



Covid 19: Investment Decisions of Individual Investor Based on Behavioral Finance Factors

Arista Natia Afriany, Latifah Putranti^(✉), Hapsari Dyah Herdiany,
and Valsa Ayunda Tisya

Faculty of Business, Department Management, University of PGRI Yogyakarta, Yogyakarta,
Indonesia
latifah@upy.ac.id

Abstract. Positive achievements in trading and investment are reflected in the increasing public interest in investing in the Indonesian capital market. In theory, EMH assumes that there are many rational investors who try to maximize profits. Behavioral finance theory is an empirical study of contradictions that proves that investors are not completely rational. This is because there are psychological factors that influence investment decisions. The existence of this human psychological factor makes various financial decisions bias. This study aims to determine and analyze the effect of several behavioral biases, namely overconfidence bias, anchoring bias, and herding on stock investment decisions in Indonesian investors. This research is a quantitative and survey research with primary data. The research population includes individual stock investors in Indonesia. The sampling technique used is purposive sampling. The sample obtained was 129 respondents. The statistical method for testing the data is Structural Equation Modeling-Partial Least Square (SEM-PLS) with SmartPLS Version 3.0 software. Statistical test results show that overconfidence bias has a positive and significant effect on stock investment decisions, anchoring bias has a positive and significant effect on stock investment decisions, herding behavior is formed when investors adopt the actions of others, in this study herding has a negative and significant effect on stock investment decisions.

Keywords: Behavioral Finance · Overconfidence Bias · Anchoring Bias · Herding

1 Introduction

Transition of the world economy globally, the capital market has a crucial role in the contemporary economy [4]. Today, the capital market in Indonesia is getting excited and showing its strength in the investment climate [6]. In 2020, the number of Indonesian capital market investors registered at Kustodian Sentral Efek Indonesia (KSEI) continues to grow until the end of 2020. Based on data from the KSEI in 2020, there was an increase in the quantity of investors by 34.78% in the Indonesian capital market. In addition, stock investors in particular also experienced an increase of 27.87% within ten months. These two things can be reflected as a positive signal that stock investment is increasingly in

demand and is supported by the accumulation of the actual number of investors in the capital market which has also experienced a very significant increase. The high number of investors in Indonesia indicates a high intensity of stock investment decision making. The definition of investment decision making in this study refers to a process of using fundamental and technical analysis to make investment decisions [11]. The same thing was also stated by [27], that decision making is a complex process that includes an analysis of various elements with the existing steps.

In making stock investment decisions, investors need to carry out an analysis by paying attention to fundamental data. In addition, historical stock price movements can also help investors to conduct stock valuations called technical analysis. The same thing was stated by [36], high capability in investing is needed by every investor, especially in terms of connection, affection, and cognitive such as the ability to analyze information and data both financial and non-financial, experience and knowledge in conducting investment analysis. Namely fundamental or technical analysis, investor preferences for investment return and risk, and introspection of the investment process. Many economic and financial studies are of the view that investors are always rational and take into account all information during the investment decision-making process [5]. Traditional finance theory is closely related to modern portfolio theory (MPT) and efficient market hypothesis (EMH). The efficient market hypothesis (EMH) connotes that all information is reflected in a security's price or market value, and that the current price of a stock or bond reflects its fair value.

These various theories are unable to explain the reasons for the increasing number of anomalies and market inefficiency being one of the main reasons for the emergence of behavioral finance, which provides valid reasons to believe that financial markets are in fact inefficient, and seeks to explain this anomaly by irrational aspects of human behavior, the impact of bias, deficiencies in reasoning, and so on. After the energy crisis of the 1970s, [25] empirical study found results that were inconsistent with EMH and MPT, thus pioneering the emergence of behavioral finance theory by criticizing utility theory and producing a prospect theory.

The popularity of behavioral finance studies has emerged in the last two decades [53]. Behavioral finance reveals that investors' emotions, feelings, and biases can have their own effect on the investment decision-making process [25]. Behavioral finance shows that cognitive and psychological investors can influence investment decision making [35, 54], and each investor has a different cognitive and psychological level. These psychological factors lead to the emergence of various behavioral biases that affect investment decisions.

