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Firm Performance and Stock Returns: The Moderating Role of Google Search Volume Index: Evidence from Companies Listed in Indonesian Sharia Stock Index

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Abstract

This study examines the effect of company performance on stock returns moderated by Google search volume on companies listed in the Indonesia Sharia Stock Index (ISSI). The research sample consists of companies registered with ISSI from January 1, 2020, to December 31, 2021. The results showed that the company's performance indicators, ROE and EPS, significantly positively affected stock returns. In addition, Google search volume directly impacts the increase in stock returns and positively moderates the relationship between EPS and stock returns. This research contributes to the accounting and capital market literature by looking at synergies between companies and investors' attention to sharia stock returns, especially during the crisis.

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INTRODUCTION

The COVID-19 pandemic has disrupted most countries' business sectors and capital markets (Topcu & Gulal, 2020). The pandemic will affect financial markets in developing countries in Asia and Europe more than developed countries due to the sudden outflow of capital with a large enough amount (Beirne et al, 2020). During the COVID-19 crisis, stock price movements were reflected more by sentiment than substance (Cox et al., 2020). This is due to investors' reaction to negative news or information, thereby increasing pessimism from negative emotions (Lee et al., 2002; Burns et al., 2012). However, there are anomalies in investor behavior in receiving information where there are two types of investor behavior in the capital market: rational and irrational. So, when a stock undervaluation situation that occurs, by analyzing company performance, investors can increase the opportunity to generate profits higher than the average market value (Fama, 1970).

Investors will assess how the company is performing through historical data annual reports, which are used as comparisons to the performance of one company and another, as an investment decision strategy in identifying risks and benefits obtained. In addition, financial performance analysis is also needed in assessing the company's prospects and is used as an early warning scheme for the company's financial problems. In analyzing company performance, the tool considered the most efficient and easy to understand is identifying financial ratios (Healey, 2000; Banerjee, 2019).

Previous studies have examined the impact of company performance on stock returns, such as Bouteska & Regaieg (2017), finding that earnings per share (EPS) and dividend payout ratio (DPR) have a significant positive effect on stock returns in Tunisia. Dewri (2021) examined its effect on multinational companies in Bangladesh showing that the financial ratio of return on assets (ROA), return on equity (ROE), earnings per share (EPS) and dividend payout ratio (DPR) had a significant effect on stock returns. He also suggested that investors consider EPS and CGI (corporate governance index) growth to help protect investment capital and earn sustainable returns. Lewis & Tan (2016) found that the composition of the debt-equity ratio (DER) can predict stock returns for future periods. Other studies, such as Ahsan (2012), Arkan (2016), and Banerjee (2019), found that EPS and ROE performance are useful in predicting stock market trends and have an effect on increasing stock returns. Although, previous researcher have found that financial performance is closely correlated with stock returns, the results are still varied and not yet conclusive.

In the stock market, information is the most valuable asset (Vlastakis & Markellos, 2012) and stock market movements will be in line and react to the changes in information (Lin et al., 2019). Technological advances have changed the way investors obtain information, where the internet is not only a channel of information but also a contributor that influences information through reviews. These advances have changed the way business is conducted which has helped individuals or organizations in designing strategies including predicting company performance and stock movements (Agarwal et al, 2019). Internet search volume describes the collective interest of a group of people in a particular object that can measure patterns of public attention in real-time and accurately so that it can be used as a source of strategic information for investors in predicting movements in the stock market (Ding et al., 2020). During the pandemic, negative news spread widely, and investors tried to find the latest information to monitor the performance of their portfolios or use it to diversify their investments.

Currently, Google is the most popular and widely used information search engine (Bijl et al, 2016) where the services provided by Google in the form of Google Trends have been applied in the economic sector including finance (Pai, Hong & Lin, 2018). Previous research examining the influence of Google search volume on the stock market, such as Chai et al. (2021), found that Google search volume (GSV) has a positive impact on stock returns. Furthermore, Baig et al (2020) revealed that Google search volume has a significant impact on increasing volatility and decreasing stock market liquidity. Several other researchers also revealed that there is a significant relationship between Google search volume (GSV) and the Smales stock market (2021), Iyke & Ho (2021), and Yoshinaga & Rocco (2020).

