Does the Information on the Internet Media Respond to the Stock Market?

Rita Sofyan[1]. Defriko Gusma Putra[2]. Riyadi Aprayuda[3]

[1]*Universitas Negeri Padang, Padang Indonesia*
[2,3]*Universitas Andalas, Padang Indonesia*
Corresponding author. Email: ritasyofyanunp@gmail.com

ABSTRACT

This researcher explores and reviews studies that discuss the problem of market reaction based on information available on the internet and social media and looks at investor behavior to respond to that information. This study looks at the information contained in online news articles and various social media platforms based on stock trading days and investor trading patterns. Specifically, this study will discuss how investors' behavior responds to the stock market with a defusion of accounting information or other information related to investment in companies or shares on the internet that is classified based on the impact of news on the internet, social media, as well as an overview of the defusion of information related to investment in the emerging stock market countries and developed stock markets. This research found information reflected in the news media on the internet and social media can be used to make investment decisions in the short term and this information is a small part of the reflection of stock price movements. This research contributes to investors when making decisions in utilizing information on the internet

Keywords: *Stock Market, Information, Internet Media, Social Media, and Investor Behavior*

1. INTRODUCTION

Behavioral finance theory assumes that investors in the stock market always behave rationally in making investment decisions, investors are assumed to be able and able to analyze all information available in the market, but more or less some investors also have irrational behavior (tend to be speculative) in receiving information (Hayes, 2010; Jureviciene & Invanova, 2013). Based on this view, investors in determining their investment decisions require prior consideration, of the many alternatives available on the market both from internal and external sources, one of which investors in making decisions will consider accounting information available in the market both

information provided by the company in the form of company financial information provided by company management or provided by external parties such as technical predictions from securities analysts. Investors generally stated that accounting information published by the company will be the main consideration in the context of investment decision making. Then, the picture related to investment decision making, investors must look at accounting information that certainly has a value of relevance because it is statistically related to market value (Puspitaningtyas, 2017).

Existing information can change the behavior of investors receiving information, they will process and digest the information he receives on

the information in financial statements and from other sources of information such as news media on the internet or social media that can influence his decision, information that has benefits for decision making is more directed at the content contained in the contents of information and the accuracy of the time the information is to be received and gives confidence to investors (Puspitaningtyas, 2010).

Currently, the internet has changed the way information is collected, processed, and distributed throughout the world. Business companies can use social networking or social media sites to collect, manage, and distribute information to various stakeholders including shareholders (Shiau et al., 2017). The popularity of social media has led to important developments that now people act only as recipients of information but they are also contributors to information sources through reviews, posts, uploads, and others that will produce useful content to be an important information reference for businesses (Paniagua & Sapena 2014). Based on this view, it can help assist organizations in many ways, for example designing marketing in terms of creative, advertising, and trademark strategies, developing human resource strategies, attracting and serving customers, assessing the feasibility of micro business credit, and ultimately predicting company performance (Kapoor et al., 2018). Then, the exchange of information via the internet has also changed the outlook of capital markets globally, where previously investors could rely on expert advice, some studies have shown that investors are more likely to follow other investors (Ivkovic & Wisbenner, 2007). Fisk et al. (2011) showed that social media can help in gaining public attention and in gaining profits through online discussions, sharing ideas, information, and opinions on objective choices on social media platforms, the number of visitors to a company's website, and customer reviews. In line with the previous view, Luo & Zhan (2013) found that information on social media had a

significant relationship with the company's stock market performance (Luo, Zhan, & Duan, 2013). Research has shown that the presence of corporate social media is important for business stakeholders (e.g, Luo et al, 2013).

Information Media is now in a revolution where the Internet has become more efficient than traditional print media. Therefore, news media providers must adapt to new technologies (Ludtke, 2009). Almost all news media now have an online edition. Therefore, investors now have quick access to information about important events that occur in the world in real-time updates. Investors can now sell and buy securities quickly and easily just by clicking on their computer screens (Shapiro & Richard, 1999). Based on available information and new knowledge that investors get, they can change and adjust their investment strategies according to the latest news and trends that are followed. Then, this has opened up new investment opportunities for investors and influenced investor behavior (Yang, Lin & Yi, 2017).