Overconfidence is an attitude or feeling of someone's self-confidence that is excessive [49, 40]. This overconfidence is related to self-prejudice that he already has high knowledge, abilities and skills, so he will tend to believe in high quality assumptions in himself and justify anything as long as it is the same as what the individual has believed. This is in line with the opinion of [40] which explains that overconfidence bias is a form of overestimated investor attitude towards the quality of ownership of a set of personal information.

[9] Identified that overconfidence can have negative implications for investment decisions and investors' financial health. Research conducted by [3, 8, 41] show that

overconfidence bias has a positive and significant relationship to investment decisions. However, contrary to the results of research conducted by [19] and [6], the results of a negative relationship between overconfidence bias and investment decisions.

In addition, another form of financial behavior bias that is still relatively rarely studied in Indonesia in behavioral finance theory is anchoring bias. According to [29], anchoring bias is a form of discrepancy between investor interpretation and estimating the value of future investments based on the initial value of investments made previously with the actual investment returns. According to [47], anchoring bias is an investor paradigm that considers that when the current investment value is lower than the initial investment value, investors have their own interpretations which believe that the low investment value will increase again at a certain point. This behavioral bias can cause investors to be biased in making investment decisions. Research by [23] shows that the anchoring factor is an important variable in investment decision making. In addition, the research of [13, 17, 28, 30, 38, 46] show a positive and significant effect of anchoring bias on investment decisions.

Another interesting phenomenon is the finding of 8.4% herding bias behavior in the Indonesian capital market. Herding is a tendency for investors to follow the actions of other investors [34, 44], thereby creating a convergence of actions [22]. Herding describes the conceptual irrationality of investors concentric on psychological bias by overriding or rejecting self-confidence and making decisions similar to other investors blindly [39]. The formation of a collective investment decision pattern by market participants is called a common fault, this refers to the concept that friends are the main actors influencing investor decisions [50]. The results of research on the positive influence of herding on investment decisions have been proven by [3, 8, 41]. However, the results of this study contradict the research of [3, 8, 41] which does not show the effect of herding on investment decisions.

This research is very interesting because as stated by [2], that most empirical studies related to behavioral finance focus on individualistic culture, research on investor behavior in collectivism culture is still very little. Indonesia is a country that adheres to a collectivism culture. Therefore, this study explores the effect of several behavioral biases on stock investment decisions in Indonesia. In addition, another interesting thing is that the level of thinking of investors in Indonesia will be different from that of other developed countries. Research related to behavioral finance is also still very rarely researched in Indonesia. On the other hand, the context of behavioral finance research in Indonesia is interesting, because researchers or readers can find out patterns of investor behavior in the Indonesian capital market with investor heterogeneity, ranging from demographic, social and cultural factors.

This study focuses on individual investors with considerations adopted from [12], that individual investors have a tendency to react more and analyze relevant information differently which results in biased behavior, so it will be interesting if research is carried out on patterns of investor behavior in stock investment decisions. This means that individual investors are more prone to behavioral bias, compared to institutional investors who have greater resources. It is important to explore the various behaviors that can have an effect on the decisions of investors in the Indonesian stock market. This can have implications for understanding investor behavior in making investment decisions,

which so far the majority of investors tend to trust the accuracy of reacting to get a better return [27].

2 Theoretical Basis

2.1 Overconfidence Bias

Based on the theory presented [24] in his book entitled “Judgement Under Certainty: Heuristics and Bias”, investors who are too confident will overestimate their personal information and are followed by ignoring the availability of available information and investors representing models that associate excessive confidence with self-attribution bias. This theory is reinforced by [51], that in addition to tending to be more aggressive in trading, investors also ignore technical analysis before investing. Investors who experience overconfidence bias tend to ignore useful information that should be able to increase the level of prediction for the better.

Overconfidence bias can result in negligence in observing and considering various information availability. Overconfidence can make investors rely more and use speculation, sentiment, and personal instincts, rather than having to do an analysis. So it increasingly ignores the use of stock analysis. The various theoretical evidences strongly support that the higher the overconfidence bias, the lower the investor’s stock investment decision. A number of empirical studies that prove that overconfidence can have a negative impact on investment decisions, namely [6, 19, 43].

H1: Overconfidence bias has a negative effect on stock investment decisions.

