Perceived Herding Behavior and Experienced Regret on Crypto Asset's Investment Decisions by Millennials

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ABSTRACT

The number of crypto asset enthusiasts continues to increase significantly over the past few years. Badan Pengawas Perdagangan Berjangka Komoditi (Bappebti) noted that crypto investors in Indonesia had reached 17.25 million people in April 2023. As the number of enthusiasts in crypto assets evolving, crypto assets have a very volatile and difficult to predict its price characteristics. This causes a lot of irrational investor's behavior towards their decisions. Under these conditions, investor's behavior can be influenced by psychological and emotional factors such as herding behavior and experienced regret. The purpose of this research is to determine the effect of herding behavior and experienced regret on the decision to invest in crypto assets by millennials. The research method uses a survey method with the research sample consisting of students and employees who are domiciled in urban areas of Surabaya and Sidoarjo. The analysis technique used in this study is multiple linear regression analysis using SPSS version 26 software. The results of the research show that herding behavior and experienced regret have a partial positive effect towards millennials' investment decisions in crypto assets.

Keywords : Herding Behavior; Experienced Regret; Investment Decision; Crypto Assets; Urban Society

I. INTRODUCTION

Over the time various types of investment instruments are growing. There are many choices on investment instruments such as gold, stocks, mutual funds, and bonds. Currently there is a new type of investment instrument which is emerging in Indonesia, the investment in crypto assets. Crypto assets are commodities that can be traded in Indonesia in accordance with the Regulation of Badan Pengawas Perdagangan Berjangka Komoditi Nomor 5 Tahun 2019 concerning Technical Provisions for Organizing the Physical Market for Crypto Assets on the Exchange. During the period of COVID 19 pandemic in Indonesia, the Indonesian interested in crypto assets continued to increase. As of April 2023, the Commodity Futures Trading Regulatory Agency (Bappebti) noted that crypto investors in Indonesia had reached 17.25 million people in April 2023.

Despite the large number of crypto asset enthusiasts, crypto assets have very volatile and difficult to

predict especially to the price characteristics, so investors need to be extra careful when investing in these assets (Zakaria et al., 2022). This causes a lot of investor's behavior which lead to least rational in making decisions. Research by Kapoor & Prosad (2017) stated that investors tend to be less rational because they tend to choose types of investment instruments that have the opportunity to experience losses. This happens because investors want to get high returns in a short time (Addinpujoartanto & Darmawan, 2020). This relates to the theory of behavioral finance which discusses the behavior of investors in making investment decisions psychologically. Behavioral finance theory is the result of combining psychological factors and a rational financial perspective in the decision-making process (Khanza et al., 2022). The research also explains that behavioral finance does not only always have a rational nature but is also determined by irrational traits such as sociological and psychological factors.

Behavioral finance theory was developed by a professor of economics and behavioral science named Richard Thaler (Sadalia & Butar-Butar, 2014:3-5). The book also explains that behavioral finance is the science that studies how financial behavior can be influenced by psychological phenomena. According to Ricciardi & Simon (2000), factors such as sociology, finance, economics, accounting, investment, and psychology can influence behavioral finance. The research also explains that behavioral finance does not only always have a rational nature but is also determined by irrational traits such as psychological and sociological factors. Under the behavioral finance theory, there is a behavioral bias. Examples of these behavioral biases include herding behavior and experienced regret (Pompian, 2006).

Crypto asset investors are investors who are irrational. This happens because crypto assets do not have clear information that is used to analyze investment decisions so that in determining investment decisions in crypto assets investors are influenced by sociological and psychological factors. Therefore, a behavioral bias appears called herding behavior. Based on research by Virigineni & Rao (2017) investors who behave in herding behavior, their investment decisions are based on the behavior of other investors or based on conditions that occur in the market. Research by Youssef & Waked (2022), Al-mansour (2020), and Afifah & Juwita (2022) reveals that herding behavior has a positive influence on decision making to invest in crypto assets. There are differences in the results of research conducted by Pranyoto et al (2020) proving that herding behavior does not affect investment decisions in bitcoin crypto assets.

