

# Do Emotions Influence the Investment Decisions of Generation Z Surabaya Investors in the Covid-19 Pandemic Era? Does Financial Risk Tolerance Play a Moderating Role?

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## Abstract

The purpose of this study was to investigate the influence of positive and negative emotions on investment decisions during the Covid-19 pandemic, as well as to test risk tolerance as an intervening variable between basic emotions and investment decisions. This study uses endogenous variables, namely investment decisions and exogenous variables, namely positive and negative emotions including anger, sadness, hope, happiness, and fear. As well as the intervening variable, namely financial risk tolerance. Data collection was carried out by distributing questionnaires to 180 young investors in Surabaya, Indonesia. The questionnaire uses a 5-point Likert scale. Hypothesis testing uses a structural equation model. The results of the study indicate that there is a significant impact of positive emotions on investment decision-making. The association in question is mediated by financial risk tolerance. The regulation of the relationship between negative emotions and investment decisions by financial risk tolerance remains unclear. Furthermore, the impact of negative emotions on investment decisions appears to be insignificant. Practical implications of this research help young investors of generation Z to manage their emotions, especially in the era of Covid-19. This is because emotions can affect their investment decision making. The originality of this research is a unique study of the positive and negative emotions associated with the investment decisions of young investors in the Covid-19 era. As well as risk tolerance which will strengthen the influence of emotions on investment decisions. The results of the research strengthen the theory of emotional intelligence and the dual process theory.

## Keywords

Positive emotions, Negative emotions, Investment decision-making

## JEL Classification

G10, G11, G40, G41, G4

## Introduction

Financial and investment application technology improvements have driven an extraordinary increase in Generation Z investors in the Indonesian capital market. The ease of using the application and obtaining various information has encouraged Generation Z investors to be interested in becoming actors in the capital market. The COVID-19 pandemic has resulted in many online activities by Generation Z, increasing interest in investing in the capital market. An extraordinary increase of 192% from 2020 to 2021. When viewed from 2018 to August 2022 the number of investors has experienced an extraordinary increase of up to 374% or 413% in stock investors, especially retail investors, an increase of 103.21% (Indonesia, 2021). The actions of retail investors are the driving force behind the surge in stock transactions. Stock transactions throughout January 2021 turned out to be very lively with various dramas, starting from the congregational auto reject trend (ARB) to the emergence of stock influencers. Bloomberg data shows that there was the highest jump in history in share transactions of IDR 849.12 trillion, an

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increase of 179.57 percent compared to transactions during January 2020 which reached IDR 303.72 trillion (Utami, 2021).

The IDX movement experienced a cycle of fast market emotions and even entered a period of euphoria when it touched the highest price level, but after that entered a phase of desperation. Trading trends in the highly speculative market bring stock prices up and down too fast (Sindo, 2021). The Indonesia Stock Exchange stated that the millennial generation (generations Y and Z) dominate most of the stock trading transactions, reaching 80 percent. Generation Z investors in Indonesia often exhibit irrational behavior in trading decisions when faced with excessive price fluctuations and stock indices. The existence of stock influencers also makes investor decisions sometimes irrational. Generation Z investors are classified as beginner investors and usually only think about how to get big profits quickly with stock instruments as an investment medium. The phenomenon shows that investor behavior is not always rational and is influenced by emotions and market sentiments. Extreme prices can trigger excessive behavior in buying or selling stocks, resulting in significant investor losses. High volatility in the stock index can also lead to a loss of confidence in the stock market and cause investors to make irrational decisions, such as selling stocks massively or avoiding the stock market altogether ((Aslam et al., 2020); (Zahera & Bansal, 2018); (Ottemoesoe & Malelak, 2014)). Various research studies have documented that investors do not behave rationally when making decisions (Kasoga, 2021); (Rasool & Ullah, 2020). Insights from psychology are beginning to be used to explain why investors behave irrationally.

Emotions can have an impact on investment decisions. The emotions that accompany decision making must also be considered. Fear, greed, anxiety, and conviction are all emotions that can influence investment decisions (Wood et al.,; Taffler et al., 2017). Emotions need to be controlled so that they are stable and not dominate themselves in making decisions (Istiqomariyah, 2020). Moods and emotions play an important role in decision-making processes and social relations. Emotions and moods can influence people's decisions (Salehi & Mohammadi, 2017). Investors are not always rational, according to behavioral finance, and emotions, biases, and heuristics frequently influence their behavior.

Behavioral finance is an interdisciplinary field that combines insights from finance, psychology, and economics to understand how people make financial decisions ((Copur, 2015); (H. K. Baker, 2021). Behavioral finance shows that the assumptions of traditional finance are not always accurate; investors are prone to various biases and irrational behaviors when making investment decisions ((Ising, 2007); (Shefrin, 2002); (Nofsinger, 2016)). The behavioral finance paradigm emerged as an answer to the difficulties faced by the traditional paradigm. In essence, investment choices are not always made based on full rationality and trying to understand investment market phenomena by relaxing the two traditional paradigm doctrines, namely, (i) agents fail to renew their beliefs. and (ii) there are systematic deviations from the normative process in determining investment choices (Kishore, 2006).

The dual-process theory in cognitive psychology explains why emotions can influence investment decisions. This theory identifies two types of human thought processes. First, System 1 is a fast (emotional) thinking process based on intuition, experience, and feelings. Second, slow (rational) thinking involves detailed analysis and critical thinking (Mittal, 2019). System 1 may influence investment decisions through emotions such as fear, sadness, or anger. Investors tend to use quick and emotional thought processes and may not consider them more rational and essential, such as company performance and investment risks. By contrast, System 2 can help investors make investment decisions, who tend to use detailed analysis and information to make better decisions ((Kahneman & Tversky, 2013); (De Neys, 2017)). However, it is essential to understand that both thought systems have weaknesses and advantages. System 1 tends to be faster and easier to use but can lead to errors in decision-making. System 2 is more accurate and detailed but requires more time and energy. Recognizing the influence of emotions and thought systems on investment decisions is essential. Investors aware of the power of emotions in investment decisions may be more inclined to use more rational and practical thought processes, such as fundamental or technical analysis, in decision-making.

