



Analysis Behavioral Financial Bias in Invesment Decision Making

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Abstract. Traditional finance suggests that any investment made by a rational investor considers risk and return before making a decision to maximize return. Behavioral finance then challenges conventional finance and introduces psychological factors that influence decision-making on invesment. The purpose of this study is to investigate how behavioral biases affect investment decisions under. Relying on variables to make investment decisions is a complex activity that relies on individual resources. Based on this research, In this study examine the impact of alternative investment decisions by human rational and irrational behavior and then examine the impact of behavioral finance on the decision-making process. behavioral financial phenomenon variables; heuristics, prospect theory, Role of personality, and environmental factors are explored as part of this study. Overconfidence, representativeness, anchoring, regret avoidance, hindsight, the harding effect, and home bias are inherent in investor psychological behavior. A research questionnaire tool for collecting samples and conducting quantitative research. To test the hypothesis regression analysis performed by the SPSS as a result. We found that investment decisions are influenced by behavioral bias. Empirical results concluded that investment decisions are influenced more by heuristic behavior than by prospect theori or role of personality. The results showed that heuristic behavior, prospect theories and the role of personality. Significantly influences investment decisions. With this research, it is hoped that it can help novice investors who will make an investment and to other researchers in the financial institutions.

1. Introduction

Investment is an activity to invest a capital at this time with the hope of getting benefits in the future, in making an investment can be done in various types of investment instruments including investment in gold, land, stocks, bonds or what is often discussed today is investment in cryptocurrency. Investment can be divided into several types including long-term investment > 5-10 years, as well as short-term investment[1]. However, it is not uncommon for psychological factors or habits to greatly influence the minds of investors in making an investment decision, this psychological factor is called financial behavior bias. Behavioral finance examines how investors make decisions with irrational biases. Investment decision-making is a complex and difficult activity, and as a result, the consequences of

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investment decisions involve psychological, sociological, and cognitive theories[3]. Behavioral financial factors such as overconfidence, fear, cognition, and emotion also influence investment strategies and investment decision-making processes[4].

Financial behavior in this study includes Heuristic Behavior, Prospect Theory and Role of personality. Heuristic Behavior, In an uncertain and unpredictable environment, investors make decisions based on trial and error or old rules of thumb[8]. In practice, however, the cognitive and emotional factors involved in evaluating investment options can preclude rational behavior in the decision-making process [9]. In heuristic behavior is divided into several instruments, including : Representivness, Overconfidence, Anchoring, Gamblers Fallacy, Escalation of commitment, *Randomness*, Some people are superstitious and believe that their decisions are based on little rationality, as they believe the outcome is written by luck. However, some people have a strong inner control, ignore fate and superstition, and base their decisions on rational factors. Because they know that their decisions are responsible for their consequences. *Prospect Theory*, this theory includes a series of mental states. Involved in the investment process. There are different approaches that allow risk-seeking behavior to lead to loss opportunities and risk-averse behavior to lead to gain opportunities. This event is called loss aversion[8]. Prospect theory is divided into several types including : Regret aversion, Framing, Mental Accounting, and Self Control. Furthermore, in behavioral finance there is a role of personality, Psychological bias affects not only the personality behaviors involved in the decision-making process, but also decision-making. Personality traits are different than decision makers, so they make different decisions in the same situation or problem. Rationality influences decision-making more than personality traits[9]. The various types of Role of personality include : *Extroversion*, Agreeableness, Conscientiousness, Neuroticism, and Openness to experience.

The most difficult thing in making an investment is making investment decisions, according to (Sattar, 2020), Decision making process is a complicate mental activity which is influence by the psychological behavior of decision maker. Basically choose a precise alternative from a quantity of alternatives after collected the information and evaluate the alternatives is known as decision making process. Individual investors are such people who purchase securities on their behalf. These investors trade in very small amounts and are mainly involved in the activities of the stock market (Umar et al, 2021). It is considered acceptable for the investors to face issues while making rational and accurate decisions for funding the managers (Ahmad, 2020), Financial behaviour aspect can be determined by several indicators. For example, (Paisarn et. Al, 2021) indicated that demographic factors such as gender, years of experience in trading, age, and income play their roles in shaping trading behaviour amongst stock market investors. Whereas, (Kaiser and Menkhoff, 2017) argued that financial education is found to significantly explain financial behaviour amongst individuals.