2.2 Anchoring Bias

The anchoring bias theory is contained in [40], that anchoring bias is the tendency of investors to “anchor” their thoughts, referring to logically irrelevant reference points when making investment decisions. Anchoring bias is also defined as a cognitive bias that explains the human tendency to have a high dependence on first information during the decision-making process [32, 43, 45]. The negative effect of anchoring bias on stock investment decisions has been clearly proven [53], that anchoring bias causes investors to refer to initial values compared to conducting trend or ratio analysis in decision making.

Investors use the previous stock price as an anchor for today’s stock price, it causes an underreact to fundamental information and changes in stock prices. The low stock investment decision due to high anchoring bias behavior is also evidenced by [34] research which shows it will be much easier to anchor a value than having to do a full stock analysis.

H2: Anchoring bias has a negative effect on stock investment decisions.

2.3 Herding

Herding is defined as biased behavior that has implications for investor decision making because collective information is more trusted and reliable than personal information, which causes losses due to neglecting proper evaluation and estimation [53]. In addition,

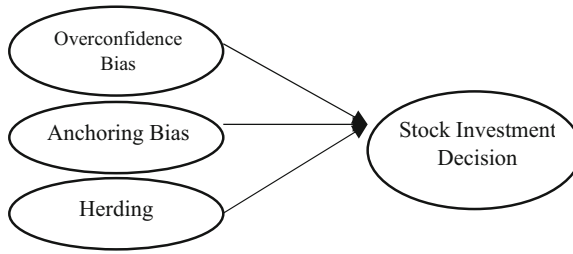


Fig. 1. The Research Framework

the theoretical evidence supporting this hypothesis is that investors who bias herding behavior is a form of investor irrationality who does not consider available information and fundamental analysis [14]. The theory shows that herding will cause investors to be increasingly indifferent to the use of stock analysis.

This is because investors speculate that imitating the majority group is always the right method and generates a return on investment [8]. Investors who have herding behavior do not think and plan such as carrying out quantitative analysis and other techniques during the investment decision-making process [3]. Several previous studies that have succeeded in showing the negative effect of herding on stock investment decisions [15] (Fig. 1).

H3: Herding has a negative effect on stock investment decisions.

3 Research Method

This type of research is included in the category of quantitative research. Based on a review of the control of research variables, this type of research is survey research. The population in this study are individual stock investors in Indonesia. Considering the number of population is difficult to know, then in taking the sample using the rules of thumb [21], it is suggested that the use of the number of samples is better at 100 samples. Thus, this study took 129 samples, because the more samples, the better to represent the actual conditions. The sampling technique used is purposive sampling which is a sampling technique by determining certain criteria [48]: 1) Individual stock investors. 2) Minimum 17 years. 3) Invest at least 6 months.

This research is based on primary data, namely data obtained directly, using questionnaire method. The questionnaire was administered online via Google Form and measured using a Likert Scale with a scale of 5, namely the scale of “SS” = Strongly Agree (score 5) to the scale of “STS” = Strongly Disagree (score 1) (Table 1).

Questionnaires were distributed to various Capital Market Study Groups (KSPM) and IDX regional representatives throughout Indonesia via Instagram. Questionnaires were also distributed to BNI Sekuritas, Phintraco Sekuritas, and various stock investor communities via Telegram. The researcher also distributed questionnaires personally in various capital market seminar groups that he had attended and various stock platforms such as stockbit, livestockuang.id, understandsaham, and so on.

The data analysis tool in this study is the Structural Equation Model-Partial Least Square (SEM PLS) with SmartPLS 3.0 software. PLS SEM is a variant-based SEM.

Table 1. The Measurement of Variables

Indicator
Overconfidence Bias
Relevant literature [11, 33, 52]
[O1] Confidence in investment success
[O2] Reliance on personal information
[O3] Trust in investment skills and knowledge
[O4] Trust in analytical skills and experience in market forecasting
Anchoring Bias
Relevant literature [33]
[A1] Use the initial purchase price as a reference
[A2] Determination of stock price benchmark
[A3] Reliance on past stock performance
[A4] Deciding to be in a hold position on the shares owned even though the performance of the shares is declining
Herding
Relevant literature [27]
[1] Stock selection is influenced by other investors
[2] Purchase volume of shares influenced by other investors
[3] The buying and selling of shares is influenced by other investors
[4] Quickly react when there is a change in investment decisions from other investors and follow their reactions
Stock Investment Decision
Relevant literature [11]
[1] Analyze macroeconomics and market trends
[2] Analyzing the issuer's financial performance
[3] Analyze the price movements of the invested shares

