

Herding and overconfidence to investment decisions: Evidence from stock and cryptocurrency investors in Indonesia

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Abstract

This study examines how herding behavior and overconfidence influence investment decisions among stock and cryptocurrency investors. The rapid growth of retail participation in both markets raises concerns about the role of behavioral biases in shaping investors' decision-making processes. Prior studies have explored these biases within individual markets, but there is limited empirical evidence directly comparing their effects across stock and cryptocurrency investors. Using a quantitative approach, data were collected from 442 investors in Indonesia through a structured questionnaire measured on a five-point Likert scale. The data were analyzed using Structural Equation Modeling with Partial Least Squares (SEM-PLS) and Multi-Group Analysis to compare stock and cryptocurrency investors. The results show that both herding behavior and overconfidence positively influence investment decisions. Multi-group analysis reveals that the effect of herding behavior differs significantly between stock and cryptocurrency investors, while the effect of overconfidence does not differ between the two markets. These findings highlight the important role of behavioral biases in investment decision-making and suggest that improving investors' awareness of psychological biases may help promote more rational investment behavior in financial markets.

Keywords

herding; overconfidence; stocks; cryptocurrency; investment decision; MGA

INTRODUCTION

Bursa Efek Indonesia (2024) reported that the total number of capital market investors reached 14.84 million, of which 6.37 million were stock investors. Meanwhile, *Otoritas Jasa Keuangan* (2025) stated that the number of crypto investors surpassed 22.11 million by the end of 2024. These data indicate a significant expansion of retail participation in both conventional equity markets and digital asset markets in Indonesia. The rapid growth of stock and crypto investors not only reflects increasing financial inclusion and digital adoption but also signals a structural shift in investment

behavior to speculative and high volatility assets.

Inghelbrecht and Tedde (2024) emphasizes that the rapid growth in investor participation does not automatically translate into higher-quality investment decisions, especially with regard to rational judgment and effective risk management practices. This concern is consistent with behavioral finance theory which challenges the assumption of fully rational investors (B. M. Barber & Odean, 2013; Kahnemann & Tversky, 1979b; Thaler, 1999). A growing body of empirical evidence suggests that many investors are systematically influenced by cognitive biases and

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emotional factors when making investment decisions.

Among these biases, herding behavior and overconfidence are particularly important due to their direct implications for investors' trading patterns. Herding behavior refers to investors' tendency to follow the decisions of the majority without sufficient independent analysis (Kahnemann & Tversky, 1979b). Prior studies show that herding intensifies during periods of market uncertainty (Ballis & Drakos, 2020; Chang et al., 2020) and when investors face limited information (Yousaf & Yarovaya, 2022). Such behaviors may amplify price bubbles, particularly in environments characterized by speculative sentiment and it will also affect their investment decisions (Hayat & Anwar, 2016; Hussein Abbas Elhoussein & Abdelgadir, 2020; Kartini & Nahda, 2021).

On the other hand, overconfidence bias leads investors to overestimate their knowledge, predictive ability and control over outcomes (Barber & Odean, 2001; Odean, 1998). Previous research demonstrates that overconfident investors trade excessively and ultimately experience lower portfolio performance (Aziz et al., 2024; Hayat, 2016; Sabir et al., 2019; Hasnain & Subhan, 2022).

This bias is not limited to equity markets; it is also evident in cryptocurrency markets, which are extremely sensitive to even minor or significant changes in the economy, as well as to changes in individual investor behavior (Ballis & Verousis, 2022; Hasnain & Subhan, 2022; Skwarek, 2025). Similar to the stock market, investors in cryptocurrencies respond to market sentiment (Gjerstad et al., 2021). Study by Bouri et al. (2019) stated that herding behaviour in cryptocurrency and emerging stock markets may be dependent on economic turmoil or uncertainty. The daily logarithmic returns and the technical analysis between them are also similar. Other similarities may include greater regulatory instability than in the more mature capital markets, the importance of international capital flow, weak economic integration with the global economy or the expectation of higher returns on investment than in developed markets (Skwarek, 2025). Therefore, it may be expected that investors' behavior in the stock market is similar to that in the cryptocurrency market.

