

Determinants of Individual Investor Behaviour in Stock Investment Decisions

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Abstract

The quality of individual investor behavior in making stock investment decisions is very important to be understood as a reference of the movement of the capital market. This research using descriptive analysis technique, and inferential analysis, using Structural Equation Model (SEM), using the help of software PLS (Partial Least Square). The population used in this study are individual investors (student in Yogyakarta area) who actively transact on the Indonesia Stock Exchange. The sample used in this research is the investor who is still a member of the Capital Market Study Group (KSPM) at several universities in Yogyakarta. Based on the result of the research, It can be concluded that the attitude, subjective norm, perception of behavior control, subjective norm, overconfidence, excessive optimism, herd behavior have positive effect on investors' intention in investing, and there is no influence between psychology of risk to investor attitude in investing.

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Abstraks

Kualitas perilaku investor individu dalam membuat keputusan investasi saham sangat penting untuk dipahami sebagai referensi pergerakan pasar modal. Penelitian ini menggunakan teknik analisis deskriptif, dan analisis inferensial, menggunakan Structural Equation Model (SEM), menggunakan bantuan perangkat lunak PLS (Partial Least Square). Populasi yang digunakan dalam penelitian ini adalah investor individu (pelajar di daerah Yogyakarta) yang aktif bertransaksi di Bursa Efek Indonesia. Sampel yang digunakan dalam penelitian ini adalah investor yang masih menjadi anggota Kelompok Studi Pasar Modal (KSPM) di beberapa universitas di Yogyakarta. Berdasarkan hasil penelitian, dapat disimpulkan bahwa sikap, norma subyektif, persepsi pengendalian perilaku, norma subyektif, kepercayaan berlebihan, optimisme berlebihan, perilaku kawanan berpengaruh positif terhadap niat investor dalam berinvestasi, dan tidak ada pengaruh antara psikologi risiko terhadap sikap investor dalam berinvestasi.

JEL Classification: G31, G32, G34

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1. INTRODUCTION

Investors need information which are important factors as a basis for determining investment choices (Halim, 2005). From the available information, then form a decision-making model in the form of investment assessment criteria to enable investors to choose the best investment among ava-

ilable investment alternatives. Investor behavior in stock investment decision making is projected with the intention of individual investors in choosing stocks. The intentions of individual investors are reflected in the estimation of stock returns that are calculated using various information. Intention itself is an intention to behave that grows because of information that provokes a person's motivation to take a decision (Prawirasasra, 2016).

There are various factors that can influence an investor's decision to act in choosing the right stock. Among them, such as news, information, politics, risk, security, policy, rumors, external factors (global markets), and consideration of market participants beliefs in making intentions to invest in shares (Lubis, et al, 2013). The main issue in this study is about the behavior of individual investors in making stock investment decisions. Attention to investment issues reflects attention to information in interpreting information for decision making. For investors, information is a signal that functions as a stimulus that influences cognitive processes because it informs the company's financial performance, company prospects, uncertainty, expected values, and means of management responsibility to stakeholders.

Meanwhile, in carrying out investment activities, the basic knowledge of investment is very important to avoid irrational investment practices (gambling), bully investments and cultural follow-up. Therefore, to increase public investment knowledge and advance the Indonesian capital market, the Indonesia Stock Exchange collaborates with PT. Kustodian Sentral Efek Indonesia (KSEI), PT. Kliring Penjaminan Efek Indonesia (KPEI) and securities companies then organized various educational programs such as seminars, workshops, interactive talk shows, School/Capital Market Training and establishing stock exchanges at several universities.

Some research results show that attitudes have a significant effect on investor intentions. The results show rationally that individual investors are more profitable in investing, it makes sense to assume that if individual investors prefer these investments, they are more motivated to take actions that benefit than less profitable investments (Phan and Zhou, 2014, Shih and Fang 2004, Ramayah and Suki 2006, Michael 2011).

