International Journal of Economics, Business and Accounting Research (IJEBAR)
Peer Reviewed – International Journal
Vol-8, Issue-3, 2024 (IJEBAR)
E-ISSN: 2614-1280 P-ISSN 2622-4771
https://jurnal.stie-aas.ac.id/index.php/IJEBAR

COGNITIVE BIAS AND BEGINNER INVESTORS

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Abstract: Forex investment is one of the investment instruments that is popular among the people of Indonesia. However, forex investment also has high risks, so it is important for investors to understand the factors that can affect their investment decisions, this study aims to test the influence of recency bias and familiarity bias on the decision-making of beginner investors in forex investment, this study uses a quantitative method with a survey design and the population of this study is students of the management study program UNIWDHA Klaten who have received learning about the stock market and forex and becoming a beginner investor, the research sample amounted to 47 people. From the results of this study, recency bias and familiarity bias are equally significant in influencing the decisions of novice investors, although recency bias has a greater influence than familiarity bias, from this result hopefully it can help in making investment decisions in the future

Keywords: *Recency bias, Familiarity bias, Forex, Investment, Cognitive bias*

Submitted: 2024-08-27; Revised: 2024-09-25; Accepted: 2024-09-29

1. Introduction

Forex (foreign exchange) is a futures investment instrument in Indonesia with the character of high risk high return. The popularity of forex is increasing due to its high potential returns. However, the risk of loss is also great. The government, through BAPPEPTI, regulates and supervises forex trading to mitigate this risk. Problems in forex are often caused by inappropriate investor behavior in analyzing and making decisions, such as cognitive, emotional, and social biases. An easily accessible online trading app also plays a role in this. Previous research has shown the influence of various biases on investment decisions. For example, research (Saputri, 2023) found that grazing and experience influence investment decisions. Research (Paramita et al., 2018) shows that overconfidence does not have a significant effect, but competence has a positive effect. (Otuteye & Siddiquee, 2015) develop heuristics to avoid cognitive bias. UPI research (Esi & Purnamasari, 2023) found that various biases do not have a partial effect, but have a simultaneous effect on investment decisions. This research focuses on the influence of Recency Bias and Familiarity Bias on forex investment decisions by UNWIDHA Klaten management students, who have gained knowledge about the stock market and forex. Forex (foreign exchange) is a futures investment instrument with a high risk and high return character that is increasingly popular in Indonesia. However, the risk of loss is also great so the government through BAPPEPTI regulates and supervises forex trading.

Previous research has focused a lot on forex technical and fundamental analysis, but there is still a lack of research that focuses on the perception of biased cognitive behavior. Forex is a global market for currency trading, with daily trading volumes reaching trillions of dollars. The market is decentralized and over-the-counter (OTC) trading. Some of the forex-related theories include: Purchasing Power Parity (PPP) Theory: Holds that the exchange rate between two currencies will adjust based on the difference in inflation rates between countries. Interest Rate Parity Theory (IRP): Holds that the difference in nominal interest rates in two countries will be offset by future changes in exchange rates. Expectation Model: Stating that the current exchange rate reflects the market's expectations of future exchange rates. Portfolio Theory: Holds that exchange rates are influenced by investors' preferences for domestic versus foreign assets. Recency Bias and Familiarity Bias Recency Bias is an individual's tendency to remember more and give more weight to recent information or experiences. This bias can affect investment decision-making. Familiarity Bias is the tendency to prefer familiar things, avoiding unfamiliar things. In investing, this bias can lead to a less diversified portfolio Research

2. Research Method

This study uses a quantitative method with an experimental design to test the cause-and-effect relationship between independent variables (Recency Bias and Familiarity Bias) and dependent variables (forex investment decision-making). Population: 5th semester management students who have taken TPAI courses and participated in guest lecturers from Yogyakarta futures office experts.Sample: 47 students aged 19-22 years with an income of less than 2 million rupiah.

Questionnaire: Consists of two parts, namely measuring Recency Bias and Familiarity Bias as well as forex investment decision-making by novice investors Online Questionnaire: Distributed through a survey platform or Google Form to students who meet the criteria. Data Analysis Data Description: Presents averages, standard deviations, and frequency distributions. Correlation Test: Uses Pearson's correlation to measure the strength and direction of the relationship between Recency Bias and Familiarity Bias with investment decision-making. Simple Linear Regression: To measure the influence of each bias on investment decision-making. Assumption Test: Includes normality test, homoscedasticity test, and multicollinearity test. Research Hypothesis H1: Recency Bias has a significant effect on investment decision-making. H2: Familiarity Bias has a significant effect on investment decision-making. The data will be processed using the SPSS application to test hypotheses and determine the significance of the influence of Recency Bias and Familiarity Bias on forex investment decision-making by students.

