

DETERMINANTS OF HERDING BEHAVIOR AMONG INDIVIDUAL STOCK INVESTORS IN INDONESIA

HENY KURNIANINGSIH ^{1*}, HADRI KUSUMA ², ZAENAL ARIFIN ³ and SUTRISNO ⁴

^{1,2,3,4}Department of Management, Faculty of Business and Economics, Universitas Islam Indonesia, Yogyakarta, Indonesia. *Corresponding Author Email: henykurnianingsih77@gmail.com

Abstract

Herding behavior is a common phenomenon in the capital market, where investors make decisions by following groups and acting collectively while ignoring fundamental measures. Herding behavior often impacts market efficiency, causing the rapid increase and subsequent falls in share prices. Conventional studies of herding are mostly conducted using secondary data to prove the herding phenomenon, along with its impacts and influencing factors. The weakness of conventional herding studies is that they cannot examine the influence of psychosocial factors and the role of financial literacy on herding behavior. This research aims to examine the determinants of herding behavior using the Theory of Planned Behavior (TPB) to analyze investors' herding behavior in psychosocial aspects by adding social referencing and social imitation (social-technological aspects) and the role of financial literacy. The research was conducted using an online survey method on 248 novice and experienced investors on the Indonesian Stock Exchange. Research variables were measured using indicators and instruments in the previous research. The data analysis method used was the Structural Equation Modeling technique based on Partial Least Square. The research results show that social referencing and social imitation have a positive influence on subjective norms. Herding behavior, subjective norms, and behavioral control have a positive influence on herding intentions. Furthermore, the herding intention has a positive influence on herding behavior. On the other hand, financial literacy has a negative influence on herding behavior. The higher the financial literacy, the lower the investor's tendency to make investment decisions by following other investors.

Keywords: Herding Behavior, Financial Literacy, Theory of Planned Behavior.

JEL code: G41

1. INTRODUCTION

The purpose of herding behavior in the capital market is that investors want to reduce risk by following the group and acting collectively while ignoring fundamental measures. Herding behavior often impacts market efficiency (Ah Mand & Sifat, 2021; Aslam et al., 2022; Shantha, 2019), such as in the *dot-com boom* phenomenon at the beginning of the 21st century (corporatefinanceinstitute, 2022), the black swan phenomenon in the 2008 global financial crisis, and the 2020 pandemic (Humayun Kabir, 2018).

Irrational decisions happened, including in the *dot-com boom* phenomenon at the beginning of the 21st century (corporatefinanceinstitute, 2022), where investors ignored fundamental measures, causing a rapid increase and subsequent fall in the share prices of Information Technology companies (Humayun Kabir, 2018). Many studies on herding are carried out using secondary data to prove the phenomenon of herding behavior in the capital market (Ah Mand & Sifat, 2021; Aslam et al., 2022; Shrotryia & Kalra, 2020), its impact on share value (Jabeen et al., 2022), and factors that influence herding behavior (Bouteska, 2020; Choijil et al., 2022;

Shrotryia & Kalra, 2020). There are not many herding studies approaches that reveal psychosocial aspects in the era of digital technology and the role of financial literacy in herding behavior. Over the past few years, innovative financial products and instruments have encouraged individual investors to participate in financial markets actively. The development of technology provides convenience for investors to process and share information in social communities in the form of social referencing and social imitation. However, these financial products are very complex instruments which require financial literacy for optimal investment selection and avenues. Financial literacy builds useful financial knowledge and skills to support more rational financial decisions in selecting, utilizing, managing, and allocating financial assets (Adil et al., 2022; Rasool & Ullah, 2020).

Theory of Planned Behavior (TPB) (Ajzen, 1991) is a theoretical approach to understanding investor behavior using a psychosocial approach. The TPB model has been used to understand various types of financial behavior, such as investment behavior in the capital market (East, 1993; Gopi & Ramayah, 2007; Raut et al., 2018), behavior in financial planning (She et al., 2023), and financial product choices (Akhtar et al., 2023). However, the TPB regarding herding behavior still has gaps. The use of TPB to explain herding behavior has limitations in explaining psychosocial aspects in the era of digital technology and financial literacy.

The novelty of this research is that Herding Behavior is analyzed using the TPB approach compared with the financial behavior approach of the financial literacy aspect. TPB studies in capital markets have been conducted by previous studies (East, 1993; Gopi & Ramayah, 2007; Raut et al., 2018), but empirical TPB studies on herding behaviour still result in a research gap. This is the motivation for conducting this research.

2. LITERATURE REVIEW

2.1 Herding Behavior in the Capital Market

Herding is a phenomenon where individuals decide to follow other investors' behavior rather than deciding independently based on the information they have (corporatefinanceinstitute, 2022). Herding behavior is found in the *dot-com boom* phenomenon. During the *dot-com boom* phenomenon, the company's share price, which had previously risen rapidly, experienced a fall in market value above its actual value. Several digital-based companies in the USA, such as Pets.com, Boo.com, Webvan, and several other technology companies only survived for a few months (Humayun Kabir, 2018).

Herding behavior is also often found among individual investors in the capital markets of developing countries (Ah Mand & Sifat, 2021; Aslam et al., 2022; Shrotryia & Kalra, 2020). Herding behavior is mainly found in the midst of higher uncertainty and information asymmetry, which is in the condition of the financial crisis (Ferreruela & Mallor, 2021; Humayun Kabir, 2018), global pandemic (Aslam et al., 2022; Dhall & Singh, 2020; Fang et al., 2021; Jiang et al., 2020), and bullish and bearish markets (Ah Mand & Sifat, 2021; Bouteska, 2020; Kyriazis, 2020; Mertzanis & Allam, 2018). Herding behavior is more common in bull periods compared to bearish markets (Ah Mand & Sifat, 2021; Bouteska, 2020; Kyriazis, 2020;

Mertzanis & Allam, 2018) and sectors. Several studies do not find significant evidence of herding, especially in developed (Dhall & Singh, 2020; Stavroyiannis & Babalos, 2020). However, several studies find that herding behavior does not differ between sectors (Dhall & Singh, 2020), is not detected during Covid-19 (Ferreruela & Mallor, 2021) and does not depend on world oil market volatility (Gabori et al., 2021). Several factors, such as psychosocial characteristics and experience, have been identified as influencing factors of investor behavior (Başarir & Yilmaz, 2019). Level of experience and training (Caglayan et al., 2021), self-attribution, the illusion of control, and availability of information also have a positive and significant influence on herding behavior (Din et al., 2021).