Indonesia as a developing country, also experienced a decline in the capital market index. One of the stock market indices that experienced a decline was the Indonesian Sharia Stock Index (ISSI) (Rahmawati, 2021). The majority of Indonesia’s population is

Muslim, making the sharia stock market important in the economy. The composition of the sharia stock index in the capital market has reached 47.32% of the total shares in the Indonesia Composite Stock Price Index (JCI) (Ministry of Finance, 2021), so it has a considerable influence on economic growth.

In stock market, there are millions of investors, and each investor has different goals, especially for sharia stock investors. Although making a profit is the biggest consideration, maximum return is not the primary goal and the only factor in investment decisions. Sharia stock investors place great emphasis on Socially Responsible Investment (SRI) as their guideline in investing. In addition to seeking profits, sharia stock investors also want to be in a corridor that is under religious rules that do not conflict with Islamic law. Then, investors who have religious motivation will only buy stocks listed on the sharia stock index. This research contributes to proving the effect of company performance and Google search volume on stock returns and testing the moderation effect in looking at the effectiveness of the role of investor attention during the COVID-19 crisis on the Indonesian Sharia Stock Index. This research uses samples from January 1, 2020, to December 31, 2021, with the panel data regression method. To measure GSV, we apply a search index of stock issuer codes from Google Trends. A company's performance is assessed based on financial ratios (ROE & DER) and market ratios (EPS).

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Company Performance

Financial statements providing information to investors about the company's performance and improving financial performance is one of the biggest attractions for companies to attract investors' attention. The first study to look at the relationship between accounting information and stock prices was Beaver (1968) on the U.S. stock exchange in New York, where they found that accounting information for corporate financial reporting can affect stock prices when investors get abnormal returns from companies whose profits increase. Since then, many researchers have tested the impact of financial performance on stock returns. Arkan (2016) found that the financial performance of ROE and EPS is the best predictor of stock returns. Ahsan (2012) revealed that ROE can be a measure of company portfolio performance that is useful in predicting stock market trends. Goddess (2021) and Rahman & Liu (2021) stated that EPS and ROE have a significant effect on stock returns. However, the performance of the EPS market shows higher significance, so researchers suggest the importance of investors looking at EPS performance. But other results were found by Musallam (2018), Pang (2021), and Rasool et al (2021) if the company's performance ROE and EPS do not have a significant effect on stock returns.

Large companies are associated with large amounts of debt. Proper use of debt funds can increase the profitability of the company due to the expansion carried out. However, a high amount of debt compared to total capital will reduce the company's operational efficiency and increase the risk of difficulties or even bankruptcy of the company (Pang, 2021) and more risk when a crisis occurs. Senyigit & Ag (2014) and Ozturk & Karabulut (2020) found that DER has a significant negative effect on stock returns. Meanwhile, Lewis & Tan (2016) revealed that debt composition can predict future company returns, and large amounts of debt have a significant positive effect on stock return. This situation is in line with signaling theory, which states that information published by companies, such as financial statements, is beneficial for stakeholders, including investors, in reducing information asymmetry. So the hypothesis of this study is:

H1: ROE has a positive effect on sharia stock returns
H2: DER has a negative effect on sharia stock return
H3: EPS has a positive effect on sharia stock return

Google Search Volume

Barber and Odean (2008) mention that individual investors tend to make investment decisions based on attention from electronic news such as the Internet or social media. Attention Theory implies the impulse to buy stocks based on attention is a reflection of investors' difficulty in selecting stocks from the thousands of stocks available for purchase that are considered potentially profitable. The increasing popularity of the internet makes information search engines a means of understanding the systematic effect on an event because of the data offered. For example, the Google search engine offers a variety of search data through Google trends. In Google Trends, the search data of an object

is calculated based on all word usage, such as the word chocolate will be related to other words such as dark chocolate, white chocolate, milk chocolate and so on so that the search frequency of a word will contain similar variations of words to show a diverse data set, whereas Google will not count repeated searches on the same user and show data based on certain periods that form a time series.

