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The Influence of Financial Literacy, Income Level and Herding Behavior on Investment Decisions

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Abstract:

This research aims to determine the influence of Financial Literacy, Income Level, & Herding Behavior on Investment Decisions in PT workers. AA, in Bekasi Regency. The population in this study are workers who work at PT. AA with a sample size of 246 respondents. The sampling technique uses a probability sampling technique with a simple random sampling type. The data in this research was collected using a questionnaire. Data analysis in this test uses multiple linear regression analysis, coefficient of determination test (adjusted R2) and hypothesis testing. The results of this research show that Financial Literacy, Income Level have a significant influence on Investment Decisions. Meanwhile, Herding Behavior does not have a significant influence on Investment Decisions. However, if tested simultaneously, Financial Literacy, Income Level, and Herding Behavior have a significant influence together on Investment Decisions.

Keywords: *Financial Literacy; Income Level; Herding Behavior; Investment Decisions*

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1. Introduction

According to the National Survey of Financial Literacy and Inclusion (SNLIK) conducted by the Financial Services Authority (OJK) for 2022, which was carried out from July to September 2022 in 34 provinces covering 76 cities or districts with a total of 14,634 respondents aged between 15 and 15. 79 years old. As in 2016 and 2019, SNLIK 2022 also uses the same methods, parameters and indicators, namely the financial literacy index which consists of knowledge, skills, beliefs, attitudes and behavior parameters, while the financial inclusion index uses usage parameters. The 2022 SNLIK results show that the financial literacy index of Indonesian society is 49.68%, an increase compared to 2019 which was only 38.03%. Meanwhile, this year's financial inclusion index reached 85.10%, an increase compared to the previous SNLIK period in 2019, namely 76.19%. This shows that the gap between the literacy level and the inclusion level is decreasing, from 38.16 percent in 2019 to 35.42% in 2022.

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In 2023, OJK's focus on increasing the financial literacy of the Indonesian people is stated in the direction of financial literacy in 2023, which is to build financial literacy in village communities through strategic alliances with relevant ministries or institutions, village officials and village PKK organizers and KKN students. The priority targets for financial literacy in 2023 are students or students, MSMEs, people with disabilities and communities in 3T (Frontier, Outermost and Disadvantaged) areas. Meanwhile, the priority targets for financial inclusion in 2023 are the women, students, college students and MSMEs, communities in rural areas, and the sharia financial services sector.

Based on the data from the OJK above, it can be concluded that there is still a fairly large gap between investment users regarding the financial literacy they understand. The gap between literacy and inclusion should be 0%, where all investment actors really understand what financial literacy is. The lack of financial literacy in the community means that people are not familiar with various investment options that are suitable for their needs.

In investing, we need capital to invest, this capital can come from wealth owned or income obtained from working at a company or institution. If we look at the City/Regency Minimum Wage data in West Java, below:

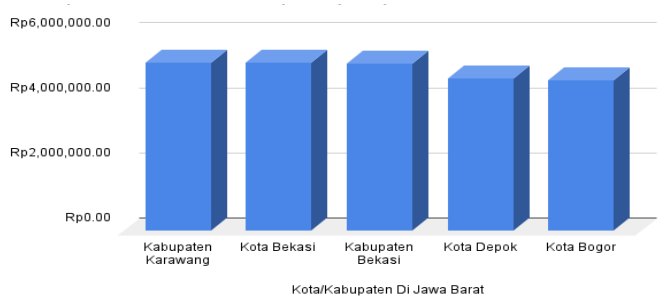

Figure 1. City/Regency Minimum Wage (UMK) for West Java Province in 2023
Source: Kompas.tv (2023) processed

Table 1. Provincial UMK West Java in 2023

City/ Regency in West Java	Year 2023
Karawang Regency	Rp. 5,176,179.07
Bekasi city	Rp. 5,158,248.20
Bekasi Regency	Rp. 5,137,575.44
Depok City	Rp. 4,694,493.70
Bogor city	Rp. 4,639,429.39

Source : Kompas.tv (2023) processed

It can be concluded that the income of workers who work in Bekasi Regency has at least an income equivalent to UMK worth IDR 5,137,575.44, and is the 3rd highest in

West Java Province. According to (Dewi et al., 2017) in Fitriasuri (2022:3334), making an investment requires minimum capital which is the initial capital for starting an investment.