In the era of digital technology, there are many investment platforms available that make it easier for people, especially beginners, to invest online. Technology also facilitates financial literacy, consultation facilities in investing, and connection with social communities (Cahill & Liu, 2021). When investing, especially novice investors with insufficient investment experience often use investment advisors on online investment services. This is a form of social reference. Social referencing is not always detrimental, especially when the information environment is complex, uncertain, or available to novice investors with insufficient information processing abilities (low skills). Studies in capital markets (Chen et al., 2010) show that investor preferences are not independent but depend on agents (brokers) and are socially formed, especially in uncertain conditions. Social referencing is the seeking and utilization of information from other individuals or groups to evaluate a situation. In the era of digital technology, many investment platforms facilitate people to invest online. Online investment platforms not only provide consultation facilities in investing but also connections with social communities (Cahill & Liu, 2021). This facility is a social imitation that allows investors to follow or copy the positions (position and investment strategies) of other investors.

2.2 Theory of Planned Behavior

The Theory of Planned Behavior (TPB) (Ajzen & Fishbein, 2010; Ajzen, 1991) is based on the assumption that humans will usually behave in a reasonable way (planned behavior). Planned behavior means that the individual is aware of the behavior they will carry out and consider the impact of their actions before deciding to do that behavior. This theory suggests that behavior is influenced by behavioral intentions. Intention is the most important determinant of a person's behavior. Behavioral intentions are influenced by three factors: attitudes, subjective norms, and behavioral control. TPB has been used in research on capital markets, including capital markets in general (Raut et al., 2018), share privatization (East, 1993), and online share trading (Gopi & Ramayah, 2007). The influence of psychosocial factors on investor behavior has been empirically tested by previous research (Adam & Shauki, 2014; M. C. Lee, 2009; Rajdeep Kumar Rau & Das, 2017; Raut et al., 2018). A study (Raut et al., 2018) examined the experiences of individual investors (396 investors) in investing in the Indian capital market and found that attitudes, subjective norms, behavioral controls, and past behavioral biases influenced investment decisions. Another study (Adam & Shauki, 2014) conducted through a survey of Malaysian investors shows that attitudes, subjective norms, and moral norms have a positive effect on intentions. In contrast, the intention has a positive influence on trading

behavior. Another study (M. C. Lee, 2009) conducted through a survey of 338 stock trading respondents in Taiwan found that attitudes and behavioral control influence the intention to trade online in Taiwan. Another study (Rajdeep Kumar Rau & Das, 2017) carried out through a survey of 280 stock trading respondents in India found that attitudes, subjective norms, and behavioral control influence online trading intention. Meanwhile, online trading intention influences trading behavior.

2.3 Hypothesis Development

2.3.1 The Influence of Herding Intentions on Herding Behavior

Based on the Theory of Planned Behavior (TPB) (Ajzen & Fishbein, 2010; Ajzen, 1991, 2005), intention is the antecedent behind behavior. A study (Adam & Shauki, 2014) examines the role of intentions in explaining investor behavior in Malaysia. Another study (Rajdeep Kumar Rau & Das, 2017) conducted through a survey of 280 stock traders in India found the influence of intention on online stock trading behavior in India. Likewise, another study (M. C. Lee, 2009) conducted through a survey of 338 stock trading respondents in Taiwan found that attitudes, subjective norms, and behavioral control influence online trading intentions. Meanwhile, online trading intention influences trading behavior. The next research hypothesis can be formulated as follows.

H1: Herding intentions have a positive effect on investors' herding behavior in investing in the stock market

2.3.2 The Influence of Attitude on Herding Intention

Attitude is a feeling of pleasure or displeasure and liking or disliking obtained from the results of a positive (benefit) or negative (risk) evaluation for a certain action. Attitude deals with a reasoned action or a factor that influences planned behavior (Ajzen & Fishbein, 2010; Ajzen, 1991, 2005). The influence of attitude on investors' behavioral intentions has been tested empirically by previous research (Adam & Shauki, 2014; M. C. Lee, 2009; Rajdeep Kumar Rau & Das, 2017; Raut et al., 2018). A study (Raut et al., 2018) conducted using the experience of individual investors (396 investors) in the Indian capital market found that attitude towards behavior influences investment decisions. Another study (Adam & Shauki, 2014) explains that investor behavior in Malaysia shows that attitude, subjective norms, and norms have a positive influence on intention, while intention has a positive influence on trading behavior. Another study (M. C. Lee, 2009) conducted through a survey of 338 stock trading investors in Taiwan found that attitude and behavioral control influence the intention to trade online in Taiwan. Another study (Rajdeep Kumar Rau & Das, 2017) carried out through a survey of 280 stock traders in India found that behavior attitude influences online trading intention. The next research hypothesis can be formulated as follows.

H2: Attitudes towards herding have a positive effect on investors' herding intentions in investing in the stock market

2.3.3 The Influence of Subjective Norms on Herding Intention

Subjective norms are also an important factor that can influence a person's behavioral

intention. Most of the time, the social environment is a consideration for reasoned action or a factor influencing planned behavior (Ajzen & Fishbein, 2010; Ajzen, 1991, 2005). Subjective norms are a person's perception of social pressure to perform or not perform a behavior. Previous study (Raut et al., 2018) conducted through a survey of 396 individual investors found the influence of subjective norms on stock investment decisions in the Indian capital market. Another study (Adam & Shauki, 2014) carried out through a survey of Malaysian investors also found that subjective norms have a positive influence on intention, and then intention has a positive influence on trading behavior. The next research hypothesis can be formulated as follows.

H3: Subjective norms have a positive effect on investors' herding intentions in investing in the stock market

2.3.4 The Influence of Behavioral Control on Herding Intention

Behavioral control is an important factor that can influence a person's behavioral intentions. Behavioral control reflects a person's experiences including obstacles and barriers to behavior. Behavioral control comes from self-efficacy. Individuals are sometimes unsure (behavioral control) due to several obstacles from past experiences (Ajzen & Fishbein, 2010; Ajzen, 1991, 2005). Behavioral control is a person's feelings regarding the belief in realizing an investment behavior or ability belief through obstacles (Raut et al., 2018). His previous study (Raut et al., 2018) conducted through a survey of 396 individual investors found the influence of behavioral control on stock investment decisions in the Indian capital market. Another study (Adam & Shauki, 2014), through a survey of Malaysian investors, also found that behavioral control has a positive influence on intention, and then intention has a positive influence on trading behavior. The more individuals are confident in their own ability to invest, the more they will control their herding behavior. The next research hypothesis can be formulated as follows.

