



Herd Behavior in Millennial Stock Investors in Indonesia: The Concept of Bandarmology

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Abstract. Bandarmology analysis is a new paradigm in stock investment. This concept has similarities with herd behavior which has been discussed in several works of literature for a long time. Some stock investors, especially the millennial generation in Indonesia, have almost no good financial literacy. The phenomenon shows that they are brave enough to invest in stocks just by following the actions of stock influencers. There is very little literature discussing this phenomenon. This study emphasizes the emotional response of stock investors associated with the information provided by stock influencers. Several variables are arranged in this research model to determine predictors that encourage investment interest. This study takes a sample of 100 respondents who follow specific stock influencers. The collected data was analyzed using Smart PLS software. The study's results stated that all hypotheses proposed in this study were accepted. The author has proved that emotional response is a strong predictor that can change the behavior of stock investors. The author also proves that perceived risk, social influence, and source credibility are antecedents that impact emotional response. However, this research also still has limitations. Respondents were only taken from a stock influencer (kaptensaham707) and considered unable to generalize the research findings. This study also ignores the nature of stock investors' positive or negative emotions, which will impact behavior differently.

Keywords: Herd Behavior · Perceived Risk · Social Influence · Source Credibility · Emotional Response · Behavioral Intention

1 Introduction

Some people will instinctively follow the actions, behavior, or decisions of others. This condition occurs because individuals only have limited information and an understanding of that information [1]. The phenomenon that individuals make decisions based on the actions of others is known as herd behavior [2, 3].

In the concept of herd behavior, when a group influences an individual, he will change his point of view, judgment, and behavior. The individual will try to be consistent and in line with the actions of most group members. Some previous literature discusses herd behavior in various consumer conditions, such as in the insurance market [4], restaurant visitors [2], real estate home buyers [1], or the financial market [5].

This study focuses on herd behavior in financial markets, specifically in the stock market. The financial market is divided into two major groups: the money market and the capital market [6]. The development of the stock market is in line with the increase in one's understanding of the benefits obtained from investment [7], especially capital gains (profits from the difference between the purchase price and the selling price of shares).

An exciting phenomenon emerged during the Covid-19 pandemic in recent years. The number of millennial generation investors who appear at this time is believed to be due to face-to-face restrictions [8]. The penetration of this growth in the number of investors does not only occur in Indonesia but also in various places around the world, such as in Finland [9], United Kingdom [10], and India [11].

Previous literature noted that the growth of investors in Indonesia in 2021 increased by 57.2 percent compared to 2020 [12]. The millennial generation dominates this investor by 26.24 percent, namely those aged 21 to 30 [13]. This phenomenon shows that other stimuli encourage an increase in the number of investors apart from the Covid-19 pandemic. The possibility that exists is advanced in the field of information technology.

The millennial generation has distinctive habits, one of which is a high dependence on smartphones [14]. Millennials also prefer cashless payments [15]. In addition, almost all millennials are known to have accounts on social media [16]. Thus, it can be concluded that the millennial generation is a technology-literate society.

Previous literature found that technological advances also impacted the stock market's development [17–19]. As in Panos and Wilson [20] consider that financial literacy and investment will be easily fulfilled with the help of information technology. In the end, this encourages interest in investing in stocks [21].

The development of the millennial generation investors is primarily influenced by the emergence of different analytical methods [22]. Previously, stock market participants only used two analytical methods to predict prices: fundamental and technical [23]. Previous literature has compared the advantages and disadvantages of these two analytical methods [24, 25].

This new method is commonly called bandarmology analysis. This analysis focuses on transactions, not prices or company conditions [26]. Investors identify transactions made by big players (bandars). If the dealer makes a purchase, the investor makes a purchase; otherwise, if the dealer makes a sale, the investor also makes a sale [22]. This method allows novice investors (without knowledge) to quickly expect to make a profit [27].

In stock investment, the potential profit obtained is proportional to the existing risk [28]. All investors certainly know this understanding. However, there are differences in risk perception for each individual, depending on the individual's emotional response [29, 30]. This model is the basis of the researcher's assumption to use the risk perception variable in this research model.

Almost all types of investment contain uncertainty. In the decision-making process, investors try to make decisions based on rational calculations [31]. However, this is limited by investors' cognitive abilities, knowledge, and external environmental factors [32]. It can be assumed that social influences also impact investors' mindsets and emotions [33].

Investors often make stock investment decisions based on emotions, such as feelings and moods, that will eventually become beliefs. Most of this is influenced by factors such as where the information is obtained [34]. Some investors believe that sources of information from people considered experts or influencers of stock investment are worthy of trust and follow [35], but others do not. Based on this phenomenon, source credibility is assumed to predict investors' emotions.

However, some literature notes that this is a new problem. Many new investors are trapped in losses due to a lack of knowledge about investment [36], because they only rely on information from these influencers [37]. With the increasing number of millennial investors, more investment influencers have emerged [38].

Other literature also proves the significant impact of influencers on new investors' interest in investing [39]. Some well-known influencers in Indonesia include Raditya Dika, who has a profession as a comedian and YouTuber. In addition, there is also the name of Kaesang Pangarep, son of the President Republic of Indonesia, Joko Widodo. However, these two do not directly give a persuasive message to buy or sell a particular stock.

