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BEHAVIOURAL PATTERNS OF RETAIL INVESTORS IN EMERGING MARKETS – EVIDENCE FROM INDIAN STOCK MARKETS

Abstract. This study examines the different behavioural patterns of retail investors in the Indian stock market. The survey method was used to collect the data through a structured questionnaire administered among 300 retail investors selected using stratified random sampling. Cronbach's alpha reliability test was used to validate the questionnaire. The result indicates five behavioural elements: herding, market, prospect, overconfidence – gambler's fallacy, and anchoring – ability bias affecting the stock selections by Indian retail investors. Most of these elements have a mild impact, whereas the market element has a significant effect. The correlation between these behavioural factors and overall investment performance was also established. The heuristic behaviours are determined to have the most positive impact on the overall investment performance, while the herding behaviours are found to reduce it.

Keywords: behavioural finance, heuristic, overconfidence, gambler's fallacy, herding, market, prospect, anchoring ability

INTRODUCTION

Traditional investment theories, namely the Markowitz model, the capital asset pricing model, and other classical investment theories were based on three assumptions: efficient markets, risk aversion, and rationality. These mathematically modelled theories emphasised that investment decisions are taken by rational homo oeconomicus (human beings who can make infinite rational decisions) who want to maximise the returns from investment. For achieving this objective, they

apply all the traditional finance theories. Hence the assumption is that a perfectly rational decision is made by applying all the knowledge to the available information. However, recent studies show that the assumption of homo oeconomicus investors is a myth. Behavioural models replace the homo oeconomicus assumption by stating that investors are homo sapiens (human beings whose decisions are driven by emotions and may not always be rational and mathematically modelled) affected by emotions, biases and other psychological factors. Behavioural finance uses social and psychological theories

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to observe the trading and financial decision-making of investors. These theories explain the deviations in the behaviour of investors, which contradict traditional finance theories.

Objectives:

- a. To understand the behavioural biases of retail investors in the Indian stock market,
- b. To determine the impact of behavioural biases on the choice of securities,
- c. To study the consequences of behavioural biases on the overall investment performance.

Research methodology

This study was carried out in two stages. During the first stage, the secondary data from published research were studied. Through the literature survey, the psychological biases in behavioural finance literature were identified along with the implications on financial decision-making and their consequences were studied. Primary data were collected through a questionnaire administered amongst 300 retail investors in Indian markets in the second stage. The sample was selected using stratified random sampling methods. The strata were selected based on the age and investment experience of the investors, and the samples were randomly drawn from each stratum. The validity of the questionnaire was examined using Cronbach's alpha. The data collected through questionnaires were tabulated and graphically represented for drawing relevant conclusions. Statistical tools like factor analysis and regression analysis were used to analyse the data and draw conclusions therefrom.

LITERATURE REVIEW

Definition of Behavioural Finance

Lintner (1998) defined behavioural finance as a study of how a human interprets and acts on information to make informed investment decisions. Olsen (1998) asserted that behavioural finance seeks to understand and predict systematic financial market implications of the psychological decision process. Shefrin (1999; 2000) and Shefrin and Stateman (1985) postulated that 'behavioural finance is a rapidly growing area that deals with the influence of psychology on the behaviour of financial practitioner'. Belsky and Gilovich (1999) referred to behavioural finance as behavioural economics and further defined behavioural economics as combining the twin discipline of psychology and economics to explain

why and how people make seemingly irrational or illogical decisions when they save, invest, spend and borrow money. Forbes (2009) defined behavioural finance as a science regarding how psychology influences the financial market. This view emphasises that individuals are affected by psychological factors like cognitive biases in their decision-making, rather than being rational and wealth maximising. Sewell (2007) stated that behavioural finance challenges the theory of market efficiency by providing insights into why and how a market can be inefficient due to irrationality in human behaviour.

Thus, behavioural finance is defined as a field of finance that proposes psychological theories to explain stock market anomalies. Within behavioural finance, it is assumed that the information structure and the characteristics of market participants systematically influence individual investment decisions as well as market outcomes.

Behavioural Biases

Researchers and academicians have identified several behavioural traits in investors. Many studies have been made to classify these traits into different behavioural biases. Some of these biases are described below.