H4: Behavioral control has a positive effect on investors' herding intentions in investing in the stock market

2.3.5 The Influence of Financial Literacy on Herding Behavior

Financial literacy encourages investors to be more rational in making a financial decision (Agyapong & Attram, 2019) in selecting, using, managing, and allocating financial assets. The level of financial literacy of managers has improved over time (Gomes & Wojahn, 2017). Competency development occurs through education, training, and knowledge sharing in social communities (Guzman et al., 2016; Kamyabi et al., 2013; Ramos et al., 2014; Tirthankar & Asish, 2016; Zafar & Farooq, 2014), through experience (Thakur-Wernz & Samant, 2017) and social learning (Jankowicz, 2000; Majuri & Halonen, 2019). Financial decision is one of the central decisions of investors in investing. Financial literacy is one of the factors that significantly influences an individual's ability to make a financial decision (Adil et al., 2022; Rasool & Ullah, 2020). Low financial literacy has an impact on non-optimal financial decision-making. Most investors with increasingly better financial literacy will make a good investment choice (Adil et al., 2022; Rasool & Ullah, 2020). Investors with sufficient financial knowledge will find themselves in a better position to make a judgment about the risks of their investments

based on clues and the ability to process them in a better way. The next research hypothesis can be formulated as follows.

H5: Financial literacy has a negative effect on investors' herding behavior in investing in the stock market

2.3.6 The Influence of Social Referencing on Subjective Norms

Social referencing is a valuable resource, especially in uncertain and complex conditions, uncertain information environment, or information possessed by novice investors with low information processing abilities (low skills). In investing, investors do not always make their own decisions. Uncertain conditions will encourage investors to use other sources of information by imitating the behavior of other people in the group. Empirical studies on the influence of social referencing on herding behavior are proven by previous research on the technology market bubble in the late 1990s (Chen et al., 2010). In market bubble conditions, there are many new investments, including increasing market participation through stock purchases. New investors show social referencing behavior, where their investment decisions are based more on social information and less on financial information. The next research hypothesis can be formulated as follows.

H6: Social Referencing has a positive effect on investors' subjective norms in investing in the stock market

2.3.7 The Influence of Social Imitation on Subjective Norms

In investing, investors usually do not always make their own decisions, especially beginner investors (low skill) who often make investment decisions by imitating the investment models of experienced investors. Empirical studies on the influence of social imitation on herding behavior are found in previous research (Berger et al., 2018; Cahill & Liu, 2021). A study (Berger et al., 2018) explained the benefits of imitation on performance. This study applies qualitative comparative analysis to examine 16,964 investment observations on *eToro*, the world's largest social trading platform. The results show that the experience and imitation of traders, combined with a low level of risk, explains similar results of performance. Another study (Berger et al., 2018) found that imitation in an uncertain environment provides short-term success without improving long-term survival. Empirical studies on the influence of social imitation on performance are presented by previous studies (Berger et al., 2018; Cahill & Liu, 2021). However, stimulus-organism-response (Hazeltine & Schumacher, 2016) and TPB (Ajzen, 1991) social imitation as a stimulus do not directly influence behavior and performance but through subjective norms. The next research hypothesis can be formulated as follows.

H7: Social Imitation has a positive effect on investors' subjective norms in investing in the stock market

3. MATERIALS AND METHODS

The research was carried out using an online survey approach (google form) of 248 investors on the Indonesian Stock Exchange. Herding behavior was measured using primary data through

a three-item question scale developed from previous research (Vidanalage & Shantha, 2019). Based on the results of the reliability test, the Cronbach Alpha value for the herding behavior variable was 0.931. The variable of behavioral determinants in the TPB, namely behavioral intentions, attitude, subjective norms, and behavioral control, was measured using a scale of question items developed from previous research (Raut et al., 2018). Based on the results of the reliability test, the Cronbach Alpha values for the variables Attitude, Subjective Norms, and Behavioral Control are 0.953, 0.976, and 0.907, respectively.

Social referencing was measured by two dimensions: Authentic Relationships with advisors and Authentic Relationships with other investors (Chen et al., 2010). Based on the results of the reliability test, the Cronbach Alpha value for the Social Referencing variable was 0.977. Social imitation is measured from indicators developed by previous research (Berger et al., 2018; Bhamra, 2000; Cahill & Liu, 2021). Based on the results of the reliability test, the Cronbach Alpha value of the Social imitation variable was 0.971. Financial literacy is measured by a scale of questions developed from three dimensions (Bongomin et al., 2018): the level of knowledge, attitude, and financial behavior that investors have in making investment decisions. Based on the results of the reliability test, the Cronbach Alpha value for the financial literacy variable was 0.936. The questionnaire used 5 Likert scales.

The data analysis method used in this research uses a Structural Equation Modeling-Partial Least Square technique (SEM-PLS). PLS model evaluation is carried out by assessing the outer model and inner model. Testing the outer model with discriminant validity and reliability. Discriminant validity can be seen from the cross-loading value. An indicator is said to have good validity in reflective latency if it has a loading factor value greater than 0.70. The reliability of indicators in measuring constructs can be seen from the average variance extracted (AVE), Cronbach's Alpha and Composite Reliability values. The construct used is said to be valid if the average variance extracted (AVE) value is > 0.5 , the composite reliability value is > 0.7 , and the Cronbach's Alpha value is > 0.7 (Hair et al., 2017). Hypothesis testing used PLS by looking at the p value or t value for each hypothesis. The hypothesis is proven if the probability value (p-value) is less than 0.05 or 5% (Hair et al., 2017).

4. RESULTS

Characteristics of the investors who were research respondents, the majority were novice investors with less than 2 years of experience (69.2%). Based on age, investors on the Indonesian Stock Exchange who were research respondents were young investors aged < 30 years (51.6%) slightly more than investors aged > 30 years (48.4%). Most of the respondents (29.6%) work as students, followed by respondents as employees who work in companies (22.2%), entrepreneurs (11.6%), freelancers (8.3%), the remaining 20 % of them work as employees in non-profit institutions, retirees. Most respondents (71.5%) have little knowledge about investments and financial markets. Some others (23.8%) only have sufficient knowledge about investment and financial markets. The remainder (4.7%) have extensive investment knowledge; understand various investment products and follow financial markets closely. The majority (68.8%) invest only in shares, the remaining 31.2% invest not only in shares, but also

in mutual funds, crypto, gold and bonds.

