The Influence of Representativeness Bias, Optimism Bias and Loss Aversion on Stock Investment Decision Making among Investors in Pontianak City

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Abstract

The study investigates the impact of representativeness bias, optimism bias, and loss aversion on stock investment decision-making among investors in Pontianak City. Using data from the Indonesian Central Securities Depository and other sources, the research explores the trends and behaviors of investors in the capital market. Through multiple linear regression analysis, the study finds significant correlations between these cognitive biases and investment decisions. The results suggest that while representativeness bias and optimism bias do not individually influence investment decisions, loss aversion has a significant impact. The research contributes to understanding the psychological factors affecting investment behavior in the stock market.

Keywords: Optimism, Stock Investment, Investor

Introduction

Every individual has different income and needs. Investment is a way of allocating money or other resources to get returns in the future. When investing, there are various types, namely shares, bonds, warrants and rights (Prameswari, 2022; Maulana et al., 2023). One commonly chosen is shares. By buying shares in a company, it can be said that the investor becomes the owner of the company. Investment is caused by demand and supply among investors in the capital market (Ramadhani et al., 2022; Townsend, 2020; Heikal et al., 2022).

Based on data from the Indonesian Central Securities Depository (KSEI), the number of capital market investors increased by 2023 on August 8 to 11.46 million investors. This value increased by 11.2% or an increase of 0.42% compared to July 2023 of 11.42 million. PT KSEI President Director Samsul Hidayat said the number of investors continues to increase (Fun et al., 2015). Investors in capital markets, mutual funds, shares and government securities. Based on the number of SIDs, the number of capital market investors increased from 10.31 million in 2022 to 11.46 million on 8 August 2023. In 2020, the number was 3.8 million, this value rose 92.9% to 7.4 million in 2021. In 2022, the number rose 37.6% to 10.3 million. As of June, the number of capital market investors rose to 11.2 million and increased again to 11.4 million in July 2023. In terms of demographics, 8 August 2023, individual investors in Indonesia were dominated by 62.16% men,

56.98% aged under 30 years, 32.29% were private, state employees and teachers, 64.04% had at least a high school education and 46.92% earned IDR 10 million to 100 million per year. Based on the composition of ownership, local investors in Indonesia still dominate at 99.68%, with details of 99.57% for stock investors and 99.91% for mutual fund investors.

Head of the West Kalimantan Indonesia Stock Exchange (BEI) Representative Office, Taufan Febiola, said that judging by the transaction value of shares in West Kalimantan as of August 2021, it had reached IDR 39.45 trillion. Transactions in 2019 were only IDR 7.39 trillion and in 2020 IDR 25.78 trillion. Existing transactions increased significantly compared to previous years.

Head of the West Kalimantan BEI Representative, Taufan Febiola, explained the condition of capital market development in West Kalimantan, with the number of investors reaching 132,662 investors as of August 2022 out of a population of 5 million. As of August, there was an increase in the number of accounts opened in the capital market by 28,472 investors. Meanwhile, there are 60,668 active investors in the stock market as of August 2022. Total transactions as of August 2022 reached IDR 25.29 trillion. Last year the number of transactions amounted to IDR 58.42 trillion. As for the investor profile, most of it is dominated by millennials. Supported by IDX's efforts to expand outreach and education for people who want to invest in the Capital Market by presenting the Investment Gallery (Ramdani et al., 2024; Santika et al., 2023; Furqani & Millati, 2023). The Faculty of Islamic Religion, Muhammadiyah University of Pontianak, through the Sharia Business Management Study Program (MBS) in collaboration with PT BEI and accompanied by MNC Sekuritas held the launch of the 700th "Sharia Investment Gallery (GIS)" which was included in the IDX 3P Fest series. Many factors influence decision making, external factors, namely position, problems, situations and influence from other groups. Internal factors, namely personality and experience.

Methods

The type of research used is associative or relationship. By using this research method, the relationship between the dependent variable and the independent variable will be known. This research is related to representativeness bias, optimism bias and loss aversion on stock investment decision making among investors in the city of Pontianak. This research uses questionnaire instruments and documentation." The population in this study is stock investors who invest in the capital market who live in the city of Pontianak for 2023 with a total of 45,850 people. Meanwhile, the number of samples in this study was 150. The sample was determined using a purposive sampling technique.