Research has been conducted on the influence of financial literacy and income level on investment decisions, by previous researchers, including: Putri et al., (2022) shows that financial literacy and financial behavior have a positive and significant effect on investment decisions, while income has no effect on investment decisions. . Financial literacy has a positive and significant effect on financial behavior, while income has no effect on financial behavior. Apart from that, the results of the mediation test show that financial behavior mediates the relationship between financial literacy and investment decisions and does not mediate the relationship between income and investment decisions.

Khairunizam et al., (2019) stated that Financial Literacy had no effect or was rejected. Meanwhile, the Behavior Finance Factors variable using the Herding sub variable has a significant or accepted influence on Investment Decisions. Mutiara et al., (2020) stated that there is a positive influence or acceptance of the Financial Literacy variable in investment decisions. Meanwhile, the Financial Behavior variable also has a positive or acceptable influence on Investment Decisions. The Financial Literacy and Financial Behavior variables were tested together, the results were that they had a significant effect on investment decisions. Nuramelia et al., (2023) concluded that the level of financial literacy and investor behavior have a positive and significant effect on individual investment decisions, while the level of income has no effect on investment decisions.

Yundari (2021) states that Financial Literacy does not have a significant or negative influence on Investment Decisions. Meanwhile, Financial Behavior has a positive and significant effect on Investment Decisions. Likewise, the Income variable has a positive and significant influence on Investment Decisions. If the three variables are tested simultaneously, there is a positive and significant influence on investment decisions. Agusta & Yanti (2022) stated that risk perception has a positive effect on investment decision making. Meanwhile, herding has no effect on investment decision making.

This research aims to analyze the influence of financial literacy, income level, & herding behavior on investment decisions in workers who work at PT. AA in Bekasi Regency

2. Theoretical Background

The Organization for Economic Co-operation and Development (OECD) defines literacy finance as *a combination of awareness knowledge skills attitude and behavior necessary to make sound financial decisions and ultimately achieve individual financial wellbeing* (Atkinson and Messy, 2012).

In Indonesia's 2013 National Financial Literacy strategy, the Financial Services Authority uses the term financial literacy as a series of processes or activities to increase the knowledge, confidence and skills of consumers and the wider community so that they are able to manage their finances better (OJK, 2013a). This definition has been refined in OJK regulation Number 76 of 2016 and in Indonesia's National Financial Literacy Strategy (Revised, 2017). Refining the understanding of financial literacy is carried out by adding aspects of financial attitudes and behavior in addition to knowledge, skills and confidence in financial institutions, products and services. The definition of financial literacy is knowledge, skills and beliefs, which influence attitudes and behavior to improve the quality of decision making and financial management in order to achieve prosperity (POJK, 2016) in (Soetiono et al., 2018: 8).

With a definition like this, it can be interpreted that consumers of financial products and services and the wider community are expected to not only know and understand financial service institutions and financial products and services, but there also needs to be a change in financial attitudes and behavior in order to achieve financial prosperity. This aspect of attitudes and behavior is important because financial attitudes and behavior are what encourage a person to determine financial goals, have financial planning, make financial decisions and manage finances better (Soetiono et al., 2018: 8).

Income according to Law No. 7 of 2021, concerning Harmonization of Tax Regulations, income is any additional economic capability received or obtained by the Taxpayer, whether originating from Indonesia or outside Indonesia, which can be used for consumption or to increase the Taxpayer's wealth concerned, by name and in whatever form.

In the financial sector, herding behavior is usually demonstrated by the tendency of investors to choose the same type of investment. Herding behavior shows how individuals in a group can act together or together without any specific direction or order. Herding behavior in the capital market can be seen from the tendency for investor behavior to follow the actions of other investors (Kengatharan & Kengatharan, 2014). It could be that someone doesn't really understand the decision they are making, but because many people make similar decisions, they also make that decision. Not only for individual investors, this herding behavior can also disrupt the performance of professionals in the financial sector, such as investment managers.

