INVESTMENT DECISION MAKING UNDER COVID-19

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Abstract

This study aimed to analyze the effect of demographic variables (age, gender, and experience) on investment decision making through risk perceptions and risk attitudes in the Indonesia Stock Exchange under Covid-19 pandemic pressure (IDX). Used SEM-PLS analysis with Mediation effects, 160 respondents analysed, who were registered as investors in Indonesia Stock Exchange (IDX) aspecially Surabaya's investor. The results of this study showed age, gender, and experience influence investment decision making through risk perception and risk attitude. In the Covid 19 pandemic situation, market conditions were very dynamic and erratic that resulted investors' perceptions and risk attitudes changes, thus changing their behavior becomes more speculation and taking profits to take advantage from the market.

Keywords: Gender; Experience; Risk Perception; Risk Attitude; Investment

Introduction

At the beginning of the year 2020, there was a Covid 19 pandemic outbreak that hit the world. This pandemic has an impact on all sectors, especially the economy. One reflection of the Covid 19 pandemic effects is visible on capital markets worldwide, including Indonesia. The Indonesian capital market, as a developing market, is more volatile and uncertain.

The widespread financial spread of the Covid 19 pandemic has become a negative sentiment affecting the global market. That caused investors to exit the domestic financial market, mostly stocks and government securities (SBN), due to high uncertainty. The spread of the virus from Wuhan, China, according to data from Johns Hopkins University, until March 27, 2020, had infected more than 531 thousand people in 175 countries (Sidik 2020).

The Financial Service Autority (OJK) noted that from early March 2020 to March 24, 2020, investors recorded as leaving the stock market and SBN amounting to Rp.6.11 trillion Rp. 98.28 trillion, respectively. The total funds that came out of the Indonesian capital market reached Rp. 104.39 trillion. Under these conditions, the stock market weakened significantly by 27.79% Month to date or 37.49% Year to date to 3,937.6, followed by a weakening in the SBN market with average yields rising by 118.8 bps Month to date or 95bps year to date. This weakening was caused by investors who were afraid of the coronavirus, which impacted the performance of listed companies in Indonesia.

Stock prices have plummeted around the world on concern about falling oil prices and the impact of the coronavirus spread that has hit more than 100 countries. The stock index in New York fell more than 7%, following a 5% drop in Asian bourses and European stock markets, which closed down about 8% (VOA 2020).

The impact of the Covid 19 pandemic occurred in almost all countries, including Indonesia. The Indonesian economy is one of the largest in Southeast Asia and can develop in the current era. The capital market's uncertain condition should every individual have sufficient knowledge to manage their financial resources and wealth to survive. However, many investors in Indonesia are still influenced by foreign investors, causing the Composite Stock Price Index (IHSG) to drop due to foreign and local investors' sale of shares. Investments lead to speculation, where many investors turn to day traders to take advantage of uncertain market conditions.

Ady et al., (2013) showed that the decision to invest in the The Effect Of World Oil Prices, Gold Prices, And Other Energy Prices On The Indonesian Mining Sector With Exchange Rate Of Indonesian Rupiah As The Moderating Effect capital market was tricky because it involves risk and uncertainty. The behavior of these investors also influences investment decision making. The actions of these investors

often showed irrational behavior by making decisions based on an unreasonable assessment (Ady, 2015); (Jannah & Ady, 2017); (Ady, 2018); Ady et al. (2020). Nosi'c & Weber (2010) found that investor behavior in decision making was influencer by the subjective attitude they have towards risk. In this case, the personal factors that influence investment decisions, namely risk perception and risk attitude.

Perception is the definition of building and interpreting motor sensory impressions to give meaning to the environment (Robbins, Stephen, and Judge 2008). Risk perception can be shaped socially. The results of Williamson & Weyman (2005) suggest that risk perception resulted by various factors based on differences in decision making regarding the possibility of a loss. According to Ady (2015), the variables that affect investor behavior were perception, attitude, intention, and learning. It can say that perceptions and risk attitudes can influence investment decision making. Due to various conditions, including the Covid 19 pandemic, drastic market changes have caused investors' risk perception and risk attitudes changes.

Risk perception will influence investors in dealing with a chance. The risk attitudes shows whether the investor is more courageous or avoid when they faced with a threat. Risk attitudes can influence investment decisions making investors. Harris et al. (2006) revealed that individual risk attitudes were fundamental in understanding risk, and were good predictors of investment behavior and choices.

Demographic factors are estimated to influence risk perceptions and risk attitudes. Demographic characteristics that will appoint in this study are gender, age, and experience. Some research in the last five years has shown that women's dominance had begun to increase in trading stocks, even in investment decisions making that can be done alone by online trading (Ady 2015). (Jayathilake 2013) showed the results of men and women having different behaviors in dealing with risks.

Experience also determines in making a decision. If an investor has more experience than his partner, he will be careful to invest. Sometimes, making a decision uses intuition, where intuitive decision-making is a subconscious process created from experience. Alanko (2009); Ady et al. (2013) explained that experience had the most significant explanatory power on risk

tolerance. It means that the more experienced an investor was, the greater the risk's patience or awareness.

On the other hand, age is also often associated with a direct influence on risk-averse behavior. Some research linking age and risk perceptions and risk attitudes had shown mixed results. The general opinion regarding risk-averse behavior so far was that the older a person was, the more likely he was to avoid risk (Amaefula et al., 2012) and (Kaufman et al., 2010), besides, the risk aversion behavior will decrease as the age increases. In other words, the older the individual will prefer the risk. Rolison et al. (2014) showed that risk-taking behavior decreases with increasing age in older men, but not for women, and raising for young to middle-aged people.