The main issue in this research is about the behavior of individual investors in stock investment decision making, and the purpose of this study is to examine and obtain empirical evidence of the behavior of individual investors in stock investment decisions. Research on investor behavior in making stock investment decisions is very important, because capital market movements reflect the economic conditions of a country. During this time the movement of the capital market in Indonesia is still very volatile, where the gap between the increase and decrease in the IHSG is still very high. This reflects the instability of economic conditions in Indonesia which incidentally

still includes developing countries. The problem of developing countries is the gap in the quality of human resources that is still high, and in this study the human resources in question are individual investors, so that the quality of the behavior of individual investors in stock investment decisions is very important to understand as a reference for capital market movements.

2. HYPOTHESIS DEVELOPMENT

Attitudes and Investor Intention in Investing

Prospect theory was developed by two psychologists, Daniel Kahneman and Amos Tversky in the early 80s which basically covered two disciplines, psychology and economics (psychoeconomics) (Lubis, et al, 2013). Prospect theory starts with Kahneman and Tversky's research on human behavior which is considered strange and contradictory in making a decision. Prospect theory is a theory related to attitudes that focus on decision making processes that affect an investor's valuation system (Luong and Ha, 2011). In short, it can be said that prospect theory shows that people will have an irrational tendency to be more reluctant to risk profits than losses. In a loss condition, someone will tend to be more inclined to bear the risk than in a successful condition. A person will feel as if the value of losing a certain amount of money in a bet is more painful than the winning value of the same amount of money, so that in a loss situation people are more determined to risk (Phan and Zhou, 2014). The results show that individual investors are more profitable in investing, it makes sense to assume that if individual investors prefer these investments, they are more motivated to take actions that benefit than less profitable investments (Phan and Zhou, 2014, Shih and Fang 2004, Ramayah and Suki 2006, Michael 2011).

H₁: Attitudes have a positive effect on investor intentions in investing

Subjective Norms and Investor Intention in Investing

Ajzen (2005) assumes that subjective norms are determined by the existence of normative beliefs and the desire to follow (motivation to comply). Normative beliefs (normative belief) are beliefs about normative expectations of others that motivate someone to fulfill these expectations (normative belief and motivation to comply). Normative beliefs are indicators that then produce subjective norms (subjective norm). So subjective norms are a person's perception of social influence

in shaping certain behaviors. Subjective norms are not only determined by referents, but also determined by motivation to comply. In general, individuals who believe that most referents will approve of themselves display certain behaviors and motivations to follow certain behaviors will feel social pressure to do so. Conversely, individuals who believe that most referents will not approve of themselves display certain behaviors, and there is no motivation to follow certain behaviors, this will cause them to have a subjective norm that puts pressure on them to avoid doing these behaviors (Ajzen, 2005).

H₂: Subjective norms have a positive effect on investor intentions in investing

Behavioral Control Perception and Investor Intention in Investing

Perception of behavioral control is very important when an individual's confidence is in a low condition. Sophisticated investors will use their social references (subjective norms) as controls to strengthen their confidence in the factors that can support the analysis they have done when they need additional confidence in choosing a stock (Masrurun and Heri, 2015). Behavioral control perceptions are based on individual beliefs about supporting factors and or intention-inhibiting factors to conduct a behavior. Strong confidence in yourself, capital support, and technology support will support investors' high intention to choose a stock. Conversely when investor confidence in oneself, capital support, and technology support is weak, the investor's intention to choose shares is low. This result is also in line with the research of Philmore and Broome (2010), Masrurun and Heri (2015) and Phan and Zhou (2014) who found that the perception of behavioral control is a significant predictor of predicting investor intentions in investing.