Emotions, as powerful psychological experiences, can involve changes in an individual's thoughts, behavior, and world perception. In investment decisions, emotions influence investors' thoughts and actions, ultimately affecting the results (Hinvest et al., 2021). Investors often experience intense emotional pressure when making investment decisions. There such as market volatility, potential losses, or high expectations. Emotions can influence investors to make irrational decisions, such as hastily selling their stocks or holding them in unfavorable market conditions. These conditions can affect long-term investment outcomes and cause investors to incur losses. However, emotions generate better investment results. Investors who can control their emotions and make decisions based on rational analysis are often more successful at generating profits from their investments (Lerner et al., 2015); (Thomas & Assissi Menachery, 2018); (Chambers & Simon, 2022). Emotions can affect risk perception and investment risk management (Kahneman & Tversky, 1979a). The study found that humans tend to feel more pain from losing money than pleasure from gaining the same amount. Emotions significantly affect investment decisions (Hinvest et al., 2021). Anxious and fearful investors tend to sell stocks more than confident investors. Meanwhile, happy and cheerful investors tend to make larger stock purchases. The risk tolerance of investors will also increase the emotion of investment decisions (Brooks et al., 2022). Emotions that are not static, experiences from the past, and alternatives created by individuals will influence investors' perceptions of risk and risk tolerance (Aren &

Hamamci, 2020). Emotions can be a factor with great potential when measuring the level of financial risk tolerance of investors (Conte et al., 2018). The profile of Indonesia's millennial generation show that Indonesia is entering an era of demographic bonuses (the proportion of the productive age population is 2/3 of the total population (Budiati et al., 2018). Based on KSEI data, it shows the extraordinary domination of generation Z young investors and has even become the driving force for the Indonesian capital market. Surabaya is a city with the largest generation Z investor growth in Indonesia. The role of young investors in the capital market is very high, indicating that good or more rational investment decisions will drive the capital market forward. Based on this, the novelty of this research is that it provides better knowledge and understanding of whether positive and negative basic emotions are important in investment decisions, especially in Generation Z on developing countries. In addition, it also shows financial risk tolerance which mediates the influence of positive and negative emotions on investment decisions. The session of this paper follows. The first section is related to the background of the study, the second section provides literature and hypothesis development, the third section provides material and methods, the fourth provides results and discussion, and the fifth section offers conclusions.

## Literature Review

### ***Behavioural Finance Theory***

Behavioral finance, generally defined as the application of psychology in finance (Ising, 2007). Behavior finance is also defined as a study that studies how psychological phenomena affect financial behavior (Shefrin, 2002). Behavioral finance is the study of how people behave in financial situations. Specifically, it is the study of how psychology influences financial decisions, businesses, and financial markets. In a nutshell, behavioral finance is an approach that explains how humans make investments or deal with finances when psychological factors are at play (Nofsinger, 2016). As a result, behavioral finance theory can aid in the understanding of investor behavior, the analysis of market dynamics, and the development of more effective and efficient investment strategies (Barberis & Thaler, 2003). Behavioral finance theory focuses on two critical aspects of financial decision-making: investor behavior and the psychological factors influencing it. Investor behavior can be affected by experience, perception, and propensity to take risks. Psychological factors such as greed, hope, fear, and belief can influence investors' financial decisions (Thaler, 1999). Heuristic and prospect theories are two crucial concepts in behavioral finance theory that are highly relevant to investment decision-making. Heuristic theory refers to the human ability to make decisions quickly and efficiently but often inaccurately. Humans often use rules of thumb in financial decision-making, called heuristics. These heuristics can be helpful in processing information quickly but can also cause humans to make mistakes that result in financial losses (Gisbert-Pérez et al., 2022; Kahneman & Tversky, 1979b). Prospect theory reveals that humans tend to be more sensitive to losses than gains, and the values are not symmetrical. Investors are more likely to sell declining stocks than rising ones in stock trading. Therefore, investors often make irrational decisions to avoid losses considered significant by investors (Kahneman & Tversky, 1979b).

### ***Dual Process Theory***

Dual Process Theory (DPT) explains how human thought can appear in two different ways, namely ways and processes. Sometimes these two things can be present in implicit (automatic or unconscious) and explicit (controlled or conscious) forms. These two things distinguish how humans make decisions (Frankish, 2010). There are many experts or figures in their fields who develop dual process theory. These figures are Peter Wason and Jonathan Evans, Richard E. Petty and John Cacioppo, Steven Solomon, Daniel Kahneman, Fritz Strack and Roland Deutsch (Gawronski & Creighton, 2013).

Peter Wason and Jonathan Evans stated that there are two different processes, namely: heuristic and analytic. In the heuristic process, individuals choose which information is relevant in a particular situation. This relevant information is then processed, while the irrelevant information is not processed, then this process is continued with an analytical process. Throughout the analytic process, relevant information is selected based on a heuristic process which will then be used to provide justification about the situation (Gawronski & Creighton, 2013).

Richard E. Petty and John Cacioppo proposed a dual process theory that focused on the field of social psychology in 1986. The theory became known as the Elaboration Likelihood Model of Persuasion. In this theory they state that there are two different routes in making decisions, namely the central route and the peripheral route. The first route, namely the central route, describes a decision-making condition in which a person thinks carefully about the situation, elaborates on all available information, and makes arguments. This route is present when the individual has high motivation and ability. The second route, the peripheral route, describes decision making in which individuals do not think carefully about situations and use shortcuts to make judgments. This route occurs when the motivation and ability of the individual is low (Gawronski & Creighton, 2013).

Steven Sloman made an interpretation of dual processing in 1996. He divided this dual processing into two systems, namely: associative and rule-based systems. In the associative system, he explains how a person makes

decisions based on similarities from past experiences, relying on temporal and similar relationships to determine arguments, rather than basing them on mechanical structures. Unlike the associative system, the system functions on a logical structure and variables based on system rules to generate conclusions that are different from an associative system. He also stated that the rule-based system has control over the associative system, although it can only suppress it. This interpretation was very important in the early work on the computational model of the dual process of reasoning (Gawronski & Creighton, 2013).

Daniel Kahneman wrote the famous book "Thinking Fast and Slow", interpreting dual process theory with intuition and reasoning action. Kahneman stated that in the process of making individual decisions, there are two systems that work, namely what he calls system 1 and system 2. System 1 works quickly and automatically (similar to associative reasoning), while system 2 runs consciously or under control. System 1 (which runs automatically) is like a trained skill, for example when someone drives a vehicle, while system 2 runs in a conscious state, for example when driving in difficult road conditions (Gawronski & Creighton, 2013).

