fabozzi, frank J. (2009) risk is derived from Italian verb *riscare* which means "to dare". Investors "dare to" get profits by taking advantage of opportunistic side of risk. According to Jones, Charles P. (2009), Fabozi, Frank J. and Drake, Pamela Peterson (2009) and McMillan *et al.* (2011) define that there are two risks that must be considered when investor deal with investment. The first is systematic risk, that cannot be diversified no matter what the investor does or it is called nondiversifiable risk, such as interest rate, inflation, economic cycles, political uncertainty, and natural disaster. Second is

unsystematic risk, which is risk that can be eliminated by diversification or it is called diversifiable risk.

According to Pathirawasam, Chandrapala (2011) the formula of return is:

$$R_{i,t} = \frac{P_{i,t} - P_{i,t-1}}{P_{i,t-1}}$$

$R_{i,t}$  = Capital gain returns of the  $i^{\text{th}}$  share in the month  $t$

$P_{i,t}$  = Price of the  $i^{\text{th}}$  share at the end of month  $t$

$P_{i,t-1}$  = Price of the  $i^{\text{th}}$  share at the end of the previous month

According to Jones, Charles P. (2009) the formula of Risk or Standard deviation (Return Volatility) is:

$$\sigma = \sqrt{\frac{\sum (xi - X)^2}{n-1}}$$

$\sigma$  = Standard Deviation

$X_i$  = each value in the set

$X$  = the mean of the observation

$n$  = the number of returns in the sample

#### 6. Relation between Investors' attention with Liquidity

Da *et al.* (2009) discovered that Google search volume is closely related to the trading by individual investors. It shows the intense effect on the trading behaviors of investors. According to Tripathy, Naliniprava (2011) trading volume and its changes are described the available set of relevant information perceived by the market. This research concludes that the trading volume is related to the stock return volatility. The high trading volume is related to high stock return volatility. It is also defined that the news which received by the investors gives effect on the stock return volatility. Good news increasing the stock return volatility leads to increase trading volume. According to Chae (2002) investor attention can be seen from the stock price that influenced the information that is spread in the market. Information itself can decrease the asymmetric information and make the stock more liquid. Here, there is positive relation between investor attention and liquidity.

#### 7. Relation between Investors' attention with Return and Risk

Ross *et al.* (2009) defines that an individual expects a stock to earn over next period which is called the expected return. According to Fama and French (1992) variables that can explain the average return are size and book to market equity and it is also the proxy of common risk factors in return. Investors want to invest in investment to get higher return and a low standard deviation (risk). Ross *et al.* (2009) explain that return on any stock consists of two parts such as normal or expected return and the uncertain or risky return on the stock. Normal return or expected return can be predicted by investors depend on the information taken by investors and on the stock. Uncertain or risky return on the stock is part that comes from information that will reveal within the month. Ashraf, M.A and Joarder, H.R (2009) stated on their research that informed investors could be more advantageous than uninformed investors in averting risk. Risk is related with uncertainty, according to Andre, Daniel and Hasler, Michael (2013) when an

investor pays attention to news, the uncertainty will decrease and the estimated growth rate is increasing and vice versa.

In portfolio theory we learn about high risk high return. Some investors willing are to invest their funds in high risk investment because they expect the high return from that investment. There is a positive relation between risk and return. Stocks that have high demand and supply will tend to be more fluctuating and it is indicate that many investors are interested on that stock. The fluctuation of stock price describes the information that flows in the market. Thus, there is a positive relation between information that investors have with the return and risk of investment.

## B. Hypotheses Development

According to Tripathy, Naliniprava (2011) when trading activity increases, it tends to push the stock price to increase. According to Da *et al.* (2009), the increase of search volume will increase the trading volume and push up the stock price in the short run. Fang and Peres (2009) also explain that investors' attention to advertisement also has a positive impact to return. When investors have more information about company, the asymmetric information will tend to decrease.

Positive relation between investor attention, return and trade volume also the decrease of asymmetric information, helps the researcher to build the first hypothesis as:

H.1 a : Attention has positive influence to stock return of manufacture companies in Indonesia

H.1 b : Attention has positive influence to stock return of manufacture companies in India

Bank, M., & Peter, George. (2011) conclude that internet search volume is not only captures internet user attention but also related trading activity. According to Rose, Peter S. and Marquis, Milton H. (2008) trading volume is one of the measurements of liquidity. Trading volume indicates that the instrument is actively traded by the investors. High trading volume means that the demand and supply of this instrument is high on the market and its means that investors are attracted by this instrument. When investors are interested on that stock, they will tend to search the information about that stock. From those reasons the researcher can conclude that searching activity done by investors will have positive relation to the liquidity.