Ghayekhloo (2011) put forward that an investor tries to buy good stock instead of poor performance stock, which shows a representative bias in investor behaviour. If the last investment decision was a success, then the investor continues to make the same decision in the next investment without considering the different uncertainty patterns. It resembles stereotype decisions based on recent experience. Waweru et al. (2014) stated that confidence is usually an optimistic investor behaviour characterised by confidence in the investment, but overconfidence result is in contradiction to confidence because the investor ignores the risk and uncertainty element due to previous continued success and trades more so the probability of failure increases. Anwar (2016) described anchoring behaviour as making decisions based on one trait or one piece of information. When new information is released, decisions and outcomes show a slight change due to anchoring behaviour. Investors consider historical trends return in decision-making. Bhattacharya (2012) explained that gambler's fallacy involves investor's speculations leading to wrong decisions and money invested with the hope of profit converted into a loss. However, sometimes speculations result in picking the right side and give a significant profit.

Dargham (2009) suggested that market bias-based decisions depend on the level of importance of information, the weight of information and then making decisions on these assigned weights. In this way, return gain may be smaller, but occasional losses are bearable. Hindsight is a psychological, perceptual approach that can change the decisions after the event happened. Sometimes people predict the consequences after the incident occurred, conclude the scenario and slightly change the decision. The predictions of results before the incident were not better; therefore, the hindsight behavioural approach is more appreciated against the prediction. Kumari (2017) described the herding effect by indicating that some investors make decisions by following other people's information and decision processes. They rely on public information rather than personally collected information about investment alternatives. Konstantinidis (2012) explained that the prospect theory includes a number of mental states that contribute to the investment process. Different mental approaches lead to risk seeker behaviour, possibly resulting in a loss while risk-averse in a chance of gain. The latter is identified as loss aversion. Qureshi (2012) described regret aversion as to mean investor never wanting to feel the pain of regret by inefficient investment decisions. Investors buy low performing stocks, avoiding the fear of losing these stocks or offering them for sale. Then low income from stocks is reduced by tax showing the investment losses. Johnson (1990) explained mental accounting as a pattern of investment activities fulfilled by the mental accounting approach in which three components control the investment pattern. One component identifies how returns are perceived outward and how decision choices are evaluated. The second one leads activities to particular accounts. The third one refers to the frequency of choices and evaluation. These three core psychological components regulate decision-making.

Extensive research has been conducted to study the impact of behavioural finance on investment decisions.

Kahneman and Tversky (1979) presented a critique of the expected utility theory as a descriptive model of decision-making under risk to develop an alternative model called prospect theory. Decision-making risk is viewed as a choice between prospects or gambles, contrasting that which brings outcome with some probability and that obtained with certainty. This tendency is called the certainty effect. Chandra (2008) attempted to explore the impact of behavioural factors and investors' psychology on their

investment decision-making and to examine the relationship between investors' attitude towards risk and the behavioural decision-making process. The study shows that unlike classical finance theory, individual investors often do not make rational decisions. Further results reveal that investor decision-making is influenced by behavioural factors such as greed and fear, cognitive dissonance, heuristics, mental accounting and anchoring. Kabra, Mishra and Dash (2010) employed the survey research method to study perceptions of the investors and found that investors prefer investments according to their risk preferences. They were found to be in the trap of cognitive illusions, such as overconfidence and narrow framing. They consider multiple factors and seek diversified information before making decisions. Finally, it was verified that investors' age and gender preponderantly decide the risk-taking capability. Kartasova (2013) studied the factors that frame irrational individual investor behaviour in the Lithuanian stock market. Based on the analysis, the author concluded that the individual investors in Lithuania suffered from all basic biases, but overconfidence, anchoring, mental accounting and herd behaviour had a greater influence on their financial decision-making process. She also asserted that factors forming irrational individual investors' behaviour depend on their characteristics such as age, experience, gender, and profession. Choudhury (2013) examined the meaning and importance of behavioural finance and its applications in investment decisions. This conceptual paper explains why investors make irrational financial decisions. It demonstrates how emotions and cognitive errors influence investors in the decision-making process. The author found that various causes that influence investors' investment decisions include anchoring, overconfidence, herd behaviour, over- and under-reaction and loss aversion. In essence, the behavioural finance approach investigates the behavioural patterns of investors and attempts to understand how these patterns guide investment decisions. It provides a framework for evaluating active investment strategies for investors.