By looking at these previous studies in this study, researchers have a uniqueness where the sample in this study is in the period after the Covid-19 pandemic where economic conditions are growing again and in this study it is based on the time when there are many unscrupulous people who offer instant investment by offering abundant wealth so that it will indirectly affect the mental state of an investor. The purpose of this paper is to observe the impact of behavioral finance on investment decisions. The problem is determining how behavioral finance influences decision-making[6]. There are many anomalies in the behavioral finance that can influence the decision making but in this paper some anomalies discussed that identify the whole phenomenon of impact of behavioral finance on investment decision making process[7]. With a research sample of 35 respondents focusing on young or novice investors using quantitative data analysis methods with linear regression analysis as a tool for processing research data.

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2. Method

Quantitative research approach for collecting data in this study. We use questionnaire tools to collect data and solicit responses from investors and financial institutions, according to factors that may affect research methodology, such as resource availability, research expertise, and research timeframes.

In this study, multiple linear regression analysis method will be used, this multiple regression analysis aims to determine the effect of two or more independent variables on the dependent variable. Multiple linear regression analysis is performed to determine the direction and how much influence the independent variable has on the dependent variable [12].

We conducted a survey to collect. Quantitative scale used in questionnaire (1 = strongly disagree,5 = strongly agree)[10]. After data collection, SPSS software uses multiple regression analysis techniques to interpret empirical study results., to be able to carry out this analysis the questionnaire data must meet the assumptions of normality and be free from classical assumptions: multicollinearity, heteroscedasticity and autocolleration tests[8]. With the method used, it is very suitable for research Analysis behavioral finance biases in investment decision making.

3. Result and Discussion

Table 1 show a normality test table as a series of classical assumption tests, this test aims to test whether the research data can be normally distributed or not, in this test using the Kolmogorov-smirnov normality test. This test is concerned with the degree of agreement between the sample distribution (observed scores) and its theoretical distribution. The KS test determines whether the scores in the sample come from a population that has a theoretical distribution [11]. Based on the results of the normality test, it i known that the significance value is 0.200 > 0.05, it can be concluded that the residual value data is normally distributed.

Table 1. SPSS : Normality Test						
		Unstandardiz ed Residual				
Ν		35				
Normal Parameters ^{a,b}	Mean	.0000000				
	Std. Deviation	1.59755154				
Most Extreme Differences	Absolute	.121				
	Positive	.073				
	Negative	121				
Test Statistic		.121				
Asymp. Sig. (2-tailed)		.200 ^{c,d}				

able 1. SPSS : Normality T	est
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Table 2 show multicolinear test, this multicollinearity test is intended to test whether there is a high or perfect correlation between the independent variables or not in the regression model[11]. Based on the results of the multicolinear test: Tolerance value of X_1 is 0.945 > 0.100, and the VIF value is 1.058 < 10,000 : Tolerance value of X_2 is 0.874 > 0.100, and the VIF value is 1.144 < 10,000 and Tolerance value of X_3 is 0.829 > 0.100, and the VIF value is 1.206 < 10,000. With these results it can be concluded that there are no symptoms of multicollinearity.

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Table 2. SPSS : Multicolinear Test

		Unstandardized Coefficients		Standardized Coefficients			Collinearity	Statistics
Model		В	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	1.045	4.926		.212	.833		
	(X1) Heuristic Behaviour	.245	.104	.369	2.362	.025	.945	1.058
	(X2) Prospect Theory	.423	.174	.394	2.430	.021	.874	1.144
	(X3) Role Of Personality	.156	.153	.170	1.020	.316	.829	1.206

a. Dependent Variable: (Y) Invesment Decision

Table 3 show heteroscedasticity test, the heteroscedasticity test aims to test whether in the regression model there is an inequality of variance from the residuals of one observation to another[11]. Based on the results of the heteroscedasticity : Value sig. $X_1 0.210 > 0.05$, Value sig. $X_2 0.304 > 0.05$, and Value sig. $X_3 0.404 > 0.05$. With these results, it can be concluded that there is no heteroscedasticity problem.

