

# The Influence of Internal and External Factors on Investment Decisions with Financial Literature as Moderate Variables

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## ABSTRAK

Investasi merupakan salah satu cara untuk mengembangkan dana yang dimiliki, dan pada waktu tertentu dana yang dihasilkan dapat memberikan manfaat sesuai dengan harapan tujuan investasi. Tujuan investasi adalah untuk memperoleh kompensasi dari sejumlah uang yang diinvestasikan dalam suatu periode tertentu, kecuali karena inflasi, serta karena ketidakpastian pembayaran di masa yang akan datang. Penelitian ini bertujuan untuk menganalisis pengaruh profil risiko, perilaku diversifikasi, kesiapan pensiun terhadap keputusan investasi, faktor eksternal yang terdiri dari regulasi dan teknologi informasi terhadap keputusan investasi serta mengetahui pengaruh profil risiko, perilaku diversifikasi, kesiapan pensiun, regulasi, dan teknologi. Penelitian ini menggunakan pendekatan kuantitatif; populasi penelitian ini adalah nasabah Dana Pihak Ketiga (DPK) Bank Mandiri Provinsi Bali dengan sampel sebanyak 100 nasabah dengan menggunakan teknik simple random sampling. Pengumpulan data dilakukan dengan menggunakan kuesioner yang disebarluaskan melalui google form. Teknik analisis data menggunakan Analisis Regresi Berganda dengan program SPSS for Windows versi 2.1. Hasil penelitian menunjukkan bahwa faktor internal yang terdiri dari profil risiko berpengaruh negatif dan tidak signifikan. Perilaku Diversifikasi dan Kesiapsiagaan Pensiun berpengaruh positif dan tidak signifikan terhadap keputusan investasi; faktor eksternal yang terdiri dari regulasi dan teknologi informasi berpengaruh positif dan signifikan terhadap keputusan investasi. Dan literasi keuangan tidak dapat memoderasi profil risiko dan perilaku diversifikasi terhadap keputusan investasi. Sebaliknya, literasi keuangan dapat memediasi kesiapan pensiun, regulasi, dan teknologi informasi pada keputusan investasi.

## ABSTRACT

Investment is one way to develop the funds owned, and at a particular time, the funds generated can provide benefits according to the expectations of the investment objectives. The purpose of investment is to obtain compensation from the amount of money invested in a certain period, except for inflation, as well as due to uncertainty in future payments. This study aims to analyze the influence of risk profile, diversification behavior, retirement preparedness on investment decisions, external factors consisting of regulation and information technology on investment decisions and investigate the effect of risk profile, diversification behavior, retirement preparedness, regulation, and technology. This study uses a quantitative approach; the research population is Bank Mandiri Third Party Fund (DPK) customers in Bali Province with a sample of 100 customers using a simple random sampling technique. Data was collected using a questionnaire distributed via a google form. The data analysis technique used Multiple Regression Analysis with SPSS for Windows version 2.1 program. The results showed that internal factors consisting of a risk profile had a negative and insignificant effect. Diversification behavior and Retirement preparedness had a positive and insignificant impact on investment decisions; external factors consisting of regulation and information technology had a positive and significant effect on investment decisions. And financial literacy cannot moderate risk profile and diversification behavior towards investment decisions. In contrast, financial literacy can mediate retirement preparedness, regulation, and information technology on investment decisions.

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## 1. INTRODUCTION

Investment is one way to develop the funds owned, and at a particular time, the funds generated can provide benefits according to the expectations of the investment objectives. The purpose of investment is to obtain compensation from the amount of money invested in a certain period, except for inflation, as well as due to uncertainty in future payments (Nurdany & Kresnowati, 2019; Reilly & Brown, 2011). There are three main investment objectives: security, growth, and income (Selim Aren & Aydemir, 2015; Bindal et al., 2019), so the purpose of investment is not only to get profit but also to security and prosperity in the future. During the COVID-19 pandemic, the hope of making a profit by investing is no longer possible as it was before the COVID-19 pandemic. BI has decided to lower the BI 7 Days Reverse Repo Rate (BI7DRR) for deposit and lending facilities to six times lower to maintain economic stability and strengthen recovery. Of course, this will be a consideration for investment decisions for investors who desire to obtain high investment returns, but not a few investors who persist even though interest rates have decreased.

There is a phenomenon that there is a decrease in BI7DRR but it doesn't really affect people to switch to other savings products that can generate higher profits. When there was a decrease in BI7DRR from February to November 2020, the number of public deposits increased in December to 3,390,423 for rupiah and for foreign currency to 296,002 compared to before the decline in BI7DRR, which was 3,078,529 billion for rupiah and 264,776 billion in foreign currency. The decrease in BI7DRR in February 2021 also did not reduce public deposits in commercial banks and rural banks for the rupiah currency and even increased again compared to 2020, namely in July 2021 to 3,425,826 billion, while for foreign exchange it decreased to 290,828 billion. This is what needs to be known what the public/investors, especially individuals, are considering to stick with savings products with declining interest rates. This is related to the community's risk profile, there may be risk considerations that they have, causing them to stick to their decision to invest in savings products in general banking/BPR. The increase in funds in savings products during the BI7DRR decline was also followed by an increase in the number of SID (Single Investor Identification) indicating that instruments/products in the capital market also experienced an increase. There has been a significant increase from December 2019 to December 2021 as 1,400,819 SID increased and in May 2021 from December 2020 the increase in SID exceeded the previous year's 1,476,380. This indicates that the public is starting to diversify investment types other than conventional deposits into the capital market where the capital market is a safe investment instrument/product because it is under the supervision of the Financial Services Authority (OJK) and the Capital Market Supervisory Agency (BAPEPAM) (bi.go.id., 2021).