Apart from herding behavior, there are also other factors such as experience that can influence a person in making investment decisions. Based on this, a behavioral bias called experienced regret appears. According to Putra et al (2016), the more a person has a lot of investment experience, the more that person has had a losing investment experience. This study also explains that the higher the experienced regret a person has, the more likely he is to choose the type of investment instrument with a high risk. Based on research by (Wulandari & Iramani (2014) experienced regret occurs when someone will continue to invest for a long time even though the returns received are not as expected. Research by Gazel (2015), Pranyoto et al (2020), and Addinpujoartanto & Darmawan (2020) suggests that experienced regret has a positive influence on investment decision making. The following hypothesis is developed and to be examined:

H1: Herding behavior has a positive influence on the decision to invest in crypto assets by millennials.

Based on the previous research described above, there are different research results on the variables of herding behavior and experienced regret that affect the variable determining the decision to invest in crypto assets so that this variable can be continued with research to deepen the subject matter. The purpose of this study is to determine the effect of herding behavior and experienced regret on the decision to invest in crypto assets by millennials in the Surabaya and Sidoarjo areas. The novelty of this research is explains the differences in crypto asset investment decisions between students and employees. In addition, this research will also explain the crypto asset investment decisions in urban communities in the Surabaya and Sidoarjo areas. From this discussion, the following hypothesis is developed and to be tested:

H2: Experienced regret has a positive influence on the decision to invest in crypto assets by millennials.

II. RESEARCH METHOD

This type of research is quantitative research using a questionnaire survey method. The type of data used in this study is quantitative data. While the data source in this study is the primary data source. The primary data collection process is carried out by distributing questionnaires directly using the Google Form media to respondents who meet the criteria. The number of respondents in this study were 107 people. Questionnaire answers were measured using a Likert scale with a value of 1 to 5. The explanation of the scale will be explained in table 1. The analysis technique used was multiple linear regression analysis with the help of SPSS version 26 software.

Table 1. Likert Scale

Description	Value
Very Disagreed	1
Disagreed	2
Neutral	3
Agreed	4
Very Agreed	5

Source: Sugiyono, 2022

The population of this study is the millennial generation who live in the Surabaya or Sidoarjo area which aged ranging between 20-39 years. The number of millennials in Surabaya and Sidoarjo based on data for 2020 at the Badan Pusat Statistik is 1,868,396 people. Slovin formula was used to determine the sample to be used for this study complemented by the purposive sampling method with criteria that had been made by the researcher, namely:

a. Age between 20 years – 39 years;
b. Domiciled in Surabaya or Sidoarjo;
c. Have invested in crypto assets;
d. Have invested in other instruments besides crypto assets.

Herding Behavior

Based on research by Fityani & Arfinto (2015), herding behavior is the behavior of investors imitating the behavior of other investors when making investment decisions thereby forming an inefficient market. The indicators of this variable are the decisions of other investors regarding the selection of types of investment instruments that have an impact on determining investment decisions, the decisions of other investors in buying and selling a type of investment have an impact on determining investment decisions, and are responsive to changes in other investors' investment decisions and directly imitate behavior. other investors (Tan et al., 2008).

Experienced Regret

According to Weber & Johnson (2009), the notion of experienced regret is someone who has experience and that experience can cause that person to have a feeling of regret and disappointment in making investment decisions. The indicators of this variable are experiencing losses when investing, having feelings of regret when investing, and the impact of experiencing losses on subsequent investments (Wulandari & Iramani, 2014).

Investment Decision

According to Dewi & Jati (2014), an investment decision is a decision to use certain capital to buy one type of asset or several assets in order to obtain future profits. Indicators of this variable are using income to invest in risky types of investments, investing without prior consideration, investing without collateral, and investing based on intuition/feelings (Wulandari & Iramani, 2014).