This research focuses on finding out the behavior of the followers of stock influencers who provide specific recommendations for certain stocks. In this case, the author chooses the owner of account *kaptensaham707* as a share influencer. As a stock influencer, *kaptensaham707* often conveys an explicit message to buy or sell specific stocks. Finally, the writer thinks that the followers *kaptensaham707* are considered suitable to be a source of data in this study.

Very little literature still takes samples on various types of investors related to bandarmology analysis. So far, the previous literature has only discussed the advantages or disadvantages of using bandarmology analysis compared to other analytical techniques [40, 41]. Other literature focuses more on stock price movements associated with the concept of bandarmology [42]. Based on the phenomena and research gaps that have been described, the novelties of this research are:

- All variables in this research model are arranged based on the perspective of investor behavior and actions.
- This study emphasizes the emotional response of investors when getting information using bandarmology analysis.

2 Literature Review

2.1 Herd Behavior

The definition of herd behavior is group behavior that cooperates, even though each individual in the group has different preferences [5]. A comprehensive approach to herd behavior can be reviewed in the literature of various fields, such as economics, psychology, and sociology [43]. In this study, the concept of bandarmology is considered to represent or be close to herd behavior. In depressed market conditions, investors are generally more likely to follow crowd decisions [22]. In the end, irrational decisions will occur.

2.2 Perceived Risk

Reference to Park et al. [44] have identified the dimensions of a person's perceived risk to prevent them from taking specific actions related to technology adoption. The assumption is that a person will experience four significant factors, namely loss of personal control (security), loss of face, system failure, and the risk of problems being known to others. Other researchers have also highlighted aspects considered important as risk scales in different situations [28]. These aspects include performance, time, financial, social, privacy, and psychological risks [45–47]. Based on the concept of risk dimensions in the previous literature, this study categorizes investors' perceived risk into 3 different groups: security risk, financial risk, and psychological risk.

2.3 Social Influence

Social Influence is related to the extent to which a person believes that others think he should follow others [48]. In this context, millennial investors believe that their relatives, family, and friends also encourage them to follow specific influencers. It can be concluded that there are two types of social influence, externally and interpersonally [33, 49].

The previous literature attempted to measure the dimensions of social influence in several conditions. As in Wang and Chou [50] divides social influence on e-marketplace consumers into four characteristics, namely behavioral beliefs, normative beliefs, other people's behavior, and environmental behavior. External social influences are also discussed regarding the relationship between community interaction and adolescent life [51].

2.4 Source Credibility

Communication with the help of internet media is increasingly difficult to know the validity of the source [52]. This is due to too much information (everyone's freedom to disseminate information). The credibility of information sources is necessary [35, 53]. Previous literature has proven that source credibility determines the success of the communication process from influencers to convey messages [54, 55]. There are three dimensions to measure source credibility in this study: attractiveness, integrity, and expertise [56].

2.5 Emotional Response

Emotions are a tendency for a person's affective nature to be influenced by certain factors [57]. Emotional response is the effect humans have to respond to the environment before taking specific actions [58, 59]. The emotional involvement of stock investors before making decisions is something that often happens [60]. This also causes investors to take less rational actions, only guided by instinct [61] or simply following other people [43]. To measure the emotional response of stock investors, the authors divide it into three dimensions: hope, pleasure, and enthusiasm [62].

2.6 Behavioral Intention

Before investors take action, interest is needed [63]. An investor will behave if interested in doing so [64]. Studies on behavioral intention have been carried out for a long time and have undergone several changes in the measurement scale [65]. The adjustment of the measurement scale related to the situation and conditions in which this study was conducted [66]. In this study, the authors categorize behavioral intention into 3 dimensions: positive comments, motivation to follow, and follow back [65, 67].

3 Methods

This study uses a quantitative paradigm with the type of *ex post facto*. This type of research is used to test hypotheses but does not provide specific manipulation or treatment [68]. This research focuses on the possibility of finding a cause or effect about a particular phenomenon [69].

The population in this study is not known with certainty. This study did not differentiate the population by gender (male and female). This research only focuses on millennial generation investors in Indonesia who follow the influencer *kaptensaham707*. The sample will be as many as 100 people with a quota sampling technique.

Data was collected by sending questionnaires to respondents with the criteria described previously. The measurement scale used in this study is differential semantics. The inferential analysis is probability because conclusions are applied to the population based on sample data [70]. The inferential statistical analysis technique used to prove the hypothesis in this study uses Partial Least Square (PLS).

Based on the theoretical and empirical studies that have been described previously, the hypotheses in this study are as follows (Fig. 1):

- H1: There is a positive effect of Perceived Risk (X1) on Emotional Response (Y1).
- H2: There is a positive effect of Social Influence (X2) on Emotional Response (Y1).
- H3: Source Credibility (X3) has a positive effect on Emotional Response (Y1).
- H4: Emotional Response (Y1) has a positive effect on Behavioral Intention (Y2) (Table 1).