The existence of differences in research results provides an opportunity for more extensive research carried out in this study. The research urgency is interesting because of the Covid-19 pandemic conditions as a background that causes many young investors transactions experience based on panic buying or selling. This research focuses on young Surabaya investor's behavior in investing, even though the sample is selected from various ages, but most of the samples showed young Surabaya investors. The use of two intervening variables of risk perception and risk attitudes can prove the applicability of Ajzen planning behavior theory (2005), especially for financial behavior among young investors in Surabaya. This study has three objectives, first, to examine the influence of age, gender, and experience on risk perceptions and risk attitudes. Second, examine the effect of risk perceptions and risk attitudes on investment decision making on the Indonesia Stock Exchange (IDX). The third is to investigate the influence of age, gender, and experience on investment decision making through risk perception on risk attitudes.

Literature Review

Relationship of Risk Perception, Risk Attitude and Investment Decisions

The most essential things in investing decisions are return and risk. Because understanding the relationship between the expected return and the risk is a unidirectional or simultaneous relationship. That means that the greater the expected profit, the greater the risk that

must be faced. To minimized investment risk, it is necessary to understand rationally and be careful in the decision-making process (Pratiwi 2015).

The risk is a description of all financial investment types based on variability in expected return and actual return. The concept of risk perception means the way investors perceive the risk of financial assets based on their understanding and experience. Perception of risk was an essential factor that affects investors' investment decisions (Sindhu and Kumar 2014).

Financial risk tolerance was a concept with two significant differences (Roszkowski & Davey, 2010); (Venter & Michayluk, 2012). Another definition of financial risk tolerance was a relatively stable behavior that didn't change significantly (Gerrans, Faff, and Hartnett 2015; Roszkowski and Davey 2010; Venter and Michayluk 2012).The first finding was that financial risk tolerance was influenced by personal characteristics and situational factors (Yao, Hanna, and Lindamood 2003); (Hoffmann et al., 2013). More importantly, based on their findings, Roszkowski & Davey (2010); Venter & Michayluk (2012) combine the two different views on financial risk tolerance discussed above by adding that (1) Financial risk tolerance was a personal behavior in general but can change over time and (2) Changes in financial risk tolerance were caused by external factors.

Ady et al. (2013) showed that the decision to invest in the capital market was the complex decision-making because it involves risk and uncertainty. Therefore, investors' investment decisions must be rational and following investment management theory and the investor's investment objectives. However, research in behavioral finance showed a very determining psychological role in investors' investment decisions making beside risks and returns. (Hagstrom 2010) showed that 60% of investor's investment decision making was based on psychological, and 40% was based on rational.

Demographic Factors in Investor Decision Making

Demographic factors play an essential role in determining the investment decisions that investors will choose. The influence of demographic factors on investors needs to be considering in any investment decision making. Investment decisions often involve more than one individual in the investment analysis process. Individuals who had different knowledge, skills, and experiences applied throughout the investment process, from planning, monitoring to coordinating investment plans (Pratiwi 2015).

Demographic factors are factors that a person has and as a differentiator between one individual and another. In this case, demographic variables include employment status, marital status, income, type of work, age, gender, work experience, and education level (Aminatuzzahra 2014). Bairagi & Chakraborty (2018) said that investors' risk perception was influenced by several factors that could lead to poor investment decision making, that was differences in personality between men and women and even age differences.

Some research related to demographic factors on risk attitudes, risk perceptions, and investment decisions were as follows: age and risk tolerance. There were controversial findings related to age and risk tolerance for financial risk. Many studies indicated risk tolerance increases with the age (Grable, 2000); (Kourtidis et al., 2011); (Wang & Hanna, 1997). However, several other researchers reported that younger respondents had a higher risk tolerance than older respondents (Selcuk et al. 2010); (Grable et al. 2004). Embrey & Fox (1997); Estes & Hosseini (2010); Ady (2015); Bairagi & Chakraborty (2018); Ady (2018); Ady & Hidayat (2019) found that age didn't have a significant effect on investors' risk perceptions when making investment decisions. However, in contrast (Charness & Gneezy, 2011); (Onsomu, 2015); (Lutfi, 2011); (Maheshwari & Mittal, 2017) found that there was a significant relationship between age and investment decision making.

Gender and risk tolerance. Researches that link gender to decision-making conducted by Bashir et al.,(2013); Embrey & Fox (1997); Olsen & Cox (2001) showed that there was no significant relationship between gender on decision making. However, in contrast (Schubert et al., 1999); (Dwyer et al., 2002) showed that women were lower in risk-taking than men, and the risk tendency of men and women in financial choices was highly dependent on the decision-making framework. The majority of studies report that men had a higher risk tolerance than women (Grable, 2000); (Selcuk et al., 2010); (Anbar & Eker, 2010). One explanation for this gender difference was related to women's role as mothers

because she prefers a stable income with a small amount then a large, uncertain income. He et al. (2007) also found that women were estimated to choose wins and losses differently than men. And was more important for women to avoid defeat than men. The role of gender in this risk perception can also be different due to cultural differences. Maxfield et al. (2010), Fellner & Maciejovsky (2007) and Lo et al. (2005) also reported that the higher a person's risk aversion level was negatively related to trading frequency, where women's trading activity was lower than men. That showed an indicator that women were more risk-averse than men. That was different from the findings of Ady et al. (2013); Ady (2015); Ady (2018), which showed that women prefer risk than men by choosing to be day trading that conducts daily transactions with high frequency.

The relationship between experience and risk perception also shows differences in research results. Investors who have more extended experience tend to have a lower risk perception. In contrast to novice investors who are still careful in taking risks. In line with Septyanto & Adhikara (2014); Andriani Samsuri et al. (2019); Amaefula et al. (2012), which showed that the level of experience regarding stock market operations had an essential role in accepting risks to investment decision making. In contrast (Estes & Hosseini, 2010), it showsed that experience didn't have a significant relationship with investment decision making.

Perceptions of Risk and Risk Attitude toward Decision Making

Perception by defined as a process in which individuals organize and interpret motor sensory impressions to give meaning to the environment (Robbins et al., 2008). Risk perception can be shaped socially. The results of Williamson & Weyman (2005) suggest that risk perception as a results from various factors that were the basis of differences in decision making regarding the possibility of a loss. Ady (2015) showed that risk perceptions affect risk attitudes and risk attitudes affect decision making.