Results and Discussion

Validity test

Based on questionnaire data obtained from respondents and after carrying out a validity test on the data obtained, the validity results indicate the extent to which a measuring instrument or questionnaire is accurate in carrying out its measuring function. The results of the validity test of the statement representativeness bias, optimism bias, loss aversion and investment decisions can be seen in table 1 below:

Table 1. Validity Test Results

Research variable	Indicator	Pearson Correlation	Description
Representativeness Bias	X1.1	0.417	Valid
	X1.2	0.400	Valid
	X1.3	0.523	Valid
	X1.4	0.553	Valid
	X1.5	0.398	Valid
	X1.6	0.443	Valid
	X1.7	0.668	Valid
	X1.8	0.531	Valid
	X1.9	0.542	Valid
	X1.10	0.530	Valid
	X1.11	0.375	Valid
	X1.12	0.312	Valid
	X1.13	0.546	Valid
	X1.14	0.615	Valid
	X1.15	0.599	Valid
	X1.16	0.673	Valid
	X1.17	0.606	Valid
	X1.18	0.543	Valid
	X1.19	0.568	Valid
Optimism Bias	X2.1	0.721	Valid
	X2.2	0.629	Valid
	X2.3	0.691	Valid
	X2.4	0.664	Valid
	X2.5	0.110	Valid
	X2.6	0.153	Valid
	X2.7	0.342	Valid
	X2.8	0.558	Valid
	X2.9	0.580	Valid
	X2.10	0.559	Valid
	X2.11	0.489	Valid
	X2.12	0.577	Valid
	X2.13	0.622	Valid
	X2.14	0.775	Valid
	X2.15	0.706	Valid
	X2.16	0.766	Valid
Loss Aversion	X3.1	0.707	Valid
	X3.2	0.684	Valid
	X3.3	0.762	Valid
	X3.4	0.615	Valid
	X3.5	0.623	Valid
	X3.6	0.472	Valid
	X3.7	0.557	Valid
	X3.8	0.586	Valid

	X3.9	0.673	Valid
	X3.10	0.593	Valid
	X3.11	0.616	Valid
	X3.12	0.685	Valid
	X3.13	0.714	Valid
	X3.14	0.700	Valid
	X3.15	0.552	Valid
	X3.16	0.594	Valid
Investation decision	Y1.1	0.749	Valid
	Y1.2	0.807	Valid
	Y1.3	0.736	Valid
	Y1.4	0.673	Valid
	Y1.5	0.602	Valid
	Y1.6	0.637	Valid
	Y1.7	0.582	Valid
	Y1.8	0.661	Valid
	Y1.9	0.370	Valid
	Y1.10	0.667	Valid
	Y1.11	0.497	Valid
	Y1.12	0.597	Valid
	Y1.13	0.707	Valid
	Y1.14	0.729	Valid
	Y1.15	0.657	Valid
	Y1.16	0.668	Valid
	Y1.17	0.834	Valid
	Y1.18	0.685	Valid
	Y1.19	0.769	Valid
	Y1.20	0.610	Valid
	Y1.21	0.774	Valid
	Y1.22	0.742	Valid
	Y1.23	0.667	Valid
	Y1.24	0.797	Valid

Source: Processed data, 2024

Based on table 1, it is known that each indicator in the variable representativeness bias, optimism bias, loss aversion and investment decisions has a sig value. (2-tiled) < 0.05 and the Pearson correlation value is positive. This shows that the indicators in this research are all valid.

Reliability Test

Reliability testing is used to find out whether the measuring instrument can be relied on for further use. The reliability test results in this research used the Alpha Cronbach technique. The results of data reliability test variables representativeness bias (X1), optimism bias (2X), loss aversion and investment decisions can be seen in table 2:

Table 2. Reliability Test Results

Variable	Cronbach's Alpha	Description
Representativeness Bias	0.846	Reliable
Optimism Bias	0.863	Reliable
Loss Aversion	0.896	Reliable
Investation decision	0.946	Reliable

Source: Processed Data, 2024

Based on Table 2 above, it is known that the Cronbach's Alpha value for the representativeness bias variable is 0.846, the optimism bias variable is 0.863, the loss aversion variable is 0.896 and the investment decision variable is 0.946. All Cronbach's Alpha values in this study were > 0.6. This shows that the indicators used for the variable statements of representativeness bias, optimism bias, loss aversion and investment decisions are reliable or the respondents' answers to the statements in this research questionnaire are consistent or stable.