The challenge of current financial behavior research is how investor sentiment influences the stock market, for example, the public reacts to political events, social events, or financial information such as accounting information by sharing information or sharing opinions on social media on various platforms such as Facebook, Twitter, internet news, etc. Investors in this era can interact through online discussions, and find solutions to make their investment decisions on the internet (Agarwal, Kumar, & Goel, 2019). An overview of the information provided leads to the stock market can be seen in Figure 1 below.
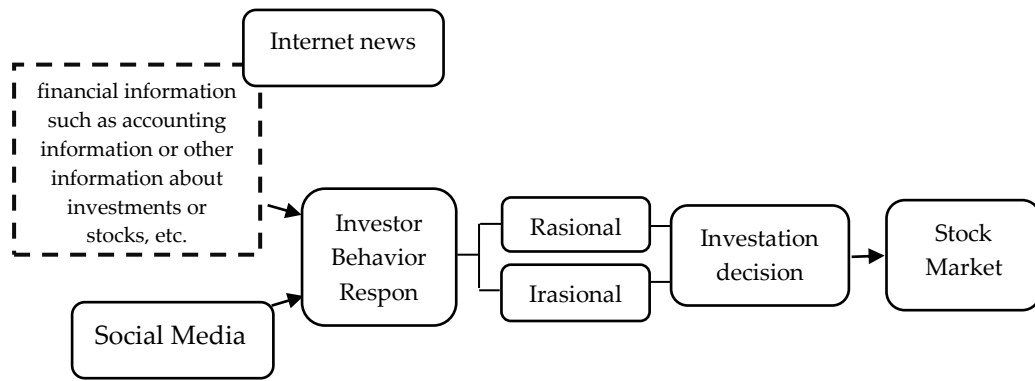
Figure 1. Illustrated representation of the process by which internet sources influence investor behavior in the stock market as a whole

Source: Agarwal et al. (2019) & Researchers (2020)

Figure 1 summarizes the discussion above about how financial information such as accounting information or other information about investments, stocks, companies, politics, social trends (viral news) on the internet, through social media and news influences investor behavior that is fundamentally rational and irrational in making decisions. As such, this has an impact on the overall stock market. This research will examine several intensive studies that focus on how the stock market reacts to the dissemination of information through internet sources.

2. METHODS

This research is a qualitative descriptive study describing a systematic review of studies that discuss market reactions to media on the internet and social media platforms along with the behavior of modern investors and the stock market in various kinds of information. Sugiyono (2008) states that the qualitative descriptive method is a research method based on the philosophy of postoostpotivism which is usually used to examine natural objective conditions in which researchers play a key instrument. This study describes the phenomena that occur in the stock market and the facts obtained in the field globally for analysis related to constraints and problems that arise in the stock market. This study illustrates how information on the internet and social media that occurs can also affect the stock market.

3. RESULTS AND DISCUSSION
3.1 General description of the information presented in the stock market

The first research that discusses the market reaction is Ball & Brown (1968), they argue that an efficient capital market is an unbiased market so that the information presented becomes useful in forming securities prices, the market will adjust the price of securities with existing information quickly without any investors get abnormal returns, stock prices quickly adjust to the newly available information, then changes in stock prices will reflect the flow of information on the market. Furthermore, Ball & Brown (1968) suggests the theory that if the market is not biased and the information presented in the market is useful/useful, then abnormal returns will not occur. Therefore, if prices change quickly because of the information flow to the market, the information that is reflected in the profit figures is useful. Then, their specific empirical results suggest that earnings information on financial reports can survive and react to the market within 40 days of their research also indicates market shock. However, in the current era, all information can be available not only from financial reports. Agarwal et al. (2019) revealed that currently capital market information is not only sourced from financial statements or stockbrokers, but all company information is good accounting information such as net income, earnings per share, dividends or information about companies such as financial forecast analysis from management or the

analysis has been circulating that can be accessed by investors on the internet through internal media or social media quickly, especially investors can also subscribe to news information from the internet media.

Information media which is the basis of investment decisions. Boness & Jen (1970) show the value inherent in information is a key factor in investment transactions. Therefore, changes in media dissemination of information because the internet can change the stock market. Alanyani, Moat & Preis (2013) found evidence that the content of internet news information has sufficient predictive power from the same price movements in the stock market. Then, the high popularity of social media causes many people to consider and compare the impact of social media and conventional media to see the value of the company. This opinion is proven by the findings of Yu et al. (2013), he examines the influence of various sources of social media together by influencing conventional media about the short-term performance of the company's stock market. They found evidence that social media as a whole has a stronger relationship with the company's stock performance than conventional media. Several other researchers also provide evidence that social media content influences the capital market (Jin, Shen, & Zhang 2016). Next, Shiller & Pound (1989) conducted a survey of institutional investors and individual investors in the United States. They found evidence of direct interpersonal communication was considered the most significant in influencing investor decisions. This study indicates that communication is a more significant discussion, the rise of social media that supports discussion and communication through internet media can support this when viewed from the perspective of the findings of Yu et al. (2013).