In addition to the BI7DRR reduction policy, the Financial Services Authority (OJK) together with the Self-Regulatory Organization (SRO) in the capital market throughout 2020 had issued policies to maintain resilience and control capital market volatility due to economic turmoil due to the pandemic Covid-19 (Ristianawati & Hartono, 2022). This of course can be used by the public as investors in the capital market which will ultimately influence their decision to invest. In addition to regulations from the government that can influence investment decisions, it is also very easy for investors to make investments with the increasing digitization of the banking system and securities companies. The banking digital transformation method is indeed very appropriate. Then, the adaptation of digital technology in the elements of the capital market makes access to the capital market easier to reach and as a result, public participation continues to increase. An appeal for capital market players to continue to develop their digital services and platforms, including making products that are more digitally friendly in order to expand the market. With the explanation above, of course, current information technology will be considered by investors to make investment decisions.

Initially, investors in making investments used estimates of the prospects of investment instruments/products and psychological factors that became internal factors that determined the investment. Various research findings state that this investor psychology factor has the most significant role in investing (Manurung, 2012). Psychological factors, of course, come from within a person called internal factors. Several internal factors in investment decisions are as follows: (1) risk profile or risk profile will describe a person's level of tolerance for risk or the extent to which he can bear the risk (Damayanti & Wicaksana, 2021); (2) diversification behavior that investors use as the best strategy in minimizing losses and maximizing profits in investing (Febriyanto, 2018); (3) retirement preparedness where some people are ready to face retirement but some are not ready to face retirement.

In addition to internal factors, one can consider external factors in determining an investor's investment decision. Investors cannot control these external factors due to external influences/other parties, including (1) regulation by policymakers, in this case, the government, and (2) information technology which is currently developing very rapidly. In addition to considering these internal and external factors, it is also essential to know how financial literacy can strengthen/weak the relationship

between internal and external factors towards one's investment decisions. Financial literacy is the level of a person's ability to understand and utilize financial concepts (Servon & Kaestner, 2008). Financial literacy involves the individual financial decision-making process (Jureviciene & Jermakova, 2012). The study states that the biggest problem that causes someone to avoid investing is a lack of financial knowledge/literacy. Research on financial literacy on investment decisions has been carried out in Indonesia, with different results. Among them in several studies shows that there is a positive influence of financial literacy on investment decisions (Deviyanti et al., 2018; Faidah, 2019; Krisnawati, 2019; Sadiq & Khan, 2019; Waheed et al., 2020). However, several other studies, stated that financial literacy had no significant effect on investment decisions (Arianti, 2018); financial literacy has no considerable impact on risky investment decisions (Claudia & Nuryasman, 2019); financial literacy negatively influences difficult investment decisions (Abdillah et al., 2019). Thus, there are inconsistent results between financial literacy and investment decisions. It shows that the empirical evidence has not provided substantial evidence between financial literacy and investment decisions.

Theory Reasoned Action (TRA) is expressed by (Fishbein & Ajzen, 1975). The basic assumption based on this theory is that humans behave consciously and consider all available information. Revealing the influence of attitudes and subjective norms on the intention to do or not do the behavior, Ajzen complements the theory with beliefs (beliefs) that attitudes come from assumptions about behavior (behavioral beliefs). In contrast, subjective norms come from normative beliefs (normative beliefs). Further development of the Theory of Reasoned Action (TRA) is The Theory of Planned Behavior (TPB). TPB adds a variable that does not exist in TRA, namely perceived behavioral control (Ajzen, 1985; Purnamawati, 2020). The addition of the behavioral control perception variable is to understand the limitations individuals have to carry out specific behaviors. Whether or not a behavior is carried out is determined not only by subjective attitudes and norms but also by the individual's perception of the control that he can do, which is based on his self-confidence. against that control (control beliefs) (Ajzen, 2005).

Technology Acceptance Model (TAM) is a model to explain the acceptance of technology used by technology users (Davis, 1989; Yuniarta & Purnamawati, 2020). Davis uses TRA as a grand theory to formulate TAM but does not adopt all components of TRA theory. The Technology Acceptance Model (TAM) relates to the behavior of using IT, which is an external factor in a person which can ultimately encourage or motivate him in determining investment decisions. The behavior of using IT (Information Technology) begins with a perception of the benefits (usefulness) and the perception of the ease of using IT (ease of use) (Ahyar, 2021). The purpose of holding regulations, in general, is to protect the public (consumers) so as not to be harmed by service provider companies that are monopoly or close to trust. The theories that underlie regulation-making are public interest theory and interest group theory. Public interest theory views that regulations are established because of public demand, such as correcting market failures. The regulation is expected to be able to correct market failures which will ultimately maximize the community's welfare. Interest group theory views that regulations are made to fulfill the interests of individuals, groups, or their constituents. Regulation has costs and benefits, regulatory costs are the responsibility of companies that produce information, and the benefits are enjoyed by users of information and society in general.

Internal factors generally exist within a person, caused mainly by the person's psychology. Through research, it has been found that many psychological factors significantly influence investor behavior. It is crucial to study an individual's risk tolerance before developing an investment strategy. A risk profile, also known as risk tolerance, is variations in investors' returns during their financial planning (Bansal et al., 2021). Previous research has consistently concluded that individuals with the better financial understanding, experience, and knowledge will have a higher risk tolerance than others (Chong et al., 2021). Based on the previous research results, it is stated that risk tolerance partially has a significant positive effect on investment decision making (Puspitasari 2018). In line with this, risk tolerance significantly impacts investment decision-making (Dewi & Krisnawati, 2020). However, in other research, it is stated that risk tolerance has a negative and significant effect on investment decisions (Asfira et al., 2019). This study aims to analyze the influence of risk profile, diversification behavior, retirement preparedness on investment decisions, external factors consisting of regulation and information technology on investment decisions and investigate the effect of risk profile, diversification behavior, retirement preparedness, regulation, and technology.

## 2. METHODS

The population is the entire object and research subject that is determined for analysis, and conclusions are drawn by the researcher (Bawono, 2006). Another opinion states that a population is a

unit of individuals or subjects in a region and time and with certain qualities observed/researched (Supardi, 2005). Population is a generalization area consisting of objects/subjects with a certain quality and quantity determined by the researcher to be studied and then concluded (Sugiyono, 2012). The objects in this study use Bank Mandiri customers in Bali Province with the number of Third-Party Fund (DPK) customers as of September 24, 2021, with the composition presented in Table 1.