3. Results and Discussion

3.1. Results

Result the results of data processing using SPSS from 47 student respondents with male and female genders, age range of 19 – 22 years who are called beginner investors, and have an income of less than 2 million rupiah, who use funds that are not very risky with a minimum investment fund. Validity and Reliability Test Results. The results of this test show that everything is valid and can be used for further testing, Based on the results of the Pearson correlation given to test the validity of the Recency Bias variable with four statement items, we can conclude as follows:

Correlation Table

Statement items	Correlation value (r calculate)	R tabel (n=47; α = 0,05)	Information
Statement 1	0.740	0.287	Valid
Statement 2	0.739	0.287	Valid
Statement 3	0.721	0.287	Valid
Statement 4	0.673	0.287	Valid

Table 1. Validity of Recency Bias

Statement 1 Correlation Value (r calculate): 0.740 R table (n=47; α = 0.05): 0.287 Conclusion: Since r calculates (0.740) > r table (0.287), statement 1 is valid.
Statement 2 Correlation Value (r calculate): 0.739 R table (n=47; α = 0.05): 0.287 Conclusion: Since r calculates (0.739) > r table (0.287), statement 2 is valid.
Statement 3 Correlation Value (r calculate): 0.721 R table (n=47; α = 0.05): 0.287 Conclusion: Since r count (0.721) > r table (0.287), statement 3 is valid.
Statement 4 Correlation Value (r-calculate): 0.673 R table (n=47; α = 0.05): 0.287 Conclusion: Since r calculates (0.673) > r table (0.287), statement 4 is valid.

All 4 statements of the Recency Bias variable have a correlation value (r calculated) greater than the R value of the table (0.287). Therefore, it can be concluded that all of these items are valid and can be used to measure the Recency Bias variable. Based on the results of the Pearson correlation given to test the validity of the Familiarity Bias variable with six statement items, we can conclude as follows: Correlation Table

Item	Correlation Value (r count)	R table (n=47; α = 0,05)	information
Statement 1	0.728	0.287	Valid
Statement 2	0.729	0.287	Valid
Statement 3	0.692	0.287	Valid
Statement 4	0.416	0.287	Valid
Statement 5	0.529	0.287	Valid
Statement 6	0.762	0.287	Valid

Table 2. Results of Familiarity

Bias Validity Test It can be concluded as follows:
Statement 1 Correlation Value (r calculate): 0.728 R table (n=47; α = 0.05): 0.287 Conclusion: Since r calculate (0.728) > r table (0.287), it is valid.
Statement 2 Correlation Value (r calculate): 0.729 R table (n=47; α = 0.05): 0.287 Conclusion: Since r count (0.729) > r table (0.287), valid.
Statement 3 Correlation Value (r calculate): 0.692 R table (n=47; α = 0.05): 0.287 Conclusion: Because r calculation (0.692) > r table (0.287), valid.

Statement 4 Correlation Value (r calculate): 0.416 R table (n=47; α = 0.05): 0.287 Conclusion: Because r calculates (0.416) > r table (0.287), valid.
Statement 5 Correlation Value (r calculate): 0.529 R table (n=47; α = 0.05): 0.287 Conclusion: Because r calculation (0.529) > r table (0.287), valid.
Statement 6 Correlation Value (r calculate): 0.762 R table (n=47; α = 0.05): 0.287 Conclusion: Because r count (0.762) > r table (0.287), it is valid.
All statement items of the Familiarity Bias variable have a correlation value (r calculated) greater than the table R value (0.287). Therefore, it can be concluded that all of these items are valid and can be used to measure the Familiarity Bias variable. Reliability Test Results below
Case Processing Summary

- Valid Cases : 47 (97.9%)
- Excluded Cases : 1 (2.1%)
- Total Cases **:** 48 (100%)

These results showed that out of a total of 48 cases, 47 cases were considered valid and used in the analysis, while 1 case was excluded from the analysis because it did not meet the criteria.
Reliability Statistics

- Cronbach's Alpha : 0.844
- Number of Items : 17

Reliability Test Conclusion Based on the reliability coefficient category according to (JP Gulford, 1956), Cronbach's Alpha value of 0.844 is included in the category of "very high reliability" because it is in the range of $0.80 < r11 \leq 1.00$. So it can be concluded that most cases (97.9%) are considered valid, so the data used in this analysis are quite representative. The reliability of the Cronbach's Alpha value of 0.844 shows that the instrument used to measure the variables in this study has very high reliability. This means that the items in the instrument are consistent in measuring the concept in question. For this reason, the instrument used can be relied on for further research because it has been proven to have very high reliability, this valid and reliable data can be used to make strong and accurate inferences about the variables being studied, namely Recency Bias and Familiarity Bias.
Simple linear regression test results.