This study aims to re-examine the effects of herding and overconfidence on

investment decisions, specifically across both stock and cryptocurrency markets. Beyond comparing two investment markets, this study also addressed an important gap by examining these behavioral biases within the Indonesian investor population, where Gen Z constitutes the fastest-growing segment of retail investors (OJK, 2024). Also, their heavy reliance on digital platforms and social media may intensify herding and overconfidence. This study differs from previous investigations in several ways. Many studies examine the behavioral biases in stock market investors in several countries (Ahmad & Shah, 2022; Bekiros et al., 2020; Hasnain & Subhan, 2022; Kartini & Nahda, 2021). While, a growing body of literature has examined the similar biases in cryptocurrency markets. But there is little evidence in both stocks and cryptocurrencies in the context of investor behavior. Omane-adjepong et al. (2021) only analyzed the presence of herding behavior in the cryptocurrency and emerging markets. Ballis & Verousis (2022) focused on the broader perspective by conducting a literature review of behavioral finance in the cryptocurrency market. Similar to it, Skwarek (2025) also conducted a literature review to compare factors related to behavioral biases in the cryptocurrency and emerging stock markets. Therefore, we will conduct the empirical test that extends prior research by jointly examining herding behavior and overconfidence and comparing using MGA (Multi Group Analysis). The contribution of this study is twofold. First, this research adds to the literature on market efficiency (Fama, 1970) Since this study focuses on investor irrationality and it may be interpreted as a signal of market inefficiency. Second, this research deepens knowledge about the drivers of the strength of behavioral biases in both markets.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Investment decision

An efficient market is one in which average returns cannot exceed what is warranted by the risk, regardless of the investment strategy employed. In other words, investors cannot beat the market because prices fully reflect all available information (Fama, 1970). Under this framework, investment

decisions are of great importance; investors are expected to evaluate available information objectively and select portfolios that maximize returns. However, those assumptions of full rationality have been increasingly challenged by behavioral finance theory. Prospect theory by Kahnemann & Tversky (1979) demonstrated that individuals systematically deviate from rational choice due to cognitive biases and emotional influences. Similarly, Thaler (1999) states that psychological factors play a substantial role in shaping financial behavior. Prior studies suggest that investment decisions are not solely determined by objective analysis but also influenced by heuristics and sentiment (Bekiros et al., 2020; Hasnain & Subhan, 2022; Hussain et al., 2013; Kartini & Nahda, 2021; Skwarek, 2025; Yousaf & Yarovaya, 2022). Those heuristics may lead to herding and overconfidence bias that distort judgment, resulting in excessive trading and suboptimal portfolio performance (B. Barber & Odean, 2001).

Prospect theory

This theory, introduced by Kahneman & Tversky (1979), explains how individuals make decisions under conditions of risk and uncertainty. This theory suggests that investors assess their losses and gains asymmetrically. The pain with losses is typically greater than the pleasure derived from gains. As a result, investors tend to take larger risks to avoid losses rather than to earn profits. This behavioral pattern contrasts with the traditional expected utility theory proposed by Markowitz (1952), which assumes that a rational investor will exhibit consistent behavior when making investment decisions.

Heuristics theory

A heuristic is a decision-making strategy used amid complexity and uncertainty, or a mental shortcut used to make quick decisions when information or time is limited. In the context of Behavioral Finance, heuristics help investors make investment decisions without analyzing all the information, but this approach often leads to judgmental errors.

In investment behavior, heuristics often arise when investors rely on experience,

intuition, or the most readily recalled information to make investment decisions. For example, investors might buy an asset simply because the company is frequently featured in the news or because it has previously delivered substantial returns. While heuristics make the decision-making process faster and simpler, their use can also trigger various Cognitive Biases, leading to less rational investment decisions.