4 Findings and Discussion

4.1 Findings

Of the 100 questionnaires distributed, the authors found that 62% of the respondents were male, while the remaining 38% were female. Most respondents (68%) were 28–30 years old when viewed from the age range. Based on the area of residence, most respondents are in Java (71%). All variables studied were declared valid. The results of the complete statistical calculation are following Table 2. The Cronbach's Alpha value in each variable is >0.7 . The test results mean that all variables are reliable (Table 3).

The SRMR value represents the result of the model's FIT value of 0.077, indicating that the model is considered suitable because it has an SRMR value of <0.10 (Table 4). Suppose the Chi-square value is divided by 100 (the number of research samples). In

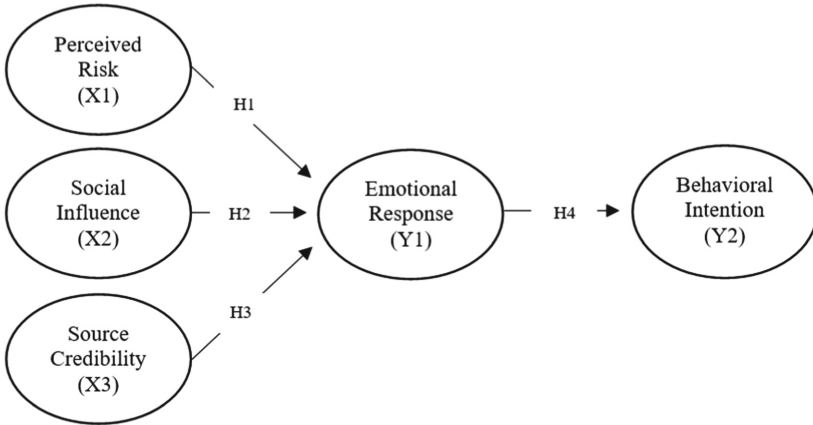


Fig. 1. Research model.

Table 1. Variables and indicators.

Variables	Indicators	Code
Perceived risk	Stock investing takes time and thought	X1.1
	Investment in stock market is safe	X1.2
	The rate of return on stock investment is proportional to the risk borne	X1.3
Social influence	Investors' confidence in doing things that are considered profitable	X2.1
	Investors' beliefs regarding what can and can't be done in investing	X2.2
	Investors perform the same actions as everyone else	X2.3
	The environment around investors encourages taking action	X2.4
Source credibility	The personality of stock influencers has a special charm	X3.1
	Stock influencers show commitment to promoting certain stocks	X3.2
	Stock influencers have strong analytical skills	X3.3
Emotional response	Investors enjoy investing in stocks	Y1.1
	High enthusiasm is felt by investors in investing in shares	Y1.2
	Investors have the hope of getting profits when investing in stocks	Y1.3
Behavioral intention	Investors often leave positive comments on stock influencers	Y2.1
	Investors feel motivated to follow stock influencers	Y2.2
	Investors are planning to follow stock influencers back in the future	Y2.3

Table 2. Validity test.

Variable	Indicator	Correlation coefficient	Result
Perceived risk (X1)	X1.1	0.808	Valid
	X1.2	0.825	Valid
	X1.3	0.798	Valid
Social influence (X2)	X2.1	0.748	Valid
	X2.2	0.748	Valid
	X2.3	0.801	Valid
	X2.4	0.791	Valid
Source credibility (X3)	X3.1	0.852	Valid
	X3.2	0.896	Valid
	X3.3	0.862	Valid
Emotional response (Y1)	Y1.1	0.807	Valid
	Y1.2	0.821	Valid
	Y1.3	0.770	Valid
Behavioral intention (Y2)	Y2.1	0.822	Valid
	Y2.2	0.797	Valid

Table 3. Reliability test.

Variable	Cronbach's alpha	Result
Perceived risk (X1)	0.737	Reliable
Social Influence (X2)	0.771	Reliable
Source Credibility (X3)	0.837	Reliable
Social influence (X2)	0.716	Reliable
Behavioral Intention (Y2)	0.732	Reliable

that case, a value of 2.079 is obtained, which means this study can be declared reliable and valid but only as confirmatory, not exploratory.

A bootstrap procedure is used to minimize the unreliability of the relationship with errors using the normal distribution and its users [71]. Bootstrap can also be used to assess the probability significance level of direct, indirect, and total effects. Figure 2 shows the test results of all variables, indicating that the influence between variables is unidirectional (with a path coefficient with a positive number). The higher the path coefficient value, the stronger the relationship and influence between variables.

The value of the T-Statistics direct effect was also obtained through the bootstrapping procedure (Table 5). If we look at the T-Statistic value on the relationship between Perceived Risk and Emotional Response, In that case, it shows several 3.346, indicating

Table 4. Fit model.

	Saturated model	Estimation model
SRMR	0.077	0.081
d_ULS	0.798	0.882
d_G	0.605	0.636
Chi Square	207.982	218.128
NFI	0.728	0.719

Table 5. Direct effect value.