Perceptions of risk will influence investors in dealing a risk. The risk attitudes shows whether the investor is more courageous or avoid when faced a risk. Risk attitudes can influence investors in investment decisions making. Harris et al.

(2006) revealed that individual risk attitudes were essential in understanding risk-related behavior and decisions and were good predictors of risk-related behavior and choices. However, Ady & Hidayat (2019) showed that risk tolerance didn't not affect decision making.
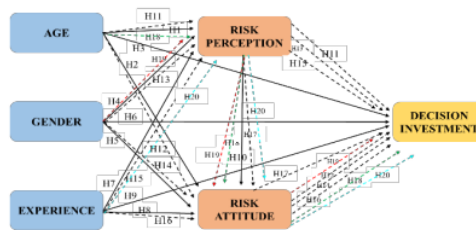
Conceptual Framework

Figure 1. Conceptual Framework

The formula of hypothesis in this study as follows:

H1: Age has a significant effect on risk perception.

H2: Age has a significant effect on risk attitudes.

H3: Age has a significant effect on investment decisions.

H4: Gender has a significant effect on risk perception.

H5: Gender has a significant effect on risk attitudes.

H6: Gender has a significant effect on investment decisions.

H7: Experience has a significant effect on risk perception.

H8: Experience has a significant effect on risk attitudes.

H9: Experience has a significant effect on investment decisions.

H10: Risk perception has a significant effect on risk attitudes.

H11: Age has a significant effect on investment decision making through risk perception

H12: Age has a significant effect on investment decision making through risk attitude

H13: Gender has a significant effect on investment decision making through risk perception

H14: Gender has a significant effect on investment decision making through risk attitude

H15: Experience has a significant effect on investment decision making through risk perception

H16: Experience has a significant effect on investment decision making through risk attitude

H17: Risk perception has a significant on investment decision through risk attitude

H18: Age has a significant effect on investment decision making through risk perception and risk attitude

H19: Gender has a significant effect on investment decision making through risk perception and risk attitude

H20: Experience has a significant effect on investment decision making through risk perception and risk attitude

Methods

This research is a explanation study. According to Malhotra (2009), descriptive analysis is the show to explain a causal approach to finding evidence of a causal relationship through the influence of the research variables and testing the formulated hypothesis. The method used in this research is a survey method with a quantitative approach to explain the relationship between age, gender, experience towards investment decisions making through risk perception and risk attitude. The analysis technique used SEM-PLS analysis with Mediation effects.

The population in this study are investors listed on the Indonesia Stock Exchange (IDX) in Surabaya. The reason for taking the city of Surabaya as the population is because Surabaya is the largest city in East Java, where most of the investors in East Java come from Surabaya. According to Sugiyono (2016) the sample is part of this population's number and characteristics. If the population is large, and the researcher can't take all of population, because of limited funds, time, and energy, the researcher can use a sample taken from that population. The sampling method used Slovin formula to determine the research sample and the sample number are 160.

Result and Discussion

Outer Model Testing Results

Convergent Validity Test

The convergent validity value is the loading factor value on the latent variable with its indicators. The expected value exceeds the

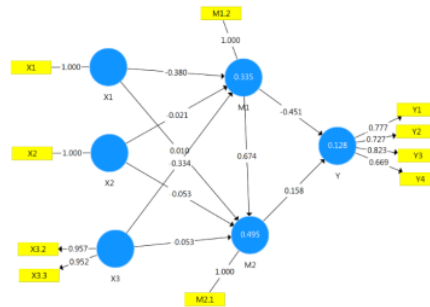number > 0.7, or the 0.6 limits are often using as the minimum limit of the factor loading value.

Figure 2. Convergent Validity Test after Modification
Source: Data processing with PLS (2020)

From the results of data processing with SEM PLS, shown in Figure 2, all indicators of all variables have a loading value greater than 0.60, which means that they have a high level of that they meet the convergent validity.

Discriminant Validity Test

This value is the cross-loading factor, which is useful for knowing whether the construct has sufficient discriminant by comparing the loading of the intended construct, which must be greater than the loading value with other constructs.
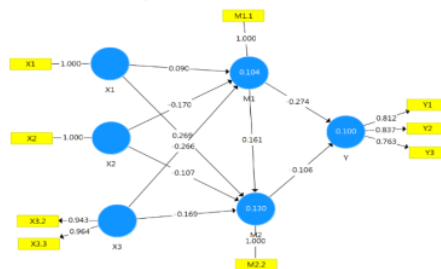

Figure 3. Discriminant Validity Test
Source: Data processing with PLS (2020)

In Figure 3, we can see that each indicator item's loading value against its construct (X1, X2, X3, M1, M2, and Y) is greater than the cross loading value.

Average Variance Extracted Test (AVE)

The expected AVE value exceeds the number > 0.5. The Average Variance Extracted (AVE) method for each constructor latent variable can be seen to evaluate the discriminant validity. The

model has better discriminant validity if AVE's square root for each construct is greater than the correlation between the two constructs in the model.

Table 1
Average Variance Extracted (AVE)

Construct	Average Variance Extracted (AVE)
Age (X1)	1,000
Gender (X2)	1,000
Experience (X3)	0,910
Risk Perception (M1)	1,000
Risk Attitude (M2)	1,000
Investment Decision (Y)	0,564

Source: Data processing with PLS (2020)

Composite Reliability Test

Data that has composite reliability > 0.7 has high reliability. The outer model is not the only measure by assessing the convergent validity and discriminant validity, we can also do it by looking at the construct reliability or latent variables measured by looking at the indicator block's composite reliability value measuring the construct. The output results of PLS for composite reliability values can be seen in the following table:

Table 2
Composite Reliability Value

Construct	Composite Reliability Value
Age (X1)	1,000
Gender (X2)	1,000
Experience (X3)	0,953
Risk Perception (M1)	1,000
Risk Attitude (M2)	1,000
Investment Decision (Y)	0,846

Source: Data processing with PLS (2020)

Cronbach Alpha Test

The reliability test is strength by Cronbach alpha. The expected values exceed a number > 0.6 for all constructs. The outer model is not only measured by assessing the convergent validity and discriminant validity, we can also do it by looking at the construct reliability or latent variables measured by looking at the Cronbach alpha value of the indicator block measuring the construct. The construct is avowed reliable if the Cronbach alpha value is more than 0.60.

