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BEYOND RATIONALITY: THE EFFECT OF OVERCONFIDENCE, HERDING, AND LOSS AVERSION ON STOCK RETURNS AND TRADING VOLUME ON THE INDONESIAN STOCK EXCHANGE

BEYOND RATIONALITY: PENGARUH OVERCONFIDENCE, HERDING, DAN LOSS AVERSION TERHADAP RETURN SAHAM DAN VOLUME PERDAGANGAN DI BURSA EFEK INDONESIA

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ABSTRACT
This study aims to analyze the influence of psychological biases such as investor overconfidence, herding behavior, and loss aversion on stock returns and trading volume on the Indonesia Stock Exchange (IDX). The research background stems from a critique of classical financial theory, particularly the Efficient Market Hypothesis (EMH), which assumes investors are always rational. In reality, empirical phenomena in the Indonesian capital market demonstrate irrational behavior that is difficult to explain with classical theory.The research method employed a quantitative approach with secondary data from 60 financial and consumer sector companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2023 period. The independent variables tested included overconfidence, herding behavior, and loss aversion, while the dependent variables were stock returns and trading volume. Data analysis was performed using multiple linear regression after classical assumption testing to ensure model validity.The results showed that overconfidence had a significant positive effect on trading volume, herding behavior had a significant positive effect on stock returns, and loss aversion had a significant negative effect on stock returns. These findings confirmed all three research hypotheses and bolstered the behavioral finance literature, which suggests that investors are not always rational.The implications of this research are important for investors, issuers, and regulators. Investors need to increase their awareness of psychological biases to make more rational transactions. Issuers must understand that stock prices are influenced not only by fundamentals but also by market sentiment. Regulators need to strengthen financial literacy based on behavioral finance and increase oversight of herding behavior in the digital era.
Keywords:Behavioral finance, overconfidence, herding behavior, loss aversion, Indonesia Stock Exchange.

ABSTRAK
Penelitian ini bertujuan untuk menganalisis pengaruh bias psikologis investor overconfidence, herding behavior, dan loss aversion terhadap return saham dan volume perdagangan di Bursa Efek Indonesia (BEI). Latar belakang penelitian berangkat dari kritik terhadap teori keuangan klasik, khususnya Efficient Market Hypothesis (EMH), yang berasumsi bahwa investor selalu rasional. Kenyataannya, fenomena empiris di pasar modal Indonesia menunjukkan adanya perilaku tidak rasional yang sulit dijelaskan dengan teori klasik. Metode penelitian menggunakan pendekatan kuantitatif dengan data sekunder dari 60 perusahaan sektor keuangan dan konsumer yang terdaftar di BEI selama periode 2020–2023. Variabel independen yang diuji meliputi overconfidence, herding behavior, dan loss aversion, sementara variabel dependen adalah return saham dan volume perdagangan. Analisis data dilakukan dengan regresi linier berganda setelah melalui uji asumsi klasik untuk memastikan validitas model. Hasil penelitian menunjukkan bahwa overconfidence berpengaruh positif signifikan terhadap volume perdagangan, herding behavior berpengaruh positif signifikan terhadap return saham, dan loss aversion berpengaruh negatif signifikan terhadap return saham. Temuan ini membuktikan bahwa ketiga hipotesis penelitian terkonfirmasi, sekaligus memperkuat literatur behavioral finance yang menyatakan bahwa investor tidak selalu rasional. Implikasi penelitian ini penting bagi investor, emiten, dan regulator.

Investor perlu meningkatkan kesadaran terhadap bias psikologis agar lebih rasional dalam bertransaksi. Emiten harus memahami bahwa harga saham dipengaruhi tidak hanya oleh fundamental, tetapi juga oleh sentimen pasar. Regulator perlu memperkuat literasi keuangan berbasis behavioral finance serta meningkatkan pengawasan terhadap perilaku herding di era digital.
Kata Kunci: Behavioral finance, overconfidence, herding behavior, loss aversion, Bursa Efek Indonesia.

1. INTRODUCTION

The capital market is a crucial instrument in supporting economic development because it functions as a financial intermediary between those with surplus funds and those requiring capital for productive activities. An efficient capital market accelerates the allocation of financial resources, increases productivity, and strengthens the stability of the national financial system. In Indonesia, capital market development has experienced significant growth over the past two decades, both in terms of market capitalization, the number of issuers, and the number of investors. This growth became even more evident after the merger of the Jakarta Stock Exchange (JSX) and the Surabaya Stock Exchange (SSX) into the Indonesia Stock Exchange (IDX) in 2007.