**Table 1. Bank Mandiri customers in Bali**

Area	Deposit	Savings	Current Account	Total Third Party Funds
Denpasar	9.061	228.240	6.765	244.066
Badung Kuta Raya	4.411	134.919	3.480	142.810
Total Bank Mandiri Customers in Bali	13.472	363.159	10.245	386.876

The sample is representative of the entire population; this is done to save time and costs. The sample size in this study was determined using the Slovin formula. The Slovin formula's total population (N) used is 386,876 customers and uses a 90% precision level. By these calculations, the number of samples obtained is 100 respondents, so in this study, questionnaires will be distributed to 100 Bank Mandiri customers in Bali. The reason for selecting employees in the banking sector is because this sector dominates all over the world (Purnamawati & Yuniarta, 2016). Data was collected by distributing questionnaires via google form as a questionnaire. The technique used in this study's questions and questionnaire statements is a closed-ended question and a scaled response question. The closed-ended question technique is a form of a question with various alternatives or answers to the respondent to determine the respondent's characteristics. In contrast, the scaled response question method is a form of a question using a scale in measuring and knowing the respondent's attitude to the questions contained in the question from the respondent's point of view (Malhotra, N.K & Peterson, 2009). The scale used in making the answer choices for each question in the questionnaire is the Likert scale developed by Rensis Likert. The Likert scale relates to statements about a person's attitude towards something, for example, agree/disagree Kinnear in (Fitria & Munawar, 2021). Risk profile variables, diversification behavior, retirement preparedness, regulation, information technology, financial literacy, and investment decisions are measured using a Likert scale with details is presented in Table 2.

**Table 2. Likert Scale Used**

Likert scale	Response
1	Strongly Disagree (STS)
2	Do not agree (TS)
3	Neutral (N)
4	Agree (S)
5	Strongly agree (SS)

The validity test is intended to measure how carefully a test performs its function, whether the measuring instrument that has been prepared has actually been able to measure what needs to be measured. The validity test criteria are to compare the calculated r value (Pearson Correlation) with the r table value. Reliability test is to measure the variables used through the statements used. The reliability test was carried out by comparing the value of Cronbach's Alpha with the significant level used. Classic assumption test that used in this study is normality test, Multicollinearity Test, and Heteroscedasticity Test (Ghozali, 2014).

### 3. RESULTS AND DISCUSSIONS

#### Results

Based on the validity test results, it can be obtained that the six independent variables and the dependent variable produce a calculated R-value (Pearson Correlation) > r table with a significance level for two-way testing of 0.05. The results of which can be seen in Table 3. A reliability test is to measure the variables used through the statements used. The reliability test was conducted by comparing the Cronbach's Alpha value with the significant level used. This study uses a reliability level of Cronbach's Alpha 0.5 because the correlated item-total correlation value in an indicator to be declared reliable is at least 0.50. Based on the reliability test results, it can obtain that the six independent variables and the

dependent variable in this study have a Cronbach's Alpha value > a significant value/level of 0.5 so that the instrument is said to be reliable, with the results in [Table 3](#).

**Table 3. Validity and Reliability Test**

Variable	Item	Validity Test Results		Reliability Test Results	
		Correlation	Validity	Alpha	Reliability
Risk Profile	X1.1	0.524	Valid	0.660	Reliable
	X1.2	0.891	Valid		
	X1.3	0.808	Valid		
Diversification Behavior	X2.1	0.688	Valid	0.705	Reliable
	X2.2	0.815	Valid		
	X2.3	0.829	Valid		
Retirement Preparedness	X3.1	0.641	Valid	0.705	Reliable
	X3.2	0.886	Valid		
	X3.3	0.836	Valid		
Regulation	X4.1	0.648	Valid	0.727	Reliable
	X4.2	0.743	Valid		
	X4.3	0.680	Valid		
Information Technology	X5.1	0.873	Valid	0.779	Reliable
	X5.2	0.817	Valid		
	X5.3	0.855	Valid		
Financial Literacy	X6.1	0.789	Valid	0.826	Reliable
	X6.2	0.909	Valid		
	X6.3	0.883	Valid		
Investment Decisions	Y1.1	0.862	Valid	0.807	Reliable
	Y1.2	0.891	Valid		
	Y1.3	0.798	Valid		

A good regression model is to have a standard or close to normal data distribution. To detect the normality of the data can be tested with Kolmogorov – Smirnov. Based on the normality test in this study which was tested with Kolmogorov - Smirnov, it can see that the result is that the sig value or significance or probability value generated is > 0.05. i.e., 0.06 can be seen in [Table 4](#). It can conclude that the regression model of the independent variable and dependent variable or both are typically distributed.

**Table 4. One-Sample Kolmogorov-Smirnov Test**

		Unstandardized Residual
N		100
Normal Parameters <sup>b</sup>	Mean	0.00
	Std. Deviation	0.84
	Absolute	0.11
Most Extreme Differences	Positive	0.08
	Negative	-0.11
Test Statistic		0.11
Asymp. Sig. (2-tailed)		0.06

Tolerance measures the variability of the selected independent variables that other independent variables cannot explain. So, a low tolerance value is the same as a high VIF value ( $VIF = 1 / \text{tolerance}$ ) and indicates a high collinearity. The commonly used cut-off value is a tolerance value of 0.10 or equal to a VIF value above 10 ([Ghozali, 2014](#)). Table 5 showed that the tolerance value > 0.10 and the VIF value < 10, meaning that there was no multicollinearity in the regression. The heteroscedasticity test aims to test whether there is an inequality of variance in the regression model from the residuals of one observation to another observation. A good regression model has homoscedasticity or no heteroscedasticity ([Ghozali, 2014](#)). The results of the heteroscedasticity test in Table 5 showed that the significant value was > 0.05. It means that there was no multicollinearity or homoscedasticity in the regression.