Research Findings

The effect of behavioural factors on investment decisions and their consequences on stock market performance was stochastically proven by academicians and scholars from time to time. The literature survey is summarised below in a pictorial representation of the several behavioural biases, their effect on investors and the consequences for the market (Fig. 1).

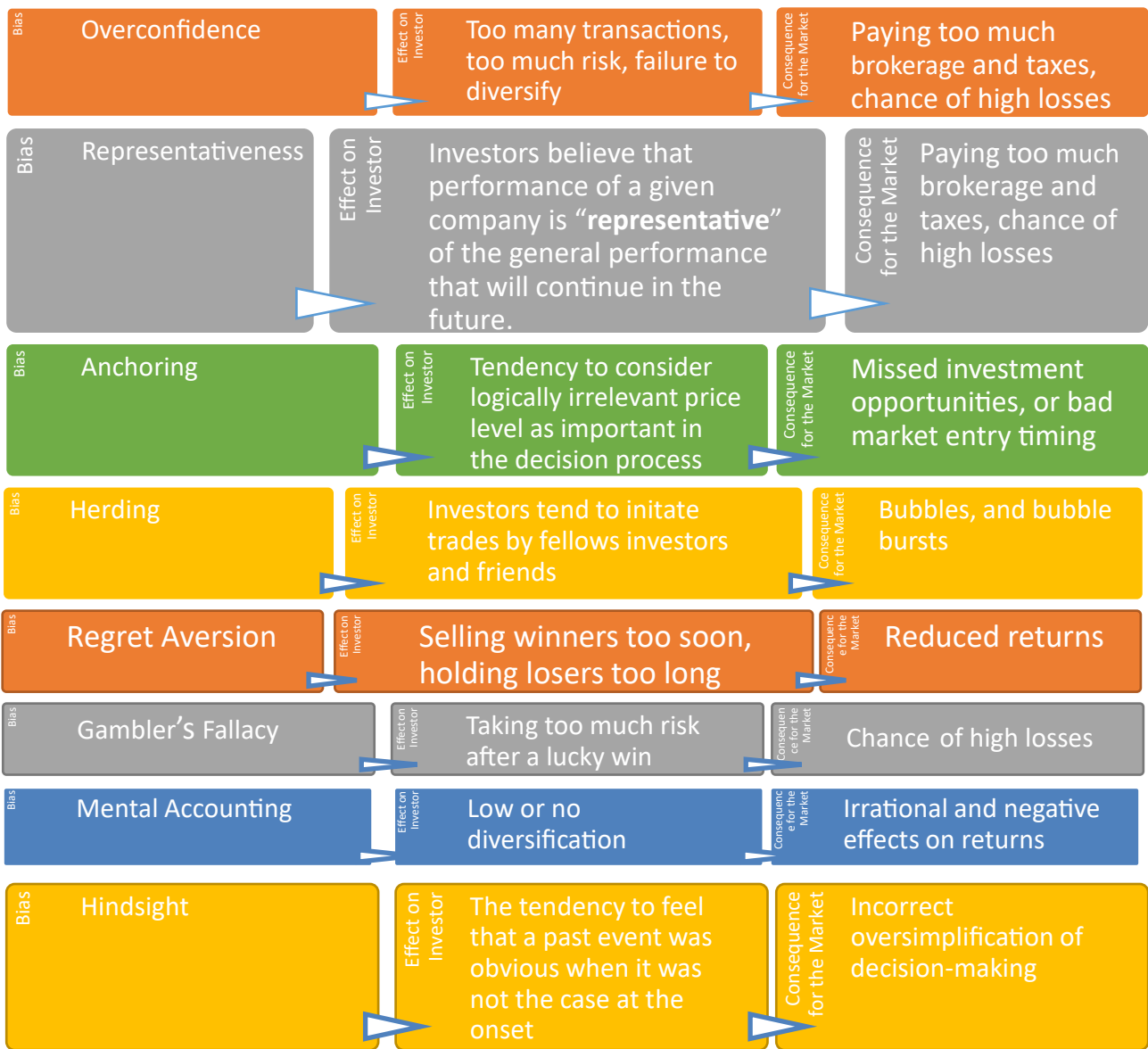


Fig. 1. The Behavioural Biases, Its Indications and Consequences
Source: Compiled by Authors based on Literature Survey.