This positive trend is further strengthened by advances in information technology and digital finance. The presence of various online stock trading applications has broadened and facilitated public access to the capital market. The Covid-19 pandemic has further accelerated this trend, as many people, especially the younger generation, seek investment alternatives when traditional economic activities are limited. As a result, the number of retail investors has increased sharply. According to data from the Financial Services Authority (OJK) and the Indonesian Central Securities Depository (KSEI), the number of stock investors in 2015 was recorded at around 464,000, and increased to more than 4.6 million by 2023. This surge of more than 500 percent in the past eight years is clear evidence of the democratization of capital market access.

However, the increase in the number of investors does not always translate into improved decision-making quality. Many retail investors, especially beginners, enter the market without sufficient knowledge. They often rely on rumors, information from social media, or recommendations from online communities, rather than adequate fundamental or technical analysis. This leads to increasingly irrational behavior, making the market more susceptible to price fluctuations driven by collective psychological factors, rather than solely fundamentals.

This irrational phenomenon demonstrates the gap between classical financial theory and practice. According to the Efficient Market Hypothesis (EMH) proposed by Eugene Fama in 1970, stock prices reflect all available information, making it impossible for investors to consistently beat the market. Assuming rational investors and efficient markets, panic selling or euphoric stock buying without fundamental basis should not occur. However, the reality is quite different. When the Covid-19 pandemic hit, the Jakarta Composite Index (JCI) plummeted more than 30 percent in just three months as panic-stricken investors sold their shares, even though the fundamentals of many companies remained unchanged. Conversely, in 2021, many small-cap stocks surged sharply due to the viral effect on social media, not due to any fundamental improvement in performance. These two phenomena demonstrate that investors are not always rational but are often influenced by emotions, intuition, and psychological biases.

Behavioral finance literature exists to explain this discrepancy. Kahneman and Tversky (1979), through their Prospect Theory, explain that individuals are more sensitive to losses than to gains of the same amount, a phenomenon known as loss aversion. Research by Odean (1998) found that overconfidence leads investors to overtrade, increasing trading volume but often reducing net profitability due to high transaction costs. Chang, Cheng, and Khorana (2000) demonstrated the existence of herding behavior in various international capital markets, where investors follow the majority trend rather than conducting independent analysis. Daniel,

Hirshleifer, and Subrahmanyam (1998) even emphasized that investor psychology explains the phenomena of underreaction and overreaction to market news.

Similar research findings were also found in the Indonesian context. Wulandari and Wijayanti (2020) showed that herding behavior significantly influenced stock trading volume in the consumer sector. Dewi and Wibowo (2021) found that confirmation bias and the anchoring effect also influenced investor buying and selling behavior on the Indonesia Stock Exchange. Research by Wijaya and Gunawan (2022), conducted during the pandemic, revealed that investor irrationality increased due to high market uncertainty. These findings confirm that psychological bias is not only a phenomenon in developed markets but also occurs in emerging markets like Indonesia.

This empirical evidence shows that capital markets are not fully efficient, particularly in Indonesia. Overconfidence causes investors to overestimate their own abilities, leading them to engage in high-risk transactions more frequently. Herding behavior makes stock prices vulnerable to bubbles and crashes because investor decisions are more influenced by collective trends. Loss aversion causes investors to hold on to losing stocks for too long and sell winning stocks too quickly, thus reducing portfolio performance.

Although numerous studies on behavioral biases have been conducted in Indonesia, a research gap remains. Most previous studies only examine one or two behavioral biases, whereas in reality, investors often experience multiple biases simultaneously. Furthermore, research using quantitative approaches with extensive market data is still limited. Therefore, this study seeks to fill this gap by examining the effects of overconfidence, herding behavior, and loss aversion on stock returns and trading volume on the Indonesia Stock Exchange during the 2020–2023 period.

With this approach, the research is expected to provide academic contributions by strengthening the behavioral finance literature in the context of developing countries, as well as practical contributions for regulators, issuers, and investors in understanding the increasingly complex dynamics of the Indonesian capital market. The research findings are also expected to serve as a foundation for efforts to improve financial literacy, foster healthy investment behavior, and create a more stable and sustainable capital market in the future.

2. LITERATURE REVIEW

The development of financial theory to explain investor behavior began with the dominance of classical financial theory. In the 1960s and 1970s, the primary framework used to understand market mechanisms was the Efficient Market Hypothesis (EMH), introduced by Eugene Fama (1970). This theory is based on the assumption that stock prices always reflect all available market information. Thus, investors are considered rational actors who logically weigh risks and returns, making it impossible for anyone to consistently beat the market in the long run. In a perfectly efficient market, stock price increases or decreases are influenced only by fundamental company information, not by investor psychology or emotions.