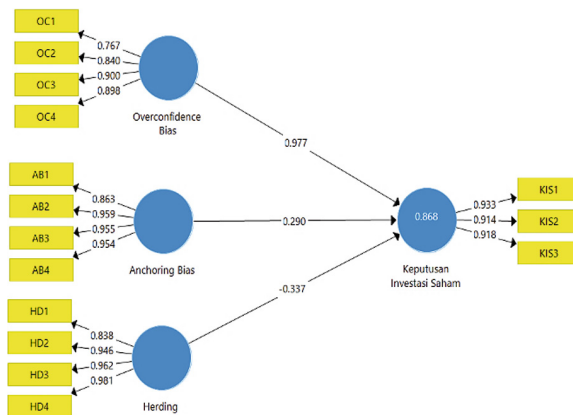


Fig. 2. Outer Model

According to the pioneer of SEM PLS, Herman Wold, SEM PLS is a powerful analytical method [16]. The main reason for using SEM PLS is that SEM PLS is very suitable for behavioral and social research and is the right alternative when CB-SEM (covariance-based SEM) does not meet its assumptions, such as data must be normally distributed, minimum sample size, and other requirements (Fig. 2).

4 Data Analysis and Discussion of Finding

The validity test on the convergent validity value of all variable items has an outer loading value >0.7, the AVE value of all variables >0.5 means that the measurement model is accurate and consistent enough for research. The results of the cross-loadings of each indicator on the variable have a greater value than the other variables. Cronbach’s Alpha and Composite Reliability values for all variables each have a value >0.7, so it can be concluded that they are reliable (Table 2).

The results of the data test show that the origin sample value is 0.972 with a positive direction and the p-value is 0.000 which indicates a significant effect. These results indicate that overconfidence bias has a significant positive effect on stock investment decisions. Thus, H1 is not supported in this study. This means that the higher the overconfidence bias that occurs in investors, the higher the stock investment decision will be. The results of this study are not in accordance with the hypothesis which states that overconfidence bias has a negative effect on stock investment decisions. This assumption is due to overconfidence bias that can cause investors to ignore observations and considerations of various information availability. In addition, [51] say that investors tend to ignore technical analysis before investing. Thus, the higher the overconfidence bias, the higher the stock investment decision will be. Therefore, this study is not in line with previous research from [6, 19, 43]. The results of this study are in line with research from [3, 20, 23, 28] who have proven that overconfidence bias has a positive effect on stock investment decisions. This is because the majority of respondents are young investors with an age range of 17–22 years at 38.0% and age 23–28 years at 35.7%. In addition, the students amounted to 51%. The characteristics of respondents, including young investors, can be one of the triggers for the high overconfidence bias of respondents. This is in accordance with the research and arguments of [26] that young investors are very at risk of overconfidence bias. The results of [1] also prove that an increase in overconfidence bias in novice investors will cause these investors to be more

Table 2. Result

Hipotesis	T Statistics	P-Values	Result
<i>Overconfidence bias</i> → Investment Decision	8,361	0,000	Positif and significant
<i>Anchoring bias</i> → Investment Decision	2,487	0,013	Positif dan Significant
<i>Herding</i> → Investment Decision	2,830	0,005	Negatif dan Significant

active in making investment decisions, but are speculative. This is further strengthened by research by [7] which confirms that young investors with student status have high motivation and enthusiasm to further deepen their investment knowledge from various capital market activities, but investors collect irrelevant market information. The various explanations above support the results of this study that high stock investment decisions can be followed by high overconfidence bias, due to the influence of the characteristics of overconfidence bias behavior, namely subjective assessments ([10, 18] and failure in elections. information [37]. Regardless of the respondent's profile, stock investment decisions made will increase when stock market conditions are critical or unstable, so that actual conditions lead investors who originally had an overconfidence bias to be forced to renew their cognitive reasoning. This situation will stimulate investors to conduct stock analysis properly. Another assumption is the possibility that investors already have sufficient knowledge or a supportive educational background. If the chronology is traced, psychologically, investors may not realize that they are affected by overconfidence bias, but investors already have basic knowledge capital, so this makes investors rational, but they are not aware that they have adopted some psychological aspects of overconfidence. biased.