Variable	Mean	Standard Deviation	T-Statistic	P-Value
(X1) -> (Y1)	0.299	0.090	3.346	0.001
(X2) -> (Y1)	0.202	0.095	2.054	0.041
(X3) -> (Y1)	0.468	0.107	4.404	0.000
(Y1) -> (Y2)	0.842	0.031	27.228	0.000

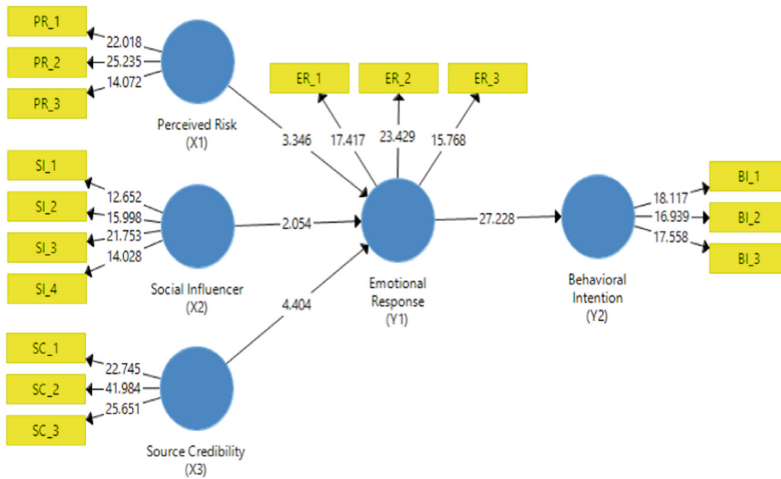


Fig. 2. Bootstrap test PLS diagram construction.

a significant influence between the two variables. The T-Statistic value on the effect of Social Influence on Emotional Response is 2,054, which also shows a significance level. The same results were also shown in the test of other variables. It can be seen that the T-Statistic value on the relationship between Source Credibility and Emotional Response shows several 4,404, which means that there is also a significant influence on the relationship between the two. The highest T-Statistic value in this research model was

Table 6. Indirect effect value.

Variable	Ordinal sample	Mean	Standard deviation	T-statistic	P-value
(X1) -> (Y1) -> (Y2)	0.254	0.251	0.077	3.308	0.001
(X2) -> (Y1) -> (Y2)	0.163	0.170	0.080	2.050	0.041
(X3) -> (Y1) -> (Y2)	0.396	0.394	0.092	4.301	0.000

obtained from the relationship between the Emotional Response variable and Behavioral Intention. This result means that the significance level of the influence of the two variables is so strong.

Based on Table 6, the coefficient value of the indirect influence of the variables tested in this research model is obtained. The P-Value value, which shows < 0.05 in each variable relationship, means that all effects are significant. The results of statistical testing in this study indicate that all the hypotheses proposed are accepted.

4.2 Discussion

Risk is an essential factor that is taken into consideration in terms of investment. The risk experienced by stock investors is related to the decline in stock prices (capital loss), not getting dividends, or even liquidation risk [28, 72]. Perception of risk plays a vital role in investor behavior in decision-making under uncertain circumstances. Each investor's different physical and emotional conditions also provide a different perception of risk [46, 73].

The results of testing the data obtained in this study prove the positive and significant effect of perceived risk associated with the emotional response of stock investors. Previous literature states that emotional response is subjective [47, 74, 75]. Author realizes that millennial stock investors have varying levels of security in investing, even though stock influencers provide the same information. On the other hand, the time and thought needed by millennial stock investors in the investment decision-making process cannot be measured with certainty [60, 76]. However, most respondents agree that investing in stocks certainly costs time and thought.

More or less, it must be admitted that social influence also impacts the investment decision-making process [33]. Although not as large as this individual's subjective assessment, the authors found the contribution of friends or relatives of millennial stock investors in Indonesia to follow the actions of specific stock influencers. The belief that what more people are doing is right [77], can change investors' emotional responses [58, 78]. This is in accordance with human nature (including investors) which are social beings [79].

Based on this paradigm, the findings in this study state that there is a positive and significant influence between social influence and emotional response. It turned out that most of the millennial stock investors who were respondents to this study did not have financial literacy. As in Ningtyas and Istiqomah [80] mention that the investment trend in the millennial generation is just a lifestyle. Other literature also mentions that few millennial generation investors in Indonesia have suffered losses due to following

specific influencers [36]. Unfortunately, until today, no legal regulation regulates this [27]. Although all investors agree that investment losses are personal matters, it is not the responsibility of anyone, including stock influencers [38, 81].

The credibility of information sources is considered capable of minimizing investment losses when associated with the concept of bandwagons [27, 56, 82]. Millennial stock investors must be able to identify a trustworthy stock influencer who is not [52, 83]. If we look at the results of testing the data in this study, it is known that there is a positive and significant relationship between source credibility and emotional response.

Author gets the fact that the selection of stock influencers to follow is something that is emotional and tends to be irrational. As is well known, influencers convey persuasive messages in several ways [5, 13, 84]. Some show the results of specific analyses and then upload them to their social media accounts [16, 85]. Others use a unique way, namely by showing off their wealth and luxury in life [3, 86], which is believed to come from the profits of investing in specific stocks. Furthermore, this is where irrational judgment occurs. The tendency of the millennial generation in Indonesia to imitate and follow an idol or someone who is considered successful in their eyes is common thing [87].