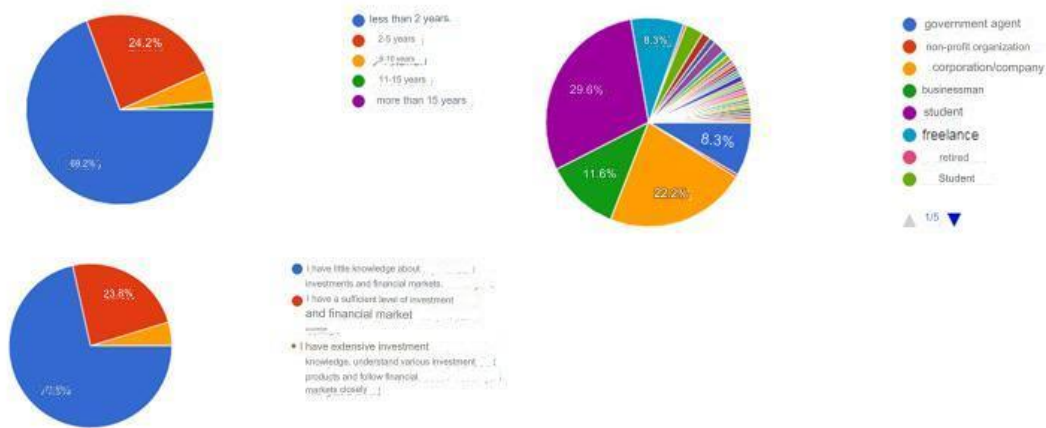


Figure 1: Respondent Profile

Source: processed from online survey via Googleform results (2023)

Table 1 shows that the mean value of the Herding variable is 2.90, and this value is in the interval 2.6–3.4, meaning that the average respondents stated that they somewhat agreed with Herding. Based on the indicators, the average respondent said they somewhat agreed, meaning they sometimes followed the trend in the last week when buying/selling shares (mean = 3.04). The average respondents only stated that they quite agreed with reacting quickly to changes in other investors' decisions (mean = 2.30), buying shares whose prices had risen over the last 1-2 days (mean = 3.17).

The mean value of the Herding intention variable is 2.99. This value is in the interval 2.6–3.4, meaning that the average respondents stated that they somewhat agreed that they intended to Herding. The average respondents said that they somewhat agreed that they often had herding intentions in which they often intended to invest shares by following what investor friends bought (mean = 2.89), planned to invest shares by following what investor friends bought (mean = 3.16), would follow the trend in the last week when buying/selling shares (mean = 2.93). The average respondents stated that they somewhat agreed that they often tried to buy shares whose prices had risen over the last 1-2 days (mean = 3.97).

The average respondents stated that they somewhat agreed (mean = 3.28, interval = 2.6–3.4) that Herding was a wise and beneficial behavior (provides profits) and provided lower risk, especially in conditions of uncertainty. The average respondents agreed that the investment decision to follow what other investor friends bought was a wise choice, especially in situations of uncertainty (mean = 3.35). The investment decision by following what other investor friends bought would provide profits in investing in the stock market (mean = 3.25), and investment decisions by following what other investor friends have purchased will provide lower risk, especially in conditions of uncertainty (mean = 3.25).

The average respondent generally stated that they somewhat agreed that there were norms against Herding (mean = 3.17, interval = 2.6–3.4). The average respondents agreed that there was a social influence in making investment decisions, whether from friends, seniors, investment advisors, or other more experienced investors.

Based on the indicators, the average respondent agreed that investment consultants had reliable information on investing in the stock market (mean = 3.43), friends and environment had reliable information on investing in the stock market (mean = 3.07), friends and environment had an essential influence on investment decisions in the stock market (mean = 3.01).

Table 1: Descriptive Statistics

Variables	Indicators	Mean	Stdev	Variables	Indicators	Mean	Stdev
Herding (HERD)	HERD	2.90	0.82	Social Referencing (SR)	SR	3.39	0.80
	HERD1	2.90	1.06		SR1	3.29	1.06
	HERD2	2.77	1.08		SR2	3.56	0.93
	HERD3	3.04	1.07		SR3	3.33	0.96
Intention (INT)	INT	2.99	1.01	Social Imitation (SI)	SR4	3.37	0.91
	INT1	2.89	0.98		SI	3.01	0.89
	INT2	3.16	0.96		SI1	2.98	1.06
	INT3	2.93	1.07		SI2	3.14	1.00
	INT4	2.97	1.04	SI3	3.36	0.93	
Attitude (ATD)	ATD	3.28	1.02	Financials Literation (FL)	SI4	3.16	1.19
	ATD1	3.35	1.11		FL	3.40	0.71
	ATD2	3.25	1.11		FL1	3.13	0.85
	ATD3	3.25	1.14	FL2	3.49	0.75	
Subjective Norm (SN)	SN	3.17	0.97	FL3	3.61	0.79	
	SN1	3.43	1.03				
	SN2	3.07	1.09				
	SN3	3.01	1.16				
Behaviour Control (BC)	BC	3.26	0.85				
	BC1	3.35	0.92				
	BC2	3.11	1.05				
	BC3	3.33	0.94				

Source: processed from online survey via Googleform results (2023)

The average respondents generally agreed to have reasonable behavioral control in investment decisions (mean = 3.26). The average respondent generally agreed that they had reasonable behavioral control in investment decisions, namely knowing how to trade safely (mean = 3.35), being able to identify profitable stocks easily using stock trading (mean = 3.11), and could investing in profitable stocks comfortably (mean = 3.33).

Table 1 shows that the average respondent generally stated that they somewhat agreed with using social references in investment decisions (mean = 3.39). The average respondent generally somewhat agreed that respondents often received feedback from investment advisors/consultants as a reference basis for decisions (mean = 3.29), often considered financial analysis as a reference basis for decisions (mean = 3.56), frequently asked for opinions of other trusted investors (mean = 3.33), and often discussed with other investors who provided vital

information in making trading decisions (mean = 3.37).

The average respondent (mean = 3.01) stated that they somewhat agreed and sometimes imitated other investors in investment decisions. The average respondent generally somewhat agreed that respondents often accepted feedback from investment advisors/consultants as a reference basis for decisions (mean = 2.98), sometimes considered financial analysis as a reference basis for decisions (mean = 3.14), sometimes asked for the opinion of other trusted investors (mean = 3.36), sometimes had discussions with other investors who provided essential information in making trading decisions (mean = 3.16).

The average respondent generally stated that they had sufficient knowledge about financial investments (mean = 3.13) and always liked information before investing (mean = 2.98); sometimes, comparing potential returns and risks before determining the choice of financial investment products/services (mean = 2.98).

The average respondent (mean = 3.41) stated that they somewhat agreed with the questions asked, meaning that the average respondent had sufficient knowledge, attitude, and ability to make investment decisions. Most respondents (51.6%) stated that they somewhat agreed that respondents had adequate knowledge, attitude, and ability to make investment decisions.

Others (34.3% and 1.4%) agreed and strongly agreed, meaning the respondents had good knowledge, attitude, and ability to make investment decisions. Others (11.7% and 2.4%) stated that they did not agree and strongly disagreed, meaning they had little knowledge, attitude, and ability to make investment decisions.