H₃: Perception of Behavioral Control has a positive effect on investor intentions in investing

Subjective Norms and Investor Attitudes in Investing

Bhattacharjee (2000) states that subjective norms are influenced by two forms, interpersonal influences and external influences. Interpersonal influences come from friends, family members, colleagues, superiors, and experienced individuals. Hite (1988) shows that peers (peers) have a strong influence on the value of preferences and individual behavior. In general, the more individuals perceive that their social referrals recommend doing a behavior, then the individual will tend to feel social

pressure to do this behavior, on the contrary, the more the individual perceives that his social referral recommends not doing a behavior, then the individual will tend to feel social behavior not to behave. (Phan and Zhou, 2014).

H₄: Subjective Norms have a positive effect on the attitude of investors in investing

Overconfidence and Investor Attitudes in Investing

Overconfidence is a feeling of excessive self-confidence. Overconfidence makes investors overestimate the knowledge possessed by investors themselves, and underestimates the predictions made because investors overestimate their capabilities (Nofsinger, 2005). The results of Odean's (1999) study found that investors in stock transactions tend to do with a high trading volume, this indicates that investors in stock transactions tend to overconfidence. Farooq et al (2015) revealed that when people are faced with uncertainty, they tend to take overconfidence decisions. Kahneman and Tversky's (1973) research and Kengatharan and Kengatharan (2014) state that differences in overconfidence levels will lead to differences in interpreting and evaluating information so that it will produce differences in finding solutions.

Overconfidence also influences investors to take risk behavior, rational investors try to maximize profits while minimizing the amount of risk taken (Nofsinger, 2005). Overconfidence can also cause investors to assume greater risk in making decisions to invest (Anum and Ameer, 2017). The indicator used is investor knowledge, can help investors to invest; the ability of investors, can help investors to invest (Sarkar and Sahu, 2017).

H₅: Overconfidence has a positive effect on the attitude of investors in investing

Excessive Optimism and Investor Attitudes in Investing

Investors who are too confident (Excessive Optimism) usually overestimate the role of their own information and therefore too trust their abilities (Talha, et al, 2015). Excessive optimism usually comes from overconfidence and captures the perception that future events will be better and more positive than the current situation (Mitroi, 2014). Overly optimistic investors may believe that bad investments will not harm their portfolios and therefore they expect too much from the market and from investment opportunities (Wang 2001). However, excessive optimism has a negative effect when it comes to investments that are very risky.

What's more, if it is related to too much self-confidence and excessive optimism (Wang 2001).

H₆: Excessive Optimism has a positive effect on the attitude of investors in investing

Herd Behavior and Investor Attitudes in Investing

Herding in financial markets is identified as a tendency for investor behavior to follow the actions of other investors (Luong and Ha, 2011; Setiawan et al. 2018). In the behavioral perspective, herding can lead to the appearance of emotional distortions. Investors prefer to do herding when they believe that herding can help them to obtain useful and trustworthy information (Lakshmi, et al, 2013). Herding behavior (social proof), is driven by the desire to be part of the crowd or the assumption that the crowd is the most knowledgeable (Waweru et al 2008). The securities company needs to continue to update everything related to the facilities and infrastructure used by investors. Good facilities and infrastructure, for example, internet network systems, computer devices, convenience of space for investor activities and so on are supporting the smooth process of making investment decisions. Investors who are not affected by the actions of other investors when making investment decisions occur when the investor is convinced of the analysis he has done, so he will not make irrational decisions. A good analysis can be done if it is supported by good facilities and infrastructure when conducting the analysis. Thus, in the end profits will be enjoyed by all parties, both for investors and securities companies (Dar and Hakeem, 2015).

H₇: Herd Behavior has a positive effect on the attitude of investors in investing

Psychology of Risk and Investor Attitudes in Investing

Risks can be interpreted as deviations from what is expected (Lubis, et al, 2013). Words of deviation can mean deviating better than expected or not better. This understanding is in accordance with modern investment theory which symbolizes risk with a standard deviation that can be positive and can also be negative. This means that the risks contained in the opportunity to get a return (return) greater than expected, but can also be smaller than expected (Lubis, et al, 2013).