H.2a : Attention has positive influence to the stock liquidity of manufacture companies in Indonesia

H.2b : Attention has positive influence to the stock liquidity of Manufacture Companies in India

When investors do the investment, they expect a higher return, but there is a risk that must be considered by them. In finance we know the principle that high return high risk, which means that to get high return we have to deal with high risk. Tripathy, naliniprava (2011) found that there is relationship between return volatility and trading volume that indicates the information may flow simultaneously on the market.

Risk become one consideration factors when an investor wants to invest in capital market. Stock price fluctuation happens because there is much information received by the investors. Information that flows in the market could make the stock price on the highest point or lowest point that makes the stock have a risk that must be considered by the investors. Investors

could see the risk from the stock return volatility and from above description below is the third hypothesis:

H.3a : Attention has positive influence to the return volatility of manufacture companies in Indonesia

H.3b : Attention has positive influence to the return volatility of manufacture companies in India

Bank, M., & Peter, George. (2011) conducted a research about investor attention for trading activity, liquidity, and returns of German stocks. The result of this research found that the higher the search volume, it will increase the trading activity, and it improves liquidity stock and high future returns in short run. There is positive relation between investor attention and trading activity, liquidity and return of German stocks. Usman (2012) conducted a research about the investors' attention for return, liquidity, and return volatility in manufacture companies in Indonesia. The result of that research is that the high search of information help investors makes decision that gives impact on liquidity improvement, and the increasing liquidity affect the returns volatility. Indonesia and India are emerging market that become members of G20 (<http://internasional.kompas.com>) and the growth of internet users in these two countries are similar (<https://www.google.com/publicdata>). From the above description, the fourth hypothesis is :

H.4a : Indonesia and India has the same result on the influenced of Investors' attention to the return, liquidity, and return volatility

H.4b : Indonesia and India has different result on the influenced Investors' attention to the return, liquidity, and return volatility

### III. Research Methodology

Researcher will use all of the manufacture companies stock listed in Indonesia Stock Exchange and all the manufacture companies stock listed in India stock exchange as the population of the study. From the population, it will be sampled. The sampling will used purposive sampling method, which are:

1. The company actively listed in IDX and/or NSE, which means that the company is actively doing trading activity in the period observation 2011-2013.
2. The company listed in manufacture sector in the period observation 2011-2013
3. The data search can be found on Google Trends (could be the company ticker, company names and etc), data that have the same meaning with other term will be eliminated to minimize the error.
4. Information related to the company can be found on the internet
5. The data are available at Google trends ([www.google.com/trends](http://www.google.com/trends)), Yahoo finance ([finance.yahoo.com](http://finance.yahoo.com), and [in.finance.yahoo.com](http://in.finance.yahoo.com)), IDX ([www.idx.co.id](http://www.idx.co.id)), NSE ([www.nseindia.com](http://www.nseindia.com)), and NDTV profit (<http://profit.ndtv.com>)

Sample on this research are manufacture companies in Indonesia and India that fulfill the criteria of the sampling above. This research focuses on manufacture companies because trading activity in this sector is significant.

Data used to conduct this research use secondary data that are already available. It can be getting from many sources such as Indonesia Stock Exchange (IDX), India Stock Exchange (NSE), Google search engine (Google Trends), financial statement, Ndtv profit, and yahoo finance. The data that will be needed in this study are search volume index using Google trends,



monthly stock closing price, earning per shares, shares outstanding, firm age, trading volume of monthly stock's. This study is using data panel which is a combination between the cross section data and time series data. It uses the regression analysis technique with OLS (Ordinary Least Square) model by with e-views software.

The result for hypothesis testing for:

H.1 a : Attention has positive influence to stock return of manufacture company in Indonesia

There is only one variable that has significant value (0.0349) which is company size. Others variable such as Google Search Volume Index (GI), Market to Book Ratio, Price Earnings Ratio, and company age which have probability value that bigger than alpha value 0.05. The value of Durbin Watson is 1.991336 that shows there is no autocorrelation between each variable. Only company size variable that can support hypothesis 1a, and for the independent variable which is Google search volume index as the direct proxy of investors' attention cannot support the hypothesis 1a. It means that there is no influence of investor attention of company stock information on return of manufacture companies in Indonesia for observation period 2011-2013.

For hypothesis 1b:

H.1 b: Attention has positive influence to stock return of Manufacture Company in India  
The p-value of Google search volume index (GI), Price Earnings ratio (PE), and company age are not significant; thus are bigger than alpha value which is 0.05. It means that for hypothesis 1b is not supported because only size and market to book variable positively influence the return of manufacture companies in India for period 2011-2013. The investors' attention does not influence the return of the manufacture companies in India. And the Durbin Watson value is 2.694323 which mean that there is no negative autocorrelation.