Hypotheses test

Inner model evaluation is an analysis of the results of the correlation between constructs. The R-Square for the variable Herding Behavior (HERD) is 0.669 (Figure 1), meaning that the independent variables Herding Intention and financial literacy contribute an influence of 66.9% to Herding Behavior (HERD).

Meanwhile, the remaining 33.1% is the influence of other unobserved factors. The R-Square for the variable Herding Intention (INT) is 0.577 (Figure 1), meaning that the independent variable contributes an influence of 57.7% to Herding Intention (INT). Meanwhile, the remaining 32.3% is the influence of other unobserved factors. The R-Square for the variable Herding Subjective Norm (SN) is 0.554, meaning the independent variable provides a herding subjective norm of 55.4% of behavioral control. Meanwhile, the remaining 54.6% is the influence of other factors.

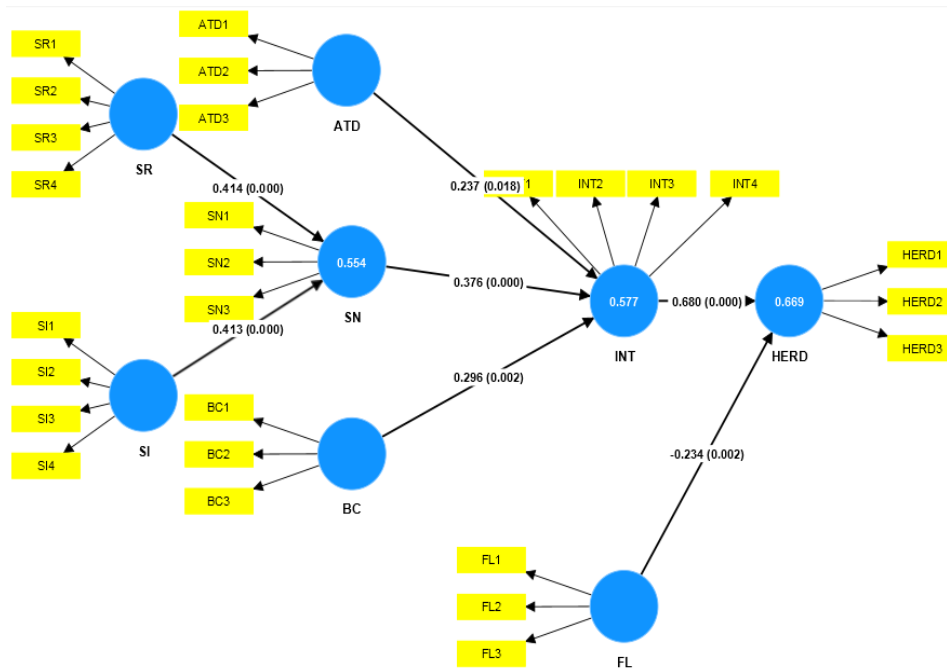


Figure 1: Structural Model (path coefficient, p-value)

Source: Data Processing (2023)

Table 2 explains that all of the seven hypotheses proposed were accepted since the significance value (p value) was <0.05. Table 4 shows that the influence of Herding Intention (ATD) on Herding Behavior (HERD) is significant in the 2-tailed test (p-value = 0.000 < 0.05). Thus, **H1 is accepted**. Herding intention is a predictor of herding behavior.

Table 2: Summary of Hypothesis Testing Results

	β	P values	Hypothesis Test
INT -> HERD	0.680	0.000	supported
ATD -> INT	0.237	0.018	supported
SN -> INT	0.376	0.000	supported
BC -> INT	0.296	0.002	supported
FL -> HERD	-0.234	0.002	supported
SR -> SN	0.414	0.000	supported
SI -> SN	0.413	0.000	supported

Source: Data Processing (2023)

The influence of attitude (ATD) on Herding intention (INT) was significant in the 2-tailed test (p-value = 0.000 < 0.05). Thus, **H2 is supported**. The influence of subjective norm (SN) on Herding intention (INT) is significant in the 2-tailed test (p-value = 0.000 < 0.05). Thus, **H3 is supported**. The influence of behavioral control (BC) on Herding intention (INT) was significant in the 2-tailed test (p-value = 0.000 < 0.05). Thus, **H4 is supported**. Financial literacy has a negative and significant influence on Herding. The influence of financial literacy

on Herding is significant in the 2-tailed test ($p\text{-value} = 0.000 < 0.05$). Thus, **H5 is accepted**. The influence of social referencing (SR) on subjective norms (SN) is significant in the 2-tailed test ($p\text{-value} = 0.000 < 0.05$). Thus, **H6 is supported**. The influence of social imitation (SI) on subjective norms (SN) is significant in the 2-tailed test ($p\text{-value} = 0.000 < 0.05$). Thus, **H7 is supported**.

5. DISCUSSION

The results of the 1st Hypothesis test show that Herding's intentions have a positive and significant influence on Herding's behavior. This means Herding's behavior did not appear by itself but was preceded by Herding's intention. The higher the intention to carry out Herding, the greater the investor's Herding behavior. This empirical study is under the Theory of Planned Behavior (TPB) that behavioral intentions influence behavior. These findings are consistent with previous studies (Adam & Shauki, 2014) (M. C. Lee, 2009; Rajdeep Kumar Rau & Das, 2017). Previous studies (Adam & Shauki, 2014) found the influence of intentions on investor behavior in Malaysia. A study (Rajdeep Kumar Rau & Das, 2017) found the influence of intention on online stock trading behavior in India. A study (M. C. Lee, 2009) found the influence of intention on online stock trading behavior in Taiwan. This research finds the influence of herding intentions on investors' herding behavior in Indonesia. In the herding context, the Herding intention is a factor that motivates individuals, especially novice investors, to carry out herding behavior in stock investments.

The results of the 2nd Hypothesis test show that the Herding attitude has a positive and significant influence on investors' Herding intentions in the Indonesian capital market with a positive relationship. This means the higher the Herding attitude, the more motivated investors are towards Herding intentions. This empirical study is under the Theory of Planned Behavior (TPB) that attitudes towards behavior influence behavioral intentions (Ajzen, 1991).

Investors evaluate Herding behavior as valuable, practical and good behavior. Having a positive evaluation means that the investor assesses that if he carries out the Herding behavior, it will bring beneficial consequences, thus, the Herding intention will increase. These findings are consistent with previous studies (Berger et al., 2018; Bhamra, 2000; Cahill & Liu, 2021; Chen et al., 2010; Y. C. Lee et al., 2021), which prove that attitudes towards certain beneficial behaviors tend to increase individuals' intention to engage in that behavior.