Herding behavior

Herding occurs when investors imitate others' actions rather than relying on independent evaluation. In financial markets, herding may lead to disregard for private information and to following prevailing market trends, especially during periods of uncertainty. When investors rely too much on the majority, investment decisions may become less rational and less aligned with individual risk profiles. Consequently, herding behavior may negatively affect the quality of investment decisions by reducing analytical ability and increasing exposure to speculative risk. Initial research on herding behavior was conducted by Teh & DeBondt (1997) found that herding behavior does indeed affect the stock market. Investors tend to gravitate toward stocks that are also heavily traded by other investors, due to a tendency to follow the majority decision or seek "protection in numbers." There is a negative relationship between past trading volume and stock returns: stocks with high trading volume tend to have lower returns. Furthermore, high-turnover stocks tend to be more volatile, supporting the noise trader theory that uninformed trading can increase risk and market volatility. Recent studies also documented that herding behavior will influence investment decisions (Hasnain & Subhan, 2022; Ismiyanti et al., 2021; Youssef & Sobhi, 2022).

Similar patterns of herding behavior are also observed in cryptocurrency markets. Compared with traditional financial markets, cryptocurrency markets are characterized by high volatility and limited fundamental valuation metrics (Bekiros et al., 2020). Investors' responses to market sentiment are different from those of the largest cryptocurrency—Bitcoin. Moreover, the behavior of daily logarithmic returns for Bitcoin is more similar to stocks than foreign currencies. Also, investor behavior in the

cryptocurrency market is influenced by social media and news (Gjerstad et al., 2021) just like in the stock market (Bukovina, 2016; Ismail et al., 2018). For instance, investors' sentiment drives the stock and cryptocurrency price.

H1 : Herding behavior has a significant effect on investment decisions.

Several studies argued that cryptocurrency markets are generally more volatile and less regulated than traditional stock markets (Skwarek, 2025; Youssef & Sobhi, 2022). Recently, it has been noted that cryptocurrency traders tend to use different investment strategies than those in the stock or gold markets (Skwarek, 2025). Bouri et al. (2019) issue an important result suggesting that explosivity in one cryptocurrency leads to explosivity in another. Given access and availability, there are more data and analytics services on equity than on crypto. This may indicate that the level of information asymmetry between investors in the stock market differs from that of the cryptocurrency markets. Therefore, it may reflect some differences between cryptocurrency and stock markets.

H2 : There are differences between the effects of herding behavior on investment decisions in stock and cryptocurrency investors.

Overconfidence behavior

Overconfidence bias refers to investors' tendency to overestimate and exaggerate their ability to perform a task. They will convince themselves that they know better. The overconfident investor tends to ignore the available public information, and they also assume that an individual's judgments are worse and wrong (Kahnemann & Tversky, 1979). A number of studies have indeed delved into the prevalence and impact of cognitive biases, such as overconfidence, on investment decision-making, offering invaluable insights into the intricate workings of human behavior in financial markets. DeBondt & Thaler (1985) provide one of the earliest empirical tests; they constructed two portfolios: "winner" and "loser" stocks. The results showed that loser stocks significantly outperformed winner stocks, suggesting a long-term reversal in returns. It suggests that investors tend to

overreact to past information, leading prices to deviate from fundamental values and challenging the assumptions of the Efficient Market Hypothesis (EMH) proposed by Fama (1970).

Many years later, research on overconfident investors has been widely conducted (Aziz et al., 2024; Hasnain & Subhan, 2022; Inghelbrecht & Tedde, 2024; Jamil & Bashir, 2021; Kartini & Nahda, 2021; Prasetyo et al., 2023). These studies generally indicate that overconfidence significantly influences investors' decision-making processes by increasing trading activity and encouraging investors to rely excessively on their own judgments rather than objective market information.

H3 : Overconfidence has a significant effect on investment decisions.

Due to the highly volatile and speculative nature of crypto markets, overconfidence may be even more pronounced compared to conventional stock markets (Bekiros et al., 2020). For instance, cryptocurrency markets are heavily influenced by investor sentiment and behavioral biases, including excessive confidence in predicting price movements (Almeida & Gonçalves, 2023; Y. Huang et al., 2022; Z. Huang & Tanaka, 2022; Skwarek, 2025; Yousaf & Yarovaya, 2022). It happens by the belief that they possess superior knowledge or market timing ability. These findings highlight that overconfidence bias plays an important role in shaping investment behavior both in stock and cryptocurrency markets.