Table 3
Cronbach Alpha Value

Construct	Composite Reliability Value
Age (X1)	1,000
Gender (X2)	1,000
Experience (X3)	0,902
Risk Perception (M1)	1,000
Risk Attitude (M2)	1,000
Investment Decision (Y)	0,734

Source: Data processing with PLS (2020)

Inner Model Test Results
R^2 or R-Square Analysis Test

The value of R^2 indicates the level of determination of the exogenous variable on its endogenous. The greater the value of R^2, the better the level of determination.

Tabel 4
Value of R-Square

Construct	R-Squre
Risk Perception (M1)	0,335
Risk Attitude (M2)	0,495
Investment Decision (Y)	0,128

Source: Data processing with PLS (2020)

The calculation results of R^2 for each endogenous latent variable in Table 6 show that the value of R^2 is in the value range of 0.128 to 0.495. Based on this value, the calculation results of R^2 show that R^2 in the M1 and Y constructs is in the weak category (0.335 and 0.128), while the M2 construct is in the Moderate category (0.495) or is close to 0.50.

Q^2 Analysis Test

The value of Q^2 structural model testing is done by looking at the value of Q^2 (predictive relevance). To calculate Q^2 the formula can be used:

$$Q^2 = 1 - (1 - R_1^2)(1 - R_2^2)(1 - R_3^2)$$
$$Q^2 = 1 - (1-0,104)(1-0,130)(1-0,100)$$
$$Q^2 = 1 - (0,896)(0,870)(0,900)$$
$$Q^2 = 1 - 0,701568$$
$$Q^2 = 0,298432$$

The results of the calculation of Q^2 show that the value of Q^2 is 0.298432. According to Ghozali (2014), the value of Q^2 can measure how well the model and its parameter estimates generate the observed value. The Q^2 value greater than 0

indicates that the model is good enough, while a Q^2 value less than 0 indicates that the model has less predictive relevance. In this research model, the construct or endogenous latent variable has a value of Q^2 that more excellent than 0 so that the predictions made by the model are considered relevant.

Testing Analisis of f^2 or Effect Size

The structural model evaluation used the R-square for the dependent construct, the Stone-Geisser Q-square test for predictive relevance, and the t-test and the significance of the structural path parameter coefficients (Ghozali 2006). Assessing the model using PLS begins by looking at the R-square in each latent dependent variable. The changes in the R-square value can use to determine the effect of certain independent latent variables on the latent dependent variables whether they have a substantive impact.

Table 5
The Effect Size Result

Construct	f^2 Atau Effect Size
Age → Risk Perception	0,008
Age → Risk Attitude	0,075
Gender → Risk Perception	0,031
Gender → Risk Attitude	0,012
Experience → Risk Perception	0,072
Experience → Risk Attitude	0,028
Risk Perception → Risk Attitude	0,027
Risk Perception → Investment Decision	0,079
Risk Attitude → Investment Decision	0,012

Source: Data processing with PLS (2020)

Based on these criteria, it can state as follows:
The effect of age on risk perception has a small F^2 of 0.008. The impact of age on risk attitude has a small F^2 0.075. The impact of gender on risk perception has a small F^2 of 0.031. The effect of gender on risk attitudes has a small F^2 0.012. The impact of experience on perceived risk has a small F^2 of 0.072. The effect of experience on risk attitude has a small F^2 of 0.028. The effect of risk perception on risk attitude has a small F^2 0.027. The impact of risk perception on investment decisions has a small F^2 0.079. The result of risk

attitude on investment decisions has a small F^2 0.012.

Bootstrapping Test Result

In PLS, testing of each relationship is carried out using a simulation with the bootstrapping method of the sample. This test aims to minimize the problem of research data abnormality. The test results with the bootstrapping method from the SEM PLS analysis are as follows.
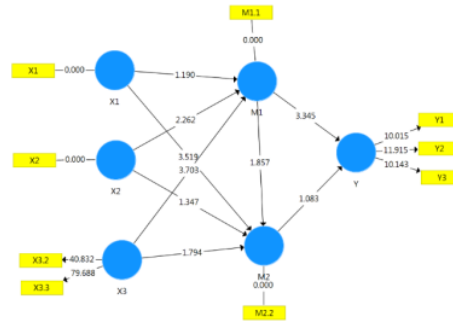

Figure 4. Bootstrapping Result
Source: Data processing with PLS (2020)

Table 6
Total Effect Results

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
X1 -> M2	0.284	0.288	0.076	3.741	0.000
M1 -> M2	0.161	0.163	0.087	1.857	0.032
X3 -> Y	0.096	0.105	0.038	2.516	0.006
X1 -> M1	0.090	0.092	0.076	1.190	0.117
X2 -> Y	0.061	0.063	0.030	2.023	0.022
X1 -> Y	-0.055	-0.055	0.036	1.512	0.065
M2 -> Y	-0.106	-0.099	0.098	1.083	0.140
X2 -> M2	-0.135	-0.130	0.077	1.761	0.039
X2 -> M1	-0.170	-0.174	0.075	2.262	0.012
X3 -> M2	-0.212	-0.215	0.088	2.394	0.008
X3 -> M1	-0.266	-0.271	0.072	3.703	0.000
M1 -> Y	-0.291	-0.298	0.077	3.799	0.000

Source: Data processing with PLS (2020)

Evaluation of Direct Effects

Table 7 show the result of hypothesis test follows are as follows:

Table 7
Hypothesis Test

Hypothesis	T-Statistics	T-Table	P Value	Hypothesis Status (t test)
X1 → M1	1.190	<1.655	0.117	Rejected
X1 → M2	3.741	>1.655	0.000	Accepted
X1 → Y	1.512	<1.655	0.065	Rejected
X2 → M1	2.262	>1.655	0.012	Accepted
X2 → M2	1.761	>1.655	0.039	Accepted
X2 → Y	2.023	>1.655	0.022	Accepted
X3 → M1	3.703	>1.655	0.000	Accepted
X3 → M2	2.394	>1.655	0.008	Accepted

X3 → Y	2.516	>1.655	0.006	Accepted
M1 → M2	1.857	>1.655	0.032	Accepted
M1→ Y	3.799	>1.655	0.000	Accepted
M2 → Y	1.083	<1.655	0.140	Rejected

Source: Data processing with PLS (2020)

Age to Risk Perception

The effect of age on risk perception is not significant because based on the P-value of 0.117, which is greater than 0.05, and based on the value of t-statistics <t-table, namely 1.190 <1.655, thus rejecting the hypothesis

Age to Risk Attitude

The effect of age on risk attitudes is significant because based on the P-value of 0,000, which is smaller than 0.05, and based on the value of t-statistics> t-table, namely 3,741> 1,655 so that it accepts the hypothesis.

Age to Decision Investment

The effect of age on risk attitudes is not significant because based on the P-value of 0.065, which is greater than 0.05, and based on t-statistics <t-table, namely 1.512 <1.655, thus rejecting the hypothesis.

Gender to Risk Perception

The effect of gender on risk perceptions is significant because based on the P-value of 0.012, which is smaller than 0.05, and based on t-statistics> t-table, namely, 2.262> 1.655, accepting the hypothesis.

Gender to Risk Attitude

The influence of gender on risk attitudes is significant because based on the P-value of 0.039, which is smaller than 0.05, and based on the value of t-statistics> t-table, namely 1.761> 1.655 so that it accepts the hypothesis.

Gender to Investment Decision

The effect of gender on investment decisions is significant because based on the P-value of 0.022, which is smaller than 0.05, and based on the value of t-statistics> t-table, namely 2.023> 1.655, it accepts the hypothesis.

Experience to Risk Perception

The effect of experience on risk perceptions is significant because it is base on the P-value of 0.000, which is smaller than 0.05. Based on the value of t-statistics> t-table, namely 3.703> 1.655 accepting the hypothesis.

Experience to Risk Attitude

The effect of experience on risk attitudes is significant because based on the P-value of 0.008, which is smaller than 0.05 and based on t-statistics> t-table, namely 2.394> 1.655, we accept the hypothesis.

Experience to Decision Investment

The effect of experience on investment decisions is significant because it is base on the P-value of 0.006, which is smaller than 0.05, and based on the value of t-statistics> t-table, namely 2.516> 1.655 so that it accepts the hypothesis.

Risk Perception to Risk Attitude

The effect of risk perception on risk attitudes is significant because based on the P-value of 0.032, which is smaller than 0.05, and based on t-statistics> t-table, namely 1.857> 1.655, so accepts the hypothesis.

Risk Perception to Investment Decision

The effect of risk perception on investment decisions is significant because based on the P-value of 0,000, which is smaller than 0.05 and based on t-statistics> t-table, namely 3,799> 1.655, accepts the hypothesis.

Risk Attitude to Investment Decision

The effect of risk attitudes on investment decisions is not significant because based on the P-value of 0.140, which is more than 0.05, and based on t-statistics <t-table, namely 1.083 <1.655, thus rejecting the hypothesis.

Evaluation of Indirect Effects

Table 8 Shows the result of indirect influence

The Effect of Age on Investment Decisions through Risk Perceptions

Table 8
Indirect influence

Notation (axb)	Indirrect Effect (T-Statistics axb)	Dirrect Effect (Nilai c)	Mediation Effect Status
(X1 to M1)(M1 to Y) (1.190)(3.799)	4.521 (Significant)	(X1 ke Y) (1.512) (Not Significant)	Indirect Only (Full Mediation)
(X2 to M1)(M1 to Y) (2.262)(3.799)	8.593 (Significant)	(X2 ke Y) (2.023) (Significant)	Dirrect and Indirect
(X3 to M1)(M1 to Y) (3.703)(3.799)	14.07 (Significant)	(X3 ke Y) (2.516) (Significant)	Dirrect and Indirect
(X1 to M2)(M2 to Y) (3.741)(1.083)	4.052 (Significant)	(X1 ke Y) (1.512) (Not Significant)	Indirect Only (Full Mediation)
(X2 to M2)(M2 to Y) (1.761)(1.083)	1.907 (Significant)	(X2 ke Y) (2.023) (Significant)	Dirrect and Indirect
(X3 to M2)(M2 to Y) (2.394)(1.083)	2.593 (Significant)	(X3 ke Y) (2.516) (Significant)	Dirrect and Indirect
(M1 to M2)(M2 to Y) (1.857)(1.083)	2.011 (Significant)	(M1 ke Y) (3.799) (Significant)	Dirrect and Indirect
(X1 to M1)(M1 ke M2)(M2 to Y) (1.190)(1.857)(1.083)	2.393 (Significant)	(X1 ke Y) (1.512) (Not Significant)	Indirect Only (Full Mediation)
(X2 to M1)(M1 to M2)(M2 to Y) (2.262)(1.857)(1.083)	4.549 (Significant)	(X2 ke Y) (2.023) (Significant)	Dirrect and Indirect
(X3 to M1)(M1 to M2)(M2 to Y) (3.703)(1.857)(1.083)	7.447 (Significant)	(X3 ke Y) (2.516) (Significant)	Dirrect and Indirect

Source: Data processing with PLS (2020)

Based on table 10, we can see that the direct effect of age on an investment decision does not significantly affect. Still, the indirect impact on risk perception toward investment decision has a significant impact. That means that risk perceptions can mediate the effect of age on investment decisions. It means that age can only influence investment decisions through risk perception (full mediation).