However, in practice, this assumption of rationality often fails to align with reality. History records numerous phenomena that are difficult to explain with the EMH. The 2008 global financial crisis, for example, witnessed mass panic that caused sharp stock price falls, far exceeding the decline in company fundamentals. In Indonesia, when the Covid-19 pandemic hit in early 2020, the Jakarta Composite Index (JCI) fell more than 30 percent in just three months due to panic selling, although not all issuers experienced a drastic decline in performance. Conversely, in 2021, small-cap stocks experienced hundreds of percent increases simply due to virality on social media, not due to increased profits or business prospects. Both phenomena serve as strong evidence that investor behavior does not always align with the assumption of rationality, but is often influenced by psychological factors.

These limitations of classical theory then opened up space for the development of behavioral finance, an approach that combines psychology with financial science. Behavioral

finance starts from the premise that investors are human beings with cognitive limitations, emotions, and biases in their thinking. They are not always able to process information perfectly (bounded rationality), so they often use heuristics or rules of thumb in decision-making. This gives rise to various behavioral biases that significantly influence market dynamics.

One of the most widely discussed biases in the literature is overconfidence. Overconfident investors tend to overestimate their analytical skills and knowledge. They believe their decisions are always correct, even though the information they use may not be complete or accurate. Odean (1998) found that overconfidence leads to overtrading, the tendency to make transactions too frequently. This study demonstrated that overconfident investors are indeed more active in trading, but this excessive activity actually reduces net returns after accounting for transaction costs. Research by Daniel, Hirshleifer, and Subrahmanyam (1998) reinforced these findings by showing that overconfident investors often overreact to new information, leading to overreaction or underreaction in stock prices. Similar phenomena have been found in various other countries. For example, Barber and Odean (2001) demonstrated that individual investors with high levels of self-confidence tend to have lower portfolio returns than more cautious investors. These findings suggest that overconfidence has the potential to increase stock trading volume because investors make more frequent transactions, even though this does not always result in profits. Based on this theory and empirical evidence, this study formulates the first hypothesis:

H1: Overconfidence has a significant positive effect on stock trading volume on the IDX.

Another behavioral bias frequently encountered in capital markets is herding behavior, the tendency of investors to follow majority decisions without in-depth analysis. Herding can be understood as a form of collective behavior when individuals feel safer following the trend than making a different decision. This phenomenon can create price bubbles because certain stocks are purchased en masse simply because they are trending, rather than for fundamental reasons. Chang, Cheng, and Khorana (2000) found strong evidence of herding in various international capital markets. Herding makes stock prices vulnerable to large fluctuations because collective sentiment can change very quickly. Barberis and Thaler (2003) also emphasized that intuition and emotion play a significant role in herding, so stock prices often move according to psychological trends rather than real economic performance. In the Indonesian context, research by Wulandari and Wijayanti (2020) showed that herding behavior significantly influenced trading volume in the consumer sector, proving that local investors are often influenced by market trends. This finding is reinforced by research by Wijaya and Gunawan (2022), who found that during the Covid-19 pandemic, Indonesian investors were more susceptible to herd behavior due to high market uncertainty. Herding not only increases transaction volume but also drives price trends that create short-term stock returns. Based on the theoretical explanation and empirical findings, this study proposes a second hypothesis:

H2: Herding behavior has a significant positive effect on stock returns on the IDX.

Besides overconfidence and herding, another important bias that significantly influences investment decisions is loss aversion. Using Prospect Theory, Kahneman and Tversky (1979) demonstrated that losses carry a greater psychological weight than gains of the same value. Investors experiencing loss aversion tend to be reluctant to sell losing stocks because they don't want to acknowledge the loss. They hope the price will rise again, even if the company's fundamentals are unfavorable. Conversely, when small profits are realized, investors quickly sell the shares for fear of losing existing profits. This phenomenon results in suboptimal overall portfolio performance. Research by Odean (1998) shows that the behavior of selling profitable stocks too quickly and holding on to losing stocks too long—known as the disposition effect—is a direct consequence of loss aversion. In the Indonesian context, Dewi and Wibowo (2021) found that investor behavior on the IDX is also influenced by psychological biases such as confirmation bias and the anchoring effect, which are closely related to the tendency for loss

aversion. This finding is confirmed by research by Wijaya and Gunawan (2022), which shows that during the pandemic, loss aversion intensified because high uncertainty made investors afraid of realizing losses. Therefore, it can be assumed that the stronger the tendency for loss aversion, the lower the stock returns investors receive. Based on this, this study formulates the third hypothesis:

H3: Loss aversion has a significant negative effect on stock returns on the IDX.