H4 : There are differences between the effects of overconfidence behavior on investment decisions in stock and cryptocurrency investors.

METHODS

The purpose of this study is to examine the effect of herding behavior and overconfidence on investment decisions among stock and cryptocurrency investors. The population of this study is stock and cryptocurrency investors which categorized as Gen Z. to determine the sample size, we use a *G*Power* with an effect size of 0.15, α of 1%; a priori power of 95% (Cohen, 1988) and a number of predictors, resulting in a

Table 1.
Reliability and convergent validity

Variables	Stocks			Cryptocurrency			Complete		
	AVE	CR	α	AVE	CR	α	AVE	CR	α
Investment Decisions	0.551	0.880	0.836	0.571	0.888	0.849	0.560	0.884	0.842
Herding Behavior	0.544	0.825	0.872	0.554	0.831	0.729	0.549	0.828	0.725
Overconfidence	0.587	0.895	0.859	0.582	0.893	0.856	0.548	0.894	0.875

total sample of 108 respondents. During data collection, we collected a total of 420 respondents. This substantially larger sample size enhances the statistical power and increases the robustness and generalizability of the findings.

Our sample criteria were active investors in the stock or cryptocurrency market and born between 1997 and 2012. The stock and cryptocurrency investor groups were not sampled separately; instead, respondents were classified into groups based on their self-reported primary investment type. Our target population was asked closed-ended questions. Responses to the questionnaire were measured on a five-point Likert scale, from one (strongly disagree) to five (strongly agree), unless otherwise stated.

In this study, the measurement of herding behavior with 4 items is adapted by Wang & Nuangjamnong (2022); overconfidence with 6 items (B. M. Barber & Odean, 2000; Kengatharan & Navaneethakrishnan, 2014); investment decisions with 6 items (Ahmad & Shah, 2022). The data collected through the questionnaires were analyzed using SEM-PLS. A pilot test was conducted to assess the instrument's validity and reliability; then, statistical techniques were used to achieve the research objectives, including Cronbach's alpha, descriptive statistics, correlation analysis, and structural equation modeling.

RESULTS AND DISCUSSION

Pilot test

We did the pilot test, 45 questionnaires were delivered by hand to individual investors in stocks and cryptocurrencies. Of these, 34 were returned, of which 30 questionnaires were usable, representing a response rate of 88.23%. Our results indicated that the investment decisions variable had a Cronbach's alpha of less than 0.70, which improved after deleting two items from the scale (Appendix 1).

Reliability analysis

The results indicate that the Cronbach's alpha value of all factors is greater than 0.7 and can be used for further analysis. In addition, the reliability and validity were established through convergent validity. Convergent validity, also known as the Average Variance Extracted (AVE). Hair *et al.* (2012) have recommended that an AVE above 0.50 indicates that the loaded items exhibit higher variance within the respective construct than the error term. In this article, AVE values ranged from 0.51 to 0.75 for the constructs (Table 1). Moreover, the composite reliability (CR) for all factors is within a good range, as reported in Table 1, indicating that the constructs are reliable too.

Table 2.
Means, standard deviation and Pearson's correlation

Variables	Mean	SD	1	2	3
Investment Decisions	4.201	0.590	1	0.430**	0.884**
Herding Behavior	3.648	0.754	0.430**	1	0.330**
Overconfidence	4.230	0.589	0.884**	0.330**	1

Note(s): N=442 (stock=221; cryptocurrency= 221); * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Own work based on SPSS 22

Table 3.
Direct relationships

Hypotheses	Stocks			Cryptocurrency			Complete		
	β	T	p	β	T	p	β	T	p
HB $\rightarrow$ ID	0.215	3.841	0.000***	0.088	2.277	0.012**	0.210	5.063	0.000***
OC $\rightarrow$ ID	0.800	18.254	0.000***	0.872	23.082	0.000***	0.389	5.814	0.000***