Test Results for Recency Bias
Regression Equation
The regression model used is:
$Y=\beta0+\beta1\cdot XRecency\ Bias+\varepsilon Y=\beta0+\beta1\cdot XRecency\ Bias+\varepsilon$
Model Summary

- **R** **:** 0.506
- **R Square** **:** 0.256
- **Adjusted R Square** **:** 0.239
- **Std. Error of the Estimate** **:** 2.411

The interpretation of the above result is an R Square (R^2) of 0.256 indicating that 25.6% of the variation in Keputusan_Investasi variable can be explained by the Recency_Bias variable. Then for the Adjusted R Square of 0.239 slightly lower than the R Square, adjust the number of predictors in the model.

ANOVA

- Regression Sum of Squares : 89.967
- Residual Sum of Squares : 261.522
- Total Sum of Squares : 351.489
- F-Statistic : 15.481
- Significance (Sig.) : 0.000

The interpretation of the above results is an F value of 15.481 with a significance level of 0.000, indicating that the regression model as a whole is significant. This means that Recency_Bias variables significantly affect Keputusan_Investasi.

Coefficients

- Constant (Intercept, β0**):** 9.706
  - Std. Error **:** 2.747
  - t-Statistic **:** 3.533
  - Significance (Sig.) **:** 0.001
- Recency_Bias **(**β1**):** 0.860
  - Std. Error **:** 0.219
  - Standardized Coefficient (Beta) **:** 0.506
  - t-Statistic **:** 3.935
  - Significance (Sig.) **:** 0.000

The conclusion above is that the Constant (β0) of 9.706 shows that if the Recency_Bias value is 0, then the average value of Keputusan_Investasi is 9.706. for a Coefficient of Recency_Bias (β1) of 0.860 indicates that every increase of one unit in Recency_Bias will increase Keputusan_Investasi by 0.860 units. This coefficient is statistically significant with a p-value of 0.000.Recency_Bias variable has a significant influence on Keputusan_Investasi.
This regression model explains 25.6% variation in Keputusan_Investasi.
The coefficient value shows that Recency_Bias has a positive influence on Keputusan_Investasi, with a regression coefficient of 0.860.
The resulting regression model is: Y=9.706+0.860·XRecency BiasY=9.706+0.860·XRecency Bias
The F test shows that this model is significant overall. Therefore, it can be concluded that there is a significant and positive relationship between Recency_Bias and Keputusan_Investasi.

Regression Equation
Model regresi yang digunakan adalah :
Y=β0+β1·XFamiliarity Bias+ϵY=β0+β1·XFamiliarity Bias+ϵ
Model Summary

- R **:** 0.438
- R Square **:** 0.192
- Adjusted R Square **:** 0.174
- Std. Error of the Estimate **:** 2.512

The conclusion that the R Square (R^2) of 0.192 indicates that 19.2% of the variation in the Keputusan_Investasi variable can be explained by the Familiarity_Bias variable. Then the Adjusted R Square of 0.174 is slightly lower than the R Square, adjusting for the number of predictors in the model.

ANOVA

- *Regression Sum of Squares* **:** *67.427*
- *Residual Sum of Squares* **:** *284.062*
- *Total Sum of Squares* **:** *351.489*
- *F-Statistic* **:** 10.682
- *Significance (Sig.)* **:** 0.002

The result of an F value of 10.682 with a significance level of 0.002 indicates that the regression model as a whole is significant. This means that Familiarity_Bias variable significantly affects Keputusan_Investasi.

Coefficients **result**

- *Constant (Intercept, β0)**:** 11.608*
  - *Std. Error* **:** *2.723*
  - *t-Statistic* **:** *4.264*
  - *Significance (Sig.)* **:** *0.000*
- *Familiarity_Bias **(β1):** 0.488*
  - *Std. Error* **:** *0.149*
  - *Standardized Coefficient (Beta)* **:** *0.438*
  - ***t-Statistic*** **:** *3.268*
  - *Significance (Sig.)* **:** 0.002