**Table 5. Summary of Multicollinearity and Heteroscedasticity Test**

Variable	Multicollinearity Test					Heteroscedasticity Test		
	B	t-count	Sig.	Tolerance	VIF	B	t-count	Sig.
Constant	1.169	1.022	0.310			3.278	4.554	0.000
Risk Profile	-0.130	-1.516	0.133	0.603	1.658	0.064	1.192	0.236
Diversification Behavior	0.004	0.066	0.948	0.614	1.628	-0.060	-1.477	0.143
Retirement Preparedness	0.209	3.470	0.001	0.694	1.441	-0.022	-0.592	0.555
Regulation	0.194	2.986	0.004	0.583	1.716	-0.080	-1.971	0.052
Information Technology	0.136	2.062	0.042	0.750	1.332	-0.052	-1.249	0.215
Financial Literacy	0.514	6.893	0.000	0.533	1.876	-0.052	-1.109	0.270

This analysis aims to determine the effect of risk profile, diversification behavior, retirement preparedness, regulatory changes, and information technology on investment decisions with financial literacy as moderating by using the Multiple Regression equation. The regression analysis results are in the form of coefficients for each independent variable. Summary of multiple regression test and moderation regression test is presented in Table 6.

**Table 6. Summary of Multiple Regression Test and Moderation Regression Test**

Variable	Multiple Regression Test			Moderation Regression Test		
	B	t-count	Sig.	B	t-count	Sig.
Constant	1.608	1.452	0.150	1.059	0.971	0.334
X1	-0.127	-1.490	0.140	-0.111	-1.331	0.186
X2	0.038	0.616	0.540	0.038	0.626	0.533
X3	0.233	3.902	0.000	0.207	3.509	0.001
X4	0.143	2.694	0.008	0.109	2.110	0.380
X5	0.103	1.852	0.067	0.195	3.275	0.001
X6	0.509	6.857	0.000	0.500	6.862	0.000
X1X6				-0.005	-0.841	0.403
X2X6				0.003	0.723	0.472
X3X6				0.018	3.991	0.000
X4X6				0.009	2.366	0.020
X5X6				0.010	2.363	0.020

## Discussion

### The Effect of Risk Profile on Investment Decisions

The results of multiple linear regression with moderating indicate that the regression coefficient of the risk profile variable is -0.111. It means that if there is an additional risk profile value of 1 unit, the customer's decision to invest has decreased by 0.111 vice versa, assuming other variables remain. These results indicate that the risk profile variable has a negative effect on investment decisions. An investor's investment decision is not influenced by understanding the risk profile, even though the investor knows his risk profile. The results of the t-test partially show the significant value of the risk profile variable; the results of t-count are smaller than t-table ( $-1.331 < 1.984$ ) with a significance of 0.186 where  $\text{sig. } t > 0.005$ . It shows that the risk profile variable ( $X_1$ ) has no significant effect on investment decisions. Thus, the first hypothesis ( $H_1$ ) cannot be accepted. Namely, the risk profile has a negative and insignificant effect on investment decisions. It is in line with the grand theory conveyed. Namely, the idea Reasoned of Action (TRA) that internal factors, including one, can influence investment decisions) behavioral beliefs resulting from the behavior performed. If an investor believes that the investment instrument, he has chosen brings results by his expectations, even though there is a risk in the device, it will usually be ruled out or instead ignored; 2) subjective norms acknowledge social pressure in showing a particular behavior. Normally, the tendency for individuals to understand that the individual suggests carrying out behavior will increase the perceived social pressure (Ajzen, 2005). In line with previous research that stated risk tolerance has a negative and significant effect on investment decisions (Asfira et al., 2019).

### The Effect of Diversification Behavior on Investment Decisions

The results of multiple linear regression with moderating show that the regression coefficient of the diversification behavior variable is 0.038, which means that if there is an additional 1 unit of diversification behavior, the customer's decision to invest increases by 0.038 and vice versa other

variables remain. These results indicate that the diversification behavior variable positively affects investment decisions. The higher the understanding of diversification behavior, the better investment decisions will be because the risks will spread over several investment instruments/products. The results of the t-test partially show the significant value of the diversification behavior variable. The t-count results are smaller than the t-table ( $0.626 < 1.984$ ) with a significance of 0.533.  $t > 0.005$ . It shows that the diversification behavior variable ( $X_2$ ) has no significant effect on investment decisions. Thus, the second hypothesis ( $H_2$ ) cannot be accepted; namely, diversification behavior positively and significantly affects investment decisions.

In financial management, the principle of high-risk, high return applies, which means that investments that provide a high rate of return will be balanced with a high level of risk. Therefore, diversification is carried out to reduce investment risk or spread the wealth in various assets. In essence, diversification is done to minimize risk (Darmawi, 2022). Diversification helps manage investments and enables to invest not only in one type/investment instrument (Ristianawati & Hartono, 2022). Investors use diversification behavior as the best strategy in minimizing losses and maximizing profits in investing (Febriyanto, 2018). Diversification is a strategic approach to minimize portfolio risk. Still, if standard procedures do not carry it out, it may not meet its objectives (Jayeola et al., 2017). Meanwhile, a lack of diversification might negatively affect investors during an economic downturn (Jaeger et al., 2021).

### Effect of Retirement Preparedness on Investment Decisions

The results of multiple linear regression with moderating indicate that the regression coefficient for the retirement preparedness variable is 0.207. It means that if there is an additional 1 unit in the retirement preparedness value, the customer's decision to invest will increase by 0.207 and vice versa assuming other variables remain. These results indicate that the variable retirement preparedness positively affects investment decisions. The results of the t-test partially show the significant value of the retirement preparedness variable; the results of the t-count are greater than the t-table ( $3.509 > 1.984$ ) with a significance of 0.001 where sig.  $t < 0.005$ . It shows that the variable retirement preparedness ( $X_3$ ) significantly affects investment decisions. Thus, the third hypothesis ( $H_3$ ) can be accepted. Namely, retirement preparedness has a positive and significant effect on investment decisions. In line with research results stated that retirement planning had an impact on saving behavior and also had an impact on the portfolio to be chosen (Rameli & Marimuthu, 2018).