3.2 *The Impact of Social Media on the Stock Market*

Argawal, Kumar & Goel (2019) present a large body of literature discussing research providing

sufficient empirical evidence about political, social trends (viral news) affecting stock markets around the world. They formulated internet information sources such as social media, such as Facebook & Twitter, to bring investors to see company information or discussions about company shares because of the affordable costs. Then, Blankespoor (2018) provides an explanation related to good corporate communication to investors' responses by integrating social media, he claims social media is changing the way companies and investors communicate, this can be seen in terms of social media publications, company information, social media including more accessible by the community and quantitative. Furthermore, Cade (2018) clarifies that social media such as websites and social media applications such as Facebook, LinkedIn, Twitter, and Youtube facilitate access to the internet by the public who can publicize their application of operating companies, price predictions in the future, or decisions to make an investigation. Related to, in addition to facilitating the dissemination of information, social media platforms provide opportunities for capital market players to publicize how they process information. Then, Cade described the social media that can be published communication from two directions to the public both individuals and companies. Therefore, social media is ready to influence other people's perceptions of the company in the unknown (Miller & Skinner, 2015). In line with this concept, Lee, Hutton, & Shu (2015) found evidence that the relevance of activity on social media for the price of measure, return, and information asymmetry.

Some studies show that Facebook and Twitter social media platforms also have a dominant impact. Agarwal et al. (2019) explain that Facebook and Twitter are one of the most popular platforms of social networking sites researchers use to view information related to company or market information. Karabulut (2013) examines whether Facebook can predict stock market activity? They use the vector

Autoreg Regressive framework to show that Facebook's Gross National Happiness (FGNHI) can predict stock market activity in the short term. This evidence is strengthened though, Siganos et al. (2014) found evidence that public interest sentiments from FGNHI led to stock market movements which led to increased trading activity and volatility in returns. The next social media platform is Twitter, Twitter has grown rapidly as a medium for sharing opinions about investment decisions. Li, Shen Xue, & Zhang (2017) examined the stock market performance of several companies in China listed on the US stock exchange. They found evidence that the days when there was a positive sentiment on Twitter were related to high levels of returns and high trading volume that reflected the stock market. Then, Leitch & Sherif (2017) investigates how Twitter's reaction to the announcement of the CEO's success can be used to forecast the company's stock returns. But new research reveals evidence that the presence of CEOs on Twitter is quite low (Capriotti & Ruesja, 2018). Several recently published studies investigating the relationship between corporate twitter activity and capital market activity show that the use of corporate twitter can affect stock prices, returns, liquidity, and information asymmetry (for example, Blankespoor et al, 2014; Lee et al., 2015).

The stock market is unpredictable and no one is perfect with an investment strategy with all opportunities. However, social media can help reduce this uncertainty to some extent some research has proven that several social media platforms can explain the movements of the stock market. Tang et al. (2016) analyzed textiles analysis to review online comments provided by companies online. They found evidence of negative or positive comments that refuted high reviews predicting the company's low profitability in the future. Based on this evidence can be announced by investors who are now invited to each other through online discussions,

such as asking questions, sharing information, and seeking advice about investing online and making investment decisions. Therefore, chat media can also use investors to find or receive information about investing in the company they want. According to Argawal et al. (2019), several media chat messages have attracted a lot of investor attention and are used by investors to invest in them, Yahoo! Finance, Rigingbull.com, and Lion.com are the most popular. Wysocki (1998) examines by adjusting the volume of posting messages on Yahoo Stock message boards by predicting changes in the next day on the trading volume and returning the results of reported changes in the trading volume according to the posting volume. However, research is only limited to the volume of messages without consideration of opinions expressed in the message. On the other hand, Tumarki & Whitelaw (2001) provide news or signals from internet posts on their stock prices regarding the relationship delivered in media chatting and market activity they find what can be seen on the message boards in discussion forums at ragingbull.com (ie sites that very popular whose format allows the development of objective measures of investor opinion). Antweiler & Frank (2004) stated message information on Yahoo! Financial and commentary comments on this internet message board help predict market volatility. News related messages in discussion forums such as accounting information, or stock-related ratios, forecast analysis, analysis of related income trends, and dividend distribution plans. In general, posting on financial forums on the internet can affect stock prices, because this post can make new stock prices from an investment perspective because this phenomenon is quite important. Then, Agrawal et al. (2019) outline the indicators contained in investor transaction decisions to shape stock market activities, this can be seen in Figure 2.

