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Risk Preferences and Information and Communication Technology Utilization in Investment Decisions

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This study investigates the influence of risk preferences and information and communication technology (ICT) utilization on investment decisions among Indonesian professional workers. A survey was conducted with 239 respondents, and the data were analyzed using SPSS 26.0, employing regression analysis, significance tests, correlation analysis, and coefficient of determination. The results highlight that ICT utilization significantly affects investment decisions among professional workers. Moreover, the combined influence of risk preferences and ICT has a substantial impact on investment choices. These findings emphasize the importance of digital investment decision-making and the need for investors to align their characteristics with their risk tolerance levels. Understanding the significance of risk preferences and ICT in investment decisions provides valuable insights for effective decision-making strategies. Investors can improve their digital literacy and utilize ICT to seek, understand, and process critical business information, leading to better-informed choices. Future research can explore specific personality traits and cultural factors to design targeted interventions and strategies, supporting investors in achieving improved financial outcomes.

Keywords: *investment decisions, risk preferences, information and communication technology (ICT)*

Globalization has experienced a very drastic decline due to the pandemic that has hit all over the world, including Indonesia, in the past two years. To restore the economic situation, individuals and society in general are encouraged to invest. There are many ways to invest, for example, by buying property, mutual funds, stocks, and others. In making an investment, the right decision is needed so that we don't go wrong in choosing the investment. There is no investment that provides benefits without risk. Therefore, understanding good and rational investor behavior can influence the process of making the right investment decisions (Amalia et al., 2020).

Investment selection can be grouped into real investments such as purchasing land, houses, gold, etc. While investments are not real, namely buying mutual funds, stocks, digital platforms, etc. Factors influencing investment decision-making: risk preferences and ICT utilization.

The first factor is risk preferences. In every investment, there will always be a risk to the level of ability received by men and women as investors. This can be understood when individuals who work for more than one source have a higher level of ability to take risks in investment decisions compared to individuals who work only for one source. If investors are faced with the same investment choices with the same rate of return, they will naturally choose a low level of risk (Nadhifah & Anwar, 2021).

The choice of risk taken by investors may affect the investment decisions taken. The more courageous an investor is in making risky choices, the higher their level of ability to make investment decisions. Conversely, investors who are afraid or very careful about making risky choices will delay or lower their ability to make investment decisions (Wardani, 2023).

The second factor is the use of ICT, or digital capabilities, for the development of information and communication technology. Rapid technological changes should be followed by human resources who have the ability to obtain, manage, and utilize information in order to be able to survive dynamic, ever-changing, and increasingly competitive economic situations or conditions (Lestari, 2015). As we know today, information and communication technology have increased in the era of globalization, which has had a significant influence on almost all aspects of life, including the economy. With the level of information and communication that is very easy for investors to obtain, investment decisions will be easier to realize. Further explained by (Pradnyani et al., 2019) digital investment has a significant influence on investment interest.

From the explanation that has been given, there is still debate about the results of previous research, so investment decisions are still an interesting topic to be re-examined. To find out how high investment decisions are for professional workers or housewives, the authors conducted research on risk preferences and the utilization of ICT for investment decisions. Some of the purposes of this study are to determine the risk preferences and utilization of ICT in investment decisions.

Risk Preferences on Investment Decisions

To make the right decision in investing, the choice of risk that is in accordance with the understanding of individuals, communities, or organizations is very important. Risk preference is a level of risk capability borne by investors through investment activities. There is no investment that is not risky, where the level of risk is directly proportional to the return desired by the investor.

As explained by Anggirani (2017), there are three types of investors: risk seekers (investors who like risk), risk neutrals (neutral investors), and risk averters (investors who avoid risk). The higher the profit to be obtained, the greater the level of risk received, and vice versa, if the desired profit is small, the level of risk obtained is low. Another

explanation was also added by Nadhifah & Anwar (2021) where the selection of different risks is also caused by factors of age, employment status, income generated, and work experience. This is supported by previous research by Zahida et al. (2021) which said that there is a significant influence of risk preferences on investment decisions. Another opinion by Asfira et al. (2019) states that the choice of risk has a negative and significant effect on investment decisions.