The high and low of Google search volume show a pattern of attention, and researchers draw a difference to an object where the pattern of attention will change over time. Although it cannot measure specific behavior, search volume can analyze systematic patterns in social data, such as increasing the frequency of certain data, which can signal how a person behaves toward certain objects (Perlin et al., 2017). Research using Google search volume as a proxy for investor attention has been carried out on the price of bitcoin (Kristoufek, 2013), bonds (Pham &; Huynh, 2020), the cryptocurrency market (Zhang &; Wang, 2020) and the stock market among them (Da et al., 2011) Research using Google search volume as a proxy for investor attention has been carried out on the price of bitcoin (Kristoufek, 2013), bonds (Pham &; Huynh, 2020), the cryptocurrency market (Zhang &; Wang, 2020), and in the stock market among others (Da et al., 2011) which shows that Google search volume (GSV) affects stock market performance. Perlin et al. (2017), who looked at the influence of search frequency on stock return in the USA, the UK, Australia, and Canada, found that Google search frequency decreases stock return, where great investor attention causes subsequent yields to be lower. Yoshinaga & Rocco., (2020) show that increased popularity causes stock prices to deviate from their fundamental value. However, different results were found by (Chai et al., 2021; Stejskalova., (2019) where the intensity of Google searches has a positive effect on stock returns as indicated by an increase in stock returns. So the hypothesis of this study is:

H4: Google search volume has a positive effect on stock returns

The Effect of Search Volume Moderation on Google on Company Performance and Stock Returns

The COVID-19 pandemic event that occurred on a global scale has increased economic uncertainty, especially in developing countries such as Indonesia, where most of the investment capital is still dominated by foreign investors. Andrei et al, (2021) revealed that with the increasing economic uncertainty, the more motivated investors are to pay attention to company-level information such as company performance. Investors will maximize information by considering the ratio of benefits to costs in obtaining the information. Information search through the internet is considered effective and efficient because it contains various types of information needed in a short time and at low costs that help investors make investment decisions.

In the capital market, thousands of shares are listed for trading by investors. Limited time and investor ability make there an anomaly to fundamental-based mispricing (Zhu *et al.* 2020). This can happen because many companies are listed, and among of them, have a good company performance. However, these well performing companies are not included in the investor watch list, triggering stock underreactions because they escape investors' attention. Barber and Odean (2008) state that investors tend to only analyse a small number of companies when considering decisions. So the shares that are included in the investor's list are the ones that tend to be traded. Thus, the presence of investor attention through Google search volume will strengthen the relationship between company performance and stock returns. So, the hypothesis of this study is:

H5: Google Search volume moderates the relationship between company performance and sharia stock returns.

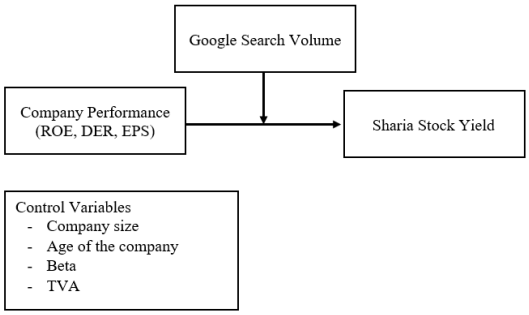

Figure 1: Research Framework

RESEARCH METHODS

This study uses panel data regression analysis, with a sample of Indonesian Sharia Stock Index (ISSI) research from the period 1 January 2020 until 31 December 2021. Based on purposive sampling characteristics, only 73 companies met the

criteria. ISSI stock index data is obtained through the Indonesia Stock Exchange (IDX) online website. The company's annual report and financial statements are obtained from the official website of each listed company. At the same time, Google search volume data is obtained from Google Trends.

Google search volume is obtained from the number of stock issuer code search indexes for each company, on a scale of 0-100, where 0 represents the lowest number of searches and 100 represents the highest number of searches. Stock issuer code queries are used to capture searches specifically related to stocks or investment motivation because using other names would capture word relationships beyond investment objectives. The following Google search volume calculations are (Bali et al., (2014); Chen et al., (2001); and Chai., et al., (2021), that is:

$$ASVI_{i,t} = \frac{SVI_{i,t} - AVGSVI_{1,t-12,t-1}}{SDVI_{i,t-12,t-1}} \quad (1)$$

Where: $ASVI_{i.t}$ Abnormal Google search volume index; $SVI_{i.}t$, Google search volume of issuer i at time t; $AVGSVII_{i.t-12,\ t-1}$ Mean for Google search volume the issuer for the last 12 months; $SDSVI_{i.t-12,\ t-1}$ Standard deviation for issuer Google search volume i for the last 12 months.