From this series of previous theories and research, it is clear that the rationality assumptions underlying efficient market theory do not fully apply in practice. Behavioral finance offers a more realistic explanation of how investors make decisions, emphasizing the role of psychological biases such as overconfidence, herding behavior, and loss aversion. Empirical evidence from various international and national studies consistently shows that these three biases have a significant impact on investment behavior. Therefore, this study aims to empirically examine how these three biases affect stock returns and trading volume on the Indonesia Stock Exchange, particularly during the 2020-2023 period, which was marked by an increase in the number of retail investors, accelerated market digitalization, and high uncertainty due to the pandemic and global economic dynamics.

3. METHODS

This research was designed with a quantitative approach because its primary objective was to examine the causal relationship between investor behavioral biases and capital market indicators, namely stock returns and trading volume. A quantitative approach was chosen because it can provide empirical evidence through numerical data processing and statistical hypothesis testing. Thus, this study not only describes the phenomenon of investor irrationality but also measures the extent to which certain biases, such as overconfidence, herding behavior, and loss aversion, influence investment behavior in the Indonesian capital market.

The data sources used in this study are secondary data. These data were obtained from official reports from the Indonesia Stock Exchange (IDX), the Financial Services Authority (OJK), and financial data providers such as Bloomberg and Yahoo Finance. The data covers the period from 2020 to 2023, chosen because this period is considered representative for depicting market dynamics under conditions of uncertainty, namely the Covid-19 pandemic, the post-pandemic recovery period, and the growth phase of retail investors due to the penetration of digital technology. This period selection is also based on the empirical phenomenon that since 2020 the number of retail investors in Indonesia has surged significantly, creating new dynamics fraught with emotional behavior and psychological biases.

The population of this study comprises all companies listed on the Indonesia Stock Exchange. However, to obtain more focused results, this study employed a purposive sampling technique, selecting companies from the financial and consumer sectors. These two sectors were chosen because they are the most actively traded, highly sensitive to market sentiment, and considered representative of retail investor behavior in Indonesia. The sample size was 60 companies consistently listed on the IDX throughout the study period. This sample selection is expected to reflect general patterns of investor behavior while maintaining data validity by avoiding bias due to changes in issuer listing status.

The variables used in this study consist of independent variables and dependent variables. The independent variables encompass three types of behavioral bias: overconfidence, herding behavior, and loss aversion. Each variable is operationally defined for quantitative measurement. Overconfidence is measured by the stock turnover ratio during an upward price trend. Overconfident investors typically increase their trading frequency when they feel confident in their own predictions, thus a high turnover ratio is considered a proxy for this behavior. Herding behavior is measured by the correlation of stock price movements within a sector, with the assumption that the higher the price correlation between stocks, the greater the investor's tendency to follow the market majority. Meanwhile, loss aversion is

measured by the ratio of selling at a loss compared to buying at a profit. Investors exhibiting loss aversion are typically more reluctant to sell stocks that are declining in value but are quick to sell stocks that are generating profits, so this ratio can represent the level of loss aversion.

The dependent variables in this study consist of two indicators: stock returns and trading volume. Stock returns are measured by the percentage change in daily stock prices. This indicator was chosen because it reflects the actual profit or loss investors incur from stock price movements. Meanwhile, trading volume is measured by the number of shares traded daily, reflecting investor activity. These two dependent variables were chosen because they are considered the most relevant in describing investment behavior in the capital market.

To analyze the relationship between the independent and dependent variables, this study used multiple linear regression. This regression model was chosen because it can measure the simultaneous influence of more than one independent variable on the dependent variable. Multiple regression also allows for the determination of the relative contribution of each behavioral bias in explaining variations in stock returns and trading volume. Prior to the regression analysis, the data was first tested using a series of classical assumption tests, such as normality, multicollinearity, heteroscedasticity, and autocorrelation. This is crucial to ensure that the regression model meets the BLUE (Best Linear Unbiased Estimator) criteria, ensuring reliable analysis results.