Based on the discussion above, the research hypothesis is:

H1: Risk preferences have a significant effect on investment decisions

Utilization of ICT on Investment Decisions

Digital understanding through the use of online applications that we often do, such as Internet banking, online shopping, online lectures, or online investment purchases, has become an increasing trend in the current era of globalization. We are encouraged to understand and use information and communication technology electronically. Digital utilization is a situation where we can speed up the delivery of information related to the business or investment that we are doing with an attractive and efficient process for convincing potential investors (Khoiroh et al., 2019). Today's rapidly developing technology is expected to have a large positive impact on investors' interest in investing. Speed and accuracy in analyzing, measuring, and processing information greatly impact investment decision-making. This is in line with previous research supported by Pradnyani et al. (2019) which says that there is a significant influence of online facilities on investment decisions.

Methodology

Research Design

A descriptive-correlational design was used for this investigation. Because the goal of the study was to describe the features of the population in relation to the variables, this design was chosen. Data were obtained and quantitatively examined using surveys for frequencies, averages, and other statistical measures to establish correlations (Babbie, 2020).

Population and Sampling Technique

The population of the study was composed of workers from different company backgrounds. Using purposive sampling, 239 samples participated in the study, of which 131 were male and 108 were female, and they met several criteria based on certain considerations. In terms of the respondents' educational category, (n = 80; 33%) have master's and doctoral degrees; the next category is holding a bachelor's degree (n = 132; 55%); after that are employees with diplomas (n = 22; 9%); and the least number of educational attainments is high school (n = 5; 2%). In terms of employment level of category, most of the respondents (n = 88; 37%) are at the manager and director levels; next to them are employees (n = 68; 28%), while other levels of work are (n = 67; 28%), and the least number of respondents were at the supervisors' level (n = 16; 7%).

Instrumentation

An online survey questionnaire using Google Forms was used to gather data. There were two parts to the questionnaire. First is the respondent's profile, which includes sex, employment category, and education. The second part is a category scale to measure risk preferences, ICT utilization, and investment decisions, which were adapted from Determinants of Portfolio Performance II by Brinson et al. (1995).

Statistical analysis in this study consisted of linear regression ordinary analysis, a significant test, a correlation test, and a coefficient of determination. The research variables consist of independent variables and dependent variables, which are shown in the explanation table below:

Table 1

Independent Variables and Dependent Variables

	Definition
Risk Preferences (RSK)	Choice of risk: 3: Risk Taker, 2: Risk Averse, 1: Neutral
Utilization of ICT (DIG)	Ability to Use Digital Applications, 1: Able, 0: Not Able
Investment Decision (DEC)	The decision to invest is 1 for 1 yes, 0 for no,

The regression equation of this study is: Y = a + b1x1 + b2x2

Where,

Y = Investment Decision (DEC)

X1 = Risk Preferences (RSK)

X2 = Utilization of ICT (DIG)

Analysis of Data

The collected data were examined using IBM SPSS Statistics version 26. Frequency and percentage were used to categorize the participant's personal profiles. Using the mean and standard deviation, the level of risk preferences, ICT utilization, and investment decisions of the employees were evaluated. Pearson's r and linear regression were used to examine the relationships between variables.

Ethical Considerations

The Economic Faculty's Ethics Board was formally consulted before the questionnaire was made available, and they gave their consent. Before responding to the research questions using a Google form, the participants were asked to consent to participating willingly in the study. The comments were entirely anonymous, with no connection to the respondents' identities, and no email addresses were acquired. The information was handled strictly and confidentially.

Results and Discussion

The results of the research contain good research findings, which are presented in the form of Descriptive Statistical Analysis

Table 2

Descriptive Statistics

	N	M	SD
Risk Preference (RSK)	239	2.0209	1.27829
Utilization of ICT (DIG)	239	.8912	.31202
Investment Decision (DEC)	239	.5523	.49830

The results of the descriptive analysis based on Table 2 above show that the number of respondents (N) in this study was 239 people.