Panel Data Regression Analysis

The method used in this study is panel data regression analysis using STATA 14.2 tools. The research model used in answering the research hypothesis is:

$$Rt = \beta0 + \beta1\ ROE_{it} + \beta2\ DER_{it} + \beta3\ EPS_{it} + \beta4\ GSV_{it} + \beta5\ ROE*GSV_{it} + \beta6\ DER*GSV_{it} + \beta7\ EPS*GSV_{it} + \beta8\ FS_{it} + \beta9\ FA_{it} + \beta10\ Beta_{it} + \beta11\ TVA_{it} + \varepsilon_{it}$$

Where: Rt Stock return; β0 constant; β1- β5 is Company Performance, ROE (*return on equity*), EPS (*Earnings per share*), DER (*debt-equity ratio*); GSV (Google search volume); FS Company size; FA Age of the company; Beta (Risk); TVA (Stock trading volume activity).

RESULTS AND DISCUSSION

In hypothesis testing, we conducted descriptive statistics on research variables that can be observed in Table 2 for 73 companies listed on the Sharia Stock Index. Based on descriptive statistical results, the minimum return is 0.64231 and the maximum is 1.6375 on IDRR (PT Indonesia Pondasi Raya Tbk) and IKAN (Fks Multi Agro Tbk) stock tickers. The minimum value of company size was 22.32 for the Timah Tbk (TINS) company in 2020 and the maximum value is 33.25 for Telkom Indonesia Tbk (TLKM) in 2021. Furthermore, the minimum age of the company is six years, which occurs in Satria Antaran Prima Tbk (SAPX), and the maximum age of the company is 103 years for Indonesia Farma Tbk (INAF).

The lowest ROE value occurred in LPPF (Matahari Department Store Tbk) issuers in 2020 and is engaged in the retail business of clothing, accessories, and cosmetics. At the same time, the maximum value of the EPS variable is in the ITMG issuer code (PT. PT. Indo Tambangraya Megah Tbk), which is engaged in coal producers. For the DER variable, the minimum value is in the issuer of PALM (PT Provident Agro Tbk) engaged in oil palm plantations and the highest value in the MPMX emitem (PT. Mitra Pinasthika Mustika Tbk) in the field of automotive motor vehicles. The GSV variable with a maximum value of 1.5 is in the issuer code BELL (PT Trisula Textile Industries) in 2021. Although BELL issuers are not the largest textile producers in Indonesia, and this sector has been under strong pressure during the pandemic, BELL issuers have a high level of attention from investors. This is because BELL strengthens its digital sales system by creating an integrated e-commerce platform in the marketplace. So, it adds promotional value compared to competitors which increases investor attention. In line with Luo & Zhang (2013) that companies with digitalization developments have an advantage over competitors because they increase the company's promotional value.

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev	Min	Max
Yield	584	0.0221998	0.1811673	-0.64231	1.6375
ROE	584	.1038216	.8475652	-1.503	0.907
DER	584	1.34961	3.376651	.0068	31.63
EPS	584	97.48364	216.8728	-158	1024.25
GSV	584	2.86E-18	.8667678	-1.492511	1.5
FS	584	29.47747	1.642052	22.32	33.25
FA	584	41.85616	17.25721	6	103
Beta	584	1.093337	5.243556	-10.86599	13.31264
TVA	584	.0412498	.0877405	0	.9172082

Information:
The variables ROE and DER are percentage forms; GSV (Google search volume); FS (Company size); FA (Age of the company); Beta (risk); TVA (stock trading volume)

Research results are summarised in Table 2. Before regression testing, we perform classical assumption tests and regression model selection for Chow, Hausman, and

Lagrange multiplier tests. This study is free from classical assumption problems and based on regression model selection tests. The best model is Common Effects regression, and we do *robust* on the regression results. For regression model testing, the Adjusted R2 value of 0.1876 (18.76%) indicates that the independent and moderation variables, as well as the control variable, can explain the dependent variable of stock returns by 18.76% while the rest is explained by other factors outside this study.

In Table 2, it can be seen that ROE has a positive effect with a probability of 0.022 or a significant level of 5% on stock returns, thus supporting the first hypothesis with the previous assumption that there is a positive relationship between ROE and stock returns. Meanwhile, the DER variable does not show a significant influence because the probability value is 0.282, thus rejecting the second hypothesis. A negative coefficient indicates that a high DER reduces stock returns. The EPS variable shows a significant positive influence because the probability value is 0.006, so the third hypothesis is accepted. This result is also in line with Rahman & Liu (2021), who state that EPS has a higher significance than ROE performance. Furthermore, investor attention through GSV showed significant positive results with a probability value of 0.000, so it can be concluded that the GSV variable has a significant effect at the level of 1% and supports the fourth hypothesis. Not only does it have a direct effect, but the GSV variable can also moderate the company's performance on stock returns with a probability value of 0.048 or significant at a level of 5%, thus supporting the fifth hypothesis.