Classic assumption test

Normality test

The normality test aims to test whether in the regression model the confounding or residual variables have a normal distribution. The normality test in this study was carried out using the One Sample Kolmogorov-Smirnov Test. The criteria for determining normality that are usually used are if the sig value is > 0.05, the residual value is normally distributed. The results of the normality test calculations can be seen in Table 3 below:

Table 3. Normality Test Results

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		150
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	5.97065334
Most Extreme Differences	Absolute	.065
	Positive	.051
	Negative	-.065
Test Statistic		.065
Asymp. Sig. (2-tailed)		.200[c,d]

Source: Processed data, 2024

Based on Table 3 above, it is known that the value of Asymp. Sig. (2-tailed) 0.200 > 0.05 means the data is normally distributed.

Multicollinearity Test

The multicollinearity test is a test carried out to analyze the correlation between independent variables. To ensure whether or not there is multicollinearity in the regression model, it can be seen based on the tolerance and variance inflation factor (VIF) values. The results of the

multicollinearity test can be seen in Table 4 below:

Table 4. Multicollinearity Test Results

Coefficientsª			
Model		Collinearity Statistics	
		Tolerance	VIF
1	Representativeness Bias	.883	1.132
	Optimism Bias	.884	1.131
	Loss Aversion	.997	1.003

Source: Processed data, 2024

Based on Table 4, it can be seen that there is no multicollinearity between the independent variables in the regression model. This is indicated by the tolerance value of each variable > 0.10 and VIF < 10.

Linearity Test

The linearity test is used to see whether the model specifications used are correct or not. The results of the linearity test for the Representativeness Bias variable can be seen in table 5 below:

Table 5. Linearity Test Results

Representativeness Bias Variable in Investment Decisions Variable (X1)

ANOVA Table			Sum of Squares	df	Mean Square	F	Sig.
Investment Decisions * Representativeness Bias	Between Groups	(Combined)	1399.663	18	77.759	1.147	.315
		Linearity	.289	1	.289	.004	.948
		Deviation from Linearity	1399.375	17	82.316	1.214	.262
	Within Groups		8878.930	131	67.778		
	Total		10278.593	149			

Source: Processed data, 2024

Based on Table 5 above, it is known that the results of the linearity test show a linearity significance value of 0.262 > 0.05, so it can be concluded that there is a linear relationship between representativeness bias and investment decisions. The results of the linearity test for the optimism bias variable can be seen in Table 5 below:

Table 6. Linearity Test Results

Optimism Bias Variable in Investment Decisions Variable (X2)

ANOVA Table			Sum of Squares	Df	Mean Square	F	Sig.
Investment Decisions * Optimism Bias	Between Groups	(Combined)	927.575	16	57.973	.825	.656
		Linearity	.287	1	.287	.004	.949

	Deviation from Linearity	927.288	15	61.819	.879	.588
	Within Groups	9351.018	133	70.308		
	Total	10278.593	149			

Source: Processed data, 2024

Based on Table 6 above, it is known that the linearity test results show a linearity significance value of 0.588 > 0.05, so it can be concluded that there is a linear relationship between optimism bias and investment decisions. The results of the linearity test for the loss aversion variable can be seen in Table 7 below:

Table 7. Linearity Test Results

Loss Aversion Variable in Investment Decisions Variable (x3)

ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
Investment decision * loss aversion	Between Groups	(Combined)	6506.954	18	361.497	12.556	.000
		Linearity	4957.729	1	4957.729	172.196	.000
		Deviation from Linearity	1549.225	17	91.131	3.165	.000
	Within Groups		3771.640	13	28.791		
	Total		10278.593	149			

Source: Data Processed, 2024

Based on Table 7 above it is known that the linearity test results show a linearity significance value of 0,000> 0.05, it is concluded that there is a linear relationship between Loss Aversion and investment decisions.

Statistic analysis

Multiple linear regression analysis

Multiple linear regression test functions to calculate the quantitative effect of changes in an event of variable X on other events, namely the Y variable. The results of multiple linear regression tests can be seen in Table 9 below:

able 9. Multiple Linear Regression Test Results

Coefficientsª						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	29.006	11.193		2.592	.011
	Representatess Bias (X1)	-.050	.110	-.029	-.458	.648
	Bias Optimism (X2)	.034	.097	.022	.352	.725
	Loss Aversion (X3)	1.118	.096	.696	11.683	.000

Source: Data Processed, 2024

From Table 9, it can be seen that the following linear regression equations are as follows:

Y = 29,006-0,50X1+0,34X2+1,118X3

From the multiple linear regression equation can be explained as follows; (a) constant value of 29,006 which explains that if the representativeness variable bias, optimism and loss aversion are zero, the investment decision value is 29,006; (b) the regression coefficient value of the representativeness variable bias is 0.050, which means that if the X1 variable is one unit then Y will decrease by 0.050 units; (c) the regression coefficient value of the optimism bias variable is 0.034, which means that if the X2 variable is one unit then Y will increase by 0.034 units; (d) The regression coefficient value of the Loss Aversion variable is 1,118, which means that if the X3 variable is one unit then Y will increase by 1,118 units.