Note(s): N=442 (stock=221; cryptocurrency= 221); *p<0.1, **p<0.05, ***p<0.01

Source: Own work based on SmartPLS 3.0

Common method bias

Common method bias (CMB) can occur when cross-sectional data are used in a study, potentially influencing the accuracy of statistical results (Podsakoff & Organ, 1986). Since this study employed a cross-sectional research design, CMB was assessed using Harman's Single Factor test in SPSS, with principal component analysis as the extraction method. The analysis revealed five factors with eigenvalues greater than 1. The first factor accounted for 40.023% of the total variance, which is below the 50% threshold. Therefore, the findings indicate that common method bias does not pose a significant threat to the statistical results of this study.

Correlation analysis

Table 2 presents the means, standard deviations, and Pearson correlation coefficients. The mean values indicate that investment decisions have the highest average score (M = 4.201, SD = 0.590), followed by overconfidence (M = 4.230, SD = 0.589) and herding behavior (M = 3.648, SD = 0.754). These results suggest that respondents generally report high levels of investment decision confidence and overconfidence, while herding behavior is slightly lower but still relatively high.

The correlation analysis shows that investment decisions are positively and significantly correlated with herding behavior ($r = 0.430$, $p < 0.01$) and overconfidence ($r = 0.884$, $p < 0.01$). This indicates that higher levels of herding behavior and overconfidence are associated with stronger investment decision tendencies among respondents. Additionally, herding behavior is positively correlated with overconfidence ($r = 0.330$, $p < 0.01$), suggesting that investors who are more overconfident are also more likely to follow the actions of other investors.

Structural equation modeling

According to Table 1 above, all items were valid and reliable. Then we examine the inner model to determine relationships among latent variables and test the research hypotheses. The evaluation of the inner model (for all dataset—stocks and cryptocurrency) includes assessing path coefficients, coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2). Our findings show the value R^2 is 0.884, it indicates a substantial and strong power (Hair et al., 2012) in investment decisions can be explained by the herding and overconfidence behavior. Effect size is used to assess the strength of each construct's contribution to the endogenous variable. Herding behavior to investment decisions has f^2 0.194 and it categorized as medium; overconfidence to investment decisions has f^2 0.350 and it categorized as strong (Cohen, 1988). The last is predictive relevance, or $Q^2 = 0.875$, which indicates whether our model has better predictive accuracy.

Table 3 presents the results of the structural model analysis, including the path coefficients (β), t-values, and significance levels for the relationships between herding behavior, overconfidence, and investment decisions in the stock and cryptocurrency markets.

The results show that herding behavior has a positive and significant effect on investment decisions in both markets. In the stock market dataset, herding behavior significantly influences investment decisions ($\beta = 0.215$, $t = 3.841$, $p < 0.001$). Similarly, in the cryptocurrency market, herding behavior also shows a significant positive relationship with investment decisions ($\beta = 0.088$, $t = 2.277$, $p < 0.05$). When both datasets are combined, the effect remains significant ($\beta = 0.210$, $t = 5.063$, $p < 0.001$).

Furthermore, overconfidence demonstrates a strong positive effect on investment decisions across all datasets. In

Table 4.
Multi-group analysis

Relationship	Difference (Stok – Cryptocurrency)	P-value
HB → ID	0.128	0.029**
OC → ID	-0.073	0.106

Note(s): N=442 (stock=221; cryptocurrency= 221); *p<0.1, **p<0.05, ***p<0.01

Source: Own work based on SmartPLS 3.0

the stock market sample, overconfidence significantly affects investment decisions ($\beta = 0.800$, $t = 18.254$, $p < 0.001$). A similar pattern is observed in the cryptocurrency dataset ($\beta = 0.872$, $t = 23.082$, $p < 0.001$). The combined dataset also confirms this relationship ($\beta = 0.389$, $t = 5.814$, $p < 0.001$).