Fritz Strack and Roland Deutsch put forward another dual process theory that focuses on the field of social psychology. Based on the model they proposed, there are two systems that work, namely: reflective and impulsive. In a reflective system, decisions are made based on knowledge and information that is present from the situation being processed. (Gawronski & Creighton, 2013)

### **Emotions**

Emotion is people's reaction to external stimuli, which influences their judgement and behavior and includes both physical and psychological components (Aren & Hamamci, 2020). Emotions are psychological and physiological reactions to environmental stimuli or thoughts involving joy, sadness, fear, anger, and anxiety (Verhaeghen & Hertzog, 2014). Emotions are subjective experiences that arise within individuals in response to situations that affect their psychological states (Parrott, 2001). Emotion theory argues that emotions are essential in decision-making because they can affect individual perceptions and influence reasoning (Lerner & Keltner, 2001).

Cognitive appraisal theory show emotions can change along with changes that occur when individuals interact with the environment and the extent to which they perceive the event. Emotions are considered temporary states that arise due to various internal and external events that individuals experience reflection in physiological, cognitive, and behavioral changes (Lazarus, 1991). In the investment context, after identifying the emotions felt, investors can use them to increase motivation, thinking, and empathy, as proposed by R.W. Leeper (Hude, 2006).

The prospect of making money makes people happy and encourages them to take risks. On the other hand, the possibility of losing money causes fear and even anger, resulting in risk avoidance. Emotions can influence a decision alone, and different emotions can influence a decision to combine (Li, 2011). Behavioral variables such as individual mood, emotions, and so on be added to the decision-making process as an input (Loewenstein et al., 2001).

Emotions are categorized into various effects appropriate for the current situation (Barrett, 2006). Five basic emotions of happiness, hope, anger, sadness, and fear have been stated, and these primary emotions are universal and genetically inherited. The five emotions are then categorized as negative or positive emotions. Emotions associated in a positive state such as joy can be said to have a positive valence, while negative emotions such as fear or anger can be said to be negative in valence (Brooks et al., 2022).

Positive emotions refer to positive expressions that are felt even when the individual is going through life's challenges. Positive emotions are emotions that are usually pleasant to experience in response to the environment. Positive emotions are related to individual happiness orientation, those who are high in positive emotions will be more likely to seek happiness in life through the experiences and meanings of life. Examples of positive emotions are joy, hope, satisfaction, interest, attachment, and pride (Bhutoria & Hooja, 2018). Negative emotions are emotions and expressions that are shown negatively which make psychological conditions uncomfortable. Based on the classification of Parrott (2001) negative emotions include anger, sadness, and fear (Aren & Hamamci, 2020), (Conte et al., 2018).

### **Financial Risk Tolerance (FTR)**

The maximum amount of uncertainty that an individual is willing to accept when making any financial decision is defined as FRT (Rahman, 2020). Individuals' FRT is very helpful for successful financial management (Anbar & Eker, 2010). FRT determines the types of investment an individual will accept, and the amount of wealth will be able to accumulate. In determining the level of risk tolerance possessed by an investor, there will be a great influence from personal psychological preferences, this will provide the results of an assessment of the investor's relationship with his financial condition. FRT is a fundamental instrument used to measure the suitability between investment and the final decision of the investor. After measuring the FRT, investors are grouped into two types of risk perspective, namely as risk takers and risk avoiders. Investors with risk averse refer to the condition of individuals who are not willing to take financial risks and try to avoid them while the term for risk seekers can be interpreted as investors who like to take risks or riskier choices by providing a high rate of return. larger ones (Paulsen et al., 2012), (Scholer et al., 2010).

### **Investment Decisions**

Investment refers to an attempt to place funds in certain assets or financial instruments to generate profits. Investment can be defined as allocating funds to certain assets or financial instruments expected to generate profits in the long term (Ehrhardt & Brigham, 2011). Investment decisions are complex decision-making processes that determine which assets or financial instruments to buy or sell, when to buy or sell them, and how much money to set aside for investment. Investment decisions also involve evaluating the risks and expected returns of each asset. Investment decisions are an ongoing process of determining the best investment strategy (Alexander *et al.*, 2001). Various factors can influence investment decisions, including emotional, psychological, and social. When making investment decisions, investors are often affected by cognitive biases, such as the tendency to make decisions based on limited or attention-grabbing information. Investors have influenced emotions, such as greed, fear, and pleasure, which can affect their investment decisions (Kahneman & Tversky, 1979b). Additionally, investment decisions also have influenced by social factors such as recommendations from investment experts or fellow investors (Thornton, 2016).

### **The Influence of Positive and Negative Emotions (happy, hope, anger, sadness, fear) on Investment Decision**

Positive emotions are positive expressions that are felt even when an individual is facing difficulties in life. Joy, hope, satisfaction, interest, attachment, and pride are examples of positive emotions (Bhutoria & Hooja, 2018). Negative emotions are negative emotions and expressions that make psychological conditions uncomfortable. Based on the classification of Parrott (2001) negative emotions include anger, sadness, and fear (Aren & Hamamci, 2020), (Conte *et al.*, 2018). Emotions of happiness and hope can influence investment decisions, as investors tend to be more confident and risk-taking when feeling happy or excited about the expectations of significant returns. Forgas (1995) finds that investors make bolder investment decisions when they feel happier. Happy emotions positively and significantly influence investment decisions in the stock market by making aggressive and proactive investments. Kuhn and Knutson (2011) research shows that happy investors have higher self-esteem and optimism, which can influence their investment decisions. Investors who feel happy tend to make better investment decisions because happiness can increase creativity and flexibility of thinking and help investors evaluate information more objectively (James *et al.*, 1890). Baker and Wurgler (2006) found that happy emotions are not significant for investment decisions, stating that happy emotions have no significant relationship with investment decisions in retail investors. Research conducted by Odean (1998) also found that most investors tend to make investment decisions based on other factors, such as market information and recommendations from financial experts, not because of happy emotions or happiness. Hope can also motivate investors to invest because they expect to achieve specific financial goals. Langevoort (1996) found that positive hope emotions can increase investors' interest in investing and encourage them to make riskier investment decisions. Emotions of hope can positively influence investment decisions because investors choose stocks expected to provide better returns than other stocks. Emotion can help investors make wiser investment decisions and avoid excessive risks (Shefrin & Statman, 1985; Statman, 2014). Therefore, investors with high expectations of rising stock prices tend to be more aggressive in their investment decisions.

*H1: Positive emotions have a significant effect on investment decision on generation Z in era of covid-19.*

Anger, sadness, and fear can affect a person's perception of investments and influence their investment decisions. For example, anger can cause a person to take unnecessary risks in their investment, whereas sadness and fear can cause them to avoid reasonable risks (Lerner & Keltner, 2000). Such emotions can affect one's perception of market conditions and specific stocks and can influence their decision to buy or sell stocks. For example, the emotion of sadness that arises during a market downturn may cause a person to sell stocks too quickly without considering fundamental factors. In contrast, the emotion of fear may make a person reluctant to buy stocks that have sound potential (Loewenstein *et al.*, 2001).