The last test in this study relates to the relationship between emotional responses to behavioral intention. The author gets empirical evidence of a positive and significant relationship between the two variables. The emotional response of stock investors has been shown to influence behavior in the market [39, 88], although this should not be the case [89]. Several other pieces of literature also found that emotional responses can exceed the rationale thinking of stock investors in making decisions [90, 91].

The theoretical implications of this study strengthen the discussion related to the behavior of stock investors. The research findings show a strong level of significance and a unidirectional positive relationship between perceived risk, social influence, and source credibility on the emotional response of stock investors. Similar results are also shown in testing the relationship between emotional response and stock investors' behavioral intention. However, of course, there are still limitations in this study. In this case, the author does not explore the positive or negative nature of the emotions felt by stock investors; of course, it is expected to have a different influence on the behavior of these investors. In addition, this study was only conducted on respondents who followed an influencer (kaptensaham707). If the research is conducted on a broader scale and the financial condition of investors is different, it is likely to get different results. Further research is needed to examine this.

5 Conclusion

The study's results prove a positive and significant effect of the relationship between the variables being tested. All hypotheses proposed in this study were accepted. The findings of this study are expected to be an additional reference related to measuring the behavior of stock investors. Although every action in this study is guided by methodological rigor, there are still limitations. The study used a cross-sectional design, meaning the findings did not account for emotional effects that changed over time. Future research is expected to use a longitudinal design to understand changes in stock investors' behavior from time to time.

References

1. Jiang, X. and Du, P.: Analysis of homebuyers' conformity behavior Based on Herd Effect 1 Instruction. *Manag. Eng* 22, 1838–5745 (2016).
2. Ha, J., Park, K., and Park, J.: Which restaurant should I choose? herd behavior in the restaurant industry. *J. Foodserv. Bus. Res.* 19 (4), 396–412 (2016).
3. Kang, I. He, X., and Shin, M. M.: Chinese consumers' herd consumption behavior related to korean luxury cosmetics: the mediating role of fear of missing out. *Front. Psychol.* 11 (2), 1–13 (2020).
4. Liu, F.: Herd behavior in the insurance market: a survey. *Int. J. Econ. Financ.* 7 (11), p. 154 (2015).
5. Choijil, E., Mendez, C. E. Wong, W. K. Vieito, J. P., and Batmunkh, M. U.: Thirty years of herd behavior in financial markets: A bibliometric analysis. *Res. Int. Bus. Financ.* 59 (11), (2022).
6. Kusnandar, D. L. and Bintari, V. I.: Perbandingan abnormal return saham sebelum dan sesudah perubahan waktu perdagangan selama pandemi covid-19: *J. Pasar Modal dan Bisnis.* 2 (2), 195–202 (2020).
7. Tolliver, C. Keeley, A. R., and Managi, S.: Drivers of green bond market growth: the importance of nationally determined contributions to the paris agreement and implications for sustainability." *J. Clean. Prod.* 244, 118643 (2020)..
8. Sari, I.: Memahami peranan galeri investasi bursa efek indonesia pada masa pandemi covid-19. *Financ. J. Akunt.* 7 (1), 26–37 (2021).
9. Talwar, S., Talwar, M., Tarjanne, V., and Dhir, A.: Why retail investors traded equity during the pandemic? An application of artificial neural networks to examine behavioral biases. *Psychol. Mark.* 38 (11), 2142–2163 (2021).
10. Liu, H., Liu, W., Yoganathan, V., and Osburg, V. S.: Covid-19 information overload and generation Z's social media discontinuance intention during the pandemic lockdown. *Technol. Forecast. Soc. Change*, 166, 120600 (2021).
11. Wani, T. A. and Anwar, A.: Contemporary Business Trends: Pre and Post-COVID Scenario. (2021).
12. Gunanti, A. I. I. P. and Mahyuni, P. L.: Minat investasi generasi milenial di bursa efek Indonesia. 18 (3), 425–437 (2022).
13. Audrey, T.: Peran investor milenial di indonesia dalam kegiatan investasi di masa pandemi covid-19. *Pros. Semin. Nas. Darmajaya*, 1 (0), 1–8 (2021).
14. Thompson, W. and Thompson, M. L.: Smartphones: addiction, or way of life ?. *J. Ideol.*, 38 (1), Article 3, 2017,
15. Bailey, A. A., Pentina, I., Mishra, A. S., and Ben Mimoum.: Exploring factors influencing US millennial consumers' use of tap-and-go payment technology. *Int. Rev. Retail. Distrib. Consum. Res.* 0 (0), 1–21 (2019).
16. Ahmed, N.: Generation Z's smartphone and social media usage: a survey. *Journal. Mass Commun.* 9 (3), 01–122 (2019).
17. Qu, J., Simes, R. and O'Mahony, J.: How do digital technologies drive economic growth?. *Econ. Rec.*, 93, 57–69 (2017).
18. Darmawan, A., Kurnia, K. and Rejeki, Rejeki, S.: Pengetahuan investasi, motivasi investasi, literasi keuangan dan lingkungan keluarga pengaruhnya terhadap minat investasi di pasar modal. *J. Ilm. Akunt. dan Keuang.*, 8 (2), 44–56 (2019).
19. Lee, H. W.: Applying online educational technology to foster financial literacy: Financial-institution leaders' insights. *Qual. Rep.* 24 (10), 2625–2654 (2019).
20. Panos, G. A. and Wilson, J. O. S.: Financial literacy and responsible finance in the fintech era: capabilities and challenges. *Eur. J. Financ.*, 26 (4), 297–301 (2020).