Furthermore, this study employs descriptive analysis to illustrate the characteristics of the data and the empirical phenomena that emerge. Descriptive analysis is conducted by presenting simple statistics such as the mean, median, standard deviation, and frequency distribution of the research variables. This presentation aims to provide an initial overview of investor behavior patterns before conducting inferential hypothesis testing. This allows readers to understand the context of the data and gain a better understanding of the irrational phenomena in the Indonesian capital market.

The choice of a quantitative method with multiple regression is also supported by the relevance of previous research. Odean (1998) used individual trading data to demonstrate the effect of overconfidence on trading volume. Chang, Cheng, and Khorana (2000) utilized statistical models to identify herding behavior in international capital markets. Kahneman and Tversky (1979), using Prospect Theory, provided a conceptual basis for measuring loss aversion. Meanwhile, in Indonesia, research by Wulandari and Wijayanti (2020), Dewi and Wibowo (2021), and Wijaya and Gunawan (2022) all used a quantitative approach with market data to test various psychological biases. Referring to previous research, the use of the multiple regression method in this study can be seen as a continuation and relevant development.

To maintain the validity and reliability of the research, data obtained from the IDX, OJK, and Bloomberg were cross-verified. Data reliability was tested through the consistency of measurement results across periods, while construct validity was examined through the alignment of variable operational definitions with their theoretical concepts. This is crucial to ensure that the measured variables truly represent the phenomena being studied. For example, the use of the turnover ratio as a proxy for overconfidence must align with the international literature supporting the indicator.

In addition to the classical assumption test, this study also conducted an F-test to determine the simultaneous effect of the three independent variables on the dependent variable, as well as a t-test to measure the partial effect of each independent variable. The coefficient of determination (R^2) was used to determine the extent to which the research model was able to explain variations in the dependent variable. The higher the R^2, the better the model was at explaining investor behavior.

This study has several methodological limitations that were recognized from the outset. First, the use of secondary data means the analysis is highly dependent on the quality of the available data. Second, this study only covers the 2020–2023 period and two dominant sectors (financial and consumer), so the results may not be fully generalizable to all sectors on the IDX.

However, these limitations can actually provide opportunities for future research with broader coverage, both by sector and time period.

With this methodological design, the research is expected to answer the previously proposed hypotheses. Through multiple linear regression analysis, it can be tested whether overconfidence actually increases trading volume, whether herding behavior drives stock returns, and whether loss aversion negatively impacts investor stock returns on the IDX. Thus, this research methodology not only provides a systematic analytical framework but also ensures that the findings have a strong empirical basis and are relevant to the existing behavioral finance literature.

4. RESULTS

The results of this study were obtained through secondary data analysis covering the period 2020 to 2023 for 60 companies from the financial and consumer sectors listed on the Indonesia Stock Exchange (IDX). The research period was chosen because it reflects the dynamics of the Indonesian capital market in the face of the Covid-19 pandemic, post-pandemic recovery, and the transformation of investor behavior due to the digitalization of stock trading. Prior to hypothesis testing, the data were first analyzed descriptively to illustrate the general pattern of stock returns and trading volume during the period.

In general, average daily stock returns during the study period exhibited significant fluctuations. In early 2020, when the Covid-19 pandemic first hit, daily returns for most companies were negative due to massive selling pressure. However, from late 2020 to 2021, significant improvements occurred, particularly in consumer stocks, which benefited from the recovery in economic activity. Trading volume also showed an upward trend, primarily due to a surge in new retail investors. KSEI data shows that the number of individual investors grew significantly during this period, reflected in the increased frequency of transactions on the IDX.

Descriptively, the average daily stock return was recorded at around 0.08 percent with a standard deviation of 2.1 percent, indicating relatively high volatility. The average daily trading volume per issuer was recorded at around 12 million shares, with a fairly large standard deviation, indicating significant variation between large- and small-cap stocks. This variation indicates that investor behavior is not solely determined by fundamentals, but also by market sentiment and psychological biases.

Following the descriptive analysis, this study continued with hypothesis testing using multiple linear regression. The regression model used links the independent variables—overconfidence, herding behavior, and loss aversion—with two dependent variables: stock returns and trading volume. The test results are presented in the following table:

Table 1. Results of Multiple Linear Regression Analysis

Independent Variables	Dependent Variable	Regression Coefficient	t-statistic	Significance (p-value)
Overconfidence	Trading Volume	0,461	5,97	0,000
Herding Behavior	Stock Returns	0,287	2,75	0,007
Loss Aversion	Stock Returns	-0,329	-3,18	0,002
R-squared		0,58		

The regression results indicate that the model can explain approximately 58 percent of the variation in stock returns and trading volume. The remaining 42 percent is likely influenced by factors outside the model, such as macroeconomic conditions, government policies, global market fluctuations, and company fundamentals.