Behaviors have been proven to influence investment decisions (Raut et al., 2018). Another study (Adam & Shauki, 2014) also found the role of behavior in explaining investors' intentions to invest in Malaysia. Likewise, the study (M. C. Lee, 2009) found that attitudes influence the intention to trade online in Taiwan (M. C. Lee, 2009). In the Herding context, this research found that Herding's behavior explains investors' intentions towards Herding.

The results of the 3rd Hypothesis test show that Herding norms have a positive and significant influence on investors' Herding intentions in the Indonesian capital market with a positive relationship. This empirical evidence shows that Herding norms can increase Herding intentions.

This can be interpreted as saying that investors' perceptions of observing Herding behavior carried out by most of the social environment can encourage the desire to carry out Herding behavior. This empirical study is under the Theory of Planned Behavior (TPB) that norms for behavior influence behavioral intentions (Ajzen, 1991). Herding norms are also a predictor of Herding intentions. This finding is consistent with previous studies (Berger et al., 2018; Bhamra, 2000; Cahill & Liu, 2021; Chen et al., 2010; Y. C. Lee et al., 2021), which proved that norms towards certain behaviors increase individuals' intention to engage in that behavior. Subjective norms have been proven to influence investment decisions (Raut et al., 2018), and investor intentions in Malaysia (Adam & Shauki, 2014). Subjective norms also influence intentions to trade online in Taiwan (M. C. Lee, 2009). In the Herding context, this research found that Herding norms explain investors' intentions towards Herding.

The results of the 4th Hypothesis test show that behavioral control has a positive and significant influence on investors' Herding intentions in the Indonesian capital market with a positive relationship. This means that the higher the behavioral control, the greater the investor's motivation to have Herding intentions. On the other hand, the lower the behavioral control, the lower the investor's motivation to have herding intentions. The more individuals believe in the results of herding behavior in making investments, the more herding behavior will increase. On the other hand, the more individuals are unsure about the results of herding behavior in making investments, the more herding behavior will decrease. These results support previous research findings (Raut et al., 2018) (Adam & Shauki, 2014).

The more individuals have confidence in realizing an investment behavior or confidence in their ability to overcome obstacles, the higher Herding is (Raut et al., 2018). Behavioral control measures a person's beliefs about how simple or complex it is to act. Behavioral control can also be interpreted as understanding the simplicity or complexity of carrying out an action based on previous experience and obstacles that can be found for solutions in acting. His last study (Raut et al., 2018) found the influence of behavioral control on stock investment decisions in the Indian capital market. Likewise, a study (Adam & Shauki, 2014) found that behavioral control positively affected intentions through a survey of Malaysian investors.

The results of the 5th Hypothesis test show that financial literacy has a negative and significant influence on herding in the Indonesian capital market. Financial literacy negatively and significantly affects Herding (p -value < 0.05). This means financial literacy reduces investor herding when investing in the stock market. Higher financial literacy will reduce herding behavior. On the other hand, the lower financial literacy will increase the intention to do Herding.

The results of this study support previous research (Adil et al., 2022; Rasool & Ullah, 2020). In earlier literature, financial literacy is one of the factors that significantly influences an individual's ability to make financial decisions (Adil et al., 2022; Rasool & Ullah, 2020). The lack of financial literacy impacts less than optimal financial decision-making. Financial literacy, embedded in the form of stock market knowledge, is also the main driver of individual participation in the stock market and share ownership. Most investors with increasingly better financial literacy will make good investment choices (Adil et al., 2022; Rasool & Ullah, 2020).

The results of the 6th Hypothesis test show that social referencing has a positive and significant influence on investor Herding norms in the Indonesian capital market with a positive relationship. This means that the higher the social referencing will increase the Herding norm. On the other hand, the lower the social referencing, the lower the Herding norm. This research also found the role of social referencing and social imitation, which influenced Herding's behavioral intentions. (p -value < 0.05). Investment activities can also be social activities. Investors face the absence of financial information in conditions of uncertainty. This will encourage investors to use other sources of information. A reference group is a group, collectivity, or person that an actor takes into account and uses in such a way that he identifies with himself and uses the group, collectivity, or person as a basis for self-evaluation and as a source of personal values and goals. Likewise, when investors have limited abilities in managing complex information, novice investors will imitate the behavior of other people in social reference groups, which is one of the frequent motivations.

The results of the 7th Hypothesis test show that social imitation has a positive and significant influence on investor Herding norms in the Indonesian capital market with a positive relationship. This means that the higher social imitation will increase Herding norm. On the other hand, the lower the social imitation, the lower the Herding norm. The results of this study complement previous research (Berger et al., 2018; Cahill & Liu, 2021), which found the benefits of social imitation on Herding behavior. Likewise, a study (Berger et al., 2018) explains the benefits of imitation on performance. The results of this study found the influence of social imitation on Herding behavior. Social imitation is a valuable resource, especially in conditions of uncertainty, complex, uncertain information environments or for novice investors with low information processing abilities (low skill). Investors in investing in general are not always alone, especially beginner investors (low skill) who often use investment advisors and online investment services (Berger et al., 2018; Cahill & Liu, 2021).

6. CONCLUSION

This research found a configuration model of the relationship between financial literacy, social referencing, and social imitation in the TPB model regarding investor herding behavior. Social referencing and social imitation positively affect subjective norms; attitudes, subjective norms, and behavioral control influence herding intentions and behavior; financial literacy has a negative influence on Herding. This research provides theoretical implications for the role of the social environment of individual investors through financial literacy, social processes, social referencing, and social imitation.

This research has several limitations. First, this research is only limited to understanding herding behavior and the factors that influence it. The benefits of herding for investors are not the focus of research, so further research can add to the impact of herding behavior on individual investor returns. Second, research that uses a survey approach with a cross-sectional design has weaknesses in terms of time, so technological development factors and changes in the economic, social, and cultural environment are very determining. By these assumptions, future research needs to consider technological development, social change, and the economic

environment. The practical implications are as follows. This research can be used as a basis for stock brokers or investment advisors and for developing social learning and financial literacy instruments to improve the quality of investment decisions, control herding behavior, and create more efficient investment performance in the capital market. For investors, it is hoped that this research can be used to understand better the importance of experience, information, knowledge, psychology, and social issues in investing in the capital market and controlling herding behavior. Subsequently, it is hoped that this research can be used as a basis for practitioners developing online-based investment platforms by understanding novice investors' financial and psychosocial aspects in investing in the stock market.

Acknowledgements

Words cannot express my gratitude to the staff of the Indonesian Stock Exchange and fellow investors at the Indonesian Stock Exchange who have participated in this research.

