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Analysis of Financial Literacy and Financial Behavior Toward Investment Decisions on Millennial: Technological Advancement as A Moderating Variable

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Abstract

Technology is increasingly rapid in people's lives, including in the fields of economics and business. Economic and business development cannot be separated from the role of technology. The increasingly rapid development of technology currently also spurs the irrational consumption behavior of some people, this situation has an impact on life. Therefore, a person's financial literacy is needed in responding to these challenges, especially in financial management. It is hoped that technological advances can strengthen people's financial literacy and financial behavior.

The aims of this research is to examine the effect of financial literacy and financial behavior on investment decisions; examines the moderating role of technological advance on the influence of financial literacy and financial behavior on investment decisions. This research uses a quantitative approach, with convenience sampling techniques. This research uses primary data through a survey distributed online. The data analysis technique uses the Structural Equation Modeling (SEM) test. The research results show that financial literacy has no effect on investment decisions, while financial behavior has a positive effect on investment decisions. Then, technological advances can strengthen the influence of financial intelligence on investment decisions, while technological advances do not moderate the influence of financial behavior on investment decisions.

Keywords: Financial Literacy, Financial Behaviour, Investment Decision, Technological Advance

I. Introduction

The Indonesia Financial Services Authority (OJK) conducts the National Financial Inclusion Literacy Survey (SNLIK) every three years to measure the financial literacy and inclusion of Indonesian society. 2019 shows that the financial literacy of the Indonesian was 38.03%, far below the government's target for 2024 of 90%. This data shows that only around 38 people out of 100 Indonesians understand the knowledge and are able to manage their finances well, therefore financial literacy in Indonesian be very low, even much lower than the government's target in 2024. Thus there is a need to increase financial literacy of Indonesian society.

Currently, technological advance is increasingly rapid, including the economic sector. People's economic life is closely related to digital. The increasingly rapid development of technology currently also spurs the irrational consumption behaviour of some people, this situation has an impact on people's lives, indirectly affecting people's consumption, followed by massive advertisements in the mass media and shopping behaviour using digital technology to make it easier for everyone to make transactions and influences people's lifestyles and consumption patterns in facing exposure to advertising and ease of transactions in the digital era. This phenomenon, a person's financial intelligence is needed in responding to these challenges, especially in financial management. Apart from that, the impact of technological advances influences the investment decisions of Indonesian people in the capital market because of the ease of investing with technology support.

As of 2022, the number of investors will reach 10.3 million investors. The Indonesian capital market is included in an emerging market, meaning that the Indonesian capital market is vulnerable to being influenced by global conditions. These conditions influence the psychology of investors in the capital market in making decisions. Many investors to be exposed to investment fraud because they are worried about global market conditions and the low literacy of the Indonesian people. There for, the aims of this research is to examine the effect of financial literacy and financial behaviour on investment decisions; testing the moderating role of the effect of financial literacy and financial behaviour on investment decisions.

II. Literature Review

Financial Literacy

Financial literacy is a person's ability to manage their finances. Mason and Wilson (2000) defined financial literacy as a "meaning-making process" where individuals use a combination of skills, resources, and contextual knowledge to process information and make decisions with knowledge of the financial consequences of those decisions. According to Nababan and Sadalia, (2012) financial literacy has several financial aspects, including basic personal finance, financial management, credit and debt management, savings and investment, and risk management. Basic financial management includes various basic understandings of a person in a financial system such as calculating simple interest, compound interest, inflation, opportunity costs, time value of money, and asset liquidation. Meanwhile, financial management includes how a person manages their personal finances. The better a person's understanding of financial literacy, the better their personal money management. Rashid (2012) explained that through key literacy a person will be helped by their knowledge or understanding of ways that can be used to invest in investment instruments such as shares. Concretely, increasing the discipline of financial literacy will mean understanding how to determine an intelligent attitude in making stock trading decisions. Apart from that, financial literacy also provides an understanding of how to avoid various investment frauds. Simon (1955) said that financial literacy is in line with the theory of bounded rationality where each individual will be able to make the right decisions if that individual can access information and manage information. Financial literacy also provides a paradigm about alternatives are hedging instruments and financial investments according to their risks and returns. This knowledge will support humans to be more rational in making investment decisions. Thus, financial literacy, a person can achieve their investment targets through their skills in managing finances. The measurement of financial literacy was adopted from research by Roij et al. (2011).