21. Mouna, A. and Anis, J.: Financial literacy in tunisia: its determinants and its implications on investment behavior. *Res. Int. Bus. Financ.* 39, 568–577, (2017).
22. Naim, A., Darmawan, I. M. D. H., and Wulandari. Herding behavior: mengeksplorasi sisi analisis broker summary. *Media Ris. Akuntansi, Audit. Inf* 21 (2), 207–226, (2021).
23. Makkulau, A. R. and I. Yuana, “Penerapan analisa fundamental dan technical analysis sebagai upaya dalam meningkatkan keinginan investasi mahasiswa di pasar modal syariah,” *YUME J. Manag.*, 4 (3), 2021.
24. Nti, I. K., A. F. Adekoya, and Weyori, B. A.: A systematic review of fundamental and technical analysis of stock market predictions. *Artif. Intell. Rev.*, 53 (4), 3007–3057 (2020).
25. Petrusheva, N. and Jordanoski, I.: Comparative analysis between the fundamental and technical analysis of stocks. *J. Process Manag. New Technol.* 4 (2), 26–31 (2016).
26. Husnataria, F. and Ramadhan, G. F.: gemi Ramadhan, Ketika milenial berinvestasi saham-jejak pustaka: kumpulan pengalaman berinvestasi dari para milenial di kalimantan tengah. *Jejak Pustaka.* (2021).
27. Jonkarlo, E., L. Sudirman, and Disemadi, H. S.: Market manipulation on the indonesian stock exchange by market maker: investor protection?. *J. Komun. Huk.*, vol. 8, no. 1, pp. 219–232 (2022).
28. Talarico, Reniefr, and Reniers, G.: Risk-informed decision making of safety investments by using the disproportion factor. *Process Saf. Environ. Prot.* 100, 117–130 (2016).
29. Visschers, V. H. M. and Siegrist, M.: Differences in risk perception between hazards and between individuals. *Psychol. Perspect. Risk Risk Anal. Theory, Model. Appl.*, 63–80 (2018).
30. Ning, L.: The impacts of knowledge, risk perception, emotion and information on citizens’ protective behaviors during the outbreak of COVID-19: a cross-sectional study in China. *BMC Public Health* 20 (1), 1–12 (2020).
31. Forbes, W., Hudson, R., Skerratt, L., and Soufian, M.: Which heuristics can aid financial-decision-making?. *Int. Rev. Financ. Anal.* 42, 199–210 (2015).
32. Violeta, J. and Linawati, N.: Pengaruh anger traits, anxiety traits, dan faktor demografi terhadap keputusan investasi. *J. Manaj. Pemasar.* 13 (2), 89–96 (2019).
33. Akhtar, F., Thyagaraj, K. S., and Das, N.: The impact of social influence on the relationship between personality traits and perceived investment performance of individual investors: Evidence from Indian stock market. *Int. J. Manag. Financ.* (2017).
34. Diouf, D., Hebb, T., and Toure, E. H.: Exploring factors that influence social retail investors’ decisions: evidence from desjardins fund. *J. Bus. Ethics.* 134 (1), 45–67 (2016).
35. Regita, T. I.: Pengaruh influencer saham terhadap minat investasi generasi milenial pada pasar modal. *JIMEK J. Ilm. Mhs. Ekon.* 5 (1), 37–45 (2022).
36. Firmansah, S. A. R.: Perlindungan hukum bagi investor terhadap ajakan membeli saham emiten oleh influencer. *Dinamika.* 28 (12), 4911–4925 (2022).
37. Talwar, M., Talwar, S., Kaur, P., Tripathy, N., and Dhir, A.: Has financial attitude impacted the trading activity of retail investors during the covid-19 pandemic?. *J. Retail. Consum. Serv.* 58, 102341 (2021).
38. Tazkia, A. and Wijayanti, R.: Pengaruh influencer keuangan dan literasi keuangan terhadap minat investasi generasi milenial di pasar modal. *J. Manag. Risiko dan Keuang.* 1 (1), 2022.
39. Wicaksono, M. A., Lathifah, H. M., Assidiq, M. F., Sobaya, S. and Yulianti, R. T.: Effect of formal education, social media, and influencer on interest in making sharia-stock investment among students at sma n 2 sleman. *KnE Soc. Sci.* 100–110 (2022).
40. Ardhiyanto, K. A., Mansur, M., and Wahono, B.: Pengaruh analisa teknikal, analisa fundamental, analisa bandarmology terhadap profit investor (studi kasus saham jakarta islamic index sektor properti dan real estate yang terdaftar di bursa efek indonesia tahun 2018–2020). *J. Ilm. Ris. Manaj.* 11 (4), (2022).