Social Interaction
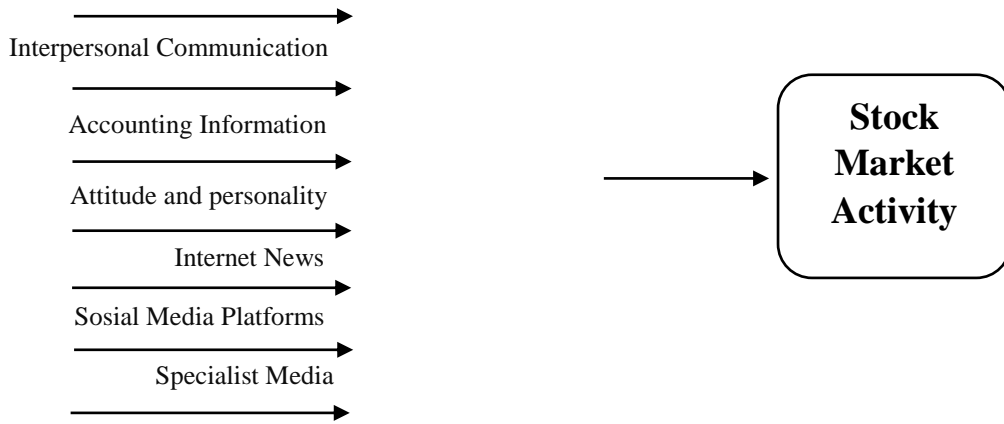
Investor trading decisions

Interpersonal Communication →

Accounting Information →

Attitude and personality →

Internet News →

Sosial Media Platforms →

Specialist Media →

→ **Stock Market Activity**

Figure 2. Items that are usually discussed by investors in related discussion forums that affect stock market activity and performance.

Source: Agarwal et al (2019)

Documented research illustrates that social media plays an important role as a medium that influences how people behave. When they interact with information in making investment decisions, their decisions will be immediately reflected in the market. Therefore, the presence of social media can be used as a tool by investors or stakeholders to discuss the information presented by the company both the company's fundamental information, and other information presented by the company, and then this makes the market react.

3.3 Impact of Internet News on the Stock Market

Wuthrichet et al. (1998) layout stock market daily predictions from text data on several websites using the Nearest Neighbor (KKN) data mining algorithm technique, on text-based information and numbers contained in articles published in various sources such as Financial Times, Reuters, Wall Street Journal, Bloomberg, and so on to predict Asian, European and American stock markets. Their research produced information on web data that most influenced daily stock prices and was most beneficial for the capital markets, including Politics, Daily Market Firm Fundamental or Technical information, Accounting Information,

Global Events, Firms trends, and other news. Mittermayer (2004) clarifies that information, as explained by Wuthrichet on the internet, can be good news and bad news, this percentage of news leads to the stock market where good news leads to a 3% increase in stock prices, bad news leads to a 3% decrease in stock prices. Likewise, with a study by Antweiler & Frank (2006), they classified the news wall street journal corporate news to find out whether the U.S stock market overreacted to company news. They found a positive stock market response to good news and negative response to bad news in the short term. Then, they think the news published by the information company will be fully reflected in the market price at most by one or two days, but changes to the stock price occur in the long run so that it can also produce an excessive reaction to the news. Finally, Lillo et al. (2015) investigating the role of internet news regimens to observe investor trading behavior in different types of investors (companies, individual investors, government and non-government) shows that companies and individual investors react to internet news, with positive results on news that show positive sentiment.