Compilation by Authors based on the Literature Survey

The following variables were identified for the purpose of the study. The variables were grouped as different behavioural biases (Table 1).

The 13 questions in the survey questionnaire were grouped to help understand the behavioural biases. The grouping of the questionnaire is as displayed in the table below (Table 2).

The following table summarises the dimensions of the variables used in the survey questionnaire.

Internal consistency of the multi-item scales was tested using Cronbach’s alpha. Factor analysis was used to test the reliability of the items in the multi-item scales. Descriptive statistics were used to summarise the data. This included percentages and frequencies. Tables and graphs were used to present the data. Cronbach’s alpha is used to test the reliability of items included in the factors

Table 1. Different Behavioural Biases

Group	Behavioural variables
Heuristic Theory	<ul style="list-style-type: none"> – representativeness – overconfidence – anchoring – gambler’s fallacy – availability bias
Prospect Theory	<ul style="list-style-type: none"> – loss aversion – regret aversion – mental accounting
Market	<ul style="list-style-type: none"> – price changes – market information – past trends of stocks – fundamentals of underlying stocks – customer preference – over-reaction to price changes
Herding Effect	<ul style="list-style-type: none"> – buying and selling decisions of other investors – choice of stock to trade by other investors – volume of stock to trade by other investors – speed of herding

Source: Compiled by Authors based on literature Survey.

Table 2. Grouping of survey questions based on the the behavioural biases

Behavioural Bias	Indicative Questions	
	1	2
Herding Factors	<ol style="list-style-type: none"> 1. Other investors’ decisions concerning stock types/volumes have an impact on your investment decisions. 2. Other investors’ decisions concerning buying and selling stocks have an impact on your investment decisions. 3. You usually react quickly to the changes in other investors’ decisions and follow their reactions to the stock market. 	
Overconfidence & Gambler’s Fallacy	<ol style="list-style-type: none"> 4. You believe that your skills and knowledge of the stock market can help you to outperform the market. 5. You are normally able to anticipate the end as good or poor. 	
Anchoring & Ability Bias:	<ol style="list-style-type: none"> 6. You forecast the changes in stock prices in the future based on the recent stock prices. 7. You prefer to buy local stocks than international stocks because the information on local stocks is more readily available. 	
Market Factors: Price, Information:	<ol style="list-style-type: none"> 8. The rate of return of your recent stock investment meets your expectations. 9. Sources of investment information: <ol style="list-style-type: none"> a. brokers b. family c. friends d. newspapers e. television f. other 	

Table 2 cont.

	1	2
		10. You feel satisfied with your investment decisions in the last year (including selling, buying, choosing stocks, and deciding the stock volumes).
Prospect Theory		11. After a loss, you become more risk-averse. 12. You avoid selling stocks that have decreased in value and readily sell those that have increased in value. 13. You tend to treat each element of your investment separately.

Source: Authors’ own compilation.

Table 3. Questionnaire Summary

Dimension	Behavioural Factors	Questions
Herding	Following others’ trading actions (choice, volume, impact & speed of herding)	Questions 1–3
Heuristics – Overconfidence & Gamble’s Fallacy	Displaying a high level of confidence in one’s ability to outperform the market	Question 4–5
Anchoring and Ability Bias	Showing confidence in one’s analytical skills	Question 6–7
Market Factors	Considering sources of market information, past trends, etc.	Question 8–10
Prospect theory	Risk aversion, mental accounting	Questions 11–13

Source: Authors’ own compilation.

(Table 3). This test is performed to ensure that the measurements are reliable for further use. The results of Cronbach’s alpha test are shown below using two-factor ANOVA without replication in MS Excel (Table 4).