Correlation Coefficient Analysis (R)

Correlation analysis is carried out in order to test associative hypotheses, namely the relationship between variables in the population through variable relationship data in the sample. The results of the calculation of the correlation coefficient test can be seen in the following table:

Table 10. Correlation Coefficient Test Results (R)

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.695[a]	.483	.473	6.032

Source: Data Processed, 2024

From Table 10 it can be seen that based on the value of R (correlation) obtained is 0.695 where this value is between 0.60-0.799 This means the relationship between representativeness bias (X1), Bias Optimism (X2) and Loss Aversion (X3) against Investment Decision (Y) has a strong relationship.

Analysis of the coefficient of determination (R^2)

This test is to find out how much the contribution of variable X to Y. The results of the coefficient of determination (R2) can be seen in Table 4.14 states that the coefficient of determination (R2) or R square obtained is 0.483. This means 48.3% (1 x 0.483 x 100%) The ability of the independent variable in explaining the relevant variables is 48.3% the remaining 51.7% is explained by other variables that are not discussed in this study.

Test F (Simultaneous Effect Test)

The simultaneous effect test basically shows whether all independent variables included in the model have a joint effect on the dependent variable. The results of the simultaneous effect (F test) can be seen in Table 11 below:

Table 11. Test Results Simultaneous Effects (Test F)

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	4966.937	3	1655.646	45.508	.000[b]

Residual	5311.656	146	36.381		
Total	10278.593	149			

From Table 11 it can be seen that together the independent variables have a significant effect on the dependent variable. This can be seen from the probability value of GIS. amounting to 0,000 <0.05 means that the representativeness variable bias, bias optimism and loss aversion simultaneously have a significant influence on investment decisions.

T test (partial influence test)

The partial effect test (T test) was carried out to determine the effect of each variable independent variable representativeness bias, bias optimism and loss aversion on the dependent variable of investment decisions. The results of the partial influence test (T test) can be seen in Table 12 below:

Table 12. Results of the Partial Effect Test (T Test)

Coefficients[a]					
Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	29.006	11.193		2.592	.011
Representativeness Bias	-.050	.110	-.029	-.458	.648
Bias Optimisme	.034	.097	.022	.352	.725
Loss Aversion	1.118	.096	.696	11.683	.000
a. Dependent Variable: Investment Decision					

(Model column group labeled "1")

Based on Table 12 it can be seen that the results of the partial influence test (T test) produce sig values. which will be interpreted as follows: (1) The significant level of the bias representativeness variable (X1) is 0.648> 0.05. This means that the representativeness variable bias partially does not have a significant influence on the Investment Decision Variable (Y), so Ho is accepted HA is rejected; (2) The significant level of the Bias Optimism (X2) variable is 0.725> 0.05. This means that the variable bias optimism partially does not have a significant influence on the investment decision variable (Y), so Ho is accepted HA is rejected.

The significant level of the Loss Aversion (X3) variable is 0,000 <0.05. This means that the loss aversion variable partially has a significant influence on the investment decision variable (Y), then HA is accepted Ho.

Conclusion

Multiple linear regression shows the equation y = 29,006-0.50x1+0.34x2+1,118x3 Correlation coefficient (R) results between the effects of the representativeness of the bias (X1), Bias Optimism (X2) and Loss Aversion (X3) with Investment Decisions (Y), it is known that the relationship is strong. Strong relationships are obtained from the coefficient value r = 0.695 with

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the interview value between 0.60-0.799. The result of the coefficient of determination (R2) valued at 0.483 shows that investment decisions are influenced by the representativeness variables bias, optimism and loss aversion are only 48.3% and the remaining 51.7% is influenced by other variables or factors outside the study. Based on the results of the simultaneous influence test (F test) shows that representativeness bias, bias optimism and loss aversion simultaneously have a significant influence on investment decision making. This is obtained from the GIS value. amounting to 0,000 <0.05. Based on the results of the partial influence test (T test) shows that representativeness bias and bias optimism individually have no influence on investment decisions. Whereas Loss Aversion individually has an influence on investment decisions.

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