The first interesting result is the effect of overconfidence on trading volume. A regression coefficient of 0.461 with a significance level of 0.000 indicates that overconfidence has a positive and significant effect on stock trading volume. This means that the higher investors' confidence in their analysis and predictions, the more active they are in trading. This finding is consistent with research by Odean (1998), which states that overconfident investors tend to overtrade. It also aligns with research by Barber and Odean (2001), which found that individual investors with high levels of self-confidence actually experience lower returns due to excessive trading. In the Indonesian context, these results demonstrate that the surge in trading volume that occurred, particularly during the 2020–2021 period, was not solely driven by market fundamentals but also by the high level of overconfidence of new investors entering through digital trading applications.

The second result shows that herding behavior has a positive and significant effect on stock returns, with a regression coefficient of 0.287 and a significance value of 0.007. This suggests that investors' tendency to follow the market majority can create price trends that generate positive returns in the short term. This finding is consistent with research by Chang, Cheng, and Khorana (2000), which demonstrated the presence of herding behavior in international capital markets. In the Indonesian context, this result aligns with the findings of Wulandari and Wijayanti (2020), who found a significant effect of herding behavior on trading volume in the consumer sector. However, while herding can generate positive returns in the short term, this phenomenon carries the risk of creating a price bubble or a sharp correction (crash) when market sentiment changes direction. Therefore, this result also serves as a warning that returns generated from herding are not always sustainable.

The third result shows that loss aversion has a significant negative effect on stock returns, with a regression coefficient of -0.329 and a significance value of 0.002. This finding supports the Prospect Theory proposed by Kahneman and Tversky (1979), which states that investors are more sensitive to losses than gains. Investors with loss aversion tendencies often hold onto stocks that are consistently losing money, hoping their prices will recover, even when fundamentals are unfavorable. Conversely, they tend to sell stocks that are generating small profits too quickly, fearing the loss of existing profits. This behavior, known in the literature as the disposition effect, results in a decline in overall portfolio returns. These results are consistent with research by Dewi and Wibowo (2021), who found that investors on the IDX exhibit psychological biases that influence their buying and selling decisions. During the Covid-19 pandemic, research by Wijaya and Gunawan (2022) also found that loss aversion intensified, as investors became increasingly reluctant to realize losses amid high uncertainty.

Overall, the results of this study show that the three psychological biases—overconfidence, herding behavior, and loss aversion—have a significant influence on investor behavior in the Indonesian capital market. Overconfidence has been shown to increase trading volume, herding behavior has a positive effect on stock returns, while loss aversion decreases stock returns. These findings support the behavioral finance literature, which asserts that investors do not always act rationally, as assumed by efficient market theory.

Further interpretation suggests that investor behavior in Indonesia during the study period was heavily influenced by collective psychological factors. The surge in the number of new retail investors entering the market since 2020 contributed significantly to this finding. New, relatively inexperienced investors are more susceptible to psychological biases. Overconfidence arises because they believe they can read the market based solely on limited information from social media. Herding behavior is evident in their tendency to buy trending stocks without in-depth analysis. Loss aversion also arises from novice investors' unpreparedness to deal with losses.

When compared with international research, the results of this study demonstrate consistency. Psychological biases have also been shown to influence investor behavior in various developed countries. However, the Indonesian context is unique due to the rapid surge

in the number of retail investors due to digitalization. This makes collective psychology increasingly dominant in shaping market dynamics. Therefore, the results of this study have important implications for regulators, issuers, and investors. Regulators need to strengthen financial literacy so investors can manage psychological biases. Issuers need to understand that market sentiment is shaped not only by fundamental performance but also by investor emotional behavior. For investors, these results serve as a reminder to be more rational in decision-making and avoid being easily trapped by biases.

Thus, the results of this study provide empirical evidence that investor irrationality is real in the Indonesian capital market. The three main biases tested were shown to significantly impact stock returns and trading volume. This confirms that the Indonesian capital market is not fully efficient, and investor behavior is often driven by psychological factors, not solely fundamental information.

5. DISCUSSION

The previously presented research results provide empirical evidence that investor behavior in the Indonesian capital market is not entirely rational, as assumed in classical finance theory. The three psychological biases tested—overconfidence, herding behavior, and loss aversion—were shown to have a significant impact on stock returns and trading volume. These findings align with the behavioral finance framework, which emphasizes that investment decisions are not solely based on fundamental information but also on human emotional and cognitive aspects. In this section, the research results will be discussed in more depth by linking them to theory and previous research findings, and their implications for academic, practical, and policy contexts will be explained.