References

- 1) Adam, A. A., & Shauki, E. R. (2014). Socially responsible investment in Malaysia: Behavioral framework in evaluating investors' decision making process. *Journal of Cleaner Production*, 80, 224–240. <https://doi.org/10.1016/j.jclepro.2014.05.075>
- 2) Adil, M., Singh, Y., & Ansari, M. S. (2022). How financial literacy moderate the association between behaviour biases and investment decision? *Asian Journal of Accounting Research*, 7(1), 17–30. <https://doi.org/10.1108/AJAR-09-2020-0086>
- 3) Agyapong, P. D., & Attram, A. (2019). Effect of owner-manager's financial literacy on the performance of SMEs in the Cape Coast Metropolis in Ghana. *Journal of Global Entrepreneurship Research*, 9(67), 1–13. <https://doi.org/10.1186/s40497-019-0191-1>
- 4) Ah Mand, A., & Sifat, I. (2021). Static and regime-dependent herding behavior: An emerging market case study. *Journal of Behavioral and Experimental Finance*, 29, 100466. <https://doi.org/10.1016/j.jbef.2021.100466>
- 5) Ajzen, I. (1991). Theory of Planned Behaviour. *Organizational Behavior And Human Decision Processes*, 33(1), 52–68. <https://doi.org/10.47985/dcidj.475>
- 6) Ajzen, I. (2005). Attitudes, Personality and Behavior. In *Medical Teacher*. McGraw-Hill.
- 7) Ajzen, I., & Fishbein, M. (2010). Predicting Changing Behavior. In *Taylor & Francis Group*.
- 8) Akhtar, M. A., Khan, K. A., & Hoang, H. C. (2023). Role of Social Networking Sites in Financial Product Choice: An Investigation Through the Theory of Planned Behavior. *Business Perspectives and Research*, 11(1), 44–62. <https://doi.org/10.1177/227853372111070342>
- 9) Aslam, F., Ferreira, P., Ali, H., & Kauser, S. (2022). Herding behavior during the Covid-19 pandemic: a comparison between Asian and European stock markets based on intraday multifractality. *Eurasian Economic Review*, 12(2), 333–359. <https://doi.org/10.1007/s40822-021-00191-4>
- 10) Başarir, Ç., & Yilmaz, Ö. (2019). Herd behavior and its effects on the purchasing behavior of investors. *Contemporary Studies in Economic and Financial Analysis*, 101, 215–226. <https://doi.org/10.1108/S1569-375920190000101015>
- 11) Berger, E. S. C., Wenzel, M., & Wohlgemuth, V. (2018). Imitation-related performance outcomes in social trading: A configurational approach. *Journal of Business Research*, 89(June), 322–327. <https://doi.org/10.1016/j.jbusres.2017.12.016>

- 12) Bhamra, H. S. (2000). Imitation in Financial Markets. *International Journal of Theoretical and Applied Finance*, 03(03), 473–478. <https://doi.org/10.1142/s0219024900000425>
- 13) Bongomin, G. O. C., Munene, J. C., Ntayi, J. M., & Malinga, C. A. (2018). Nexus between financial literacy and financial inclusion: Examining the moderating role of cognition from a developing country perspective. *International Journal of Bank Marketing*, 36(7), 1190–1212. <https://doi.org/10.1108/IJBM-08-2017-0175>
- 14) Bouteska, A. (2020). Tunisian Revolution and Herd Behavior: Empirical Evidence from the Tunisia Stock Exchange. *International Finance Review*, 21, 185–199. <https://doi.org/10.1108/s1569-376720200000021011>
- 15) Caglayan, M., Talavera, O., & Zhang, W. (2021). Herding behaviour in P2P lending markets. *Journal of Empirical Finance*, 63(May 2020), 27–41. <https://doi.org/10.1016/j.jempfin.2021.05.005>
- 16) Cahill, D., & Liu, Z. (Frank). (2021). Limitations of imitation: Lessons from another Bitcoin copycat. *Journal of Corporate Finance*, 69(May), 101992. <https://doi.org/10.1016/j.jcorpfin.2021.101992>
- 17) Chen, S., Visano, B. S., Lui, M., & Lu, C. (2010). Evidence and effects of social referencing investor behaviour during market bubbles. *IAENG International Journal of Computer Science*, 37(4).
- 18) Choijil, E., Méndez, C. E., Wong, W. K., Vieito, J. P., & Batmunkh, M. U. (2022). Thirty years of herd behavior in financial markets: A bibliometric analysis. *Research in International Business and Finance*, 59(August 2021). <https://doi.org/10.1016/j.ribaf.2021.101506>
- 19) corporatefinanceinstitute. (2022). *Behavioural Finance*. corporate finance institute.com. <https://corporatefinanceinstitute.com/resources/knowledge/trading-investing/behavioral-finance/>
- 20) Dhall, R., & Singh, B. (2020). The COVID-19 Pandemic and Herding Behaviour: Evidence from India's Stock Market. *Millennial Asia*, 11(3), 366–390. <https://doi.org/10.1177/0976399620964635>
- 21) Din, S. M. U., Mehmood, S. K., Shahzad, A., Ahmad, I., Davidyants, A., & Abu-Rumman, A. (2021). The Impact of Behavioral Biases on Herding Behavior of Investors in Islamic Financial Products. *Frontiers in Psychology*, 11(February), 1–10. <https://doi.org/10.3389/fpsyg.2020.600570>
- 22) East, R. (1993). Investment decisions and the theory of planned behaviour. *Journal of Economic Psychology*, 14(2), 337–375. [https://doi.org/10.1016/0167-4870\(93\)90006-7](https://doi.org/10.1016/0167-4870(93)90006-7)
- 23) Fang, H., Chung, C. P., Lee, Y. H., & Yang, X. (2021). The Effect of COVID-19 on Herding Behavior in Eastern European Stock Markets. *Frontiers in Public Health*, 9(July), 1–9. <https://doi.org/10.3389/fpubh.2021.695931>
- 24) Ferreruela, S., & Mallor, T. (2021). Herding in the bad times: The 2008 and COVID-19 crises. *North American Journal of Economics and Finance*, 58(July), 101531. <https://doi.org/10.1016/j.najef.2021.101531>
- 25) Gabori, D., Awartani, B., Maghyereh, A., & Virk, N. (2021). OPEC meetings, oil market volatility and herding behaviour in the Saudi Arabia stock market. *International Journal of Finance and Economics*, 26(1), 870–888. <https://doi.org/10.1002/ijfe.1825>
- 26) Gomes, G., & Wojahn, R. (2017). Organizational learning capability, innovation and performance: study in small and medium-sized enterprises (SMEs). *Revista de Administração*, 52. <https://doi.org/10.1016/j.rausp.2016.12.003>
- 27) Gopi, M., & Ramayah, T. (2007). Applicability of theory of planned behavior in predicting intention to trade online: Some evidence from a developing country. *International Journal of Emerging Markets*, 2(4), 348–360. <https://doi.org/10.1108/17468800710824509>
- 28) Guzman, G. M., Castro, S. Y., & Torres, G. C. (2016). Corporate social responsibility and business performance: The role of Mexican SMEs. *International Journal of Asian Social Science*, 5(10), 568–579. <https://doi.org/10.18488/journal.1/2016.6.10/1.10.568.579>