*H2: Negative emotions have a significant effect on investment decision on generation Z in era of covid-19.*

### **Financial Risk Tolerances Moderates the Influence of Positive and Negative Emotions on Investment Decisions**

The fact that emotions influence financial decision making is undeniable and has scope to explain many cases of confusing retail investor behavior. For example, emotions can to some extent explain the different effects and results when retail investors are presented with information regarding emphasis on losses or gains (Miu & Crişan, 2011). Emotional factors can make a real difference when making decisions compared to situations where the financial choice is made purely according to logic. Loss aversion is caused by the emotion of investing for yourself but not for others where the perceived loss from the presence of risk is less real. More generally, emotional reactions to market conditions are argued to be able to promote irrational investor behavior that leads to financial market inefficiencies and mispriced assets. Therefore, emotions will significantly influence the financial risk tolerance of investors (Brooks *et al.*, 2022). Being in a good emotional and heart condition can make investors see the bright side of the information received and become optimistic about the outcome of riskier decisions. From this support, those who are in a positive emotional state are more likely to take risks, existing evidence shows a positive relationship between positive emotions and risk tolerance (Brooks & Williams, 2021), (Breaban & Noussair, 2018).

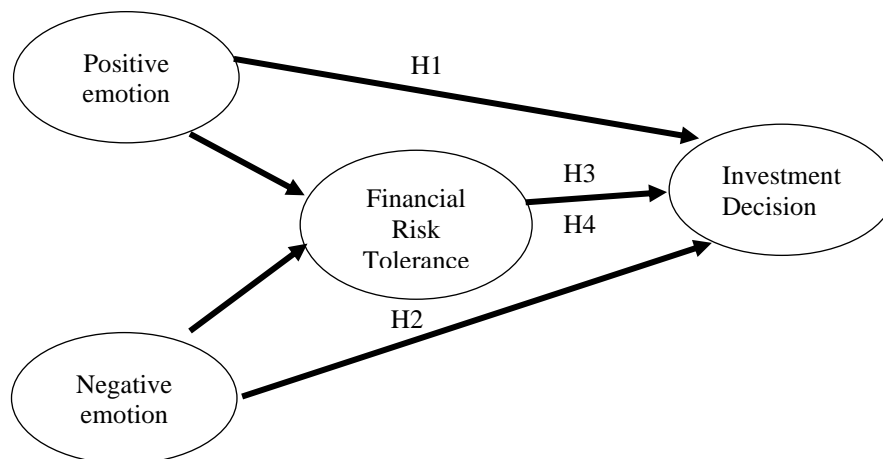
Positive emotions, including joy and hope will encourage higher risk taking. Hope makes individuals have the desire to be able to realize their expected future goals. This is related to the situation experienced by the individual, and states that when an individual experiences a positive situation, the expectations they have will increase the perception of future risk, conversely if they do not have high expectations due to a threat or dangerous situation, the risk will be avoided (Hayenhjelm, 2006), (Reimann et al., 2014).

*H3: Financial risk tolerance mediates the relationship of positive emotions and investment decisions in Generation Z in the Covid-19 era.*

Negative emotions such as sadness, fear, anger, and others can lead to an increase in risk-taking behaviour. Fear is one of the most relevant negative emotions when making financial decisions, those who are afraid in situations of uncertainty or circumstances they cannot control make most retail investors do a lot of judgment and avoidance of risk (Lee & Andrade, 2011). Negative emotions are stronger with a lot of careful action in decision making. Therefore, investors who experience more negative emotions will have a lower level of financial risk tolerance (Breaban & Noussair, 2018).

*H4: Financial risk tolerance mediates the relationship of negative emotions and investment decisions in Generation Z in the Covid-19 era.*

Overall, the research model is shown in Figure 1 below.



**Fig 1.** Conceptual Framework.

## Methods

The primary dataset used in this study is information obtained by distributing questionnaires to minimum 100 respondents (Hair et al., 2010) who meet the characteristics of generation z investors in Surabaya who already have a Single Investor Identification (SID) with an investment experience of  $\geq 6$  months. The sampling technique with snowball. The online survey ran from October 24, 2022, to October 30, 2022. The online survey contained questions regarding respondents' general demographics, positive and negative emotions, financial risk tolerance and investment decisions. Questionnaire on investment decisions adopted from research (Al-Tamimi et al., 2009); (Yusuf, 2022). The positive and negative emotions were adopted from study (Shiota et al., 2006); (Snyder et al., 1991); (Gambetti & Giusberti, 2012); (Conte et al., 2018); (Leary, 1983). Financial risk tolerance adopted from (Brooks et al., 2022). The questionnaire uses a Likert scale of 5 points.

This research uses positive emotions (happiness, hope) and negative emotions (anger, sadness, and fear) as exogenous variables, investment decisions as endogenous variables, and financial risk tolerance as mediating variables. The positive emotion variable (X1) uses ten indicators, and the negative emotion variable (X2) uses 20 indicators. The endogenous investment choice variable (Y) uses seven indicators, and the intervening variable, called financial risk tolerance (Z1), uses 11 indicators (Appendix 1).

In this study, the data analysis method used is the Structural Equation Model to test the relationship between variables. AMOS allows researchers to build SEM models using a graphical interface that is easy to understand and offers complete statistical features. AMOS 23.0 as a data analysis tool is expected to help researchers analyze data more efficiently and accurately. The results of this study contribute to the development of theory, especially financial behavior and dual processes related to the influence of the five basic emotions on investment decisions. In addition, it provides valuable insights for investors, especially in managing emotions and planning investment strategies (Hirshleifer et al., 2010); (Thomas & Assissi Menachery, 2018); (Chambers & Simon, 2022). This research will explore the role of the positive and negative emotions in making stock investment decisions and how important it is for Generation Z investors in the Covid-19 era to be able to manage their emotions to make investment decisions that are more rational and appropriate.

## Results

The questionnaires were distributed to 200 respondents; 180 returned, and 155 were eligible to be processed for testing. Table 1 shows demographic profile of respondents. Pearson correlation result is valid ( $> 5\%$ ) and also Cronbach's result is reliable ( $\alpha > 0,60$ ) (see Table 2).