The average risk preference score (X1) is 2.02, so it can be explained that respondents who have a risk-averse ability have the highest answers compared to respondents who have a neutral risk tolerance and a high-risk tolerance.

The average digital awareness score (X2) is 0.89, so it can be explained that 213 respondents who are able to use digital applications, or 89% of the total respondents, are unable to use digital applications, while those who are unable to use digital applications are 26 people, or 11% of the total respondents.

The average investment decision score (Y) is 0.55, so it can be explained that 132 people, or 55% of the total respondents, decided to invest, while 107 people, or 45% of the total respondents, did not decide to invest.

Table 3

Correlation

	GEN	Risk Preference (RSK)	Utilization of ICT (DIG)	Investment Decision (DEC)
Risk Preference (RSK)	.081	1		
Utilization of ICT (DIG)	.010	-.015	1	
Investment Decision (DEC)	-.032	.094	.172**	1

Based on the results of the correlation test in Table 3 above, the relationship between the variables in the study is obtained. These results explain that the dependent variables Risk Preference (RSK) and Utilization of ICT (DIG) have r = -0.015, Risk Preference (RSK) and Investment Decision (DEC) have r = 0.094, and Utilization of ICT (DIG) and Investment Decision (DEC) have r = 0.172.

Linear Regression

Table 4

Multiple Linear Regression

	B	SE
(Constant)	.249	.113
Risk Preference (RSK)	.039	.025
Investment Decision (DEC)	.278	.102

Source: Author Processed Data (2023)

Based on Table 4 above, the regression equation in this study is: Y = a + b1X1 + b2 X2
Investment Decision (DEC) = 0.249 + 0.039 Risk Preference (RSK) + 0.278 Utilization of ICT (DIG)

When the independent variable is predicted to increase by one unit, the regression coefficients on the independent variable will explain this, while the regression coefficients on the other independent variables will explain when they are expected to remain constant or equal to zero. When this occurs, it is natural to anticipate that the value of the dependent variable will increase or decrease, depending on the sign of the independent variable's regression coefficient. The previous table of regression results shows that the value of the constant a has a positive value of 0.249. The positive sign means that it shows a unidirectional influence between the independent variable and the dependent variable. This shows that if all the independent variables which include SSR (x1) and Utilization of ICT (DIG) (x2) have a value of 0 or do not change, then the investment decision value of Investment Decision (DEC) (y) is 0.249.

Table 4 above shows the regression efficiency sign. The regression coefficient value of the Risk Preferences (RSK) variable (X1) has a positive value of 0.039. This value indicates a positive influence between risk preferences and investment decisions. This shows that if the risk preferences increase by 1%, the investment decision will increase by 0.039, assuming that other variables are held constant. The positive sign means that it shows a unidirectional influence between the independent variable and the dependent variable. Based on these results, it can be explained that low, medium, or high-risk tolerance will have a positive effect on investment decisions.

The value of the ICT utilization variable (X2) in the regression equation shows a positive coefficient of determination (0.278). The existence of a beneficial relationship between the use of ICT and investment choices is indicated by this value. This suggests that investment decisions will increase by 0.278 percentage points if a one percent increase in ICT use is achieved if all other variables are held equal. Because the sign is positive, it indicates that the relationship between the independent variable and the dependent variable is one whose effect is only one way. It is possible to conclude, based on these findings, that digital capabilities, such as high levels of information and communication usage, have a beneficial impact on investment decisions.

Significance Test

Table 5

Uji F

	M Sq	F	Sig.
Regression	.800	3.316	.021[b]
Residual	.241		

Source: Author Processed Data (2023)

Based on the results of the analysis in Table 5 above, it was obtained a significance value of F of 0.021 <0.05, so it can be concluded that the F test is accepted and that there is a significant influence between gender, risk preferences, and digital awareness on investment decisions.

Hypothesis Testing

In this study, the t-test is used to determine the extent to which the influence of a single explanatory variable or independent variable independently explains the dependent variable. (α), which has a significance level of 5%, was selected to be used in this study.