Financial Behaviour

Financial behavior is a multi-disciplinary field of sociology, finance, economics, accounting, investment, and human psychology that involves emotions, traits, preferences, and other characteristics of humans as intellectual and social creatures which will interact to underlie the emergence of decisions in taking action (Ricciardi, 2000). Pompian (2006) divided financial behaviour into sub-topics, namely behavioural finance micro and behavioural finance macro. Behavioral microfinance examines the behaviour of individual investors, while behavioural macro-finance aims to detect and describe behavioural models such as anomalies in efficient markets. Mike Brooks (2008) explained that financial behaviour is an alternative idea that investors or a small part of them are subject to behavioural biases that influence their financial decisions. Khrisnamurti (2009) believed that there is a limited ability of investors in investment decisions, both fundamental analysis and technical analysis to determine share value. Investors tend to be irrational in carrying out stock transactions in the capital market because investors' decisions are unconsciously influenced by psychological behaviour. Investor psychology reflects signals that individual investors are more dominant in decision considerations. Luong and Ha (2011) revealed that investor behaviour has been proven in affecting the investment decision making such as herding, prospect theory, and market reactions. The measurement of financial behaviour is adopted from research by Nababan and Sadalia (2012) in Lindananty and Angelina (2021) with indicators: paying bills on time, making expenditure and expenditure budgets, recording expenditures and expenses (daily, monthly, etc.), providing funds for unexpected expenses, as well as saving.

Technological Advance

Technological advance is in line with scientific progress through innovations created to make human life easier. Technological advances make it easier to invest in the capital market, due to the support of applications launched by securities companies. The Online Trading System facility is part of the application of

technological advances, especially in the capital market sector, to facilitate buying and selling transactions in the capital market. If technological advance increases, investors' interest in investing in the capital market will increase (Yusuf, 2019).

The online trading feature for retail investors began to be implemented in 2006, this feature can increase the participation of domestic investors in making transactions on the Capital Market (Tarigan, 2017). The convenience felt by market players with online trading information system facilities allows people to transfer their capital to the capital market. The technological advance referred to in the research is the public's perception of the availability of facilities that facilitate access to investing in the capital market, such as online trading systems and technology provided by securities companies such as the Stockbit, IPOT, BIBIT, Bareksa, etc. The measurement of technological advance was adopted from research by Yusuf (2019) and Fariqi (2020), with indicators of technological progress: ease of access, transaction speed, transaction security and knowledge of buying and selling shares via internet technology.

Investment Decision

Investment decisions are decisions (sell, buy or retain) taken by investors regarding investment in shares owned Puspitaningtyas (2012). Every investor wants to get the desired profit from their investment by making optimal investment decisions. In making investment decisions, an investor can make decisions rationally or irrationally. Wijhayanti (2015) explained that investor decision will definitely involve their emotions. The involvement of psychological aspects in decision causes investors to become irrational. Irrational investors only make investments guided by instinct, and are not used to analyze the situation of the business sector (Natapura, 2009). The decisions making based only on irrational considerations will produce irrational results, so are individual investors in Malang rational in making investment decisions, taking into account the company's fundamentals (accounting information) and the movement of historical data on share values? Or do investors in Malang tend to be irrational in decision making by prioritizing aspects of investor psychology such as regret theory, theory of mental accounting, over/under reaction theory and overconfidence. Investment decision measurements were adopted from research conducted by Hadrian et al (2020).