Based on the data test, namely the origin sample value of 0.296 with a positive direction and the p value of 0.013 which indicates, it can be seen that anchoring bias has a significant positive effect on stock investment decisions. Thus, H2 is not supported in this study. That is, the higher the anchoring bias owned by investors, the stock investment decisions will also increase. The results of this study are not in accordance with the hypothesis which states that anchoring bias has a negative effect on stock investment decisions, when investors use the previous stock price as an anchor for today's stock price, investors will underreact to fundamental information and changes in stock prices. Another theory, [53] explains that anchoring bias causes investors to refer to the initial value compared to conducting trend or ratio analysis in decision making. Starting from this research, this study proves that anchoring bias has a positive effect on stock investment decisions. The results of this study are in line with the research of [13, 17, 28, 30, 38, 46]. This is because investors who have an anchoring bias will focus on the issuer's historical stock prices, dividend history, and profitability through horizontal and vertical analysis [31]. This means that investors who have an anchoring bias continue to conduct stock analysis as they should, however, stock investment decisions are made irrational. Another assumption related to the reason for anchoring bias has a positive effect on stock investment decisions, namely because during the global pandemic as a result of Covid-19 or Corona Virus Disease, the capital market becomes unstable. In addition, the current investment climate in Indonesia also makes investors likely to be more careful in making stock investment decisions. Therefore, investors will be more sensitive to the surrounding environment and conduct stock analysis. Apart from the general capital market instability perspective, in more detail, the capital market is uncontrollable, because it is influenced by investment risk, both systematic and non-systematic risk. The most important thing to pay attention to is systematic risk, because it is an undiversifiable risk or market risk, which is influenced by macroeconomic factors. Systematic risk with the current state of the capital market being disrupted by the impact of Covid-19 can significantly increase the possibility of investors who have anchoring bias behavior

to experience investment losses, so this condition further stimulates investors to begin to realize that the use of an initial investment value or a certain value as a benchmark in investing is wrong or biased behavior, then investors will be encouraged to conduct fundamental and technical analysis, in order to avoid investment losses.

The results of the data test are the origin sample value of -0.336 with a negative direction and a p-value of 0.005 indicating a negative direction and the value showing a significant effect. The results of the data test indicate that herding has a significant negative effect on stock investment decisions. Thus, H3 is supported in this study. That is, the higher the herding that occurs to investors, the lower the stock investment decisions made. The results of this study are in line with research by [5, 15]. The results of this study are relevant and supported by [47], that if investors are strongly influenced by other investors, analysts, and so on, then the ability to make their own analysis and judgment will be hampered. This means that investors who only follow the behavior or decisions of other investors will be lower in the use of stock analysis. The second theoretical evidence is that investors who bias herding behavior is a form of investor irrationality who does not consider available information and fundamental analysis [14]. In addition, according to [29], it is likely that investors will prefer to adopt the decisions of other investors if investors feel that they get reliable and useful information. Socially, humans are very dependent on each other when making decisions, especially when humans are filled with threats or feelings of uncertainty, so that it leads humans to imitate others more. This is relevant to capital market conditions that cannot be predicted with certainty, even though investors have analyzed stocks well. This phenomenon shows that the higher the herding of investors, the lower the use of fundamental analysis and stocks in making investment decisions.

5 Conclusion

5.1 Summary of Research Finding

This research proved that overconfidence bias and anchoring bias has a positive and significant effect on stock investment decisions. Herding behavior is formed when investors adopt the actions of others, in this study stock investment decisions is effected negatively and significantly by herding.

5.2 Practical Implications

This behavioral finance study is crucial for investors and traders because it is useful for realizing the effect of psychological in making investment decisions. Investors can realize and learn the psychological bias that stimulate to irrationality. This research also help investors to be more rational by taking corrective actions. In addition, investors can educate themselves regarding the various biases that may be shown, then investors can take preventive action.

5.3 Future Research Direction

This study examines three behavioral biases, future research is recommended to explore various other factors in behavioral finance, such as market factors, prospect factors, or heuristic factors. In addition, to further explore the results of this study with a comparative method, future researchers can use different subjects, such as experienced and inexperienced investors. In addition, further researchers can examine behavioral finance based on gender or other demographic factors. Behavioral finance research with demographic factors as mediation will also be a more interesting research. A larger sample size is also recommended to better represent the actual phenomenon.