In general, if an investor owns the behavior of diversification, then the risks faced will also spread. Investors use diversification behavior as the best strategy in minimizing losses and maximizing profits in investing (Febriyanto, 2018). However, diversification behavior is also not a significant consideration by investors. They prioritize convenience and choose practical ones as their self-control when making investment decisions. It is in line with the theory of Planned Behavior (TPB), which relates to the perception of control over the internal factors within a person (Ajzen, 2005). According to the results of this study, the variables in planned behavior are (1) behavioral beliefs, namely things that individuals believe about behavior from a positive and negative perspective. An attitude toward behavior reacts effectively to behavior in liking or disliking the behavior. (2) perceived behavioral control, namely beliefs that individuals have or have never carried out certain behaviors, individuals have time and supporting facilities to perform a behavior. Individuals assess their abilities whether they know or not. They can carry out the behavior.

Retirement, according to most people, is a relaxing time, a fun time, a time free from the rules that have been practiced for years. Some people are ready to face retirement; some are not ready to face retirement. It often happens when someone is still actively working, forgets, or doesn't think about preparing for retirement financially, mentally, or physically. It is in line with previous research that stated that someone who lacks self-confidence can delay retirement planning because they feel they are not prepared enough to face their retirement (Angrisani & Casanova, 2021). On the other hand, someone who is too confident feels that their retirement preparation efforts are hampered because of their low level of financial knowledge. For this reason, one needs to take greater responsibility for their welfare in retirement by actively saving and investing rather than relying solely on the social security system (Özyüksel & Günay, 2019). In this regard, retirement preparedness will consider an investor's investment decision. Based on the study results, it is stated that retirement planning has an impact on saving behavior and has an effect on the portfolio that will be chosen (Rameli & Marimuthu, 2018). Meanwhile, the importance of current policies and interventions to motivate people to prepare for retirement sometimes do not give the desired results because people's intentions to prepare for retirement have a high perception but have difficulty implementing it (Krijnen et al., 2021).

### Effect of Regulation on Investment Decisions

The results of multiple linear regression with moderating indicate that the regression coefficient of the regulatory variable is 0.109, which means that if there is an additional 1 unit of regulatory value, the customer's decision to invest increases by 0.109 and vice versa with the assumption that other variables remain. These results indicate that regulatory variables have a positive effect on investment decisions. The results of the t-test partially show the significant value of the regulatory variable; the result of t-count is greater than t-table ( $2.110 > 1.984$ ) with a significance of 0.001 where  $\text{sig. } t < 0.005$ . It shows that the regulatory variable ( $X_4$ ) significantly affects investment decisions. Thus, the fourth hypothesis ( $H_4$ ) can be accepted. Namely, regulation has a positive and significant effect on investment decisions.

In determining investment instruments/products, an understanding of regulations must be considered. Such as the theory that underlies the making of regulations: (1) Public interest theory views that regulations are enacted because of public demand, for example, to correct market failures. (2) Interest group theory views that regulations are made to fulfill the interests of individuals, groups, or their constituents. Regulations are rules made by governments or other authorities to control the way things are done or the way people behave (Shleifer, 2005). The theories that underlie regulation-making are public interest theory and interest group theory. Public interest theory views that regulations are established because of public demand, such as correcting market failures. The regulation is expected to be able to correct market failures which will ultimately maximize the welfare of the community. Interest group theory views that regulations are made to fulfill the interests of individuals, groups, or their constituents.

### The Influence of Information Technology on Investment Decisions

The results of multiple linear regression with moderating indicate that the regression coefficient of the information technology variable is 0.195, which means that if there is an additional 1 unit of information technology value, the customer's decision to invest increases by 0.195 and vice versa assuming other variables remain. These results indicate that the information technology variable positively affects investment decisions. The results of the t-test partially show the significant value of the information technology variable; the result of t-count is greater than t-table ( $3.275 > 1.984$ ) with a significance of 0.001 where  $\text{sig. } t < 0.005$ . It shows that the information technology variable ( $X_5$ ) significantly affects investment decisions. Thus, the fifth hypothesis ( $H_5$ ) can be accepted. Namely, information technology has a positive and significant effect on investment decisions.

From this literal meaning, technology in ancient Greek can be defined as the art of producing the means of production and using them. The definition then develops into the use of science according to human needs. Information technology partially affects investment interest (Mastura et al., 2020). Information technology determines interest in investing (Sukirno, 2011). Information technology partially affects investment interest (Mastura et al., 2020) and is in line with the statement that the factors that determine interest in investing are information technology (Sukirno, 2011). It is in line with the research results that the information technology variable has a significant positive effect on the interest variable (Negara & Febrianto, 2020). The Technology Acceptance Model (TAM) theory is also in line with the results of this study, which relates to using IT, which is an external factor in a person that can ultimately encourage or motivate him in determining investment decisions. The behavior of using IT (Information Technology) begins with a perception of the benefits (usefulness) and the perception of the ease of using IT (ease of use), and these two elements, when associated with TRA, are part of belief.

### The Influence of Risk Profile, Diversification Behavior, Retirement Preparedness, Regulation and Information Technology on Investment Decisions With the Role of Financial Literacy as a Moderating Variable

The regression coefficient of the risk profile variable with financial literacy is -0.005, which means that if there is an additional risk profile value with financial literacy of 1 unit, the customer's decision to invest will decrease by 0.005 and vice versa assuming other variables remain. These results indicate that the risk profile variable with financial literacy as a moderating variable has a negative effect on investment decisions. While the results of the t-test partially show the significant value of the risk profile variable with financial literacy, the results of the t-count are smaller than the t-table ( $-0.841 < 1.984$ ) with a significance of 0.403 where  $\text{sig. } t > 0.05$ . It shows that the risk profile variable with financial literacy ( $X_1X_6$ ) has no significant effect on investment decisions. Thus, the sixth hypothesis ( $H_6$ ) for the risk profile with moderating financial literacy is unacceptable, namely the risk profile with the moderating variable of financial literacy having a negative and insignificant effect on investment decisions. The regression coefficient of the diversification behavior variable with financial literacy is 0.003. If there is an additional value of diversification behavior with financial literacy of 1 unit, then the customer's decision to invest



increases by 0.003. These results indicate that the diversification behavior variable with financial literacy as a moderating variable positively affects investment decisions. While the results of the t-test partially show the significant value of the diversification behavior variable with financial literacy, the results of the t-count are smaller than the t-table ( $0.003 < 1.984$ ) with a significance of 0.472 where  $\text{sig. } t > 0.05$ . It shows that the diversification behavior variable with financial literacy ( $X_2X_6$ ) has no significant effect on investment decisions. Thus, the sixth hypothesis ( $H_6$ ) for diversification behavior with financial literacy moderating is unacceptable. Namely, diversification behavior with financial literacy moderating variable has a positive and insignificant effect on investment decisions.