Research Framework

Based on the background and fundamental theory regarding financial literacy, income level, and herding behavior regarding investment decision, the author created the following research framework:

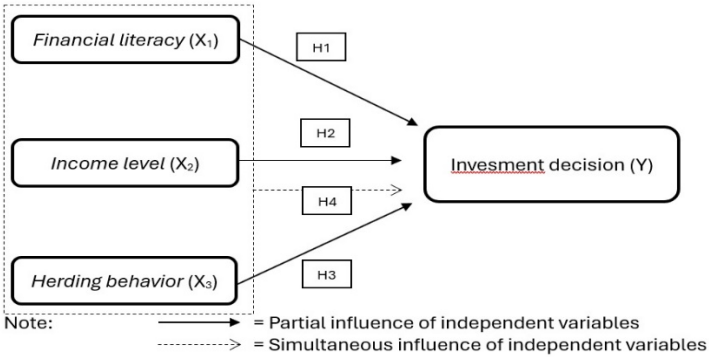

Figure 2. Research Framework

Hypothesis

Based on research framework, then stated hypothesis as following:

1. The influence of financial literacy on investment decisions
   Financial literacy has a significant influence on the decision to invest in workers at PT. AA, this hypothesis is similar to previous research, namely Indah Mutiara & Efandri Agustian (2020), Sulis Nuramelia & Sri Rahayu (2023). This is based on the fact that financial literacy is always one of the reasons why investors want to invest their income in investment products. Because these investors often see and read about fraudulent incidents in investment products that they study and understand. The more they understand financial literacy, the more they will understand whether the return is greater than the risk. Or the risk is far below the return.
   H1: There is a positive and significant influence of financial literacy on investment decisions.
2. The influence of income level on investment decisions
   Income level has a significant influence on the decision to invest in workers at PT. AA, this hypothesis is similar to previous research, namely Tri Yundari & Dwi Artati (2021), the greater the investor's income level, the higher the desire to invest in investment products that suit the investor's needs. This is based on income which increases every year with an increase in income in accordance with the applicable UMK increase, although not significant, and all workers at PT. AA receives income above the UMK set by the Bekasi Regency government.
   H2: There is a positive and significant influence of income level on investment decisions.
3. The influence of herding behavior on investment decisions
   Herding behavior does not have a significant influence on the decision to invest in workers at PT. AA, this hypothesis is similar to previous research, namely Cherishta Minanti Agusta & Harti Budi Yanti (2022), with the title of their research about "The Influence of Risk Perception and Herding on Investment Decision Making". The results of this research show that there is no significant influence between herding in making investment decisions. Apart from that, the results of this research also show that investors in DKI Jakarta aged 20 years and over tend to already know the risks they will face in investing, so they do not always depend on observing the conditions of other investors to make or imitate when making investments.

H3: There is no positive and significant influence of herding behavior on investment decisions.

4. The influence of financial literacy, income level, and herding behavior on investment decisions
   There are several studies that illustrate the existence of a significant influence if tested simultaneously or simultaneously between financial literacy, income level, & herding behavior on investment decisions, this is written in research by Tri Yuandari and Dwi Artati (2021) and Khairunizam & Ishbanah (2019) . This research was carried out by previous researchers using three independent variables, namely financial literacy, income level & herding behavior, and the dependent variable was investment decisions. The results of this simultaneous influence became a research reference for carrying out similar hypotheses.

H4: There is a positive and significant influence simultaneously between financial literacy, income level, & herding behavior on investment decisions

3. Methodology

This study uses a quantitative approach by collecting data through questionnaires distributed to employees at PT AA. The research variables consist of independent variables (X), including financial literacy (X1), income level (X2) & herding behavior (X3), while the dependent variable is investment decisions (Y).

The operational definition of each variable tested in this research is as follows:

1. Financial literacy
   PT's workforce capabilities. AA to understand financial literacy which leads to investment activities, in order to obtain additional income in the future or even in retirement after no longer working.
2. Income level
   The level of income varies for each PT worker. AA creates a desire to invest in any investment product.
3. Herding behavior
   The trend of PT. AA makes the decision to invest because he looks at the surrounding environment and also carries out the same activities without paying attention to the return or risk that occurs.
4. Investment decisions
   The act of allocating income to purchasing investment products which is expected to produce high returns with a low level of risk, over a long period of time.

Moreover, the data measurement method is carried out in 3 stages, namely:

1. Determining the measurement scale using a Likert scale
2. Data quality testing consists of validity testing and reliability testing
3. The classical assumption test consists of normality test, autocorrelation test, multicollinearity test, heteroscedasticity test

Data analysis was carried out using multiple linear regression to test the relationship between the independent variables (financial literacy, income level, herding behavior)

and the dependent variable (investment decisions), and a regression equation model was used, as follows:

$$Y = \alpha + X_1 ß_1 + X_2 ß_2 + X_3 ß_3 + \varepsilon$$

Y = Investment decision
α = Constant
$ß_1$-$ß_3$ = Coefficient regression from variable independent
X_1 = Financial Literacy
X_2 = Income Level
X_3 = Herding Behavior
ε = Error term

Information on the coefficient of determination can be used to measure the extent of the model's ability to explain variations in the dependent variable. In this case, to measure how big the role of the independent variables, namely financial literacy (X_1), income level (X_2), & herding behavior (X_3), together explain the changes that occur in the dependent variable, namely investment decisions (Y).