**Table 1.** Demographic profile of respondents.

Profile	Characteristic	Percent
Age	16 – 22 years	78,8
	23 – 29 years	21,2
Gender	Men	42,9
	Female	57,1
Education	SMA/SMK	31,4
	Diploma/S1	64,7
	S2/S3	3,8
Finance Education	Yes	68,6
	No	31,4
Investment Experience	$\geq 6$ months	60,9
	$> 1$ months	39,1

Table 1 shows the profile of the respondents. The age of most respondents is 16-22 years, as much as 78.8%. Gender is dominated by women as much as 57.1% and the education level of the majority is a diploma or bachelor's degree of 64.7%. Respondents have financial education as much as 68.6% and investment experience under 6 months as much as 60.9%.

**Table 2.** Goodness of Fit.

Goodness of Fit Index	Cut-off value	Result	
Chi-square	$\geq 993.338$	989.307	Goof Fit
Probability	$\geq 0.05$	0.00	Poor Fit
CMIN/DF	$\leq 2$	1.783	Good Fit
GFI	$\geq 0.09$	0.796	Marginal Fit
TLI	$\geq 0.09$	0.882	Marginal Fit
CFI	$\geq 0.09$	0.902	Good Fit
IFI	$\geq 0.09$	0.904	Good Fit
NFI	$\geq 0.09$	0.805	Marginal Fit
RMSEA	$\leq 0.08$	0.063	Good Fit

Figure 2 shows the SEM images in this study. Using the Goodness of Fit Index (GOF), they are determining whether it is worthwhile to analyse a variable and indicator in the measurement model. Table 2 demonstrates that the overall model fit results were optimistic. Based on the model fit index presented in Table 2, it can be concluded that the overall model is still considered to be acceptable. The study utilized various fit indices to assess the goodness of fit of the model. Specifically, the Chi-Square, CMIN/DF, CFI, IFI, and RMSEA indices were employed to evaluate the model's fit, while the TLI and NFI indices were used to determine the marginal fit of the model. The results indicated that the former set of indices yielded good fit results, while the latter set of indices provided marginal fit results, as they were found to be near the expected cut-off value. Currently, the GFI and probability indices are producing unsatisfactory outcomes. Obtaining accurate results for the GFI index value and probability can be challenging due to the sensitivity of these measures to the number of data samples used. Even though several indices exhibit a satisfactory level of fit, the global model is deemed viable and can be subjected to further examination.

The utilisation of the loading factor value of each indicator is a viable approach to assess the sufficiency of the validity testing of the measurement model. For the purposes of this investigation, a loading factor limit of 0.50 will be employed. If the loading factor exhibits a value lower than 0.50, it can be inferred that the model is deemed dependable. The validity assessment can be reinforced by incorporating the Average Variance Extract (AVE) metric alongside the loading factor value. It is recommended that the AVE value exceed 0.50. Table 3 presents a concise overview of the outcomes obtained from the validity and reliability assessments that were performed.

**Table 3.** Validity and Reliability Results.

Variable	Items	Loading Factors ( $\lambda$ )	$\lambda^2$	(1- $\lambda^2$ )	CR	AVE
FRT	F11	0,697	0,486	0,514	0,893	0,5
	F10	0,692	0,479	0,521		
	F9	0,595	0,354	0,646		
	F8	0,632	0,399	0,601		
	F7	0,647	0,419	0,581		
	F6	0,676	0,457	0,543		
	F4	0,712	0,507	0,493		
	F3	0,588	0,346	0,654		
	F2	0,758	0,575	0,425		
	F1	0,735	0,540	0,460		
	$\Sigma$	6,732	4,561	5,439		
	$\Sigma^2$	45,320				
Positive Emotions	H5	0,792	0,627	0,373	0,920	0,54
	H4	0,762	0,581	0,419		
	H3	0,724	0,524	0,476		
	H2	0,874	0,764	0,236		
	H1	0,63	0,397	0,603		
	B5	0,805	0,648	0,352		
	B4	0,649	0,421	0,579		
	B3	0,727	0,529	0,471		
	B2	0,658	0,433	0,567		
	B1	0,675	0,456	0,544		
	$\Sigma$	7,296	5,379	4,621		
	$\Sigma^2$	53,232				
Negative Emotions	S6	0,629	0,396	0,604	0,897	0,43
	S5	0,568	0,323	0,677		
	S4	0,513	0,263	0,737		
	M4	0,511	0,261	0,739		
	M1	0,50	0,250	0,750		
	T7	0,623	0,388	0,612		
	T6	0,759	0,576	0,424		
	T5	0,654	0,428	0,572		
	T4	0,729	0,531	0,469		
	T3	0,781	0,610	0,390		
	T2	0,748	0,560	0,440		
	T1	0,723	0,523	0,477		
	$\Sigma$	7,738	5,108	6,892		
	$\Sigma^2$	59,877				
Investment Decisions	K7	0,646	0,417	0,583	0,750	0,38
	K6	0,615	0,378	0,622		
	K4	0,549	0,301	0,699		
	K3	0,533	0,284	0,716		
	K2	0,711	0,506	0,494		
	$\Sigma$	3,054	1,887	3,113		
	$\Sigma^2$	9,327				



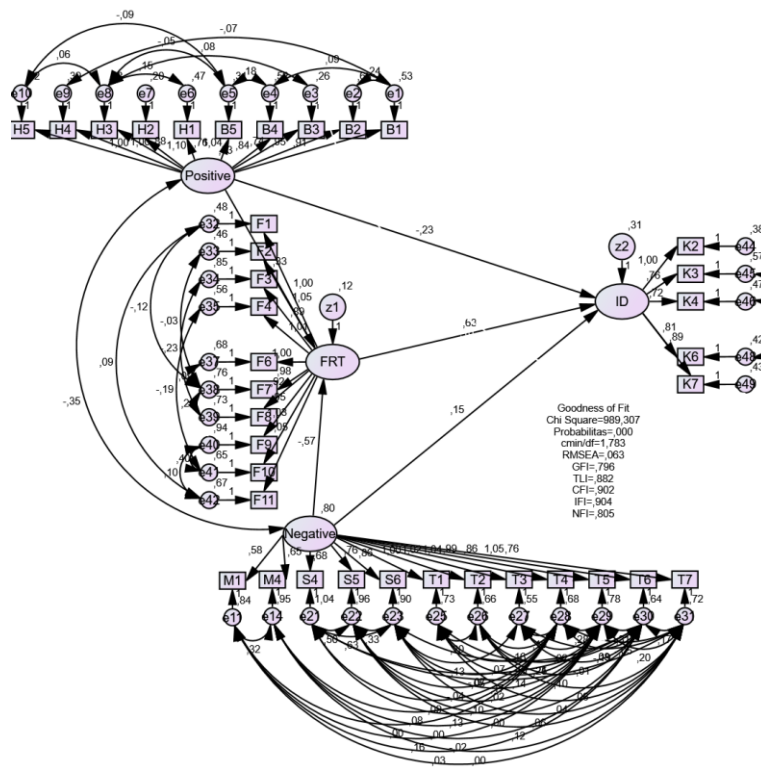


Fig 1. Structural Equation Model (SEM).