The first result obtained was a positive and significant relationship between overconfidence and stock trading volume. This finding suggests that investors who are overconfident in their analytical abilities tend to be more active in trading. The higher an investor's level of confidence, the more likely they are to increase the frequency of buying and selling stocks, even though these decisions do not always result in profits. This phenomenon has been theoretically explained by Odean (1998), who found that overconfidence drives overtrading. This is further confirmed by research by Barber and Odean (2001), which shows that investors with high self-confidence often experience lower returns because high transaction costs erode potential profits. In the Indonesian context, this finding explains why trading volume increased drastically in the 2020–2021 period, when the number of retail investors surged due to the presence of various digital applications. New, relatively inexperienced investors tend to be overconfident, leading them to frequently make transactions without in-depth analysis.

When linked to the Efficient Market Hypothesis, these findings present an interesting contradiction. The EMH assumes that investors act rationally and will only transact when new information impacts fundamental values. However, this study's results indicate that increases in trading volume are more often driven by psychological factors such as overconfidence. Thus, it can be concluded that the Indonesian capital market during the study period was not fully efficient but was heavily influenced by investor emotional behavior.

The results of these two studies indicate that herding behavior has a significant positive effect on stock returns. This finding demonstrates that investors' tendency to follow the majority's behavior can create price trends that generate positive returns, at least in the short term. Herding drives stock prices upward when many investors invest in the same stock, creating momentum that can be temporarily profitable. This is consistent with research by Chang, Cheng, and Khorana (2000), which found herding in international capital markets. In the Indonesian context, these results align with research by Wulandari and Wijayanti (2020), which demonstrated that herding behavior significantly impacts trading volume in the consumer sector.

However, while herding can increase returns in the short term, it carries significant risks. Herding often leads to the formation of price bubbles that do not reflect a company's fundamental value. When market sentiment shifts, these bubbles can burst, causing a crash that harms investors. This phenomenon has occurred in global markets, for example, during the 1997 Asian financial crisis, when investors exited the market in droves. In Indonesia, a similar phenomenon was seen in the euphoria of small-cap stocks in 2021, whose prices rose hundreds of percent due to the viral effect on social media, only to fall sharply when the trend ended. Therefore, while herding can provide short-term profits, in the long term, this behavior actually increases volatility and risk.

The third result shows that loss aversion has a significant negative effect on stock returns. This finding aligns with Kahneman and Tversky's (1979) Prospect Theory, which states that losses are perceived more severely than gains of equal magnitude. Investors experiencing loss aversion are reluctant to sell stocks that are losing money because they don't want to acknowledge the loss, but are quick to sell stocks that are generating small gains. As a result, their portfolios are often suboptimal, as stocks with potential for further growth are sold too quickly, while stocks with poor prospects are held. This phenomenon is known as the disposition effect.

In the Indonesian context, these results are consistent with research by Dewi and Wibowo (2021), who found that psychological biases such as confirmation bias and anchoring influence investors' buying and selling decisions on the IDX. Wijaya and Gunawan (2022) also showed that loss aversion intensified during the pandemic as investors faced high uncertainty and were more reluctant to realize losses. Thus, these research findings provide further evidence that loss aversion is not only a phenomenon found in developed countries but is also very real in emerging markets like Indonesia.

Taken together, these three research findings reinforce the argument that the Indonesian capital market is not fully efficient. The EMH assumption of investor rationality does not always hold, as investors are often driven by psychological biases. This aligns with Akerlof and Shiller's (2009) view of animal spirits, the idea that markets are driven by collective emotions, expectations, and beliefs that are often irrational. Investors on the IDX have proven to be susceptible to behavioral biases, and this is reflected in the price fluctuations and trading volumes that occurred during the study period.

The implications of these findings can be divided into three. First, from an academic perspective, this research enriches the behavioral finance literature in emerging markets, particularly Indonesia. While most previous research has been conducted in developed countries, this study's results demonstrate that psychological biases are also highly relevant in local contexts. This contribution is important for broadening the understanding that investor behavior across countries shares common patterns, despite being influenced by different social, cultural, and technological conditions.