H1: Financial literacy has positive effect on investment decision

H2: Financial behaviour has positive effect on investment decision

H3: Technological advance moderate the effect of financial literacy on investment decision

H4: Technological advance moderate the effect of financial behaviour on investment decision

III. Method

This type of research is quantitative research with primary data. The population of this research is Generation Z. Sampling used a non-probability sampling method with convenience sampling techniques with a total of 270 respondents, but a total of 242 questionnaires could be processed. The technique analysis was used Ordinary Least Square (OLS) robust standard error. The data collected is primary data obtained through surveys using cross section data. Distribution of questionnaires using the self-administered survey questionnaire method, where questionnaires are distributed in two ways, namely online. Robust standard error is applied to overcome the possibility of heteroscedasticity. The measurement of financial literacy adopted from Roij et al. (2011), financial behaviour was adopted by Nababan and Sadalia (2012) in Lindananty and Angelina (2021), technological advances adopted from Yusuf 2019) in Wibowo (2020), and measurement of investment decisions adopted by Hadrian et al. (2020).

IV. Result

Measurement Model Evaluation

Table 1 shows the results of the measurement model test which shows that the test has fulfill the convergent validity criteria, because the indicator asset has an outer loading > 0.50 and average variance extracted (AVE) > 0.50 (Hair et al., 2021). The convergent test results show that the indicators used in this research are able to accurately measure the construct being measured. The indicators also have good reliability, as shown by the Cronbach's Alpha value > 0.60 and composite reliability > 0.60 (Hair et al., 2021).

Table 1. Outer Loading

Variable	λ	Composite Reliability	Cronbach's Alpha
Financial Literacy			
FL1	0.761	0.731	0.613
FL2	0.742		
FL3	0.540		
FL4	0.626		
FL5	0.768		
FL6	0.647		
FL7	0.508		
FL8	0.569		
FL9	0.547		
FL10	0.538		
Investment Decision			
ID1	0.805	0.913	0.886
ID2	0.869		
ID3	0.858		
ID4	0.740		
ID5	0.799		
ID6	0.713		
Financial Behaviour			
FB1	0.916	0.942	0.908
FB2	0.927		
FB3	0.914		
Technological Advance			
TA1	0.829	0.960	0.955
TA2	0.817		
TA3	0.774		
TA4	0.809		
TA5	0.773		
TA6	0.857		
TA7	0.801		
TA8	0.848		
TA9	0.881		
TA10	0.847		
TA11	0.884		

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A measuring instrument meets convergent validity but is also expected to meet discriminant validity, namely measuring other constructs (Hair et al, 2014). Table 1 showed that all indicators that have a loading factor value greater than 0.50. Therefore, all are greater than 0.50 and all indicators meet the convergent validity test criteria. This research also meets internal consistency reliability. It can be proven by the Cronbach's alpha and composite reliability coefficient values being greater than 0.60.

Discriminant Validity Test

The discriminant validity test is assessed by comparing the square root of average variance extracted (AVE) with the correlation between constructs. Therefore, the results of the discriminant validity test are described in Table 2 as follows.

Table 2. Correlation Among Variable

	FL	ID	FB	TA
FL	**0.414**			
ID	0.016	**0.799**		
FB	0.098	0.415	**0.919**	
TA	0.165	0.435	0.752	**0.830**

Table 2 described that the results of discriminant validity testing in this study have been fulfilled as seen from the value of the square root of AVE in the diagonal column which is greater than the correlation between constructs in the same column. The results of data processing show that there is a greater difference in results for the construct when compared with other constructs in the same column.

Structural Model Evaluation

The structural model on endogenous variables is evaluated using the coefficient of determination (R^2) and Q-Square value. The results of the coefficient of determination (R^2) test show that the R^2 of the endogenous investment decision (ID) construct is 0.21. These results mean that the variance of the ID construct can be explained by 21% by the variance of the exogenous constructs of financial literacy and financial behavior.

The test results for the Q-Square value on the endogenous construct are greater than zero, an ID of 0.23. This test shows that the Q-Square value for the endogenous construct in this research is greater than zero, so the predictive relevance of this research model is very good.

This research also uses effect size in evaluating the structural model. Effect size is used to analyze the absolute value of the individual contribution of each predictor latent variable to the R^2 value of the criterion variable. Hair et al. (2010) stated that effect size can be grouped into three parts, namely 0.02 is classified as weak, 0.15 is classified as medium, and 0.35 is classified as large. Table 3 will present in detail the effect size calculation for the path coefficient.