Table 2: Test the Hypothesis

Variable	Pred	Koef.	Prob	Sign
ROE	+	.2903592	0.022	**
DER	-	.0029065	0.282	
EPS	+	.0001793	0.006	***
GSV	+	.754397	0.000	***
ROE*GSV	+/-	-.2238635	0.150	
DER*GSV	+/-	-.000278	0.925	
EPS*GSV	+/-	-.0001887	0.048	**
FS (*Firm size*)	+/-	-.0257547	0.015	**
FA (*Firm age*)	+/-	-.0000747	0.936	
Beta	+/-	-.0006015	0.784	
TVA	+/-	1.039829	0.001	***
Constant		.7529255	0.013	
R-squared			0.1876	
Prob>F			0.0000	

Information:
R: Stock return; ROE (*return of equity*); DER (*Debt Equity Ratio*); EPS (*earnings per share*); GSV (Google search volume); Control variables: FS (Company size); FA (Age of the company); Beta (risk); TVA (trading volume activity)
significant rate of 1%; ** significant rate of 5%; * 10% significant rate.

From Table 2, we find that the first, third, fourth and fifth hypotheses are accepted, while the second hypothesis is rejected. The research model shows that the variables ROE, EPS and GSV have a significant effect on stock returns. At the same time, DER does not have a significant effect on stock returns. The large amount of debt illustrates that the company's funding does not come from the company's capital, so it can increase the risk of financial difficulties. The size of the company's debt level has not been able to be an indicator in influencing stock return movements; a large amount of debt is not necessarily an indication of poor company performance because large-scale companies have large debt structures as well.

The GSV variable has a significant positive effect at the 1% level. This also suggests that the presence of investor attention strengthens a stock's likelihood of being traded compared to stocks that receive less attention. This significant effect also shows that GSV can provide signals for investor trading behavior in the stock market. This positive effect shows that investors who invest on the IDX are more responsive to positive information than negative information. Investors' attention is more focused on positive news about things that are considered profitable for investors and react to stock trading transactions so that they have an impact on increasing stock returns. This research is different from Stejskalova (2019) who said that GSV had a significant effect on stock returns, and investors during that period did not pay attention to company performance. Nguyen et al (2019), Bijl et al (2016), Preis et al (2013) if GSV has a negative impact on stock returns, they state that the increase in GSVI is a reflection of investors' concerns about negative information which causes a decrease in stock returns.

In the second table, the results show that the GSV variable not only has a direct effect but can moderate EPS on stock returns. The presence of investor attention strengthens the relationship between EPS and stock returns. When investors are interested in certain shares, the EPS value becomes a good measure

of company performance assessment. This condition is because EPS can describe the profit that investors will get per share they own. Although other stocks may have a large amount of EPS, the lack of investor attention makes these stocks overlooked. This happens because there are thousands of shares and investors have limitations in analyzing shares listed on the stock exchange. So that only shares that perform well and get the attention of investors have a big chance of being traded by investors in the capital market. The results of this research are in line with the attention theory of Barber and Odean (2008) which reveals that retail investors are the main buyers of attractive shares, where share purchases are driven by attention.

CONCLUSION

Overall, it is concluded that under any condition, even during the COVID-19 crisis, the company's performance remains a consideration for investors' decisions before making investment decisions. Where Sharia stock investors consider the company's performance analysis of ROE and EPS; in this case, sharia stock investors consider the profitability analysis of ROE and EPS, which is an indication of the company's performance. Investor attention through GSV is an important factor that needs to be considered because it is not only proven to directly affect the increase in stock returns but can also moderate the relationship between EPS and stock return. During the COVID-19 period, when concerns are mounting, and negative information is increasing, the movement of stock return in ISSI is more reflected by positive news or information. This situation illustrates that sharia stock investors, in response to negative information during the CIVID-19 period, did not necessarily react to their pessimistic attitude by selling shares. This situation can also be explained by the type of investor in the sharia stock market who is a long-term investor and not a short-term investor.

The limitations of this research, which is the period is only two years with a limited sample due to the unavailability of data. In the future, researchers can multiply research samples and extend the time period so that they can provide better results. This research only looks at Google search volume with information related to stock issuer codes, so it is hoped that future research can distinguish what types of information can affect stock returns.

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