A Constant (β0) result of 11.608 indicates that if the Familiarity_Bias value is 0, then the average value of Keputusan_Investasi is 11.608. and the result of the Coefficient of Familiarity_Bias (β1) of 0.488 shows that every increase of one unit in Familiarity_Bias will increase the Keputusan_Investasi by 0.488 units. This coefficient is statistically significant with a p-value of 0.002. This Familiarity_Bias variable has a significant influence on Keputusan_Investasi

- This regression model explains 19.2% variation in Keputusan_Investasi.
- The coefficient value shows that Familiarity_Bias has a positive influence on Keputusan_Investasi, with a regression coefficient of 0.488.
- The resulting regression model is: Y=11.608+0.488·XFamiliarity BiasY=11.608+0.488·XFamiliarity Bias
- The F test shows that this model is significant overall Therefore, it can be concluded that there is a significant and positive relationship between Familiarity_Bias and Keputusan_Investasi.

Multikolinearitas test result

Tolerance dan Variance Inflation Factor (VIF)

- *Familiarity_Bias*
  - *Tolerance* *: 0.727*
  - *VIF* *: 1.376*
- *Recency_Bias*
  - *Tolerance* *: 0.727*
  - *VIF* : 1.376

Inferred Tolerance is a measure of how many independent variables are not accounted for by other independent variables in the model. A low tolerance (generally below 0.1) indicates high multicollinearity.then for VIF (Variance Inflation Factor): VIF is the opposite of Tolerance (1/Tolerance). A VIF above 10 is generally considered to indicate a serious multicollinearity problem. In the table above, the Tolerance value for Familiarity_Bias and Recency_Bias is

0.727 and the VIF value is 1.376. This shows that there are no serious multicollinearity issues between the independent variables in this model because the Tolerance value is quite high (above 0.1) and the VIF value is well below 10. Conclusion Multicollinearity There is no serious multicollinearity problem between Familiarity_Bias variables and Recency_Bias in influencing Keputusan_Investasi. This is indicated by a high Tolerance value (0.727) and a low VIF value (1.376). Influence of Familiarity_Bias and Recency_Bias: Although the two independent variables did not indicate a multicollinearity problem, only Recency_Bias significantly affected Keputusan_Investasi (p-value = 0.014). Familiarity_Bias was insignificant at a significance level of 0.05 (p-value = 0.114). Thus, a regression model that incorporates these two variables can be used without worrying about multicollinearity, and Recency_Bias shows a more significant influence than Familiarity_Bias in determining Keputusan_Investasi.

Autocorrelation Test Results

dL	4-dL	dU	4-du	DW	Interpretasi
1.443	**2.557**	**1.620**	**2.380**	**1.946**	**Tidak terjadi autokorelasi**

Table 3 correlation test

Based on the results shown in the table above, it is known that the Durbin Watson value of the test results is between dU < DW < 4-dU (1,620 < 1,946 < 2,380), then it can be concluded that there is no autocorrelation in the regression model that is formed.

ANOVA Table

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	104.529	2	52.264	9.312	.000b
Residual	246.961	44	5.613		
Total	351.489	46			

Table anova F test

With the result of the calculated F value of 9.312 is greater than the table F value of 4.06. This shows that independent variables (Recency_Bias and Familiarity_Bias) simultaneously or together have a significant influence on the dependent variable (Keputusan_Investasi). Based on the results of the F test, it can be concluded that the independent variables Recency_Bias and Familiarity_Bias together have a significant effect on the dependent variable Keputusan_Investasi. This is indicated by the F value of the count (9.312) which is greater than the F value of the table (4.06) with a significance level of p-value of 0.000, which is below the significance level of 0.05.

Partial Test Results (uji t)

Coefficients Table

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.	Correlations	Collinearity Statistics
	B	Std. Error	Beta		Zero-order	Partial
(Constant)	7.544	3.015		2.502	.016	

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.	Correlations	Collinearity Statistics
Familiarity_Bias	.266	.165	.239	1.611	.114	.438
Recency_Bias	.648	.252	.381	2.571	.014	.506

Table 4 coefficient

The test results can be presented as follows:

- **Familiarity_Bias:**
  - t count : 1.611
  - Sig. (p-value): 0.114
  - Conclusion: Since the t-value of the calculation (1.611) < the t-value of the table (1.678) and the p-value (0.114) > 0.05, Familiarity_Bias has no significant influence on Keputusan_Investasi.
- **Recency_Bias:**
  - t count : 2.571
  - Sig. (p-value): 0.014
  - Conclusion: Since the t-value of the calculation (2.571) > the t-value of the table (1.678) and the p-value (0.014) < 0.05, Recency_Bias has a significant influence on Keputusan_Investasi.