Acknowledgments. We thank to THE 1st UPY INTERNATIONAL CONFERENCE ON EDUCATION AND SOCIAL SCIENCE 2022 committee for the opportunity to present our research.

Authors' Contributions. Arista Natia Afriany is a member of the research.

Latifah Putranti is a member of the research.

Hapsari Dyah Herdiany is a member of the research.

Valsa Ayunda Tisya is a member of the research.

References

1. Adielyani, D., & Mawardi, W. The Influence of Overconfidence, *Herding* Behavior, and Risk Tolerance on Stock Investment Decisions: The Empirical Study of Millennial Investors in Semarang City. *Jurnal Maksipreneur: Manajemen, Koperasi, Dan Entrepreneurship*, 2020, 10(1), p 89. <https://doi.org/10.30588/jmp.v10i1.691>
2. Ahmad, Z. Institutional investor behavioural biases. *Management Research Review*, 2017, Vol. 40(5), pp22. <https://doi.org/10.1108/MRR-04-2016-0091%0A>
3. Alquraan, T., Alqisie, A., & Al Shorafa, A. 2016. Do Behavioral Finance Factors Influence Stock Investment Decisions of Individual Investors? (Evidences from Saudi Stock Market). *American International Journal of Contemporary Research*, 2016, 6(3), pp 159–169. www.aijcrnet.com
4. Andrieş, A. M. The importance of capital market in economy. *CES Working Papers*, 2009, 1(2), pp69-75.
5. Anum, S., & Ameer, B. Behavioral Factors and their Impact on Individual Investors' Decision Making and Investment Performance: Empirical Investigation from Pakistani Stock Market. *Global Journal of Management and Business Research*, 2017, 17(1), pp 1-12. https://globaljournals.org/GJMBR_Volume17/8-Behavioral-Factors-and-their-Impact.pdf
6. Aprillianto, B., Wulandari, N., & Kurrohman, T. Perilaku investor saham individual dalam pengambilan keputusan investasi: Studi Hermeneutika-Kritis. *E-Journal Ekonomi Bisnis dan Akuntansi*, 2014, 1(1), pp 16-31.
7. Ar-rachman, A. R. 2018. Pengaruh Overconfidence Bias dan Bias Optimisme Terhadap Pengambilan Keputusan Investasi Pada Investor di Yogyakarta. Skripsi. Fakultas Ekonomi. Universitas Islam Indonesia.
8. Bakar, S., & Yi, A. N. C. The Impact of Psychological Factors on Investors' Decision Making in Malaysian Stock Market: A Case of Klang Valley and Pahang. *Procedia Economics and Finance*, 2016, pp 319–328. [https://doi.org/10.1016/s2212-5671\(16\)00040-x](https://doi.org/10.1016/s2212-5671(16)00040-x)
9. Barber, B. M., & Odean, T. Trading is Hazardous to Your Wealth: The Common Stock Investment Performance of Individual Investors. *The Journal Of Finance*, 2000, pp 773-806.