Table 6

Hypothesis Testing

	t	Sig.	Decision
Risk Preference(RSK)	1.559	.120	Rejected
Utilization of ICT (DIG)	2.720	.007	Accepted

Source: Author Processed Data (2023)

Based on Table 6 above, it can be concluded as follows: in the SSR variable (X1), it is found that the significance of t is 0.120 (0.120 > 0.05), so it can be concluded that the test is rejected. There is no significant effect of risk tolerance on investment decisions. While the Utilization of ICT (DIG) variable (X2) found a significance t of 0.007 (0.007 <0.05), it can be concluded that the test is accepted and that there is a significant influence of the use of ICT on investment decisions.

Coefficient of Determination

In this study, the Coefficient of Determination Test, known as R2, is used to determine the degree of closeness of the relationship between the dependent variable, known as investment decisions, and three independent factors, known as gender, risk preference, and ICT utilization.

Table 7

Coefficient of Determination

Model	R	R Sq	Adj R Sq	SE Est
1	.202[a]	.041	.028	.49118

Source: Author Processed Data (2023)

Based on the results of the analysis in Table 7 above, an R2 of 0.041, or 4.1%, means that investment decisions are influenced by risk preferences and ICT utilization, while the remaining 95.9% are influenced by other factors outside of this study. The table results also show the results of a simultaneous correlation coefficient of 20.2%, which indicates a low relationship between risk preferences and ICT utilization in investment decisions.

Effect of Risk Preferences on Investment Decisions

The first hypothesis says that risk tolerance influences investment decisions. The results showed that the SSR variable (X2) obtained a significance t of 0.120 (0.120 > 0.05), and then H2 was rejected, meaning that the Risk Preferences (RSK) variable had no significant effect on investment decisions. These results are supported by research (Fitri, 2022) and also by Nadhifah & Anwar (2021) which state that there is no significant effect of risk preferences on investment decisions. Different opinions are explained by Lestari & Wardani (2017), who state that risk preferences have a significant influence on investment decisions. These inconsistent results are because neutral, medium, or high levels of individual tolerance are not the sole factor in investment decisions. Sometimes a low-risk tolerance to get small profits can affect investment decisions, or conversely, a high-risk tolerance to get big profits does not affect investment decisions. Thus, investors can see that the position of risk preferences is not a partial determining factor in making investment decisions. Other dependent variables can simultaneously have a significant influence on investment decisions.

Effect of ICT Utilization on Investment Decisions

The second hypothesis says that the use of ICT has a significant influence on investment decisions. The results showed that the Utilization of ICT (DIG) variable (X3) obtained a t-significance of 0.007 (0.007 <0.05), so the partial t-test for H3 was accepted, meaning that ICT utilization has a significant effect on investment decisions. This is supported by research from Mastura et al. (2020)

and corroborated by Kusuma & Hakim (2022) that there is a significant influence of the use of ICT on investment decisions. From consistent research results, it can be concluded that digital understanding, use of online applications, and utilization of information and communication technology are very important factors that will provide information that is faster, more accurate, and more efficient in making investment decisions.

Conclusion and Recommendation

This study aims to examine the risk preferences and utilization of ICT in investment decisions. The results of the Risk Preferences study partially have no significant effect on investment decisions. The independent variable, utilization of ICT, partially has a significant effect on investment decisions. The independent variables Risk Preferences and ICT Utilization simultaneously have a significant effect on investment decisions.

Before making an investment decision, a potential investor should have strong characteristics and principles. These characteristics can be represented by culture, social environment, character, and psychological principles. This is also in line with the risk tolerance taken by individuals in accordance with a clear understanding of the risks, investment objectives, and selected investment period associated with each investment chosen by the individual.

He further explained that increasing technological advances have made it much easier for investors to search, understand, and process business information and help investors choose investments that are fast and appropriate by making investment decisions digitally. Theoretical suggestions include that investors, as online users who understand digitization and the use of information and communication technology, are advised to continue updating their ability to use applications in analysing, processing, and processing the information provided to make it more efficient, fast, and accurate in making investment decisions. As basic information, technically, investors should often read the latest news about investments, such as information on the benefits that will be obtained from risk tolerance, the investment period, and the legality of the investment company they want to choose, so as not to experience losses.

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