Based on the loading factor values of all indicators being greater than 0.50, it can be inferred that all indicators exhibit validity. Based on the AVE value, it appears that two variables, namely negative emotions, and investment decisions, have an AVE value below 0.50. However, it is worth noting that all indicators on the ID and NE variable have a loading factor value greater than 0.50. Therefore, it is reasonable to conclude that the overall model is valid. The assessment of the reliability test is conducted by evaluating the overall reliability of each variable. When the composite reliability falls below the threshold of 0.70, it is indicative of excellent reliability. As per the findings presented in Table 3., it can be observed that the CR values for all variables are below 0.70, which suggests that the reliability assumption has been satisfied.

The study proposes two hypotheses regarding direct effects. The process of hypothesis testing involves the examination of both the t statistic and p-value. The statistical significance of the relationship between the variables posited in the hypothesis is established when the t-statistic value is greater than or equal to 1.96 or the p-value is less than 5% (0.05), indicating the rejection of the null hypothesis (H0). The tabulated data presents a summary of the outcomes obtained from the hypothesis testing.

Table 4. Direct Influence Result.

		Estimate	S.E.	C.R.	Sig
FRT	<--- Positive	,333	,070	4,749	***
FRT	<--- Negative	-,569	,079	-7,207	***
ID	<--- Positive	-,231	,111	-2,082	,037
ID	<--- Negative	,146	,153	,954	,340
ID	<--- FRT	,628	,225	2,789	,005

The results of the direct influence test in this study indicate that positive and negative emotions affect financial risk tolerance. Positive emotions also affect investment decisions. However, for negative emotions it does not affect investment decisions. Meanwhile, financial risk tolerance shows an effect on investment decisions.

The findings from the analysis of Hypothesis 1, which examines the impact of positive emotion affect investment decisions, indicate a coefficient value of -0.231 and a significance value of 0.037, which is less than the predetermined alpha level of 0.05. Based on the findings, it can be inferred that positive emotion affect investment

decision. Therefore, hypothesis 1 is supported.

The findings of hypothesis testing 2 have an impact on the relationship between negative emotion and investment decisions, as indicated by a coefficient value of 0.146 and a significance value of 0.340, which is less than the threshold of 0.05. Based on the findings, it can be inferred that negative emotion doesn't impact on investment decisions. Therefore, hypothesis 2 is not supported.

**Table 5.** Hypothesis Result.

Hypothesis				P	Remarks
H1:	ID	<---	PE	0.037**	Significant
H2:	ID	<---	NE	0.340	No Significant

## Discussion

### *Emotions and Investment Decision*

The phenomenon of individuals exhibiting a preference for immediate rewards as opposed to delayed gratification has been well-documented. As a result, it is possible that the pursuit of happiness may not exert a significant impact on investment decision-making. Individuals who experience positive emotions are more inclined to adopt an optimistic perspective towards life and the future, which in turn, may lead to a more rational and prudent approach towards investment decision-making. It is plausible that individuals who experience positive affect may exhibit a greater propensity to consider non-monetary aspects, such as the social and environmental implications of their investment choices, when making investment decisions. The potential impact of happiness on investment decisions was explored, however, the statistical significance of this relationship was not established.

According to Green (2021) and Merkle et al. (2015), individuals who experience positive emotions tend to exhibit greater levels of optimism regarding future outcomes and demonstrate increased confidence when making investment decisions. The observed effect, as reported by Gneezy and Potters in 1997, does not reach statistical significance. Moreover, individuals tend to disregard future outcomes when making investment choices. The present study aims to investigate the potential impact of hope emotions on information preferences regarding uncertain investment outcomes. Specifically, the study hypothesis that investors with a higher level of hopefulness are more likely to seek additional information about investments. Positive emotions, such as hope, are affective states that are associated with optimistic outlooks on the future. Specifically, they are linked to positive expectations or beliefs that favorable outcomes will transpire. Investors who exhibit a higher degree of optimism tend to display a greater inclination towards acquiring relevant information pertaining to their investments, thereby enabling them to make more informed and prudent investment decisions. Additionally, such investors are also more receptive towards novel and innovative investment ideas that have the potential to yield favorable returns. According to Shefrin (2001), the influence of hope on investment decisions can be attributed to the human inclination to react to information that is based on future hopes and expectations. The influence of hope on investment decisions lies in its ability to enable investors to evaluate potential gains and risks in a rational manner.

In contrast, empirical evidence suggests that negative emotions do not exert a significant impact on investment decisions. The absence of support for H2 implies that investment decisions are not influenced by negative emotions. Research suggests that experiencing anger may have a positive impact on an individual's ability to concentrate and maintain focus while analysing investments. One potential explanation for the relationship between anger and heightened self-assurance is that the experience of anger may bolster one's belief in their own abilities and their perceived level of agency in the given circumstances. Research suggests that incorporating emotions such as anger may have a positive impact on an individual's confidence in making investment decisions and reducing the fear associated with taking risks. When an individual experiences anger, their cognitive processing becomes more meticulous and comprehensive, potentially enhancing their ability to process information and arrive at sound decisions.

According to the findings of Breaban and Noussair (2018), there exists a positive correlation between a heightened negative emotional state and a more cautious approach towards investment decision-making. Research suggests that experiencing anger can enhance an individual's ability to concentrate on details and prevent them from making hasty decisions. According to previous studies conducted by Carver and Jones (2009) and Yip and Schweitzer (2016), anger has been found to serve as a motivator for individuals to attain their investment objectives and exhibit greater assertiveness in their investment decision-making.

In general, the emotion of anger can exert a notable impact on the decision-making process regarding investments. It is imperative that individuals possess the ability to regulate and oversee their emotional responses, particularly with regards to anger, to fully capitalise on the advantageous outcomes associated with such emotions. The impact of sadness emotions on investment decisions among Generation Z investors is minimal. The findings of the present investigation were in line with the outcomes of prior research conducted by Lerner et al. (2015). The impact of

sadness on cognition and behaviour differs from that of other emotions, such as anger or happiness. Research suggests that experiencing sadness may lead to a decrease in cognitive abilities and a distraction of focus of attention. Research suggests that cognitive abilities may have a negative impact on an individual's capacity to process information efficiently and make sound investment decisions.