To carry out hypothesis testing, the research hypothesis must first be translated into a statistical hypothesis. Next, testing is carried out simultaneously, namely testing using 1 (one) independent variable on the dependent variable and partially, namely testing all independent variables simultaneously on the dependent variable, as follows:

1. Partial significance test (t test) to show how much influence an explanatory variable or independent variable individually has in explaining variations in the dependent variable.
2. Simultaneous significance test (F test) to test whether each independent variable as a whole or together has a significant influence on the dependent variable.

4. Empirical Findings/Result

1. The sampling method uses probability sampling with simple random sampling. The number of samples used was 246 respondents. The description of the respondents can be explained as follows:
   a. The gender of the respondents consisted of 111 people who were female, while the remaining 135 people were male.
   b. Respondents' education showed that 44 people or around 18% had a high school (Senior High School) or equivalent education, 22 people or around 9% had a diploma, 153 people or around 62% had a bachelor's degree, and 27 people or around 11% had postgraduate education.
   c. The level of income of respondents showed that it was earned below IDR 5,000,000/month as many as 20 respondents or 18%, between IDR 5,000,000 – IDR 10,000,000 as many as 47 respondents or 43%, and the remaining above IDR 10,000,000, as many as 42 respondents or equivalent with 39% of the total respondents. It can be concluded that the income from labor obtained from PT. AA is more than the UMK of Bekasi Regency in 2023.

2. Data Quality Test Results

a. Validity test
   Testing was carried out by comparing significant values and Pearson Correlation. Obtained rtable = 0.125. If rcount > rtable and is positive then the question item or indicator is declared valid. From the test results it was found that the statement items used to measure the variables financial literacy (X1), income level (X2), herding behavior (X3), and investment decisions (Y) had a significant value < 0.05 and rcount > rtable (0.125). It can be seen that the statement items are valid and can be used in testing.
b. Reliability test
   A variable is said to be reliable or reliable if it provides a Cronbach Alpha value > 0.70. Tests were carried out on four variables and the results obtained were that the variables financial literacy (X1), income level (X2), herding behavior (X3), and investment decisions (Y) had a Cronbach's Alpha value > 0.70 so it could be concluded that the statements in the questionnaire were reliable.

3. Classic Assumption Test Results
   a. Normality test
      The normality test is carried out with the aim of testing the independent variables, namely financial literacy (X1), income level (X2), herding behavior (X3) and the dependent variable investment decision (Y) in a regression with a normal distribution or not. The results of the normality test using the Normality Probability Plot show that the distribution of the research variable data points spreads around the diagonal line. So the data on all variables can be said to be normally distributed or has met the assumption of normality.
   b. Autocorrelation test
      Run tests are part of non-parametric statistics that can be used to test whether there is a high correlation between residuals. From the test results it can be seen that the Asymp value. Sig. (2-tailed) is 0.31, which means it is greater than (>) 0.05 so there are no symptoms of autocorrelation.
   c. Multicollinearity test
      The multicollinearity test aims to test whether in the regression model a correlation is found between the independent variables. The absence of multicollinearity in the regression model is indicated by having a Tolerance value ≥ 0.1 and a VIF value ≤ 10. Based on the tests carried out, the resulting model is free from multicollinearity, because it has a Tolerance value ≥ 0.1 and VIF ≤ 10.
   d. Heteroscedasticity test
      Heteroscedasticity shows that the variation of a variable is not the same for all observations. Based on the results of data processing, the Scatterplot results show that the points are spread randomly, and are spread both above and below zero on the Y axis. This can be concluded that there is no heteroscedasticity in the regression.