10. Campbell, W. K., Goodie, A. S., & Foster, J. D. Narcissism, confidence, and risk attitude. *Journal of Behavioral Decision Making*, 2004, 17(4), pp 297–311. <https://doi.org/10.1002/bdm>.
11. Cao, M. M., Nguyen, N. T., & Tran, T. T. Behavioral Factors on Individual Investors' Decision Making and Investment Performance: A Survey from the Vietnam Stock Market. *Journal of Asian Finance, Economics and Business*, 2020, 8(3), 845–853. <https://doi.org/10.13106/jafeb.2021.vol8.no3.0>.
12. Chou, R. K., & Wang, Y. Y. A test of the different implications of the overconfidence and disposition hypotheses. *Journal of Banking and Finance*, 2011 35(8), 2037–2046. <https://doi.org/10.1016/j.jbankfin.2011.01.018>
13. Donkor, J., Akohene, V., & Acheampong, S. Behavioural Factors and Investment Decisions of Bankers in Ghana. *British Journal of Education, Society & Behavioural Science*, 2016, 18(3), pp 1–8. <https://doi.org/10.9734/bjesbs/2016/23353> .
14. Fityani, I., & Arfinto, E. D. Analisis Investor Herding Behavior dengan Multinomial Logit Regression pada BEI (Studi Kasus pada Saham LQ-45 Periode 2009-2014). *Diponegoro Journal of Management*, 2015, 4(3), pp 1–14.
15. Ghalandari, K., & Ghahremanpour, J. The Effect of Market Variables and Herding Effect on Investment Decision as Factor Influencing Investment Performance in Iran. *J. Basic. Appl. Sci*, 2013, 3(3), pp 313–318. www.textroad.com.
16. Ghozali, I. 2005. *Aplikasi Analisis Multivariate dengan Program SPSS*. Semarang: Badan Penerbit Univesitas Diponegoro.
17. Gitau, G. G., Kiragu, D. N., & Kamau, R. Effect of Heuristic Factors and Real Estate Investment in Embu County, Kenya. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 2018, 8(4), pp 30–38. <https://doi.org/10.6007/ijarafms/v8-i4/5183>.
18. Glaser, M., & Weber, M. Overconfidence. *Behavioral Finance: Investors, Corporations, And Markets*, 2010, pp 241–258.
19. Gozalie, S. & Anastasia, N. Pengaruh Perilaku Heuristics dan Herding terhadap Pengambilan Keputusan Investasi Properti Hunian. *Finesta*, 2015, 3(2), pp 28-32.
20. Gupta, Y., & Ahmed, S. The Impact of Behavioral Biases on Investor's Behavior in Indian Stock Market. *International Journal of Management and Social Science Research Review*, 2017, 1(37), pp 175–183.
21. Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis*. Vectors.
22. Hirshleifer, D. and Teoh, S. H. Thought and behavior contagion in capital markets', *Handbook of financial markets: Dynamics and evolution*: Elsevier, 2009, pp 1-56.
23. Javed, M. A., & Marghoob, S. The effects of behavioural factors in investment decision making at Pakistan stock exchanges. *Journal of Advanced Research in Business and Management Studies*, 2017, 7 (1), pp 103–14.
24. Kahneman, D, Hirshleifer, D., & Subrahmanyam, A. Investor psychology and security market under and overreactions. *The Journal of Finance*, 1998, 47(2).
25. Kahneman, Daniel, & Tversky, A. Prospect Theory: An Analysis of Decision Under Risk. *Econometrica*, 1979, 47(2), pp 263–292.
26. Kartini, K., & Nahda, K. Behavioral Biases on Investment Decision: A Case Study in Indonesia. 2021, 8(3), pp 1231–1240. <https://doi.org/10.13106/jafeb.2021.vol8.no3.1231>
27. Kengatharan, L., & Kengatharan, N. The Influence of Behavioral Factors in Making Investment Decisions and Performance: Study on Investors of Colombo Stock Exchange, Sri Lanka. *Asian Journal of Finance & Accounting*, 2014, 6(1), p 1. <https://doi.org/10.5296/ajfa.v6i1.4893>.