Table 4. Reliability Statistics

Reliability Statistics	
Cronbach’s Alpha	No. of Respondents
0.717	304

Source: Results of Cronbach’s Alpha.

Table 5. Summary Statistics of Demographics

Sr. No.	Demographic Characteristics	Categories	Frequency	Percentage (%)
1	gender	male	146	48
		female	158	52
		total	304	100
2	age group	26 years–35 years	96	32
		36 years–45 years	136	45
		above 45 years	72	23
		total	304	100
3	occupation	self-employed	116	38
		service	188	62
		total	304	100
4	education	up to graduation	110	36
		post-graduation and higher	194	64
		total	304	100
5	annual income	less than Rs. 5,00,000	33	11
		Rs. 5,00,000 – Rs. 8,00,000	103	34
		Rs. 800,000 and higher	168	55
		Total	304	100

Source: Analysis of Demographic Data.

The Cronbach's alpha value is 0.717, which indicates a high level of internal consistency of the scale.

The questionnaire was administered to 320 respondents, out of which 304 responded. The following table summarises the demographic characteristics of the respondents (Table 5).

For analysing the behavioural biases of Indian investors, we have collected the responses of 304 respondents. Thirteen variables were used to analyse the behavioural biases amongst said retail investors. We have used a six-point Likert scale to measure the impact of different variables. The mean values of these variables show their impact on the decision-making process of retail investors. The following rules were used for deciding the impact of variables on investment decision:

- Mean value < 2 – variable with a very low impact on investment decisions
 - Mean value between 2 and 3 – variable with a low impact on investment decisions
 - Mean value between 3 and 4 – variable with a moderate impact on investment decisions
 - Mean value between 4 and 5 – variable with a high impact on investment decisions
 - Mean value > 5 – variable with a very high impact on investment decisions
- The results of the survey are shown on Table 6.

Table 6. Summary Statistics – Herding Factors

Q. No.	Question: Herding Factors	Mean	Standard Deviation
1	Other investors' decisions concerning stock types/volumes have an impact on your investment decisions.	4.23	1.21
2	Other investors' decisions concerning buying and selling stocks have an impact on your investment decisions.	4.01	1.09
3	You usually react quickly to the changes in other investors' decisions and follow their reactions to the stock market.	4.56	0.97

Source: Data Analysis.

The analysis shows that all the variables relating to herding have mean values between 4 and 5. Hence, we can say that herding factors have a very high impact on the investment decisions of Indian retail investors (Table 7).

Table 7. Summary Statistics – Overconfidence and Gamblers Fallacy

Q. No.	Questions: Overconfidence & Gambler's Fallacy	Mean	Standard Deviation
4	You believe that your skills and knowledge of the stock market can help you to outperform the market.	3.67	1.15
5	You are normally able to anticipate the end as good or poor.	3.5	1.2

Source: Data Analysis.

Given mean values between 3 and 4, we can say that the variables related to overconfidence and gambler's

fallacy have a moderate impact on Indian retail investors (Table 8).

Table 8. Summary Statistics – Anchoring and Ability Bias

Q. No	Question: Anchoring & Ability Bias	Mean	Standard Deviation
6	You forecast the changes in stock prices in the future based on the recent stock prices.	3.83	0.83
7	You prefer to buy local stocks than international stocks because the information on local stocks is more readily available.	3.54	1.2

Source: Data Analysis.

The anchoring and ability bias show a moderate impact on the decision-making of Indian retail investors, with a mean ranging between 3 and 4 (Table 9).

Table 9. Summary Statistics – Market Factors: Price Information

Q. No	Questions: Market Factors: Price, Information	Mean	Standard Deviation
8	The rate of return of your recent stock investment meets your expectations.	4.87	1.2
9	Sources of investment information		
	a. brokers	3.84	1.1
	b. family	3.65	1.6
	c. friends	3.9	1.3
	d. newspapers	4.5	0.3
	e. television	4.82	0.6
	f. other	1.2	2.5
10	You feel satisfied with your investment decisions in the last year (including selling, buying, choosing stocks, and deciding the stock volumes).	4.65	1.3

Source: Data Analysis.