The Effect of Gender on Investment Decisions through Risk Perceptions

Based on table 10, we can see that the influence of gender toward investment decisions, both directly and indirectly, has a significant impact through risk perception. It means that risk perceptions can mediate and influence gender on investment decisions (direct and indirect).

The Effect of Experience on Investment Decisions through Risk Perceptions

Based on table 10, we can see that the effect of experience on investment decisions, either directly or indirectly, by perceived risk is having a significant impact. It means that risk perceptions can mediate and influence experience on investment decisions (direct and indirect).

The Effect of Age on Investment Decisions through Risk Attitude

Based on table 10, we can see that the direct effect of age on investment decisions is insignificant. Still, the indirect impact on investment decisions through a risk attitude is significant. It means that the risk attitude can mediate the effect of age on investment decisions (full mediation).

The Effect of Gender on Investment Decisions through Risk Attitude

Based on table 10, we knows that the influence of gender on investment decisions, either directly or indirectly, is through a significant risk attitude. That means that risk attitudes can mediate and influence gender on investment decisions (direct and indirect).

The Effect of Experience on Investment Decisions through Risk Attitude

Based on table 10, the effect of experience on investment decisions, either directly or indirectly, is the impact of significant risk attitudes. It means that risk attitudes can mediate and influence experience on investment decisions (direct and indirect).

The Effect of Risk Perception on Investment Decisions through Risk Attitude

Based on table 10, risk perception on investment decisions, either directly or indirectly, through risk attitudes, has a significant effect. It means that risk attitudes can mediate and impact

risk perception on investment decisions (direct and indirect).

The Effect of Age on Investment Decisions through Risk Perception and Risk Attitude

Based on table 10, the direct effect of Age on investment decisions is not significant. Still, the indirect impact of age on investment decisions has a significant impact through risk Attitude and risk perceptions. It means that risk perceptions and risk attitudes can mediate the effect of age on investment decisions. The point is that age can only influence investment decisions trough risk perceptions and risk attitude (full mediation).

The Effect of Gender on Investment Decisions through Risk Perception and Risk Attitude

Based on table 10, we can see that the influence of gender on investment decisions, either directly or indirectly, is significant through risks perception and risk attitudes. It means that risk perceptions and risk attitude can mediate and affect the influence of gender on investment decisions (direct and indirect).

The Effect of Experience on Investment Decisions through Risk Perception and Risk Attitude

Based on table 10, the effect of experience on investment decisions, either directly or indirectly, is significant through risks perception and risk attitudes. It means that risk perceptions and risk attitude can mediate and impact of experience on investment decisions (direct and indirect).

Discussion

The Effect of Age on Investment Decisions through Perceptions of Risk

There is no significant direct effect between age on investment decisions because a person's age does not determine his investment decision without the risk perception he has. The risk perception itself influences by various factors such as education (Obamuyi, 2013; Fachrudin & Fachrudin, 2016; Khairuzzaman, 2016), experience (Slovic, 2000; Williamson & Weyman, 2005; Sindhu & Kumar, 2014), personality (Cohen et al., 2007; Aren & Canikli, 2019) and knowledge (Williamson and Weyman 2005). The results of this study were following Estes & Hosseini (2010) and Bairagi & Chakraborty (2018) who found that age didn't

have a significant effect on investors' risk perceptions in decision making.

However, it is different from Onsomu (2015) and Maheshwari & Mittal (2017) who found that there was a significant relationship between age and decision making. Likewise, Lutfi (2011) showed that investors' age has a positive correlation in investment decisions making. (Arora and Kumari 2015) showed that the elderly were more reluctant to lose and more regretful than the younger ones. The reason was that the elderly have less time to recover from losses and do not have enough income to save for retirement, and were less likely to take on investment risks.

The indirect effect of age on investment decisions through perceived risk is significant because a person's decision making is based on the risk perception that he or she has for the investment itself. The higher the knowledge, education, and experience of investors, the better investors perceive risks to minimize wrong investment decision making. Likewise, the character of the investor itself will affect the risk perception.

This study's results followed by Amaefula et al. (2012), who found that age had a significant effect on the risk perception. The older the individual was, the more likely he was to react to the identified risks. In other words, risk-liking behavior would increase. Likewise with Bellante & Green (2004); Chang et al. (2004); Rolison et al. (2012), which showed that the older a person was, the more he would avoid the risks, tend to be more conservative, both in assessing and responding to threats. (Arora and Kumari 2015) showed that the effect of age on risk-taking was achieving through investor behavior bias (avoiding regret). So the elderly were less likely to lose money and were less likely to bear investment risks than younger ones.

These research results are contradicting with Bairagi & Chakraborty (2018); Waheed et al. (2020) who found that age didn't significantly affect investors' risk perception in decision making. Likewise, Hibbert et al. (2008) showed that single women didn't have a higher risk of aversion than men.

The Effect of Gender on Investment Decisions through Perceptions of Risk

The significant direct influence between gender and investment decisions means that gender differences affect investment decisions,

meaning that men and women perceive risk differently. The research results of Schubert et al. (1999) showed that the risk tendency of men and women in financial choices depends on the decision-making framework. Also, the research results of Dwyer et al. (2002) showed that women were lower in taking risks than men in the most significant and most risky investment decisions making.

However, these research results were contradicting with Bairagi & Chakraborty (2018), who found that gender had no significant influence on investors' risk perception. Also, Bashir et al. (2013) showed no significant difference in responses between men and women in decision making. Likewise, Embrey & Fox (1997) showed that gender was not an essential determinant of investment decision making.

The influence of gender on investment decisions through perceived risk is significant. The results of this research indicate that risk perceptions strengthen the impact of gender on investment decision making. It means that gender differences lead to risk perceptions differences that make investment decisions different between men and women. This study's results are consistent with Olsen & Cox (2001), who found that women were more risk-averse than men. Embrey & Fox (1997) also showed that women prefer inheritance, work, and had higher net assets and tended to have risky investments. Likewise, Schubert et al. (1999) showed that the risk tendency (gender) appears in abstract risk. Men had a greater risk of getting benefits, while women were more prone to losses. (Dwyer et al. 2002); (Hibbert et al. 2008) showed that women were more risk-averse than men.