Furthermore, it is imperative that investors possess a higher level of expertise and understanding in the realm of investing. The presence of negative affect, such as sadness, may potentially impede the cognitive processes of Generation Z investors, thereby diminishing their capacity to engage in thorough and logical analysis, ultimately compromising their investment decision-making abilities. The experience of sadness has been found to have a negative impact on an individual's cognitive and behavioural functioning, resulting in a diminished capacity to effectively process information and make sound investment decisions. In times of market instability and decline, there is a notable rise in fear among investors, which in turn leads to a decrease in their confidence to make investment decisions. According to Shefrin (2002), the experience of fear can elicit emotional reactions among investors, which may result in decision-making that is less rational. The activation of the "fight or flight" response in the brain, which is triggered by fear, can lead to the manifestation of defensive behaviours such as risk aversion and bold investment decisions. However, it is important to note that individual responses to fear may exhibit variability contingent upon situational and contextual factors.

It is possible that certain investors exhibit a greater propensity for risk, thereby rendering them less susceptible to the influence of fear when making investment decisions. In certain instances, the emotion of fear may serve as a driving force for investors to actively pursue additional information regarding a prospective investment opportunity. This, in turn, may enable them to make more rational and well-informed decisions that are less influenced by emotional biases. Thus, while fear has the potential to impact investment choices, its impact is not always statistically significant or consistently observed in empirical studies.

#### **FRT Mediates Investment Decision**

The Sobel test, developed by Sobel in 1982, was employed to investigate the impact of the mediating variable of financial risk tolerance (Z1). The mediation analysis procedure, as outlined by Zhao et al. (2010). The Sobel test was utilized to examine the mediating role of financial risk tolerance in the relationship between emotions and investment decisions.

**Table 6.** Sobel Test.

		Path	Path coefficient	S.E.	t-test	Sobel test	Mediation type
		c	0.109	0.071	1.531		
Positive Emotions (X1)	Investment Decisions (Y)	a	0.333	0.070	4.749	z = 2.407	Partial Mediation
		b	0.628	0.225	2.789		
		c'	-0.231	0.070	-2.082		
		c	-0.176	0.061	-2.906		
Negative Emotions (X2)	Investment Decisions (Y)	a	-0.569	0.079	-7.207	z = -2.602	No Mediation
		b	0.628	0.225	2.789		
		c'	0.606	0.068	8.859		

The present study aims to investigate the potential effect of financial risk tolerance on the relationship between positive emotions and investment decisions among Generation Z individuals in the context of the COVID-19 pandemic. Specifically, we hypothesize that higher levels of financial risk tolerance will enhance the influence of positive emotions on investment decisions in this population. The findings of this study may have implications for financial advisors and policymakers seeking to better understand the factors that influence investment behavior among young adults during times of economic uncertainty.

Based on the test results obtained, it can be concluded that the absolute value of z, which has been calculated to be 2.407, surpasses the critical value of 1.96. The results of this study indicate that there is a significant statistical correlation between the mediating factor of financial risk tolerance and the connection between favorable emotions and investment choices. After incorporating the mediating variable, the magnitude of the direct effect t-test (c') is observed to decrease in comparison to the direct effect t-test (c) conducted before the inclusion of the mediating variable. The direct effect t-test (c') has a value of 1.531, which is smaller than the value of the direct effect t-test (c) that was obtained before the inclusion of the mediating variable. The value of the direct effect t-test (c) was -2.082. Before the influence of the mediating variable, a significant negative correlation was observed between positive emotions and investment decisions. The findings of this study indicate that the variable of financial risk tolerance plays a mediating role in the association between positive emotions and investment decisions. This

mediating variable has a significant effect on the relationship between the two, leading to a positive correlation. The study conducted indicates that there may be a mediating effect of financial risk tolerance on the relationship between positive emotions and investment decisions (H3). The findings suggest a consistent pattern of partial mediation. H3 is supported. The available evidence suggests that individuals who experience positive emotions are inclined to take risks. This is supported by the findings of Brooks and Williams (2021) as well as Breaban and Noussair (2018), who have established a positive correlation between positive emotions and risk tolerance. The experience of hope motivates individuals to strive towards the attainment of anticipated future objectives. This pertains to the phenomenon observed in individuals wherein their perception of future risk is influenced by their expectations following a positive experience. According to Hayenhjelm (2006) and Reimann et al. (2014), when an individual has high expectations following a positive situation, their perception of future risk increases. Conversely, if they perceive a threat or dangerous situation and do not have high expectations, they tend to avoid the associated risk.

Hypothesis 4 posits that the impact of negative emotions on investment decisions among Gen Z individuals during the COVID-19 pandemic is amplified by their level of financial risk tolerance. The results obtained from the second test reveal that the absolute value of the z-score was -2.602, indicating a value lower than the critical value of 1.96. The findings indicate that the financial risk tolerance variable does not have a substantial mediating impact on the correlation between negative emotions and investment decisions. Thus, according to the gathered data and subsequent analysis, it can be inferred that H4 is not supported. Research has shown that negative emotions tend to have a greater impact on decision making when individuals engage in a more deliberate and thoughtful decision-making process. According to Breaban and Noussair's (2018) findings, individuals who encounter a greater degree of negative emotions are likely to exhibit a reduced level of financial risk tolerance.

In the realm of investment decision-making, it has been observed that individual investors who experience negative emotions tend to engage in rumination. This cognitive process involves excessive contemplation, replaying, and even fixation on negative emotional situations and experiences, which can ultimately prove to be detrimental. Investors who display a higher inclination towards negative emotions in their personal lives tend to exhibit a weaker correlation with their financial risk tolerance preferences. The findings suggest that individuals who are motivated by negative emotions may exhibit a greater inclination towards risk aversion and a reluctance to engage in investment decision-making. Individuals with this disposition may exhibit a tendency towards hyper-vigilance, a proclivity for exhaustive risk assessment, and an inclination towards excessive preoccupation with potential negative outcomes.

As a result, the individual's propensity for assuming financial risk is reduced. It is noteworthy that the implications presented herein are derived from the observed correlation between negative emotions and financial risk tolerance within the framework of investor decision-making. The intricate dynamics of investor behavior and decision-making processes may be influenced by various factors, including but not limited to individual differences.

## Conclusion

The Covid-19 pandemic resulted in an unprecedented increase in investors in the Indonesian capital market. The IDX movement experienced a cycle of fast market emotions and even entered a period of euphoria when it touched the highest price level, but after that entered a phase of desperation. The phenomenon shows that investor Generation Z behavior is not always rational and is influenced by emotions and market sentiments. Extreme prices can trigger excessive behavior in buying or selling stocks, resulting in significant investor losses.