In modern investment decision making, knowing one's risk tolerance is very important in developing financial plans and investments in addition to knowing the goals, time horizon, and financial stability of an individual (Anbar and Melek,

2010). Investment managers who ignore this risk tolerance may find it difficult to implement plans and achieve their goals. Financial risk tolerance is a key element that needs to be considered in making investment decisions for both investment managers and investors. Risk tolerance is the level of uncertainty that a person can accept in facing certain risks and refers to the attitude of investors in investing (Phan and Zhou, 2014).

H₈: Psychology of Risk has a positive effect on the attitude of investors in investing

3. DATA DAN METHODS

This research uses primary data, to get the primary data by the researcher, the survey method will be used by giving a set of questionnaires related to variables. Respondents were asked to give responses to the contents of the questionnaire in accordance with the circumstances felt or experienced by the respondent. The researcher will use a Likert Scale approach with six gradations of cue, from the lowest score (ie 1) to the highest score (ie 6). The population used in this study are individual investors who actively transact on the Indonesia Stock Exchange. The sample used in this study were investors who were still students as members of the Kelompok Studi Pasar Modal (KSPM) at several universities in Yogyakarta. Universities that have KSPM organizations in Yogyakarta. In this study, data analysis using Structural Equation Model (SEM), using the help of PLS (Partial Least Square) software.

4. RESULT

Convergent Validity on the Outer Model

Convergent Validity refers to the validity of items making up a latent with reflective indicators. Convergent validity is made of composite reliability (CR) > 0.6. This means that there is no measurement error on the outer model and all of the latent variables can be used to predict structural functions on the inner model. Based on the test results the PLS algorithm shows all indicators of each variable declared valid. The variables used in the study include: attitude towards the behavior, behavioral intention, excessive optimism, herd behavior, overconfidence, perceived behavioral control, psychology of risk and subjective norm.

Discriminant Validity on the Outer Model

Discriminant validity is done to ensure that each concept of each latent variable is different from other variables. The model has good discrimi-

nant validity if each loading value of each indicator of a latent variable has the largest loading value with other loading values against other latent variables.

Based on the result of data analysis processing to assess the outer convergent validity model and discriminant validity by using PLS, the value of the outer model or the correlation between

the indicators with the variables in the study has met the convergent validity because all of them have a loading factor above 0.60. The table 1 shows that the variables used in this study is reliable. It is known that the model in this study has a good discriminant validity value as shown in table 2.

Table 1. Output Construct Reliability and Validity Test

Variabel	Alpha Cronbach	Composite Reliability	Average Variance Extracted (AVE)
Attitude Toward the Behavior	0.959	0.910696	0.629942
Behavioral Intention	0.930	0.889227	0.617897
Excessive Optimism	0.944	0.881158	0.598367
Herd Behavior	0.951	0.860834	0.553939
Overconfidence	0.957	0.873339	0.580549
Perceived Behavioral Control	0.857	0.836419	0.506794
Psychology of Risk	0.934	0.851650	0.534919
Subjective Norm	0.954	0.916955	0.734210

Table 2. AVE Root Outputs

	ATB	BI	EO	HB	OVF	PBC	PR	SN
ATB	1.000000							
BI	0.739038	1.000000						
EO	0.574859	0.547238	1.000000					
HB	0.436670	0.362560	0.379613	1.000000				
OVF	0.596021	0.565573	0.723316	0.393590	1.000000			
PBC	0.413612	0.496827	0.423976	0.378642	0.425740	1.000000		
PR	0.324454	0.414552	0.300327	0.479503	0.319789	0.320015	1.000000	
SN	0.485318	0.579526	0.563286	0.284171	0.570937	0.553404	0.360473	1.000000

Notes: ATB (attitude towards the behavior), BI (behavioral intention), EO (excessive optimism), HB (herd behavior), OVF (overconfidence), PBC (perceived behavioral control), PR (psychology of risk) and SN (subjective norm).