28. Khan, A. R., Azeem, M., & Sarwar, S. Impact of Overconfidence and Loss Aversion Biases on Investment Decision: Moderating Role of Risk Perception. *International Journal of Transformation in Accounting, Auditing & Taxation*, 2017, 1(1), pp 23-35. <http://management.eurakajournals.com/index.php/IJTAAT/article/view/93/225>
29. Luong, L. P. & Thi Thu Ha, D. 2011. Behavioral Individual Investors' Decision Making and Performance a Survey at The Ho Chi Minh Stock Exchange, China: Umeå Univesity.
30. Madaan, G., & Singh, S. An analysis of behavioral biases in investment decision-making. *International Journal of Financial Research*, 2019, 10(4), pp 55–67. <https://doi.org/10.5430/ijfr.v10n4p55>.
31. Mahmood, T., Ayyub, R. M., Imran, M., Naeem, S., & Abbas, W. The Behavioral Analysis and Financial Performance of Individual Investors at Pakistan Stock Exchange, 2020, 10(5), pp 158–164.
32. Maqsood, M., Qureshi, R., Ikram, M., Ahmad, M. S., Jabeen, B., Asi, M. R., Khan, J. A., Ali, S., & Lilge, L. In vitro anticancer activities of *Withania coagulans* against HeLa, MCF-7, RD, RG2, and INS-1 cancer cells and phytochemical analysis. *Integrative Medicine Research*, 2018, pp 1–8. <https://doi.org/10.1016/j.imr.2018.03.003>.
33. Nada, S. M. A., & Moa'mer, D. F. A. 2013. Behavioural Factors influencing investment decision making: An empirical study of Palestine Stock Exchange.
34. Nofsinger, J. R., & Sias, R. W. Herding and Feedback Trading by Institutional and Individual Investors. *The Journal of Finance*, 1999, 54(6), pp 2263–2295.
35. Nofsinger, J., & Varma. Socially responsible funds and market crises. *Journal of Banking and Finance*, 2014, 48, pp 180–193. <https://doi.org/10.1016/j.jbankfin.2013.12.016>
36. Nofsinger. (2016). *The psychology of investing*. Routledge.
37. Novianggie, V., & Asandimitra, N. The Influence of Behavioral Bias, Cognitive Bias, and Emotional Bias on Investment Decision for College Students with Financial Literacy as the Moderating Variable. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 2019, 9(2), 92–107. <https://doi.org/10.6007/IJARAFMS/v9-i2/6044>
38. Parveen, S., & Siddiquee, M. Anchoring Heuristic, Disposition Effect and Overconfidence Bias in Investors: A Case of Pakistan Stock Exchange. *Abasyn Journal of Social Sciences*, 2018, 11(2), pp 280–294.
39. Patterson, D. M., & Sharma, V. Did herding cause the stock market bubble of 1998-2001? Working Paper, November, 2007, pp 1–63.
40. Pompian, M. M. (2006). *Behavioral Finance and Wealth Management*. John Wiley & Sons.
41. Setiawan, Y. C., Atahau, A. D. R. and Robiyanto, R. Cognitive Dissonance Bias, Overconfidence Bias dan Herding Bias dalam Pengambilan Keputusan Investasi Saham', *AFRE (Accounting and Financial Review)*, 2018, 1(1).
42. Shefrin, H. (2007). *Disposition Effect and Momentum*. January, 68–79.
43. Shin, H., & S. Paci fi c-Basin Finance Journal Do foreign investors mitigate anchoring bias in stock market? Evidence based on post-earnings announcement drift. *Pacific-Basin Finance Journal*, 2018, pp 224–240. <https://doi.org/10.1016/j.pacfin.2018.02.008>
44. Sias, R. W. Institutional Herding. *Review of Financial Studies*, 2004, 17(1), pp 165–206. <https://doi.org/10.1093/rfs/hhg035>
45. Singh, S. The Role of Behavioral Finance in Modern Age Investment, 2016, 1(1), pp 234–240.
46. Sochi, M. H. Behavioral Factors Influencing Investment Decision of the Retail Investors of Dhaka Stock Exchange : An Empirical Study. *The Cost and Management*, 2018, 46(01), pp 20–29.
47. Subash, R. Role of Behavioral Finance in Portfolio Investment Decisions: Evidence from India. *Faculty of Social Science Institute of Economic Studies*, 2012, pp 8–9.
48. Sugiyono, 2009. *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta.

49. Tanvir, Bashir, T., Azam, S. N., Butt, S. A. A., Javed, S. A., & Tanvir, S. A. Are Behavioral Biases Influenced By Demographic Characteristics & Personality Traits? Evidence From Pakistan. *European Scientific Journal*, 2013, 9(29), pp 277–293.
50. Valsova, D. 2016. Behavioral Finance and Its Practical Implications for Investment Professionals. 1–68.
51. Vane, A & Robin, R. Analysis of the Impact of Anchoring, *Herd*ing Bias, Overconfidence and Ethical Consideration Towards Investment Decision. *JIMFE (Jurnal Ilmiah Manajemen Fakultas Ekonomi)*, 2020, 6(2), Inpress. <https://doi.org/10.34203/jimfe.v6i2.2558>
52. Vijaya, E.. An Empirical Analysis of Influential Factors on Investment Behaviour of Retail Investors' in Indian Stock Market: A Behavioural Perspective. *International Journal in Management and Social Science* 2014, 2(12), pp 296-308.
53. Wali, S., & Rehman, S, Behavioural Factors Influencing Individual Investor's Trade Performance: A Comparative Study Of Peshawar And Islamabad, 2019, 09(01), pp 164–177.
54. Waweru, N., M., Munyoki, E., dan Uliana, E.. The Effects of Behavioral Factors in Investment Decision-Making: A Survey Of Institutional Investors Operating at the Nairobi StockExchange. *International Journal of Business and Emerging Markets*, 2008, 1 (1), pp 24-41.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