Multi-group analysis

In the final part of the research, we examined differences between Stock and Cryptocurrency with respect to the effects of herding behavior and overconfidence on investment decisions. The findings revealed that only herding behavior was found to be significantly different. While the behavior of overconfidence is the same. The differences in path coefficients revealed that the impact of herding behavior on the outcomes was stronger in stock market in comparison to cryptocurrency. The results of the multi-group analysis are summarized in Table 4 below.

Discussion

This study has expanded the cognitive theory, prospect theory and bounded rationality theory with regard to investment decisions by measuring the perceptions of individual investors trading on the IDX also the cryptocurrency market of their herding and overconfidence behavior. The main idea of this study is developed from the existing literature (Ballis & Verousis, 2022; Skwarek, 2025) and was tested using Structural Equation Modeling analyses in SmartPLS 3. The tested model of this review provides empirical support to the existing literature.

Herding behavior, defined as investors imitating others' actions, is commonly observed in cryptocurrency and emerging stock markets. Investment decision is the process through which investors select and evaluate investment alternatives based on analysis, past experience, available information, and risk considerations, with the

aim of achieving financial goals, maintaining confidence in their choices, and ensuring positive investment outcomes (Ahmad & Shah, 2022).

Our study shows that herding behavior positively influences investment decisions. Thus, our H1 is supported. It indicates that the stronger respondents' tendency to observe and imitate other investors' decisions, the more intense their investment decision-making. Herding occurs when investors imitate the actions of others rather than relying on their own information or analysis. Investors may follow the market trends because they believe that collective decisions are trustworthy information (Shefrin, 1999). In emerging stock markets and cryptocurrency like Indonesia, where information asymmetry is often high, investors may rely even more heavily on the behavior of others when making decisions. Research also suggests that herding may occur when investors attempt to reduce perceived risk by aligning their choices with the majority of market participants (Sabir et al., 2019).

The presence of herding behavior in this study is consistent with previous literature of (Hasnain & Subhan, 2022; Kartini & Nahda, 2021; Omane-adjepong et al., 2021; Youssef & Sobhi, 2022). Investors in cryptocurrency and stock markets often follow popular investment trends and react collectively to changes in market sentiment. This behavior is frequently driven by uncertainty, lack of reliable information, and strong market sentiment, which encourage investors to imitate others rather than rely on independent judgment (Omane-Adjepong et al., 2021; Skwarek, 2025). Consequently, herding behavior may amplify market movements and contribute to inefficiencies in financial markets.

Previous research also suggests that herding behavior becomes more pronounced during periods of economic uncertainty, such as the 2007–2008 global financial crisis and the COVID-19 pandemic,

when fear and uncertainty may lead investors to make irrational decisions without fully analyzing available information (Bouri et al., 2019; Gjerstad et al., 2021). Additionally, herding tends to occur more frequently among assets with very large or very small market capitalization, as limited information about smaller assets often encourages investors to follow signals from larger and more well-known assets (Skwarek, 2025). Popular investment trends, such as Cryptocurrencies or high-technology sectors, may also strengthen herding behavior because investors tend to focus on widely discussed topics.

Supporting the H2, that cryptocurrency markets are generally more volatile and less regulated than stock markets (Skwarek, 2025; Youssef & Sobhi, 2022). Cryptocurrency traders also tend to use different investment strategies than in the stock or gold markets. Additionally, Bouri et al. (2019) found that price explosivity in one cryptocurrency can trigger similar explosive behavior in other cryptocurrencies. In terms of information availability, the stock market generally provides more extensive data and analytical services than the cryptocurrency market. This difference may contribute to varying levels of information asymmetry among investors, indicating that the informational environment in stock markets differs from that in cryptocurrency markets. Consequently, these factors may lead to notable differences between the two markets.

Besides the herding behavior, both stock and cryptocurrency exhibit the overconfidence bias. The positive influence of overconfidence on investment decisions implies that the higher respondents' confidence in their knowledge and abilities, the more likely they are to make investment decisions. Thus it supports the H3. In the context of this study, overconfidence is reflected in respondents' tendency to make more frequent transactions, make quick decisions, and rely on intuition and personal beliefs rather than objective and in-depth analysis.