Many studies have used the news as a new information variable to predict stock returns & trading volumes. Mitchel & Mulherin (1994)

examined the relationship between several news reports reported daily by Dow Jones through the Wall Street Journal such as revenue, earnings per share, or technical analysis charts, and corporate fundamentals with market activity. They found this news significantly related to market activity. In line with this, Chan (2003) examines investor reactions to the news using a news database from individual company news titles. They separate stocks with one or more news items in a month and are ranked according to their returns. They found that the results of stocks with bad news experienced a large negative flow direction while the negative news flow was relatively small. Then, researchers also focus on investigating the impact of internet news on stock returns volatility. Berry & Howe (1994) suggested there is a positive relationship between the flow of public information to market activity and trading volume but it is not significant with price volatility. However, Kalev et al. (2004) observed that the amount of company news had a significant positive impact on the changing conditions of stock market returns. Documented research proves that news contained on the internet is utilized by investors to invest, therefore the diversity of information in internet news can react to the stock market, good news or bad news received by investors can cause volatility in the company's stock prices.

3.4 Emerging Market Vs Developed Market

News information that was announced on the internet there is a difference between the stock markets in developing countries and the stock markets in developed countries. This is proven by Narayan & Banningidadmath (2017) research comparing the predictability of positive news on conventional stocks and Islamic stocks. They reveal that in developed countries negative and positive information correlates only with conventional stocks. However, for developing countries, stock returns correlated with positive news for both conventional and Islamic stocks. Then, Tantaopas et al. (2016) conducted an

information effect study through the intensity of internet searches on the stock market using a search volume index (SVI) by comparing Emerging Markets and Developed markets in Asia Pacific countries Developed capital markets (Singapore, Hong Kong, Japan, Australia, South Korea, and New Zealand) The capital markets of developing countries (Thailand, Malaysia, India, and China) with the results of investors in developed countries help improve market efficiency because most investors' attention is in line with the news. Interestingly, the findings show that the average efficiency increase in returns to emerging markets (27.8%) is lower than that of developed countries (33.2%). The opposite is true for increased efficiency in the return volatility in developed markets (29.1%) is lower than developing markets (34.3%). This occurs because developing country markets are generally more stable than developed country markets.Researchers believe that there are differences in investor behavior when responding to information available in the market, especially information related to the stock market that is diffused into the internet, researchers assume in developed markets that investors have been following the information because their markets have been efficient in a strong form. However, in emerging markets, it is still in the form of half strong or weak. Then, researchers argue that in developing countries like Indonesia, there are not many empirical studies related to the use of news on the internet and social media empirically. Researchers agree in Indonesia that Corporate Financial Accounting information circulating either on the internet, social media or on the company's official website itself does not have a significant impact on the decision making of investor behavior, most Indonesian investors are still influenced by other factors such as events that occur company political factors or social event

4. CONCLUSIONS

Based on the entire literature with the presence of internet media such as internet news and social media, many investors use the information contained therein because of the cost benefits and ease of accessing information widely on the internet, investors who use online media to make investment decisions tend to have an irrational behavior or speculative in making decisions, because internet news and social media that investors get only have an impact of 1 to 2 days in market prices. The possibility of this happening a lot to individual investors most reacting to internet news is due to a lack of investor knowledge and overconfidence with the short-term information contained in the internet media.

The combination of the entire literature can be concluded the stock market responds more to the news available on the internet such as political news, firms events, stock predictions, and accounting information on social media. Based on research documented accounting information, including one that dominates. However, the impact of accounting information on internet sources such as news on the internet and social media is not too significant for the stock market, Mitchel & Mulherin (1994) say accounting information will be responded to by rational investors because accounting information, in general, has more long-term impacts on investors, rational investors combine more all available information so they can make better decisions.

This research can contribute, to the decision-makers that social media and internet news can also be used to make investment decisions in the short term and the information reflected in the news media on the internet and social media can also partially affect stock prices and this information is a reflection of stock price movements both in companies individually and in groups of companies. However, decision-makers must also be careful because the information available here is quite speculative. After all, it is short-term so that decision-makers can filter information first and not be too confident with the information received. Then, information providers can pay attention to the information they provide using social media or reporting on the internet because the information they provide can affect the volatility of their company's stock prices.

The researcher observed that there had been a lot of great growth in several studies that explored the impact of information dissemination via the internet on stock movements. The ease of access to technology and internet technology has become a proven daily life such as Instagram social media platforms or smartphone-based chat applications which now tend to be more widely used by the community to determine the market response of these media. Then, Indonesia has not yet found much research that links the influence of accounting or financial information on the internet that impacts the stock market or investor behavior. Besides, there is still very little research on the influence of social media and internet news on investment decisions using primary data. This is an opportunity for further research to conduct research using this method.

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