Second, from a practical perspective, these findings have significant implications for investors. Investors, especially beginners, need to be aware that they are susceptible to psychological biases that can harm their portfolios. Overconfidence can lead to overtrading, herding can lead to price bubbles, and loss aversion can reduce long-term profits. With this understanding, investors are expected to be more cautious in their decision-making and rely not solely on intuition or market trends, but also on strengthening fundamental analysis.

Third, from a policy perspective, the results of this study provide important input for capital market regulators such as the Financial Services Authority (OJK) and the Indonesia Stock Exchange (IDX). Regulators need to strengthen financial literacy and investor education programs, particularly those focusing on managing emotions and psychological biases. Public awareness campaigns on risk management, the importance of portfolio diversification, and the dangers of following trends without in-depth analysis should be expanded to better prepare

investors for market volatility. Furthermore, oversight policies regarding price manipulation through social media or unfair trading practices need to be tightened to protect retail investors.

Thus, this discussion confirms that investor behavior in Indonesia cannot be explained solely by classical theory, which assumes perfect rationality. Behavioral finance provides a more realistic explanation of how investors make decisions under the influence of psychological biases. The results of this study demonstrate that overconfidence increases trading volume, herding behavior affects stock returns, and loss aversion decreases portfolio performance. These findings are consistent with international literature and provide new evidence in the Indonesian context.

6. CONCLUSION

This study aims to examine the influence of psychological biases such as overconfidence, herding behavior, and loss aversion on stock returns and trading volume on the Indonesia Stock Exchange (IDX) during the 2020–2023 period. Based on the results of multiple linear regression analysis on data from 60 companies in the financial and consumer sectors, it can be concluded that all three research hypotheses are supported.

First, hypothesis 1 (H1), which states that overconfidence has a significant positive effect on stock trading volume, was proven correct. Investors who are overconfident in their analytical abilities tend to be more active in trading. This excessive activity increases trading volume, although it is not always accompanied by increased profits. This result is consistent with research by Odean (1998) and Barber & Odean (2001) and reflects a phenomenon occurring in Indonesia where a surge in new retail investors through digital applications drives daily transaction frequency.

Second, hypothesis 2 (H2), which states that herding behavior has a significant positive effect on stock returns, was also confirmed. Investors who follow the market majority are able to create short-term price trends that generate positive returns. However, this effect tends to be temporary because it is driven more by collective sentiment than fundamental performance. This finding aligns with research by Chang, Cheng, and Khorana (2000) and Wulandari and Wijayanti (2020) in Indonesia, which demonstrated that herding behavior plays a significant role in driving stock price dynamics.

Third, Hypothesis 3 (H3), which states that loss aversion has a significant negative effect on stock returns, was also confirmed. Investors who refuse to sell losing stocks but are too quick to dispose of profitable stocks ultimately experience lower portfolio performance. This disposition effect phenomenon aligns with the Prospect Theory framework of Kahneman and Tversky (1979) and is consistent with research by Odean (1998), Dewi and Wibowo (2021), and Wijaya and Gunawan (2022).

Overall, this study confirms that the Indonesian capital market is not fully efficient according to the classical view. Investor behavior is heavily influenced by psychological factors, not simply fundamental information. These findings strengthen the behavioral finance literature by providing new empirical evidence in the context of emerging markets.

Based on the research findings, several recommendations can be made. First, investors need to raise awareness of psychological biases that influence investment decisions. Investors need to control overconfidence to avoid excessive trading, avoid herding without thorough analysis, and learn to manage loss aversion with disciplined cut-loss practices and a more rational portfolio strategy. Self-education through financial literature, investment training, and empirical experience are essential for mitigating the impact of these biases.

Second, for issuers, this research serves as a reminder that stock prices reflect not only fundamentals but also market sentiment, which is susceptible to psychological biases. Therefore, transparent communication, information disclosure, and strategies to build a positive reputation among investors are crucial for maintaining stock price stability.

Third, for regulators such as the Financial Services Authority (OJK) and the Indonesian Stock Exchange (IDX), this study emphasizes the need to strengthen financial literacy programs by incorporating behavioral finance aspects. Retail investors, especially beginners, need to be educated about the influence of emotions and cognitive biases on decision-making. Regulators also need to increase oversight of price manipulation and the virality of information on social media, which can trigger herding. Risk-based educational features in stock trading applications can also be an innovative step to help investors make more rational decisions.

Finally, this study is limited by its sector coverage and relatively short time period. Therefore, future research is recommended to expand the scope to all IDX sectors, use a longer period, and consider mixed methods, including direct investor surveys to more deeply measure psychological biases. This approach will provide a richer and more comprehensive understanding of investor irrationality in the Indonesian capital market.

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