Emotions can have an impact on investment decisions. The emotions that accompany decision making must also be considered. Fear, greed, anxiety, and conviction are all emotions that can influence investment decisions (Wood et al.,; Taffler et al., 2017). Emotions need to be controlled so that they are stable and not dominate themselves in making decisions (Istiqomariyah, 2020). Emotions can influence investors Generation Z to make irrational decisions, such as hastily selling their stocks or holding them in unfavorable market conditions. Emotions can affect risk perception and investment risk management (Kahneman & Tversky, 1979a). The risk tolerance of investors will also increase the emotion of investment decisions (Brooks et al., 2022). Emotions that are not static, experiences from the past, and alternatives created by individuals will influence investors' Generation Z perceptions of risk and risk tolerance (Aren & Hamamci, 2020). Emotions can be a factor with great potential when measuring the level of financial risk tolerance of investors (Conte et al., 2018).

The present study utilized Structural Equation Model (SEM) analysis with the aid of AMOS 26 Graphics software to test four hypotheses. The results of data processing and hypothesis testing indicate that two of the hypotheses were supported, while the remaining two were not supported. The subsequent elucidation presents a more comprehensive explication of the hypothesis. The present study indicates that positive emotions hold a significant sway over the investment decisions of Generation Z during the Covid-19 era, while the findings suggest that negative emotions do not exert a significant impact. A Sobel test was conducted to ascertain the potential mediating effect of financial risk tolerance. The study revealed that solely the financial risk tolerance factor exhibited a noteworthy impact on the correlation between investment decisions and positive emotions.

Emotions can help investors Generation Z make wiser investment decisions and avoid excessive risks. Negative emotions such as anger, sadness, and fear can affect a person's perception of investments and influence their investment decisions. Anger can cause a person to take unnecessary risks in their investment, while sadness and fear can cause them to avoid reasonable risks. Positive emotions such as joy and hope can encourage higher risk taking, as they make individuals have the desire to realize the expected future goals.

Research has shown that investors Generation Z have heightened positive emotions may lead to impulsive or excessively aggressive investment decisions, particularly during periods of market volatility. Financial risk tolerance has the potential to serve as a mediating variable, facilitating individuals' ability to adapt to market volatility. Individuals who exhibit a higher risk tolerance may possess a greater capacity to navigate market fluctuations and maintain composure in response to unforeseen circumstances. As a result, they may be more inclined to make informed investment decisions that are grounded in a comprehensive comprehension of risk and potential returns.

The experience of intense negative affect, particularly in contexts characterized by ambiguity, such as the current COVID-19 pandemic, may lead investors Generation Z to exhibit reduced investment engagement and self-assurance in relation to the investment. In this scenario, it is plausible that mediating variables, such as an individual's financial risk tolerance, may not exert a substantial influence on the association between negative emotions and investment decisions. This is due to the possibility that the decision to refrain from investing may not be primarily driven by risk assessment, but rather by the unease and ambiguity stemming from negative emotions.

Limitations in this research relate only to psychological aspects, namely emotions in investment decisions. There are still other psychological and social aspects that can influence investors when making investment decisions. Apart from that, this research only uses Generation Z as investors, so it cannot be generalized to all investors. This is because the characteristics of the generations are different. Further research can enrich research by including various psychological and social aspects and expanding to other generations to provide better insight into the factors influencing investment decision-making.

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**Appendix 1. Indicator of Research Variables**

Exogenous Variables		Scale
Positive Emotion	BA1	I often feel overflowing happiness.
	BA2	I am a very cheerful person.
	BA3	I am happy when something good happens.
	BA4	Good things have happened to me.
	BA5	My life is improving.
	HA1	I thought of many ways to get out of trouble.
	HA2	I am passionate about pursuing my goals.
	HA3	I think of many ways to get things that are important to me.
	HA4	My past experiences have prepared me well for the future.
	HA5	I meet the goals I set for myself.
	AM1	I am a hot-tempered person.
	AM2	I am an impulsive person (act without thinking about the consequences).
	AM3	I get angry when I have to wait because of other people.
	AM4	I get annoyed when I do a good job but don't get recognition.
Negative Emotion	AM5	I say mean things when I'm angry.
	AM6	I don't like being told I was wrong in front of other people.
	AM7	I get annoyed when I do a good job but get a bad evaluation.
	SE1	I got teary eyed when the person I was talking to cried.
	SE2	I cry when I watch sad movies.
	SE3	I withdrew from my surroundings.
	SE4	I feel lonely when going about my daily life.
	SE5	I often feel hopeless.
	SE6	In everyday life, I feel alone.
	TA1	I worry about what other people think of me.
	TA2	I am often afraid that others will notice my flaws.
	TA3	I'm afraid other people will disagree.
	TA4	I'm afraid that people will find fault with me.
	TA5	When I speak, I worry about what people think of me.
TA6	I care too much about what other people think.	
TA7	I worry about doing or saying the wrong thing.	
Endogenous Variables		Scale
Investment Decision	K1	The rate of return on my current stock is in line with my expectations.
	K2	I have considered the statements from the Government regarding issuers.
	K3	I am satisfied with my trading frequency and trading volume.
	K4	I consider the past performance of the company's stock before trading.
	K5	I consider my feelings when buying stocks.
	K6	I am considering corporate corporate actions.
	K7	I consider the information regarding fluctuations in the rupiah exchange rate.
	K8	I take into account the fluctuations in interest rates.
Intervening Variables		Scale
Financial Risk Tolerance	FRT1	On average, I take more financial risks.
	FRT2	I am willing to risk a percentage of income/equity for a better return. On average, I take more financial risks.
	FRT3	To achieve high returns, it is necessary to choose high-risk investments..
	FRT4	If I have a big loss on an investment, I will not stop making risky investments.
	FRT5	In financial decisions, I think more about the possible gains than the possible losses.
	FRT6	I prefer to save money in investment products rather than in a bank account.
	FRT7	If my investment portfolio drops significantly in value during the first three months, it doesn't bother me.
	FRT8	I accept the potential loss for long term investment growth.
	FRT9	I believe that the only way to make money is to take financial risks.
	FRT10	Taking financial risks is important to me.
	FRT11	I am happy to invest most of my income/capital in high risk investments.
	FRT12	I would feel comfortable investing in stocks.
	FRT13	I feel comfortable taking financial risks.

**Source:** (Shiota et al., 2006); (Snyder et al., 1991); (Gambetti & Giusberti, 2012); (Conte et al., 2018); (Leary, 1983). (Brooks et al., 2022).