For hypothesis 2a:

H.2a : Attention has positive influence to the stock liquidity of manufacture company in Indonesia

All of the variables give significant p-value that is less 0.05 which means that all the variables supported the hypothesis 2a that there is a positive influence of investors' attention on trading volume of manufacture companies in Indonesia on the period of observation (2011-2013). The Durbin Watson value is 0.974193 and it shows that there is positive autocorrelation on the variable. The higher the interest of investors searching information about company stock, the more liquid that stock because the trading volume that is used as the measure of liquidity was increased too

For hypothesis 2b:

H.2b : Attention has positive influence to the stock liquidity of Manufacture Company in India

There are two variables that support the hypothesis 2b but there are two variables that did not support it. P-value of Google search volume index (GI) and company age are bigger than alpha

value which is 0.05 and it means that GI and company age do not influence the trading volume of manufacture companies in India and only size and market to book ratio that influenced the trading volume.

For hypothesis 3a :

H.3a : Attention has positive influence to the return volatility of manufacture company in Indonesia

All the entire variables have a significant value except for market to book ratio. It shows that market to book does not influence the return volatility of manufacture companies in Indonesia. This result describe that there is positive influence of investors' attention on return volatility of manufacture companies in Indonesia for period 2011-2013.

For hypothesis 3b:

H.3b : Attention has positive influence to the return volatility of manufacture company in India

Variables that supported the hypothesis 3b are Google search volume index (GI), size, and company age. All that variables have significant value less than alpha value 0.05. This result is the same as Indonesia result that the only variable that did not support the hypothesis is market to book ratio. It means that investors' attention is influenced the return volatility of manufacture companies in India on the period 2011-2013.

For hypothesis 4:

H.4a : Indonesia and India have the same result on the influenced of Investors' attention to the return, liquidity, and return volatility

H.4b : Indonesia and India have different result on the influenced of Investors' attention to the return, liquidity, and return volatility

Hypothesis 4a is not supported because there is different result between Indonesia and India on manufacture sector. In Indonesia dependent variables influenced by the Google search volume index are trading volume and return volatility. Google search volume index does not influence the return of manufacture companies in Indonesia for period 2011-2013. For the control variables, it is only size that support the entire hypothesis for Manufacture Company in Indonesia. The result for India shows that Google search volume index only influenced the return volatility, and the same like Indonesia, size become the only one of control variable that supports all the hypotheses.

This result shows that in Indonesia the investors' attention to search information about company stock measured by Google search index significantly influenced the stock liquidity and return volatility. It means the increasing of search activity will increase the trading volume and return volatility of the stock. The information that flows in the market especially the good news will increase the interest of searching activity about that stock. When investors are interested, demand of the stock will be higher that can make investor increase the trading volume. The information could make fluctuation of stock prices and increase the return volatility, but it will not influence the stocks return that investor get on the market. Meanwhile in India, it shows that the investors' attention only influence the return volatility of the stock without influence the stock return and trading volume.

A. Conclusion, Limitation, and Suggestion

The conclusion of this study is derived from the hypotheses testing in answering the problem statement:

- a. The first hypothesis (H.1a) that attention has positive influence to stock return of manufacture companies in Indonesia is not supported. It means that investors' attention that measured by Google search volume index does not influenced the stock return of manufacture companies in Indonesia for the observation period from 2011-2013. The result between Indonesia and India are the same where the hypothesis 1b (H.1 b) that states attention with a positive influence to stock return of manufacture company in India is not supported by the result of hypothesis testing.
- b. Second hypothesis (H.1b) which is attention has positive influence to the stock liquidity of manufacture companies in Indonesia is significantly supported by the result of hypothesis testing. Meanwhile in India, the second hypothesis (H.2b) which is attention has positive influence to the stock liquidity of Manufacture Company in India is not supported.
- c. Third hypothesis for Indonesia (H.3a) which is attention has positive influence to the return volatility manufacture companies in Indonesia and the third hypothesis (H.3b) which is attention has positive influence to the return volatility of manufacture company in India is significantly supported.
- d. Fourth hypothesis (H.4a) which is Indonesia and India have the same result on the influenced of Investors' attention to the return, liquidity, and return volatility is not supported because the result of hypothesis testing is supported the hypothesis 4b (H.4b) that stated Indonesia and India has different result on the influenced Investors' attention to the return, liquidity, and return volatility.

There are some limitations of this study; first, this study is only focusing on one sector industry which is manufacturing sector. Second is the observation period of this study is only three years from 2011-2013. Third is the limitation of the data availability of Google search volume index that only start from the year 2011, because the previous year data has been removed.

For further research, the author suggests that the researcher can add more subsector that not only focus on manufacture sectors, and make longer observation period more than three years also compare more than only two stock exchange or not only compare Asian capital market.

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