The results of multiple linear regression with moderating indicate that the regression coefficient of the retirement preparedness variable with financial literacy is 0.018. It means that if there is an addition to the retirement preparedness value with financial literacy of 1 unit, the customer's decision to invest will increase by 0.018 and vice versa with the variable assumption. Others remain. While the results of the t-test partially show the significant value of the retirement preparedness variable with financial literacy, the t-count results are greater than the t-table ( $3.991 > 1.984$ ) with a significance of 0.000 where  $\text{sig. } t < 0.05$ . It shows that the retirement preparedness variable with financial literacy ( $X_3X_6$ ) significantly affects investment decisions. Thus, the sixth hypothesis ( $H_6$ ) for retirement preparedness in the presence of moderating financial literacy is acceptable, namely retirement preparedness with moderating financial literacy variables having a positive and significant effect on investment decisions.

The regression coefficient of the regulatory variable with financial literacy is 0.009, which means that if there is an additional 1 unit of regulatory value with financial literacy, the customer's decision to invest increases by 0.009 and vice versa, assuming other variables remain. While the results of the t-test partially show the significant value of the regulatory variable with financial literacy, the results of t-count are greater than t-table ( $2.366 > 1.984$ ) with a significance of 0.020 where  $\text{sig. } t < 0.05$ . It shows that the retirement preparedness variable with financial literacy ( $X_4X_6$ ) significantly affects investment decisions. Thus, the sixth hypothesis ( $H_6$ ) for regulation with financial literacy moderating is acceptable. Namely, regulation with financial literacy moderating variable has a positive and significant effect on investment decisions. The regression coefficient of the information technology variable with financial literacy is 0.010. If there is an additional value of information technology with financial literacy of 1 unit, then the customer's investment decision increases by 0.010 and vice versa, assuming other variables remain. While the results of the t-test partially show the significant value of the information technology variable with financial literacy, the results of t-count are greater than t-table ( $2.364 > 1.984$ ) with a significance of 0.020 where  $\text{sig. } t < 0.05$ . It shows that the information technology variable with financial literacy ( $X_5X_6$ ) significantly affects investment decisions. Thus, the sixth hypothesis ( $H_6$ ) for information technology with moderating financial literacy is acceptable, namely regulation with a variable financial literacy moderation has a positive and significant effect on investment decisions.

Based on the research results for financial literacy as a moderating variable, there are inconsistencies that occur in its influence on investment decisions. Among them are the findings that stating that this moderating effect of financial literacy is more beneficial for policy makers and financial intermediaries by showing that increasing public financial literacy can have an effect on investment (S. Aren & Aydemir, 2015). Financial literacy has an involvement in the individual financial decision-making process (Jureviciene & Jermakova, 2012). In addition, the study also states that the biggest problem that causes someone to avoid investing is a lack of financial knowledge/literacy. In line with (Lusardi, 2015) stating that financial well-being in retirement requires optimal preparation and planning. This condition can be realized by planning actions that can improve financial experience, through financial literacy. However, it is different from the findings which states that financial literacy has a negative effect on intentions to invest (Abdillah et al., 2019).

#### 4. CONCLUSION

The risk profile has a positive and insignificant effect on investment decisions; diversification behavior has a positive and insignificant effect on investment decisions; retirement preparedness has a positive and significant effect on investment decisions; regulation has a positive and significant effect on investment decisions, information technology has a positive and significant effect on investment decisions; financial literacy is not able to moderate risk profile and diversification behavior towards investment decisions, while financial literacy can moderate retirement preparedness, regulation, and information technology on investment decisions. The suggestions that the researcher gives related to this research are as follows: for banks to further increase their knowledge of front liners and sales through in-house training on retirement preparedness, be up to date on applicable regulations, and affect investment as deepen their technological capabilities. Information with financial literacy strengthens the decision to

invest in a customer. As for the risk profile and diversification behavior with the existence of financial literacy in this study, the results obtained did not significantly affect investment decisions, but the bank's front liners and sales still consider it so that the offering of investment instruments/products is more precise; researchers can develop this research further and consider other variables that have not been tested in this study that influence an investor's investment decision and can add to the research area, by taking locations in several other banks to determine the factors that influence a customer's investment decision in banking products more broadly.