Conclusion Based on the results of the partial t-test, it can be concluded that :Familiarity_Bias does not have a significant influence on Keputusan_Investasi, because the calculated t-value is smaller than the table t-value and the p-value is greater than 0.05. and then Recency_Bias have a significant influence on Keputusan_Investasi, as the calculated t-value is greater than the t-table and the p-value is less than 0.05.Thus, between the two independent variables, only Recency_Bias has a significant effect on investment decisions

3.2. Discussion

The results of the calculation through statistics are discussed as follows:

1. Validity and Reliability Test Results
   Validity Test: Based on the results of the validity test using Pearson correlation, all statement items in the Recency Bias and Familiarity Bias variables show a correlation value (calculated r) greater than the r-value of the table (0.287) with a significance level of 0.05. This indicates that all of the statement items are valid and can be used to measure the variable in question. Thus, the instruments used in this study can be relied upon to measure Recency Bias and Familiarity Bias in novice investors.

   Reliability Test: The reliability test results showed a Cronbach's Alpha value of 0.844 for 17 statement items. Based on the reliability coefficient category according to Guilford, this value is included in the category of "very high reliability". This means that the instruments used are consistent in measuring the concept in question, and the data generated is reliable for further research.
2. Simple Linear Regression Test Results
   Recency Bias: The results of a simple linear regression analysis show that Recency Bias has a significant influence on Investment Decisions. An R Square value of 0.256 indicates that 25.6% variation in Investment Decisions can be explained by Recency Bias. The Recency Bias regression coefficient of 0.860 indicates that every increase of one unit in

Recency Bias will increase the Investment Decision by 0.860 units. This model is statistically significant with an F value of 15,481 and a p-value of 0,000.

Familiarity Bias: The results of a simple linear regression analysis show that Familiarity Bias also has a significant influence on Investment Decisions. An R Square value of 0.192 indicates that 19.2% variation in Investment Decisions can be explained by the Familiarity Bias. The Familiarity Bias regression coefficient of 0.488 indicates that every increase of one unit in Familiarity Bias will increase Investment Decision by 0.488 units. This model is statistically significant with an F value of 10.682 and a p-value of 0.002.

3. Multicollinearity Test Results
   The multicollinearity test shows that there is no serious multicollinearity problem between the Familiarity Bias and Recency Bias variables in influencing Investment Decisions. The Tolerance value for these two variables is 0.727, and the VIF value is 1.376, which is below the critical threshold (VIF < 10).
4. Autocorrelation Test Results
   Based on the results of the autocorrelation test with a Durbin Watson value of 1,946, which is between dU and 4-dU (1,620 < 1,946 < 2,380), it can be concluded that there is no autocorrelation in the regression model formed. This regression model is free from autocorrelation problems, which means that the assumption of residual independence in linear regression is met.
5. Partial Test Results (t-test)
   Familiarity Bias: The results of the t-test show that Familiarity Bias has no significant influence on Investment Decisions (t count = 1.611, p-value = 0.114). Because the calculated t-value is smaller than the t-table (1.678) and the p-value is greater than 0.05, the Familiarity Bias does not have a significant effect on investment decisions.
   Recency Bias: The results of the t-test show that Recency Bias has a significant influence on Investment Decisions (t count = 2.571, p-value = 0.014). Because the calculated t-value is greater than the t-table (1.678) and the p-value is less than 0.05, the Recency Bias has a significant effect on investment decisions.

4. Conclusion

The conclusion from the results of data processing with the above analysis can be concluded that:

1. A valid and reliable research instrument to measure Recency Bias and Familiarity Bias in novice investors.
2. Recency Bias has a significant and positive influence on Investment Decisions.
3. Familiarity Bias also has a significant influence on Investment Decisions, but it has a smaller effect compared to Recency Bias.
4. There are no multicollinearity and autocorrelation problems in the regression model used.
5. Based on the partial t-test, Recency Bias has a significant influence on Investment Decisions, while Familiarity Bias has no significant influence.

Thus, in making investment decisions, Recency Bias is more dominant in influencing the decisions of beginner investors compared to Familiarity Bias.

1. That *Recency* bias behavior significantly affects investment decision-making, especially in forex investment instruments and its influence is greater than *Familiarity* bias behavior in beginner investors

2. That *familiarity* behavior can significantly affect investment decision-making, especially forex investment instruments for beginner investors.
   So both of them affect the investment decisions made by beginner investors, in accordance with the purpose of the above research that to find out whether or not cognitive bias behavior, namely *Recency* bias and *Familiarity* bias, can later be used as a reference so that they can better organize investor behavior so that they can generate large profits on an investment

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