Structural Model Testing (Inner Model)

Inner model testing or structural model is done to see the relationship between constructs, significance values and R-square of the research model. The structural model was evaluated using the R-square for the dependent construct t test and the significance of the structural path parameter coefficient. The table 3 shows that attitude toward the behavior can be adjusted by investor intentions as much as 45 % and behavioral intention can be adjusted by investor intentions as much as 62 %.

Table 3. R-square

	R-square adjusted
Attitude Toward the Behavior	0,449544
Behavioral Intention	0,621943

Q-square

Q-square was used to evaluate the model of how well the observation value is generated by the model and its parameter estimation. The value of

Q² is greater than zero indicating that the model has a predictive relevance value, conversely, a square value of less than zero indicating that the model lacks predictive relevance value (Ghozali, 2008). The calculation of Q² values from this research shown model 1. From the calculation model 1 it can be seen that the model has a good predictive relevance value

$$Q^2 = 1 - (1 - R_{Attitude\ Toward\ the\ Behavior})(1 - R_{Behavioral\ Intention}) \dots\dots\dots (model\ 1)$$

$$Q^2 = 1 - (1 - 0,449544) (1 - 0,621943)$$

$$Q^2 = 0,7919$$

t-statistics

This test was conducted to test the relationships between construct. Before performing an inner evaluation of the t-statistics test model, a bootstrapping of SmartPLS software was performed by resampling 210 iterations. The results of the bootstrapping model are presented in Figure 1.

Additionally, to assess the type of relation-

ship, it can be seen in the original sample value. The relationship is positive if the original sample value indicates a positive number. The relationship is negative if the original sample value shows a negative number. The results of path analysis are

shown in table 4. The results of the internal model tests as written in Table 4 show that out of the seven lines all were statistically significant, except for risk psychology.

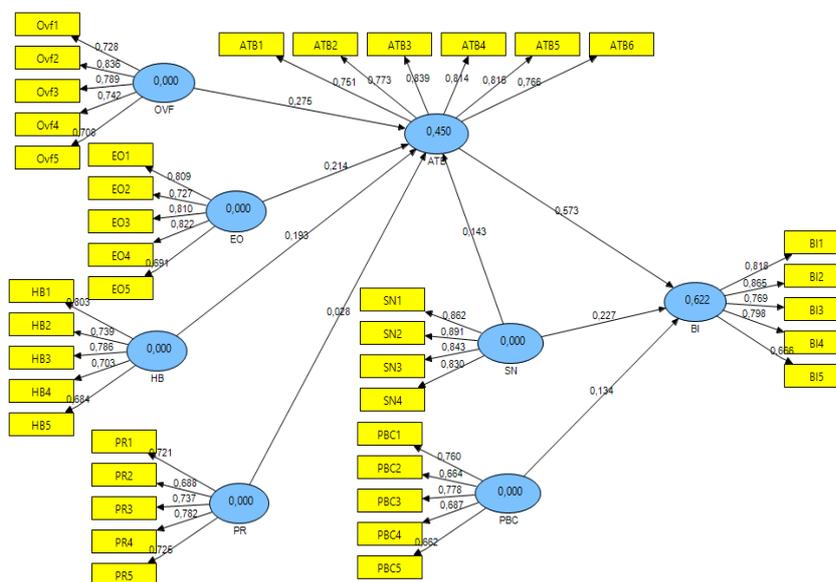


Figure 1. Bootstrapping Model

Table 4. Path Coefficients Result

	<i>Original Sample</i>	<i>t Statistics</i>	<i>t table</i>	<i>Result</i>
ATB → BI	0.573408	7.910713	1.6551	Positive and significant
EO → ATB	0.213846	1.945222	1.6551	Positive and significant
HB → ATB	0.193245	1.789223	1.6551	Positive and significant
OVF → ATB	0.274629	2.606524	1.6551	Positive and significant
PBC → BI	0.133984	1.933368	1.6551	Positive and significant
PR → ATB	0.028203	0.251667	1.6551	Has no effect
SN → ATB	0.142984	1.662014	1.6551	Positive and significant
SN → BI	0.227093	2.593923	1.6551	Positive and significant