## 5. REFERENCES

- Abdillah, W., Permatasari, R., & Hendrawaty, E. (2019). Understanding determinants of individual intention to invest in digital risky investment. *JDM (Jurnal Dinamika Manajemen)*, 10(1), 124–137. <http://repository.lppm.unila.ac.id/16962/>.
- Ahyar, M. K. (2021). Efek Diversifikasi Pembiayaan Sektor Ekonomi Terhadap Profitabilitas Dan Risiko Bank Syariah Di Indonesia. *JPS (Jurnal Perbankan Syariah)*, 2(2), 197–211. <https://doi.org/10.46367/jps.v2i2.388>.
- Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In *Action control* (pp. 11–39). Springer.
- Ajzen, I. (2005). Attitudes, Personality and Behavior (Second Edition). In *Open University Press*.
- Angrisani, M., & Casanova, M. (2021). What you think you know can hurt you: under/over confidence in financial knowledge and preparedness for retirement. *Journal of Pension Economics and Finance*, 20(4), 516–531. <https://doi.org/10.1017/S1474747219000131>.
- Aren, S., & Aydemir, S. D. (2015). The factors influencing given investment choices of individuals. *Procedia-Social and Behavioral Sciences*, 210, 126–135.
- Aren, Selim, & Aydemir, S. D. S. D. (2015). The factors influencing given investment choices of individuals. *Procedia-Social and Behavioral Sciences*, 210, 126–135. <https://doi.org/10.1016/j.sbspro.2015.11.351>.
- Arianti, B. F. (2018). The Influence of Financial Literacy, Financial Behavior and Income On Investment Decision. *Economics and Accounting Journal*, 1(1), 1–10. <https://doi.org/10.32493/eaj.v1i1.y2018.p1-10>.
- Asfira, N., Rokhmawati, A., & Fathoni, A. F. (2019). Pengaruh Financial Literacy dan Investment Experience terhadap Risk Tolerance dan Investment Decision. *Jurnal Ekonomi*, 27(4), 340–352. <https://doi.org/10.31258/je.27.4.p.340-352>.
- Bansal, E., Singh, H. P., & Datta, S. (2021). A Study Of Awareness And Influence Of Demographic Factors On Risk Tolerance Of Law Professionals. *International Journal of Management (IJM)*, 12(2), 762–772. [https://www.academia.edu/download/66297189/IJM\\_12\\_02\\_074.pdf](https://www.academia.edu/download/66297189/IJM_12_02_074.pdf).
- Bawono, A. (2006). *Multivariate Analysis SPSS*. STAIN Salatiga Press.
- Bindal, M., Gupta, B., & Dubey, S. (2019). A Study on Investors Perception towards Mutual Fund Investments (With Special Reference to Alwar City). *International Journal of Engineering and Management Research (IJEMR)*, 9(1), 204–209. <https://www.indianjournals.com/ijor.aspx?target=ijor:ijemr&volume=9&issue=1&article=025>.
- Chong, S. C., Heng, H. K., Lim, S. J., Navaratnam, V., & Neoh, A. Z. K. (2021). Financial Risk Tolerance: The Case of Older Chinese in Klang Valley, Malaysia 2020. *International Journal of Financial Research*, 12(2), 1–9. <https://ideas.repec.org/a/jfr/ijfr11/v12y2021i2p1-9.html>.
- Claudia, C., & Nuryasman, M. N. (2019). Emotional Intelligence, Risk Aversion, External Locus of Control, Financial Literacy Serta Demografi Sebagai Prediktor Risky Investment Intention. *Jurnal Manajerial Dan Kewirausahaan*, 1(2), 153–163. <https://doi.org/10.24912/jmk.v1i2.5074>.
- Damayanti, S. M., & Wicaksana, P. (2021). Financial Literacy and Risk Profile: an Extensive Observation on Bank Employees. *Jurnal Aplikasi Manajemen*, 19(1), 175–186. <https://doi.org/10.21776/ub.jam.2021.019.01.16>.
- Darmawi, H. (2022). *Manajemen Risiko (Ketiga)*. Bumi Aksara.
- Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3), 319–339. <https://doi.org/10.2307/249008>.
- Deviyanti, L. P. A. E., Purnamawati, I. G. A., & Yasa, I. N. P. (2018). Pengaruh norma subjektif, persepsi return, dan literasi keuangan terhadap minat mahasiswa untuk berinvestasi saham di pasar modal (Studi pada mahasiswa Jurusan Akuntansi Program S1 Universitas Pendidikan Ganesha). *JIMAT (Jurnal Ilmiah Mahasiswa Akuntansi Undiksha)*, 8(2). <https://doi.org/10.23887/jimat.v8i2.14298>.
- Dewi, N. P. P. K., & Krisnawati, A. (2020). Pengaruh financial literacy, risk tolerance dan overconfidence