The Effect of Experience on Investment Decisions through Perceptions of Risk

The significant direct effect between experience and investment decisions means that investors who have a lot of investment experience can more easily consider factors in investment decisions making and are more careful in investment decisions making to achieve maximum returns and avoid losses.

This result was consistent with Septyanto & Adhikara, 2014 and Pak & Mahmood, 2015), showed that adequate experience in the stock market had a significant effect on decision making. Likewise, Andriani Samsuri et al. (2019) showed that experience positively impacts

investment decision-making. However, in contrast to Estes & Hosseini (2010), it showed that experience didn't significantly affect making investment decisions.

The effect of experience on investment decisions through perceived risk is significant. The results of this research indicate that risk perception can moderate the impact of experience on investment decisions. That shows that the experience of an investor influences investment decision making through the perception of risk. This research follows Sindhu & Kumar (2014), which showed that the risk perception of an investor had a significant effect in investment decisions making. Veld & Veld-Merkoulova (2008) showed that most investors secretly use more than one measure of risk in investment decisions making, including variance, semi-variance, and shortfall. Semi-variance most often reflects investors' risk perceptions. Still, it is different with Bairagi & Chakraborty (2018), which showed no significant difference in risk perception towards investment decision making

The Effect of Age on Investment Decisions through a Risk Attitude

There is no significant direct effect between age on investment decisions because an investor's age does not determine his investment decision without being aware of the risk attitude. This result followed Estes & Hosseini (2010) and Bairagi & Chakraborty (2018), which showed that age didn't have a significant effect on investment decision making.

However, the results of this research were different from Onsomu (2015), which showed that there was a significant relationship between age and decision making. Also, Lutfi (2011) showed that investors' age had a positive correlation in investment decisions making. Likewise, Maheshwari & Mittal (2017) showed that age affects the investment decision-making process.

The effect of age on investment decisions through risk attitudes is significant. This research indicates that the risk attitude can moderate the impact of the relationship between age on investment decisions. It means that the older a person is, the more someone is, the more they like and respond to a ris. This research followed Bellante & Green (2004); Chang et al. (2004); Rolison et al. (2012) and Amaefula et al. (2012) showed that a significant effect on risk, the older, the more conservative tended to be in responding

to risk. Also, Arora & Kumari (2015) showed that age had a significant effect on decision making. So the elderly were less likely to be loss-averse and less likely to bear investment risk than younger ones. Likewise, Hibbert et al. (2008) showed that the age of women, singles didn't have a higher risk aversion than men.

The Influence of Gender on Investment Decisions through Risk Attitudes

The significant direct influence for gender on investment decisions means that gender differences affect investment decisions, meaning that the gender respond risk in different ways. Female investors are still too afraid to make carefully decisions because all factors are considering in their investment decisions.

This research followed Schubert et al. (1999), who showed that the risk tendency of men and women to take risks depends on the decision-making framework. Also, Dwyer et al. (2002); Ady (2015); Ady (2018); Ady & Hidayat (2019) showed that women take lower risks than men in investment decisions making. However, contradicting with Embrey & Fox (1997), which showed that gender was not an essential determinant of investment decision making. Also, Bashir et al. (2013) and Bairagi & Chakraborty (2018) showed no significant relationship between gender and decision making.

The influence of gender on investment decisions through risk attitudes is significant. This research indicates that risk attitudes can moderate the impact of gender on investment decision making. This result followed Charness & Gneezy (2011), which showed that women have less risk of investing and were more likely to avoid risk than men. Also, Arora & Kumari (2015) showed that gender affects risk-taking in an investment decision, with women had showing more reluctance and more regret than men. Likewise, Schubert et al. (1999) and Byrnes et al. (1999) showed that women generally didn't make risky investment choices than men, but this was not by Bashir et al. (2013), which indicated that there was no significant relationship between gender and investment decision making.

The Effect of Experience on Investment Decisions through a Risk Attitude

The direct influence between experience on investment decisions shows that the length of time an investor has invested affects determining the factors that must consider before making a decision. This result followed Pak & Mahmood (2015), which showed that an investor's adequate experience about investing had a significant effect on decision making. Also, Septyanto & Adhikara (2014) and Andriani Samsuri et al. (2019) showed that experience positively affects on investment decision making. However, it was different from Estes & Hosseini (2010), which showed that experience didn't significantly affect investment decisions making.

The effect of experience on investment decisions through risk attitudes is significant. This research indicates that the risk attitude can moderate the impact of experience on investment decisions. That shows that many experiences influence an investor to make an investment decision by carefully considering all factors and responding to risk in investment decisions making. The results of this research were by Amaefula et al. (2012), who showed that experience was an essential factor in addressing risk. Also, Pak & Mahmood (2015) showed that adequate experience about investing had a significant effect on decision making, but different from Bairagi & Chakraborty (2018), which indicated no significant difference in risk attitudes towards investment decision making.

The Influence of Risk Perception on Investment Decisions through a Risk Attitude

There is a significantly direct effect risk perception on investment decisions. That means that when a person invests, they determine his investment decision based on the perceived risk. The risk perception were a source of communication that can have implications and prepare investors for risk based on psychological factors (Rana et al., 2011). This result followed Nur Aini & Lutfi (2019), which showed that risk perception had a significant and negative effect on investment decision making. Likewise, Farayibi (2015) showed that risk perception determined the level of investment decision making.