Table 3. Effect Size

	FL	ID	FB	TA
ID	0.101	-	0.153	-

Table 3 showed that the effect size for financial literacy (FL) on investment decisions (ID) is 0.101 (classified as strong). This effect size shows that financial literacy has a strong role from a practical perspective in investment decisions. The effect size for financial behavior (FB) on investment decisions (ID) is 0.153 (classified as medium). The results of the analysis for the effect size show that financial behavior (FB) has a quite strong role from a practical perspective in investment decisions (ID).

Hypothesis Test Results

The coefficient value is the result of a test of the influence between exogenous variables and endogenous variables, where a positive result means that the influence of the exogenous variable on the endogenous variable is positive, and vice versa. The results of the significance values are divided into three categories, p-value < 0.01 (significant at the 1% level), p-value < 0.05 (significant at the 5% level), and p-value < 0.1 (significant at the level 10%) Therefore, the results of the hypothesis test are as shown in Figure 1.

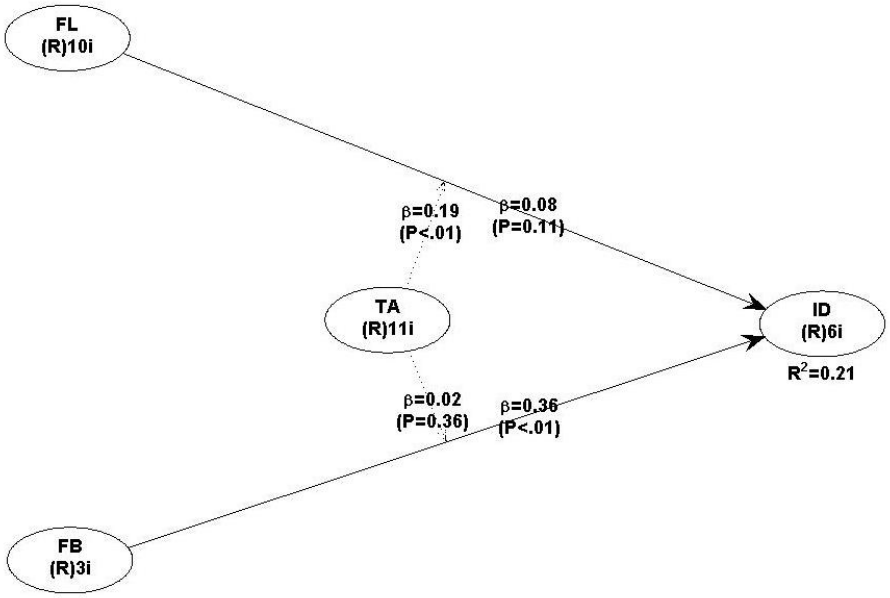

Figure 1. The Result of the Hypothesis Testing

The number of hypotheses proposed in this research is four hypotheses. The assessment of hypothesis testing in this study is said to be supported with p-value < 0.01 (significant at the 1% level), p-value < 0.05 (significant at the 5% level), and p-value < 0.1 (significant at the 10% level). The results of the hypothesis test are shown by the path coefficient and p-value as shown in Table 4.

Table 4. Result of the Hypothesis Testing

Variable Correlation	Path Coefficient	*P-Value*
FL→ ID	0,08	0.11
FB→ ID	0.36	<0,001***
TA*FL→ ID	0,19	<0,001***
TA*FB→ ID	0,02	0,36

*Significant at level 0.1 (*2-tailed*)
** Significant at level 0.05 (*2-tailed*)
*** Significant at level 0.01 (*2-tailed*)

Table 4 described the results of each hypothesis proposed in the research. Financial literacy has a positive effect on investment decisions as indicated by the FL → ID path coefficient value of 0.08, with a p-value of 0.16 (greater than 0.01). Based on the test results, financial literacy has a positive and insignificant effect on investment decisions. Therefore, hypothesis 1 was not supported. Financial behavior has a positive effect on investment decisions as indicated by the FB→ ID with path coefficient value of 0.36, with a p-value of <0.001 (greater than 0.01). Based on the test results, financial behavior has a positive effect on investment decisions. Therefore, hypothesis 2 was supported.