The results show that Indian retail investors are making informed decisions based on market information. Most of the investors prefer news channels and newspapers as a source of information, and these sources have a high impact on decision-making, with mean values between 4 and 5 (Table 10).

Table 10. Summary Statistics – Prospect Theory

Q. no.	Question: Prospect Theory	Mean	Standard Deviation
11	After a loss, you become more risk-averse.	4.2	1.2
12	You avoid selling stocks that have decreased in value and readily sell those that have increased in value.	4.3	1.46
13	You tend to treat each element of your investment separately.	4.57	1.32

Source: Data Analysis.

The variables related to prospect theory show a very high impact on investor decision-making, with mean values between 4 and 5.

CONCLUSIONS AND RECOMMENDATIONS

There are five behavioural factors exhibited by retail investors in the Indian stock market, viz. herding, market, prospect, overconfidence, gambler's fallacy and anchoring – ability bias. The dimensions of these behavioural factors can be summarised as follows (Table 11).

Table 11. Dimensions of Behavioural Factors

Factor	Behavioural Dimensions
Herding	following the decisions of other investors in buying and selling stock
Market	market information and the price changes form the basis of investment decisions
Prospect	loss aversion, regret aversion and mental accounting form the basis of investment decisions
Heuristics – Overconfidence & Gambler's fallacy	displaying a high level of confidence in one's ability to outperform the market
Anchoring	investors have confidence in their analytical abilities, and this forms the basis of investment decisions

Source: Authors' own compilation.

The study concludes that Indian investors have a moderate level of confidence. This can be partially due to the fact that the Indian stock market is an emerging market.

Anchoring also has a moderate impact on Indian retail investors who use fundamental and technical analysis to forecast and predict stock prices. Among the three prospect factors, viz. loss aversion, regret aversion and mental accounting, the last one shows the highest impact, while loss and regret aversion show a moderate impact. Hence investment success encourages the investors to take further risk while failures discourage them significantly. Due to moderate regret aversion, we can see that many Indian retail investors seem to be inclined to sell the profit-making stocks and hold the loss-making ones. The market factor has the highest impact on investment decisions. Investors consider all the available sources of information before making investment decisions. Most of the investors prefer newspapers as an important source to analyse the market. Few investors also analyse the financial statements and past performance of companies. Qualitative factors are also given considerable weight while analysing the stock. The initiatives taken by SEBI for investor awareness play a significant role in investor education. Herding behaviour is also significant in Indian markets. The study recommends that investors should receive proper training before investing in the stock market. The regulators must promote investor awareness programmes to make the investors aware of the opportunities and challenges in the stock market, helping them make informed decisions.

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WZORCE ZACHOWAŃ INWESTORÓW DETALICZNYCH NA RYNKACH WSCHODZĄCYCH – PRZYKŁADY Z INDYJSKICH RYNKÓW AKCJI

Abstrakt. W opracowaniu analizowano różne wzorce zachowań inwestorów detalicznych na indyjskim rynku akcji. Do zebrania danych wykorzystano metodę ankietową. Ustrukturyzowany kwestionariusz wysłano do 300 inwestorów detalicznych wybranych przy użyciu losowania warstwowego. Do walidacji kwestionariusza badawczego wykorzystano test rzetelności Alfa Cronbacha. Jego wynik wskazuje, że istnieje pięć elementów behawioralnych, tj. śledzenie, rynek, perspektywa, nadmierna pewność siebie – błędne przekonanie gracza – oraz zakotwiczenie – tendencyjność – wpływające na wybór akcji przez indyjskich inwestorów detalicznych. Większość z tych elementów ma niewielki wpływ na wzorce zachowań, wysoki jest jedynie wpływ elementu rynek. Ustalono również korelację pomiędzy wymienionymi czynnikami behawioralnymi a ogólną efektywnością inwestycji. Ustalono, że zachowania heurystyczne mają najbardziej pozytywny wpływ na ogólną efektywność inwestycji, podczas gdy zachowania stadne zmniejszają ogólną ich efektywność.

Słowa kluczowe: finanse behawioralne, heurystyka, nadmierna pewność siebie, błędne przekonania hazardystów, śledzenie, rynek, perspektywa, zdolność zakotwiczenia