Data Analysis Technique

Multiple linear regression analysis techniques using BM SPSS version 26 software was used for data analysis. The choice of using multiple

regression analysis in this study was based on a research model that tested the effect of two independent variables and one dependent variable. The independent variables used in this study are herding behavior (X1) and experienced regret (X2), while the dependent variable in this study is investment decisions (Y). Before carrying out multiple linear regression analysis, the classical assumption test is carried out first so that it is free from multicollinearity, heteroscedasticity, and the data can be normally distributed. After the classic assumption test process, it is followed by testing the hypothesis, namely the coefficient of determination (R2), the F test, and the individual parameter significant test (T test). The following is a multiple linear regression equation.

$ID = \alpha + \beta 1HB + \beta 2ER + \ldots + \varepsilon$

Keterangan:

ID : Investment Decision
HB : Herding Behavior
ER : Experienced Regret
α : Constanta
β : Regression Coefficient
ε : Error

III. RESULTS AND DISCUSSION

The respondents of this study consisted of 34% who were employees and 66% who were students. From the data that has been collected, 34% are men and the remaining 66% are women. 52% of them are investors in the capital market consisting of stocks, mutual funds and bonds and 48% are crypto asset investors. From the data that has been collected, respondents who invest in crypto assets do not only invest in crypto assets, but are accompanied by investing in capital markets such as stocks, mutual funds and bonds.

Validity Test

The results of the validity test of all statement items for each variable have a r_{count} value of more than 0.1900, meaning that all statement items for each variable are said to be valid at a probability of 5%.

Reliability Test

Herding behavior variable has a cronbach alpha value of 0.784. The experienced regret variable has a cronbach alpha value of 0.814. The investment decision variable has a cronbach alpha value of 0.735. All statement items for each variable are considered reliable because they have a Cronbach Alpha value of more than 0.60

Normality Test

Table 2. Normality Test

N	107
Asymp. Sig. (2-tailed)	.200[c,d]
a. Test distribution is Normal.	

Source: Data processed, 2023

In table 2 above it can be seen that the asymp.sig (2-tailed) value is 0.200, meaning that the significance value is more than 0.05 so that the data obtained in this study is normally distributed.

Multicollinearity Test

In table 3, all independent variables have a VIF (variance inflaying factor) value of 1.122,

meaning that all independent variables have a VIF (variance inflaying factor) value of less than 10 so that there are no signs of multicollinearity in the dependent variable.

Table 3. Multicollinearity Test

Variable	VIF
HB	1.122
ER	1.122

Source: Data processed, 2023

Heteroscedasticity Test

In table 4 below, it can be seen that the herding behavior variable has a significance value of 0.095 and the experienced regret variable has a significance value of 0.680. This means that all independent variables have a significance value of more than 0.05, so that it is stated that there are no heteroscedasticity problem.

Table 4. Heteroscedasticity Test

Variable	Sig.
HB	.095
ER	.680

Source: Data processed, 2023

Mutiple Linear Regression

The table below shows the regression equation that can determine whether two or more independent variables have an influence on the dependent variable. The following is the equation of the multiple linear regression model.

ID= 6.588 + 0.281 HB+0.304 ER +ε

Table 5. Multiple Linear Regression

Model	B
Constant	6.588
HB	.281
Er	.304

Source: Data processed, 2023

Coefficient of Determination

Based on table 5, it can be seen that the adjusted R square has a value of 17.2%, so it can be concluded that the independent variables used in this study, namely herding behavior and experienced regret, have an influence of 17.2% on the dependent variable, namely the decision to invest in crypto assets. Meanwhile, around 82.8% could be affected by other variables not tested in this study.