Technological advances strengthen the influence of financial literacy on investment decisions as indicated by the path coefficient value TA*FL→ ID of 0.19, with a p-value of <0.001 (smaller than 0.01). Based on the test results, technological advances strengthen the influence of financial literacy on investment decisions. Therefore, hypothesis 3 was supported. Technological advances strengthen the effect of financial behavior on investment decisions. Technological advance does not moderate the effect of financial behavior on investment decisions as indicated by the TA*FB→ ID with the path coefficient value of 0.02, with a p-value of <0.001 (greater than 0.01). Based on the test results, technological advances does not moderate the effect of financial behavior on investment decisions. Therefore, hypothesis was not supported.

V. Discussion

Rashid (2012) explained that through financial literacy a person will be helped by their knowledge or

understanding of the ways they can invest on investment instruments such as shares. However, this finding is different from previous findings, where financial literacy had no effect on investment decisions. The design of this research were the respondents fall into the millennial category, especially those who are still in college. It turns out that financial literacy does not have a strong impact on investment decisions. Those who are classified as millennials already understand good financial management, but they have not yet decided to invest, they think that at their age, it is not important to invest because in general they are still controlled by their parents.

Simon (1955) stated the theory of bounded rationality where each individual will be able to make the right decisions if that individual is able to access information and has the ability to manage the information. The student category, they still do not focus much on the future to invest.

Findings from Luong and Ha (2011) reveal that investor behavior is proven to influence investment decision making. Mike Brooks (2008) explained that behavioral finance is an alternative idea that investors or a small part of them are subject to behave the biases that influence their financial decisions.

Nababan and Sadalia (2012) in Lindananty and Angelina (2021) explained that there are several indicators of financial behavior, such as paying bills on time, making expenditure and expenditure budgets, recording expenditures and expenditures (daily, monthly, etc.), providing funds for unexpected expenses, as well as saving. This means that students' financial behavior is not only limited to financial literacy, but they also apply the simple financial behavior in their daily lives.

Technological advances moderate the influence of financial literacy on investment decisions. The online trading feature for retail investors began to be implemented in 2006, this feature can increase the participation of domestic investors in making transactions on the Capital Market (Tarigan, 2017). Technological advances can make it easier for students to invest, so that with technological advances, students can access the investment features from anywhere and at any time.

The technological advance referred to in the research is the public's perception of the availability of facilities that facilitate access to investing in the capital market, such as online trading systems and technology provided by securities companies such as the Stockbit, IPOT, BIBIT, Bareksa applications. The existence of this system makes it easier for students to make an investment. Of course, technological advance must be managed wisely in using technology.

Technological advance runs in line with scientific progress through innovations created to make human life easier. These findings are supported by the opinion of Yusuf (2019), if technological progress increases, it will increase investors' investment interest in the capital market. This means that technology makes a dominant contribution in increasing investment interest among millennials.

Technological advances make it easier to invest in the capital market, due to the support of applications launched by securities companies. Irrational investors only make investments guided by instinct, and are not used to analyzing the situation of the business sector (Natapura, 2009). Therefore, the presence of technological advances will make students more rational in making investments. This proves that technological advances can make it easier for people to make more analytical and rational decisions, one of which is making investments.

VI. Conclusion

The results of this research proven that financial literacy has no effect on investment decisions, whereas financial behavior has a positive influence on investment decisions. Then, technological advances can strengthen the influence of financial literacy on investment decisions. Empirically, the results of this research proven that the student level, good financial literacy does not necessarily have a good impact on making investments. Therefore, in practice, in the future, technological advances need to be optimized so that students can invest well.

This research also has limitations, where financial literacy does not have a positive effect on investment decisions. Where this research uses a cross-section research design, suggestions for further research could be to use a longitudinal research design to concretely measure financial literacy.

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