4. Data Analysis Test Results
   a. Multiple linear regression analysis
      Multiple linear regression analysis aims to determine whether there is a significant influence between two or more independent variables on the

dependent variable, either partially or simultaneously. The results of the multiple linear regression test can be seen in table 2 below:

Table 2. Results of Multiple Linear Regression Analysis

Coefficients [a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	4,791	,946		5,067	,000
	Financial Literacy	,213	,055	,216	3,903	,000
	Income Level	,508	,052	,543	9,716	,000
	Herding Behavior	,006	,036	,008	,169	,866
a. Dependent Variable: Investment Decision						

Based on the calculation above, the multiple linear regression equation obtained is:

$$Y = 4.791 + 0.213X_1 + 0.508X_2 + 0.006X_3 + \varepsilon$$

From the results of the regression equation above, it shows that:

a.1. The constant value (α) has a positive value of 4.791. A positive sign means that it shows a unidirectional influence between the independent variable and the dependent variable. This shows that if all independent variables including financial literacy (X1), income level (X2), and herding behavior (X3) have a value of 0 percent or have not changed, then the investment decision value is 4.791.

a.2. The regression coefficient value for the financial literacy variable (X1) has a positive value of 0.213. This shows that if financial literacy increases by 1%, then investment decisions will increase by 0.213 assuming other independent variables are considered constant. A positive sign means that it shows a unidirectional influence between the independent variable and the dependent variable.

a.3. The regression coefficient value for the income level variable (X2) has a positive value of 0.508. This shows that if income level increases by 1%, then investment decisions will increase by 0.508 assuming other independent variables are considered constant. A positive sign means that it shows a unidirectional influence between the independent variable and the dependent variable.

a.4. The regression coefficient value for the herding behavior variable (X3) has a positive value of 0.006. This shows that if herding behavior increases by 1%, then investment decisions will increase by 0.006 assuming other independent variables are considered constant. A positive sign means that it shows a unidirectional influence between the independent variable and the dependent variable.

b. Coefficient of determination test

The coefficient of determination is used to measure how big the role of the independent variables, namely financial literacy (X1), income level (X2), and herding behavior (X3), together explain the changes that occur in the dependent

variable, namely investment decisions (Y). The test results were obtained as follows:

Table 3. Determination Coefficient Test Results (R^2)

Model Summary [b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,681 [a]	,463	,457	1,507

a. Predictors: (Constant), Herding Behavior , Financial Literacy, Income Level

b. Dependent Variable: Investment Decisions

Based on table 3, it can be seen that the adjusted R2 value obtained is 0.46 or 46%. This means that the influence of financial literacy (X1), income level (X2), and herding behavior (X3) on investment decisions (Y) is 46% and the remaining 54% (100% - 46% = 54%) is influenced by these factors. Others not discussed in this research include:

b.1. Company value, the higher the level of investment decisions made by the company, the greater the value of the company.

b.2. Dividend policy, the higher a company distributes dividends, the more workers will invest their income in a company.

c. Hypothesis testing

c.1. Partial significance test (t test)

In this research, the t test is used to test whether there is a partially significant influence of each independent variable (X) on the dependent variable (Y), namely financial literacy (X1), income level (X2), and herding behavior (X3). partial investment decisions. To find out the statistical t value of the table, it is determined using a significance level of 5% (0.05) with degrees of freedom (degree of freedom) df = (n-k-1), where n = number of observations and k = number of variables.

Table 4. Results of the t statistical test

Coefficients [a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	4,791	,946		5,067	,000
	Financial Literacy	,213	,055	,216	3,903	,000
	Income Level	,508	,052	,543	9,716	,000
	Herding Behavior	,006	,036	,008	,169	,866

a. Dependent Variable: Investment Decision

From the t test calculation of the financial literacy variable (X1) in the table above, it can be seen that tcount > ttable (3.90 > 1.65), so this hypothesis testing can be said to be significant. The significance value of the financial literacy variable is 0.00 <0.05 or 5%. So it can be concluded that Ho is rejected and Ha is accepted. This means that the financial literacy variable has a significant influence on investment decisions.

Furthermore, it is known that the income level variable (X2) tcount > ttable (9.72 > 1.65), so this hypothesis testing can be said to be significant. The significance value of the income level variable is 0.00 < 0.05 or 5%. So it can be concluded that Ho is rejected and Ha is accepted. This means that the income level variable has a significant influence on investment decisions.

Herding behavior (X3) can be seen that tcount > ttable (0.17 < 1.65), so testing this hypothesis can be said to be not significant. The significance value of the herding behavior variable is 0.87 > 0.05 or 5%. So it can be concluded that Ho is accepted and Ha is rejected. This means that the herding behavior variable does not have an insignificant effect on investment decisions.

c.2. Simultaneous significance test (F test)

Simultaneous testing was carried out with the F test statistic to determine whether the variables financial literacy (X1), income level (X2), and herding behavior (X3) together (simultaneously) had a significant effect on investment decisions (Y). The significance level used is 5% (0.05) with degrees of freedom df = (n-k-1), where n = number of observations and k = number of variables.