41. Badri, A. K., Heikal, J., Terah, Y. A. and Nurjaman, D. R.: Decision-making techniques using Istm on antam mining shares before and during the covid-19 pandemic in Indonesia. *APTISI Trans. Manag.* 6 (2), 167–180 (2022).
42. Tobing, Y. L. L., Syafrida, I., and Agha, R. Z.: Anomali sinyal stochastic dan fibonacci terhadap pergerakan saham di bursa efek indonesia (bei) dengan metode arus dana investor asing. *Acc. J. Akuntansi, Keuang. dan Perbank.* 6 (1). (2019).
43. Spyrou, S.: Herding in financial markets: a review of the literature. *Rev. Behav. Financ.* (2013).
44. Park, J., E., Amendah, Lee, Y., and Hyun, H.: M-payment service: interplay of perceived risk, benefit, and trust in service adoption. *Hum. Factors Ergon. Manuf. Serv. Ind.* 29 (1), 31–43 (2019).
45. Brennan, M., O'Neill, E., Brereton, F., Dreoni, I., and Shahumyan, H.: Exploring the spatial dimension of community-level flood risk perception: a cognitive mapping approach. *Environ. hazards.* 15 (4), 279–310 (2016).
46. Balžekienė, A. and Telešienė, A.: Vulnerable and insecure? environmental and technological risk perception in Europe. in *Green European*, Routledge. (2016).
47. Böhm, G. and Tanner, C.: Environmental risk perception. *Environ. Psychol. An Introd.* 13–25 (2018).
48. Chang, C.-C., Hung, S.-W., Cheng, M.-J., and Wu, C.-Y.: Exploring the intention to continue using social networking sites: The case of facebook. *Technol. Forecast. Soc. Change*, 95, 48–56 (2015).
49. McLeod, J. M. and Chaffee, S. R.: The construction of social reality. in *The social influence processes*, Routledge. 50–99, (2017).
50. Wang, E. S.-T. and Chou, N. P.-Y.: Consumer characteristics, social influence, and system factors on online group-buying repurchasing intention. *J. Electron. Commer. Res.* 15 (2), 119 (2014).
51. Fatimah, R., Sunarti, E., and Hastuti, D.: Tekanan ekonomi, interaksi orang tua-remaja, dan perkembangan sosial emosi remaja. *J. Ilmu Kel. Konsum.* 13 (2), 137–150 (2020).
52. Hewett, K., Rand, W., Rust, R. T. and Van Heerde, H. J.: Brand buzz in the echoverse. *J. Mark* 80 (3), 1–24 (2016).
53. Bigham, A., Meyers, C., Li, N. and Irlbeck, E.: The effect of emphasizing credibility elements and the role of source gender on perceptions of source credibility. *J. Appl. Commun.* 103 (2) (2019).
54. Alsohagy, M. H.: Credibility of financial reporting communication between investors and management: an exploratory study. *GSTF J. Bus. Rev.* 2 (3). (2013).
55. Verčič Tkalac, A., Verčič, D., and Coombs, W. T.: Convergence of crisis response strategy and source credibility: who can you trust?. *J. Contingencies Cris. Manag.* 27 (1), 28–37 (2019).
56. Luo, C., Luo, X. R. Schatzberg, L., and Sia, C. L.: Impact of informational factors on online recommendation credibility: the moderating role of source credibility. *Decis. Support Syst.* 56, 92–102 (2013).
57. Bonanno, G. A. and Burton, C. L.: Regulatory flexibility: An individual differences perspective on coping and emotion regulation. *Perspect. Psychol. Sci.* 8 (6), 591–612 (2013).
58. Brosch, T. Brosch, Scherer, K. R., Grandjean, D. M., and Sander, D.: The impact of emotion on perception, attention, memory, and decision-making. *Swiss Med. Wkly.* 143, 13786 (2013).
59. Moscarello, J. M. and Hartley, C. A.: Agency and the calibration of motivated behavior. *Trends Cogn. Sci.* 20 (10), 725–735 (2017).
60. Quaicoe, A., and Eleke-Aboagye, P. Q.: Behavioral factors affecting investment decision-making in bank stocks on the Ghana stock exchange. *Qual. Res. Financ. Mark.* 13 (4), 425–439 (2021).
61. Halaba, A., Ilguen, E., and Halilbegović, S.: Behavioral economics perspective on foreign direct investment in emerging markets: the case on Bosnia and Herzegovina. *Accounting*, 3 (3), 181–196 (2017).