The results of the study show that the attitude toward the behavior has a positive influence on the investor intentions on investment. This means that Hypothesis 1 is accepted. The subjective norm has a positive influence on the investor intentions on investment. This means that Hypothesis 2 is accepted. Perceived Behavioral Control. The results of Perceived Behavioral Control has significant positive effect on the investor intentions on investment. This result means that perceived behavioral control has a positive influence on the investor intentions on investment. This means that Hypothesis 3 is accepted. Subjective Norm has significant positive effect on the investor attitude on investment. This result means that subjective norm has a positive influence on the in-

vestor attitude on investment. This means that Hypothesis 4 is accepted. Overconfidence Overconfidence has significant positive effect on the investor attitude on investment. This result means that the overconfidence has a positive influence on the investor attitude on investment. This means that Hypothesis 5 is accepted. Excessive Optimism has significant positive effect on the investor attitude on investment. This result means that the excessive optimism has a positive influence on the investor attitude on investment. This means that Hypothesis 6 is accepted. Herd Behavior has significant positive effect on the investor attitude on investment. This result means that the herd behavior has a positive influence on the investor attitude on investment. This means that Hypothesis 7 is accepted. Psychology of Risk has no effect on

the investor attitude on investment. This result means that the psychology of risk has no effect on the investor attitude on investment. This means that Hypothesis 8 is rejected.

5. DISCUSSION

This research has proved that attitudes, subjective norms, perception, subjective norms, overconfidence, excessive optimism, and herd behavior have a positive effect on investor intentions in investing and there is no influence between psychology of risk on the attitude of investors in investing. Phan and Zhou (2014) and Farn *et al* (2006) showed that there was a significant influence between subjective norms on investor intentions in stock selection. Research conducted by Philmore and Broome (2010), Masrurun and Heri (2015) serta Phan and Zhou (2014) found that perception of behavior control is a significant predictor for predicting investor intentions in investing. Overconfidence also affects investors to take the risk, rational investor try to maximize profits while minimizing the amount of risk taken (Nofsinger, 2005). Excessive optimism also has a positive impact on investment behavior and encourages investors to invest, because there are too many risk aversion behaviors that will reduce trading volume (Phan and Zhou, 2014). Risk tolerance is the level of uncertainty that a person can accept in facing certain risks and refers to the investor's attitude in investing (Phan and Zhou, 2014). Thus, this research conclude that attitude toward the behavior, subjective norm, and perceived behavioral control has a positive effect on investor intentions in investment. And also, Subjective norm, Overconfidence, Excessive Optimism, and Herd Behavior has a positive effect on investor attitude in investment. In the other hand, Psychology of Risk has no effect on the investor attitude on investment.

Research on investor behavior in stock investment decisions is very important, because capital market movements reflect the economic conditions of a country. So far, the capital market movement in Indonesia is still very volatile, where the gap between the increase and decrease in the IHSG value is still very high. In this paper the human resources refers to individual investor in making stock investment decisions are very important to be understood as a reference for capital market movements.

6. CONCLUSION AND SUGGESTION

This research give conclusions as follows at-

titude toward the behavior, subjective norm, perceived behavioral control, subjective norm overconfidence excessive optimism and herd behavior has a positive effect on investor attitude in investment. However, psychology of risk has no effect on the investor attitude on investment.

For researchers who will examine the determinants of the behavior of individual investors in making stock investment decisions on individual investors, the number of respondents for each of the characteristic studied is proportionally balanced so that they can represent each characteristic. Further researchers can also add variables such as investment duration, income and type of investment not only stocks. In the *Psychology Of Risk* variable in this study proved there was no influence on investor attitude in investment, it required additional variables such as investment motives, decision types, interests in investment, investment planning and control, investor risk control. For investor, the result of this study can be used as a consideration in a profitable investment decision in accordance with the characteristic of investors.

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