Table 5. F Statistical Test Results

ANOVA [a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	474,215	3	158,072	69,642	,000 [b]
	Residual	549,281	242	2,270		
	Total	1023,496	245			

a. Dependent Variable: Investment Decision

b. Predictors: (Constant), Herding Behavior , Financial Literacy, Income Level

Based on the F test of the influence of financial literacy (X1), income level (X2), and herding behavior on investment decisions (Y) by looking at the significance value of 0.00 < 0.05 or 5%. This means that Ho is rejected and Ha is accepted, because the significant value is smaller than 0.05 and Fcount > Ftable (69.64 > 2.39). It can be concluded that financial literacy (X1), income level (X2), and herding behavior together (simultaneously) have a significant effect on investment decisions (Y).

5. Discussion

The findings of this study reveal that workers in Bekasi Regency earn at least the local minimum wage (UMK), which amounts to IDR 5,137,575.44, positioning Bekasi as having the third-highest UMK in West Java Province. This substantial income level sets a foundational context for exploring how financial literacy, income levels, and herding behavior influence investment decisions among these workers.

Previous research has extensively examined the interplay between financial literacy, income, and investment decisions. Studies such as Putri et al. (2022) have demonstrated that financial literacy and financial behavior significantly impact investment decisions, while income does not show a direct effect. This aligns with the present study's finding that financial literacy has a positive and significant influence on investment decisions among workers at PT. AA. Higher financial literacy likely equips individuals with the necessary knowledge and confidence to make informed investment choices, mitigating the fear of fraud and mismanagement often associated with financial markets.

Conversely, the influence of income on investment decisions presents mixed results in existing literature. For instance, Yundari (2021) found that income positively affects investment decisions, which is corroborated by this study. Workers with higher incomes have more disposable resources, enhancing their ability to invest in various financial products. This correlation suggests that as workers' incomes increase, their propensity to invest also rises, reflecting an improved financial capacity and security that fosters investment activities.

Herding behavior, characterized by individuals making investment decisions based on the actions of others, did not show a significant impact on investment decisions in this study. This outcome is consistent with research by Agusta & Yanti (2022), which indicated that herding behavior does not significantly influence investment choices. This lack of significance might be due to a heightened awareness and understanding of investment risks among the workforce, leading to more independent and informed decision-making processes.

The simultaneous examination of financial literacy, income levels, and herding behavior reveals a significant combined effect on investment decisions. This finding underscores the multifaceted nature of investment behavior, where financial literacy and income levels play pivotal roles, while herding behavior does not significantly alter the overall decision-making process.

6. Conclusions

This study demonstrates that financial literacy has a significant influence on investment decisions among workers. The majority of respondents possess undergraduate and postgraduate education levels, indicating that despite not having formal financial education, these workers have a broad understanding of financial concepts. This knowledge enables them to make more informed investment decisions.

Income level also plays a crucial role in shaping investment decisions. A substantial portion of the workers earn significantly above the regional minimum wage, enhancing their capacity to invest. Higher income provides financial stability and the necessary resources for workers to engage in investment activities.

Conversely, herding behavior does not significantly impact investment decisions in this context. This finding suggests that workers at PT. AA tend to rely on their own understanding and analysis rather than mimicking the investment choices of others. This independent approach indicates that the workers are aware of the risks associated with investing and are confident in their decision-making.

When considering the combined influence of financial literacy, income level, and herding behavior, the study confirms a significant impact on investment decisions. Workers with strong financial literacy, higher income, and an independent investment approach are more likely to make investment choices that align with their financial goals.

Future research should explore the impact of various income levels on investment decisions to understand how different levels of financial stability and resources influence investment behavior. Additionally, analyzing diverse demographic groups such as age, gender, and educational background can provide a more comprehensive understanding of how these factors interact with financial literacy and investment decisions.

Longitudinal studies tracking changes in financial literacy and investment behavior over time would provide insights into how ongoing education and economic shifts influence investment decisions. Investigating the effectiveness of targeted financial education programs aimed at improving investment decisions across different workforce segments is also crucial for designing better financial literacy interventions.

Addressing these areas in future research can deepen the understanding of the complex dynamics influencing investment decisions and contribute to the development of more effective educational initiatives and financial policies.

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