Table 6. Coefficient of Determination

Model	R Square	Adjusted R Square
1	.188	.172

Source: Data processed, 2023

Hypothesis Test (F Test)

From table 7, it can be seen that the F_{count} value is 12.002 with a significance value of 0.000. It can be interpreted that the variables of herding behavior and experienced regret simultaneously influence the decision to invest in crypto assets by millennials. The results of the analysis show that the F_{count} is 12.002 > F_{table} 3.083 and the significance value is at 0.000 <0.05. Based on the results of the analysis that has been described, it can be interpreted that

H0 fails to be accepted and Ha can be accepted.

Table 7. F Test

ANOVA		
	F	Sig.
Regression	12.002	.000

Source: Data processed, 2023

Hypothesis Test (T Test)

Based on table 8, the herding behavior variable has a t_{count} value of 2.508 > t_{table} of 1.983 with a significance value of 0.014 <0.05 so H0 fails to be accepted and H1 can be accepted. From the results of the analysis, it can be said that the herding behavior variable has a positive influence on the decision to invest in crypto assets by millennials.

The experienced regret variable has a t_{count} of 3.148 > t_{table} of 1.983 with a significance value of 0.002 <0.05. so that H0 fails to be accepted and H2 can be accepted. From the results of the analysis, it can be said that the experienced regret variable has a positive influence on the decision to invest in crypto assets by millennials.

Table 8. T Test

	t	Sig.
HB	2.508	.014
ER	3.148	.002

Source: Data processed, 2023

The results of the study show that H1 which consist of herding behavior has a positive influence on millennials' decisions to invest in crypto assets. Someone can be easily influenced by other people around them who also use crypto assets so they also invest. Apart from being influenced by other people, investment trends can also influence someone in making crypto asset investment decisions. This means that when someone follows other people in making investment decisions on crypto assets, it means that someone is also following a growing investment trend.

The dominance of research respondents with student status shows that there is a strong influence of herding behavior on the decision to invest in crypto assets among millennials. A student and an employee certainly have different behaviors in managing finances. This also applies in determining investment decisions. As employees, they have more sensitivity to investment risk assessment than students. The results of this study are in accordance with research by Al-mansour (2020) and Youssef & Waked (2022) which suggest that herding behavior has a positive influence in determining decisions to invest in crypto assets. The results of this study are also consistent with the behavioral finance theory. One example of behavioral bias in behavioral finance theory is herding behavior (Pompian, 2006).

The results of subsequent studies suggest that H2 that comprise of experienced regret has a positive influence on millennial investment decisions in crypto assets. This means that the greater the experienced regret

experienced by a person, the more courageous he is in making investment decisions by choosing high-risk types of investment instruments. Most of the research respondents are crypto asset and stock investors. It can be said that the respondents of this study are risk takers because stocks and crypto assets are high-risk types of investment. This is also evidenced by the domicile of the respondents who are in the urban areas of Surabaya and Sidoarjo. People living in urban areas have characteristics of being open to risk and innovation, change, and new ideas (Inkeles, 1980:87-99).

Therefore, people who live in urban areas such as Surabaya and Sidoarjo are willing to take risks and are open to developments in the investment sector. This can also be shown from the characteristics of research respondents consisting of 48% of crypto asset investors and 52% of capital market investors who are dominated by stocks, where crypto assets and stocks are a type of investment instrument that has a high risk. The results of this study are in line with research by Subash (2012) and Putra et al (2016) which reveal that experienced regret has a positive influence on investment decisions. The findings of this study are also consistent with the behavioral finance theory. One example of behavioral bias in behavioral finance theory is regret aversion which consists of experienced regret (Pompian, 2006).

IV. CONCLUSION

Based on the results of data analysis and discussion carried out, it can be concluded that both herding behavior and experienced regret have a partial positive influence on the investment decision of millennials in crypto assets. It is suggested for future researchers to be able to add other research variables such as risk tolerance, overconfidence, risk perception, and anticipated regret which are part of regret aversion bias. This research is only limited to respondents or investors who are domiciled in the Sidoarjo and Surabaya areas, so it is suggested that future researchers can use criteria for other districts/cities or expand the criteria for respondents' domiciles such as East Java or throughout Indonesia.

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