- 29) Hair, Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)* (2nd ed.). Sage Publications Inc., Thousand Oaks, CA.
- 30) Hazeltine, E., & Schumacher, E. H. (2016). Understanding Central Processes: The Case against Simple Stimulus-Response Associations and for Complex Task Representation. *Psychology of Learning and Motivation - Advances in Research and Theory*, 64, 195–245. <https://doi.org/10.1016/bs.plm.2015.09.006>
- 31) Humayun Kabir, M. (2018). Did Investors Herd during the Financial Crisis? Evidence from the US Financial Industry. *International Review of Finance*, 18(1), 59–90. <https://doi.org/10.1111/irfi.12140>
- 32) Jabeen, S., Rizavi, S. S., & Farhan, M. (2022). Herd Behaviour, Fundamental, and Macroeconomic Variables – The Driving Forces of Stock Returns: A Panel-Based Pooled Mean Group Approach. *Frontiers in Psychology*, 13(March), 1–14. <https://doi.org/10.3389/fpsyg.2022.758364>
- 33) Jankowicz, D. (2000). From `Learning Organization` to `Adaptive Organization. *Management Learning*, 31, 471–490. <https://doi.org/10.1177/1350507600314004>
- 34) Jiang, R., Wen, C., Zhang, R., & Cui, Y. (2020). Investor’s herding behavior in Asian equity markets during COVID-19 period. *Pacific-Basin Finance Journal Journal*, 73, 101771 Contents.
- 35) Kamyabi, Y., Barzegar, G., & Kohestani, A. (2013). The impact of corporate social responsibility on Iranian SME financial performance. *Journal of Social Issues & Humanities*, 1(5), 111–115.
- 36) Kyriazis, N. A. (2020). Herding behaviour in digital currency markets: An integrated survey and empirical estimation. *Heliyon*, 6(8), e04752. <https://doi.org/10.1016/j.heliyon.2020.e04752>
- 37) Lee, M. C. (2009). Predicting and explaining the adoption of online trading: An empirical study in Taiwan. *Decision Support Systems*, 47(2), 133–142. <https://doi.org/10.1016/j.dss.2009.02.003>
- 38) Lee, Y. C., Wu, W. L., & Lee, C. K. (2021). How COVID-19 Triggers Our Herding Behavior? Risk Perception, State Anxiety, and Trust. *Frontiers in Public Health*, 9(February), 1–8. <https://doi.org/10.3389/fpubh.2021.587439>
- 39) Majuri, M., & Halonen, N. (2019). Capability Building Through Dynamic Capabilities and Organizational Learning. In *Responsible Consumption and Production, Encyclopedia of the UN Sustainable Development Goals*. Springer Nature Switzerland AG. https://doi.org/10.1007/978-3-319-71062-4_2-1
- 40) Mertzanis, C., & Allam, N. (2018). Political Instability and Herding Behaviour: Evidence from Egypt’s Stock Market. *Journal of Emerging Market Finance*, 17(1), 29–59. <https://doi.org/10.1177/0972652717748087>
- 41) Rajdeep Kumar Rau, & Das, N. (2017). Individual investors ’ attitude towards online stock trading : some evidence from a developing country. *254 Int. J. Economics and Business Research*, 14(3/4), 254–267.
- 42) Ramos, M. I. G., Donate, M. J., & Guadamilas, F. (2014). Technological posture and corporate social responsibility: Effect on innovation performance. *Environmental Engineering and Management Journal*, 13(10), 2497–2505. <https://doi.org/10.30638/eejm.2014.279>
- 43) Rasool, N., & Ullah, S. (2020). Financial literacy and behavioural biases of individual investors: empirical evidence of Pakistan stock exchange. *Journal of Economics, Finance and Administrative Science*, 25(50), 261–278. <https://doi.org/10.1108/JEFAS-03-2019-0031>
- 44) Raut, R. K., Das, N., & Kumar, R. (2018). Extending the theory of planned behaviour: Impact of past behavioural biases on the investment decision of Indian investors. *Asian Journal of Business and Accounting*, 11(1), 265–292. <https://doi.org/10.22452/ajba.vol11no1.9>
- 45) Shantha, K. V. A. (2019). The evolution of herd behavior: Will herding disappear over time? *Studies in Economics and Finance*, 36(3), 637–661. <https://doi.org/10.1108/SEF-06-2018-0175>

- 46) She, L., Rasiah, R., Weissmann, M. A., & Kaur, H. (2023). Using the Theory of Planned Behaviour to Explore Predictors of Financial Behaviour Among Working Adults in Malaysia. *FIIB Business Review*. <https://doi.org/10.1177/23197145231169336>
- 47) Shrotryia, V. K., & Kalra, H. (2020). *Herding in Capital Markets : A Systematic Literature Review*. December.
- 48) Stavroyiannis, S., & Babalos, V. (2020). Time-varying herding behavior within the Eurozone stock markets during crisis periods: Novel evidence from a TVP model. *Review of Behavioral Finance*, 12(2), 83–96. <https://doi.org/10.1108/RBF-07-2018-0069>
- 49) Thakur-Wernz, P., & Samant, S. (2017). Relationship between International Experience and Innovation Performance: Importance of Organizational Learning for EMNEs Forthcoming in *Global Strategy Journal*. *Global Strategy Journal*. <https://doi.org/10.1002/gsj.1183>
- 50) Tirthankar, N., & Asish, K. B. (2016). Corporate social responsibility in India: Exploring linkages with firm performance. *Global Business Review*, 17(6), 1427–1440. <https://doi.org/10.1177/0972150916653032>
- 51) Vidanalage, K., & Shantha, A. (2019). Individual investors' learning behavior and its impact on their herd bias: An integrated analysis in the context of stock trading. *Sustainability (Switzerland)*, 11(5). <https://doi.org/10.3390/su11051448>
- 52) Zafar, F., & Farooq, M. (2014). Corporate social responsibility in small and medium enterprises to achieve organizational benefits. *International Journal of Scientific & Engineering Research*, 5(1), 2276–2283. <https://doi.org/10.21608/jaauth.2016.49715>