Table 3. SPSS : Heteroscedasticity	Test
Coofficiente	

		Unstandardized Coefficients		Standardized Coefficients			Collinearity	Statistics
Model		В	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	-3.516	2.841		-1.238	.225		
	(X1) Heuristic Behaviour	.077	.060	.224	1.280	.210	.945	1.058
	(X2) Prospect Theory	.105	.100	.190	1.044	.304	.874	1.144
	(X3) Role Of Personality	.075	.088	.158	.846	.404	.829	1.206

a. Dependent Variable: Abs_res

Table 4 show autocorrelation test, the autocorrelation test aims to test whether in the liner regression model there is a correlation between confounding errors in period t and confounding errors in period t-1 (previous) [11]. Based on the autocorrelation test, the value of dU (3;35) 1.6539 < Durbin Watson 1.797 < 4-dU (2.3461) is obtained, based on these results it can be concluded that there are no symptoms of autocorrelation.

Table 4. SPSS : Autocorrelation Test

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin- Watson
1	.535 ^a	.286	.217	1.673	1.797

 a. Predictors: (Constant), (X3) Role Of Personality, (X1) Heuristic Behaviour, (X2) Prospect Theory

b. Dependent Variable: (Y) Invesment Decision

Table 5 show T-Test with SPSS, T-Test is conducted to determine the effect of each independent variable on the dependent variable. After conducting a normality test and passing the classical assumption test, it can be concluded that the research data is suitable for multiple linear analysis tests [11]. Based on the results of multiple linear regression tests, the following conclusions are drawn : Sig. $X_1 0.025 < 0.05$, and $T_{count} = 2.362 > T_{table} 2.03951$, Sig. $X_2 0.021 < 0.05$, and $T_{count} = 2.430 > T_{table} 2.03951$ and Sig. $X_3 0.316 > 0.05$, and $T_{count} = 1.020 < T_{table} 2.03951$. With these results, it can be





concluded that the heuristic and prospect theory variables partially affect the investment decision variable, while the role of personality variable has no effect on the investment decision.

Table 5. SPSS : T-Test Coefficients^a

		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Mode	I	В	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	1.045	4.926		.212	.833		
	(X1) Heuristic Behaviour	.245	.104	.369	2.362	.025	.945	1.058
	(X2) Prospect Theory	.423	.174	.394	2.430	.021	.874	1.144
	(X3) Role Of Personality	.156	.153	.170	1.020	.316	.829	1.206

a. Dependent Variable: (Y) Invesment Decision

Table 6 show F-Test with SPSS, the F-test aims to determine whether the independent variables (independent) together affect the dependent variable [11]. Based on the test results, the results are obtained:

Value sig. 0.014 < 0.05 dan $F_{count} 4.140 > F_{table} 2.90$.

Table 6. SPSS : F-Test

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	34.769	3	11.590	4.140	.014 ^b
	Residual	86.774	31	2.799		
	Total	121.543	34			

a. Dependent Variable: (Y) Invesment Decision

 b. Predictors: (Constant), (X3) Role Of Personality, (X1) Heuristic Behaviour, (X2) Prospect Theory

Hypothesis :

 $H_{0}:$ Heuristic Behavior, Prospect Theory and Role of Personality have no significant effect on investment decisions.

 H_1 : Heuristic Behavior, Prospect Theory and Role of Personality have a significant effect on investment decisions.

Because $F_{count} 4.140 > F_{table} 2.90$ then H_0 is rejected and H_1 is accepted. The coclusion the independent variable significantly contribute to the dependent variable. Based on these results, it can be concluded that the *Heuristic Behavior*, *Prospect Theory and Role of Personality* variables simultaneously affect the Investment Decision [11].

Based on the results of multiple linear regression testing in the F-test, it results that in deciding an investment will be strongly influenced by the financial behavior of an investor which will lead to bias in making an investment. Bias itself comes from financial behavior that exists in every human being, which will affect each individual of each investor, with these results will make the characteristics of each investor different from one another in making an investment.

4. Conclucions

In making an investment decision, investors often experience several problems or biases when making a decision, this bias is called financial behavioral bias, the biases in this research include heuristic behavioral, prospec theory and role of personality, based on research that has been done *heuristic behavioral and prospect theory partially affect investment decisions*, while the *role of personality* has no significant effect on *investment decisions*, but simultaneously, *heuristic behavioral, prospec theory*





and role of personality have a significant effect on investment decisions. It is hoped that investors can control their personality when starting an investment, because in making an investment there are many biases that will affect investment decisions which will indirectly provide losses or results that are not as desired by an investor.

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