62. Marcus, G. E., Neuman, W. R., and MacKuen, M. B.: Measuring emotional response: comparing alternative approaches to measurement. *Polit. Sci. Res. Methods.* 5 (4), 733–754 (2017).
63. Phan, K. C. and Zhou, J.: Factors influencing individual investor behavior: an empirical study of the Vietnamese stock market. *Am. J. Bus. Manag.* 3 (2), 77–94 (2014).
64. Cal, B. and Lambkin, M.: Stock exchange brands as an influence on investor behavior. *Int. J. Bank Mark.* (2017).
65. Baumsteiger, R. and Siegel, J. T.: Measuring prosociality: the development of a prosocial behavioral intentions scale. *J. Pers. Assess.* 101 (3), 305–314 (2019).
66. Ferrer, R. A. and Ellis, E. M.: Preliminary evidence for differential effects of integral and incidental emotions on risk perception and behavioral intentions: a meta-analysis of eight experiments. *J. Behav. Decis. Mak.* 34 (2), 275–289 (2021).
67. Pahlevi, R. W. and Oktaviani, I. I.: Determinants of individual investor behaviour in stock investment decisions. *Financ. Rev.* 1, 2 (2018).
68. Widarto, M. P.: Penelitian ex post facto. *Fak. Tek. Univ. Negeri Yogyakarta* (2013).
69. Khaldi, K.: Quantitative, qualitative or mixed research: which research paradigm to use?. *J. Educ. Soc. Res.* 7 (2), 15 (2017).
70. Hadi, S., Gunawan, I. and Dalle, J. *Statistika inferensial teori dan aplikasinya.* 2 (2018).
71. F. Suprayogi, “Konsistensi resampling bootstrap pada model struktural dengan pendekatan pls-pm (studi pada minat mahasiswa statistika universitas brawijaya pengguna aplikasi go-food).” Universitas Brawijaya, 2018.
72. Ricciardi, V. and Rice, D.: Risk perception and risk tolerance. *Invest. Behav. Psychol. Financ. Plan. Invest.*, 327–345 (2014).
73. Sullivan-Wiley, K. A. and Gianotti, A. G. S.: Risk perception in a multi-hazard environment. *World Dev.* 97, 138–152 (2017).
74. balzarotti, S., Biassoni, F., Villani, D., Prunas, A., and Velotti, P.: Individual differences in cognitive emotion regulation: implications for subjective and psychological well-being. *J. Happiness Stud.* 17 (1), 125–143 (2016).
75. Brown, C. L., Van Doren, N., Ford, B. Q., Mauss, I. B., Size, J. W., and Levenson, R. W.: Coherence between subjective experience and physiology in emotion: Individual differences and implications for well-being. *Emotion.* 20 (5), 818 (2020).
76. Statman, M.: Behavioral finance: finance with normal people. *Borsa Istanbul Rev.* 14 (2), 65–73 (2014).
77. Knight, E. and Tsoukas, H.: When fiction trumps truth: what ‘post-truth’ and ‘alternative facts’ mean for management studies. *Organ. Stud.* 40 (2), 183–197 (2019).
78. Phelps, E. A. and Sokol-Hessner, P.: Social and emotional factors in decision-making: appraisal and value. in *Neuroscience of preference and choice*, Elsevier. 207–223, (2012).
79. Bowen, H.: Investment in learning: The individual and social value of American higher education. (2018).
80. Ningtyas, M. N. and Istiqomah, D. F.: Perilaku investasi sebagai penerapan gaya hidup halal masyarakat indonesia: tinjauan theory of planned behavior. *J. Ekon. Mod.*, 17 (2), 158–172 (2021).
81. Yang, S. Y., Mo, S. Y. K., and Liu, A.: Twitter financial community sentiment and its predictive relationship to stock market movement. *Quant. Financ.* 15 (10), 1637–1656 (2015).
82. Nelson, K. K., Price, R. A., and Rountree, B. R.: Are individual investors influenced by the optimism and credibility of stock spam recommendations?. *J. Bus. Financ. Account.*, 40 (9-10), 1155–1183 (2013).
83. Hein, M.: Social influencers: fomo and identity crisis. *Character and.* 63–80, (2022).
84. Moore, A., Yang, K., and Kim, H. M.: Influencer marketing: influentials’ authenticity, likeability and authority in social media. in *International Textile and Apparel Association Annual Conference Proceedings.* 75 (1), (2018).

85. Khamis, S., Ang, L. and Welling, R.: Self-branding, 'micro-celebrity' and the rise of social media influencers. *Celebr. Stud.* 8 (2), 191–208 (2017).
86. Lee, S. S. and Johnson, B. K.: Are they being authentic? the effects of self-disclosure and message sidedness on sponsored post effectiveness. *Int. J. Advert.* 40 (1), 30–53 (2022).
87. Pramono, R., Winda, Y., Purwanto, A., Prameswari, M., Asbari, M. and Purba, R. I.: Narrative study: the life of influencers between hobbies and professions. *Int. J. Adv. Sci. Technol.* 29 (3), 8417–8438 (2020).
88. Solihat, A. and Nugraha, N.: How behavioral finance during pandemic covid-19?," *Bus. Innov. Entrep. J.* 2 (2), 131–137 (2020).
89. Duxbury, D., Gärling, T., Gamble, A., and Klass, V.: How emotions influence behavior in financial markets: a conceptual analysis and emotion-based account of buy-sell preferences. *Eur. J. Financ.* 26 (14), 1417–1438 (2020).
90. Agustin, P. and Mawardi, I.: Perilaku investor muslim dalam bertransaksi saham di pasar modal. *J. Ekon. Syariah Teor. dan Terap.* 1 (12), 874–892 (2014).
91. Jansson, M., Hemlin, S., Sonsino, D., and Trönnberg, C.-C.: Investment beliefs and portfolio risk-taking—a comparison between industry professionals and non-professionals. in *Behavioral Finance: A Novel Approach*, World Scientific. 239–266, (2021).

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