The effect of risk perception on investment decisions through risk attitudes is significant. That suggests that the risk attitude can moderate the relationship between risk perception and investment decisions. It means that when a person invests, they determine his investment decision based on the risk perception. This result followed Sitkin & Pablo (1992) and Sitkin & Weingart (1995), who showed that risk attitude was an

essential mediator in decision making. Schubert et al. (1999) found that female investors showed more prejudice than facts in making investment decision than men. Likewise, Sindhu & Kumar (2014) showed that investors' risk perception had a significant effect on investment decisions making. Still, it is different from Septyanto & Adhikara (2014) and Nur Aini & Lutfi (2019), which showed that risk perceptions negatively impact investment decision-making.

The Effect of Age on Investment Decisions through Risk Perception and Risk Attitude

There is no significant direct effect between age on investment decisions because a person's age does not determine their investment decisions and makes investment decisions without they risk perceptions and risk attitudes. Perception of risk itself is influence by various factors such as education (Obamuyi, 2013; Fachrudin & Fachrudin, 2016; Khairuzzaman, 2016), experience (Slovic, 2000; Williamson & Weyman, 2005; Sindhu & Kumar, 2014), personality (Cohen et al., 2007; Aren & Canikli, 2019) and knowledge (Williamson and Weyman 2005).

The results of this study are followed Estes & Hosseini (2010) and Bairagi & Chakraborty (2018) who found that age didn't have a significant effect on investors' risk perceptions in decision making. However, it is contradicting with Lutfi (2011); Arora & Kumari (2015); Onsomu (2015) and Maheshwari & Mittal (2017), who found that there was a significant relationship between age and decision making.

The indirect effect of age on investment decisions through risk perception and risk attitudes is significant. That is because a person's decision making at the time of investing base on the risk perception and risk attitude he has. As a person gets older, it affects the risk perceptions and risk attitudes of investor.

This study's results are followed Sitkin & Pablo (1992) and Sitkin & Weingart (1995), which showed that risk perception and risk attitude were essential mediators in decision-making. Also, Hibbert et al. (2008) and Waheed et al. (2020) showed that age didn't significantly affect investors' risk perception in decision making.

However, in contrast, Amaefula et al. (2012) and Arora & Kumari (2015), who found that age had a significant effect on the risks.

Likewise with Bellante & Green (2004); Chang et al. (2004); Rolison et al. (2012), which showed that the older a person was, the more he would avoid the risks, and tend to be more conservative, both in assessing and responding risks.

Gender Influence on Investment Decisions through Risk Perception and Risk Attitudes

The significant direct influence between gender and investment decisions means that gender differences affect investment decisions. It means that men and women perceive and respond to risk in different ways. The results of this study are followed Schubert et al. (1999), which showed that the risk tendency of men and women in investment choices depends on the decision-making framework. Also, the research results of Dwyer et al. (2002) showed that women were lower in taking risks than men in the most significant and risky investment decisions making.

However, it was different from Embrey & Fox (1997), which showed that gender was not an essential determinant of investment decision making. Also, Bashir et al. (2013) indicated no significant difference in responses between men and women in decision making. Likewise, Bairagi & Chakraborty (2018) found that gender had no significant effect on investors' risk perceptions when investment decisions making.

The influence of gender on investment decisions through risk perception and risk attitudes is significant. This research indicates that risk perceptions and risk attitudes can moderate the effect of the relationship between gender and investment decisions. It means that gender differences lead to different perceptions and risk attitudes when investment decisions making different between men and women.

This result followed Embrey & Fox (1997); Olsen & Cox (2001), who found that women were more risk-averse than men. Likewise, Dwyer et al. (2002) and Hibbert et al. (2008) showed that women were more risk-averse than men.

The Effect of Experience on Investment Decisions through Risk Perception and Risk Attitude

The significance of the direct influence between experience and investment decisions shows that an investor who has experience in investing impacts in determining the factors of investment decisions making.

This research followed Pak & Mahmood (2015), which showed that an investor's adequate experience about investing had a significant effect on decision making. Also, Septyanto & Adhikara (2014) and Andriani Samsuri et al. (2019) showed that experience positively affects an investment decision making.

The effect of experience on investment decisions through risk attitudes is significant. This research indicates that the risk attitude can moderate the impact of experience on investment decisions. It means that an investor's experience will affect his investment decision-making without considering the risk very carefully. The results of this research followed Sitkin & Pablo (1992) and Sitkin & Weingart (1995), which showed that risk perception and risk attitude were essential mediators in decision making. Also, Amaefula et al. (2012); Ady et al. (2013); Ady (2015); Ady (2018) showed that experience was an essential factor in addressing risk. Likewise, Pak & Mahmood (2015) showed that adequate investing experience had a significant effect on decision making. Still, it was different from Bairagi and Chakraborty (2018), which indicated no significant impact of risk perception on investment decision making.

Conclusion, Research Limitations and Advice for Further Research

Conclusion

This study provides empirical evidence regarding the influence of age, gender, experience on risk perceptions, and risk attitudes in making investment decisions on the Indonesia Stock Exchange (IDX). This study used a sample of 160 respondents, who are registered capital market investors in East Java, Indonesia. The results of this study indicate that age, gender, and experience influence investment decision making through risk perception and risk attitude.

In the Covid 19 pandemic conditions, risk perceptions can influence the of investors in making investment decisions. Market conditions that are very dynamic and erratic have resulted in changes in investor's risk perceptions and risk attitudes, thus changing their behavior in investing in speculation and taking profits to take advantage of market dynamism.

Limitation

Although the researcher has tried to develop and develop this research, there are still limitations in this study that still need revision in further research. Among them are securities that do not support researchers to ask for investor data, so the sample is tiny. Likewise, obstacles in the field of data collection are not free because the conditions of the Covid 19 pandemic require Large-Scale Social Restrictions to lockdown.

Further Suggestions

Based on the research results, we can consider several suggestions for investors: (1) Making experiences as a learning process to improve perceptions and risk attitudes. (2) Avoid panic when there is a drastic change in the market.

For further research, expected that all securities analysis could do that the research results are more comprehensive and valid. Used a more developed model so that the results provide a better picture and add factors that influence investors' actions to invest. Or add other variables that give better results.

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