- terhadap pengambilan keputusan investasi pada usia produktif di kota bandung. *Jurnal Mitra Manajemen*, 4(2), 236–250. <https://doi.org/10.52160/ejmm.v4i2.344>.
- Faidah, F. (2019). Pengaruh literasi keuangan dan faktor demografi terhadap minat investasi mahasiswa. *Journal of Applied Business and Economic*, 5(3), 251–263. <https://doi.org/10.30998/jabe.v5i3.3484>.
- Febriyanto, F. (2018). Keputusan Diversifikasi Portofolio Investasi Diera Mea. *Fidusia: Jurnal Keuangan Dan Perbankan*, 1(2). <http://fe.ummetro.ac.id/ejournal/index.php/JPK/article/view/306>.
- Fishbein, M., & Ajzen, I. (1975). *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research* (Addison-Wesley (Ed.)). Psychology Press. [https://doi.org/10.1007/978-3-642-69746-3\\_2](https://doi.org/10.1007/978-3-642-69746-3_2).
- Fitria, A., & Munawar, A. (2021). Pengaruh Penggunaan Internet Banking, Mobile Banking Dan SMS Banking Terhadap Kepuasan Nasabah Bank BNI. *Jurnal Informatika Kesatuan*, 1(1), 43–52. <https://lib.stiekesatuan.ac.id/index.php/jikes/article/view/406>.
- Ghozali, I. (2014). *Ekonometrika: Teori, Konsep dan Aplikasi dengan IBM SPSS 22*. Badan Penerbit Undip.
- Jaeger, M., Krügel, S., Marinelli, D., Papenbrock, J., & Schwendner, P. (2021). Interpretable machine learning for diversified portfolio construction. *The Journal of Financial Data Science*, 3(3), 31–51. <https://jfds.pm-research.com/content/3/3/31.abstract>.
- Jayeola, D., Ismail, Z., & Sufahani, S. F. (2017). Effects of diversification of assets in optimizing risk of the portfolio. *Malaysian Journal of Fundamental and Applied Science*, 13(4), 584–587. <https://pdfs.semanticscholar.org/3713/ba99421fe590f8b93a36d66aee71f52a33a8.pdf>.
- Jureviciene, D., & Jermakova, K. (2012). The impact of individuals' financial behaviour on investment decisions. *Electronic International Interdisciplinary Conference*, 9, 242–250.
- Krijnen, J., Zeelenberg, M., Breugelmans, S. M., & Van Der Schors, A. (2021). Intention and action in retirement preparation. *Behavioural Public Policy*, 6(2), 191–212. <https://doi.org/10.1017/bpp.2018.39>.
- Krisnawati, A. (2019). Analisis Pengaruh Literasi Keuangan Terhadap Keputusan Investasi pada Masyarakat Kota Bandung. *Almana: Jurnal Manajemen Dan Bisnis*, 3(2), 301–312. <https://doi.org/10.36555/almana.v3i2.362>.
- Malhotra, N.K & Peterson, M. (2009). *Basic Marketing Research : A Decision - Making Approach*. Prentice Hall.
- Manurung, A. H. (2012). Teori Perilaku Keuangan ( Behaviour Finance ). *Economis Of Management*, 41(4), 1–13. <http://finansialbisnis.com/Data2/Riset/Teori Perilaku Keuangan.pdf>.
- Mastura, A., Nuringwahyu, S., & Zunaida, D. (2020). Pengaruh Motivasi Investasi, Pengetahuan Investasi Dan Teknologi Informasi Terhadap Minat Berinvestasi di Pasar Modal. *Jiagabi*, 9(1), 64–75. <http://www.riset.unisma.ac.id/index.php/jiagabi/article/view/6125>.
- Negara, A. K., & Febriyanto, H. G. (2020). Pengaruh Kemajuan Teknologi Informasi dan Pengetahuan Investasi Terhadap Minat Investasi Generasi Milenial di Pasar Modal. *Business Management Journal*, 16(2), 81–95. <https://doi.org/10.30813/bmj.v16i2.2360>.
- Nurdany, A., & Kresnowati, A. M. (2019). Digital-related economy sectors and regional economy disruption. *Jurnal Ekonomi Dan Bisnis*, 22(1), 147–162. <https://doi.org/10.24914/jeb.v22i1.2187>.
- Özyüksel, S., & Günay, U. (2019). Retirement preparedness in turkey and the need for personal financial planning. *Eurasian Journal of Economics and Finance*, 7(1), 15–35. <https://eurasianpublications.com/wp-content/uploads/2021/02/EJEF-7.1.2.pdf>.
- Purnamawati, I. G. A. (2020). Extrinsic Financial Dimensions: Young Female Investor and Behavior Theories. *Proceedings of the 5th Asian Education Symposium*, 37–44. <https://www.atlantispress.com/article/125958681.pdf>.
- Purnamawati, I. G. A., & Yuniarta, G. A. (2016). Pengaruh Psychological Empowerment, Empowering Leadership, Sistem Pengukuran Kinerja Terhadap Motivasi Intrinsik First-Line Employees Perbankan. *Jurnal Keuangan Dan Perbankan*, 20(3), 507–517. <https://doi.org/10.26905/jkdp.v20i3.259>.
- Rameli, R. S., & Marimuthu, M. (2018). A Conceptual Review on the Effect of Attitudes towards Retirement on Saving Intentions and Retirement Planning Behavior. *SHS Web of Conferences*, 56, 2005. [https://www.shs-conferences.org/articles/shsconf/abs/2018/17/shsconf\\_iclm2018\\_02005/shsconf\\_iclm2018\\_02005.html](https://www.shs-conferences.org/articles/shsconf/abs/2018/17/shsconf_iclm2018_02005/shsconf_iclm2018_02005.html).
- Reilly, F. K., & Brown, K. C. (2011). *Investment Analysis and Portfolio Management (Text Only)*. Cengage Learning.
- Ristianawati, Y., & Hartono, S. B. (2022). Determinasi Tantangan FI, Manfaat FI, dan Realisasi FI Pada Strategi Agility Diversifikasi Investasi. *Jurnal Ilmiah Ekonomi Islam*, 8(1), 699–706.

- <https://doi.org/10.29040/jiei.v8i1.4676>.
- Sadiq, M. N., & Khan, R. A. A. (2019). Impact of Personality Traits on Investment Intention: The Mediating Role of Risk Behaviour and the Moderating Role of Financial Literacy. *Journal of Finance and Economics Research*, 4(1), 1–18. <https://geistscience.com/JFER/Issue1-19/Article4/JFER1904101.pdf>.
- Servon, L. J., & Kaestner, R. (2008). Consumer financial literacy and the impact of online banking on the financial behavior of lower-income bank customers. *Journal of Consumer Affairs*, 42(2), 271–305. <https://doi.org/10.1111/j.1745-6606.2008.00108.x>.
- Shleifer, A. (2005). Understanding regulation. *European Financial Management*, 11(4), 439–451. [https://www.regulation.org.uk/library/2005-Shleifer-Understanding\\_Regulation.pdf](https://www.regulation.org.uk/library/2005-Shleifer-Understanding_Regulation.pdf).
- Sugiyono. (2012). *Metode Penelitian Bisnis*. Alfabeta.
- Sukirno, S. (2011). *Ekonomi Makro teori pengantar, edisi ketiga*. Jakarta: PT Raja Grafindo Persada.
- Supardi. (2005). *Metodologi Penelitian Ekonomi Bisnis*. PT Raja Grafindo Persada.
- Waheed, H., Ahmed, Z., Saleem, Q., Din, S. M. U., & Ahmed, B. (2020). The Mediating Role of Risk Perception in the Relationship between Financial Literacy and Investment Decision. *International Journal of Innovation, Creativity and Change*, 14(4), 112–131. [https://www.ijcc.net/images/Vol\\_14/Iss\\_4/14408\\_Saleem\\_2020\\_E\\_R1.pdf](https://www.ijcc.net/images/Vol_14/Iss_4/14408_Saleem_2020_E_R1.pdf).
- Wulandari, D. A., & Iramani, R. (2018). Studi Experienced Regret, Risk Tolerance, Overconfidance Dan Risk Perception Pada Pengambilan Keputusan Investasi. *Journal of Business and Banking*, 4(1), 55–66. <https://doi.org/10.14414/jbb.v4i1.293>.
- Yuniarta, G. A., & Purnamawati, I. G. A. (2020). Psychological Dimensions and Practical Strategies: MSME and Mobile Payment Adoption. *Management Science Letters*, 11(2), 577–586. <https://doi.org/10.5267/j.msl.2020.9.009>.