The results of this study are also consistent with those of previous studies. Pratiwi & Anwar (2022) stated that overconfidence has a positive and significant effect on investment decisions. Hasnain & Subhan (2023) found that overconfidence increases the intensity of investment decision-making and the

frequency of trading. Inghelbrecht & Tedde (2024) also explained that overconfidence encourages investors to be more aggressive in making investment decisions.

The cryptocurrency market are highly volatile and speculative nature, so overconfidence may be even more pronounced compared to conventional stock markets (Bekiros et al., 2020). But our findings show that there is no difference between the effect of overconfidence on investment decisions among the stock and cryptocurrency markets. For instance, cryptocurrency markets are heavily influenced by investor sentiment and behavioral biases, including excessive confidence in predicting price movements (Almeida & Gonçalves, 2023; Y. Huang et al., 2022; Z. Huang & Tanaka, 2022; Skwarek, 2025; Yousaf & Yarovaya, 2022). It happens by the belief that they possess superior knowledge or market timing ability. These findings highlight that overconfidence bias plays an important role in shaping investment behavior both in stock and cryptocurrency markets. We infer that overconfidence is a universal psychological bias that can occur in all types of investors, regardless of the asset they trade. Investors often overestimate their ability to analyze information and predict market price movements. Therefore, in both the stock market and the cryptocurrency market, investors can have the same level of confidence in their investment decisions. The increasingly similar investor profiles between the two markets can also lead to similar levels of overconfidence. Many modern investors diversify by investing in multiple instruments, including stocks and cryptocurrencies. Because some of the same investors participate in both markets, their confidence levels in making investment decisions tend to be similar.

CONCLUSION

The study aimed to examine the effects of herding behavior and overconfidence on investment decisions in stocks and cryptocurrencies. This study revealed a significant positive correlation between herding behavior and overconfidence in investment decisions for stocks and cryptocurrencies, and supported H1 and H3. We also examine the effects on stocks and cryptocurrencies separately. Since the stocks and cryptocurrencies are almost

similar but differ in several ways. Cryptocurrencies are generally more volatile and less regulated. The stock market generally offers greater transparency because public companies are required to provide financial reports and other important information to investors. In contrast, the cryptocurrency market still faces higher information asymmetry because not all crypto projects are held to the same reporting standards as listed companies. Our findings show that the effect of herding behavior on investment decisions in the stock market is different from cryptocurrency, which supports H2. Moreover, the effect of overconfidence behavior in both markets is the same. So it rejected the H4. This study fills the gap in the literature on the behavioral biases of investors. Although the stock and cryptocurrency markets differ in many respects, the psychological behavior of investors can appear relatively similar in both markets. This research demonstrates the importance of recognizing behavioral biases in investment decision-making. Investors need to be more careful not to simply follow the market majority (herding) or become overconfident in their own analytical abilities (overconfidence). By understanding these potential biases, investors can make more rational investment decisions and consider information more objectively. This study has used only two factors from the cognitive profile for determining the investment decision. Future research should examine other biases, such as anchoring, loss aversion, and availability.

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Appendix 1.
Reliability test (Cronbach's alpha)

Items (after deletion)	Stocks	Cryptocurrency	Complete
<i>Investment Decisions</i>			
ID1	0.725	0.729	0.736
ID2	0.674	0.716	0.685
ID3	0.811	0.791	0.804
ID4	0.709	0.768	0.735
ID5	0.750	0.756	0.754
ID6	0.775	0.769	0.772
<i>Herding Behavior</i>			
HB1	0.770	0.821	0.801
HB2	0.750	0.740	0.740
HB3	0.610	0.626	0.621
HB4	0.804	0.776	0.788
<i>Overconfidence</i>			
OC1	0.783	0.744	0.765
OC2	0.763	0.754	0.758
OC3	0.785	0.791	0.788
OC4	0.795	0.785	0.789
OC5	0.747	0.783	0.742
OC6	0.723	0.762	0.743