Original Article

The Effect of Financial Literacy and Sociodemographic Factors on Millennial's Investment Decision-Making Behavior

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Abstract - *This study aims to determine the effect of financial literacy and sociodemography on stock investment decision-making behavior. The population of this study is the millennial generation in Denpasar City, who are already registered as stock investors. The number of samples is 60 respondents who were chosen using accidental sampling technique in which samples are determined by chance; anyone who was encountered can be used as a sample. The data were collected using questionnaires pertaining to research variables. The data analysis technique used is Confirmatory Factor Analysis, namely Partial Least Square.*

Based on the results of the analysis, it is concluded that financial literacy has a positive and significant effect on the behavior of millennials in making investment decisions, while sociodemography has no significant effect on millennials' investment decision-making behavior.

Keywords - *Sociodemographic, Financial literacy, Investment behaviour.*

I. INTRODUCTION

Every country strives to maintain economic growth through development towards a better future. Economic growth is an indication of economic development success. Both developing and developed countries seek to keep their economies growing. A country is growing when its products and services increase; in other words, there is an increase in Gross National Product. Growth in output per capita is also an indicator of a country's economic growth, namely growth in real wages and an increase in living standards. Saunders (1997), in his study, stated that inflation and monetary policy impacted a country's productivity growth, implying that inflation still plays a role in spurring a country's economic growth.

Inflation is a process of general price increase in relation to market price mechanisms, which occurs during a period when purchasing power decreases. Factors that cause inflation, among others, are demand outweighing supply, increased money supply in a country, and increased production costs. Generally, inflation cannot be completely eliminated. An inflation rate that is too high can cause a decline in a country's economy. On the other hand, if the inflation rate is near or below zero, then it will not spur a country's economic growth and lead to stagnation. Based on Figure 1, the lowest inflation rate in Indonesia was 2.72% in 2019, and the highest was 8.38% in 2013.
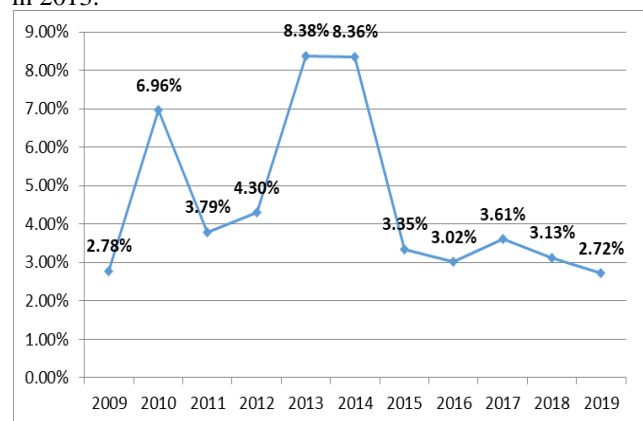

Fig. 1 Inflation Rate in Indonesia during 2009-2019
Source: Indonesian Central Bureau of Statistics

Typically, people are not always aware of the subtle changes in the real value of money caused by inflation. However, the impact of inflation needs to be considered seriously by each individual in managing personal finances. Inflation often has negative impacts on personal finances. The purchasing power of money becomes lower so that more money is needed to buy the same thing. One way to deal with the adverse effects of inflation is to save money.

Bank Central Asia's (BCA) annual saving interest rate for March 2019 was 1.3%. While the rate at Bank Rakyat Indonesia (BRI) was 1.8%, Bank Mandiri was 1.9%, and Bank Negara Indonesia (BNI) was 2% for the same period. After comparing with inflation data, saving was apparently not enough to compensate for the impact of inflation. The maximum interest rate for savings provided by banks in Indonesia is 2% per year. Even the minimum inflation rate is still higher than the maximum savings interest rate offered by banks. The value of people's assets will be eroded by inflation if people only rely on bank savings as financial instruments. People need other financial instruments with returns higher than inflation to protect the value of their assets. Most people's funds are allocated for

several purposes, such as investment, savings, and consumption (Masassya, 2006). The type of allocation with the highest future benefit is an investment.

Investing is a crucial lifestyle to adopt, especially for millennials. The sooner an investment is made, the better it will be in mitigating challenges in the future, especially in dealing with inflation. In investing, the rate of return increases proportionately with risk. An investor who wants to achieve a high rate of return must be willing to bear the higher risk as well and vice versa. Sound financial management must be considered in making investment planning and decision-making. The stock market is one of several legal avenues for investing with a strong potential to provide high returns. Warren Edward Buffet is an example of a successful investor, and he became one of the richest people in the world in 2019, according to Forbes magazine, through stock investment.

Shares of stock are rights representing partial ownership of a company. The return gained from investing in stock consists of dividends and capital gains/losses. According to the Great Dictionary of Indonesian Language, the dividend is a part of the company's profit or income, the amount of which is determined by the directors and authorized by the shareholders' meeting, which is distributed to the shareholders. Capital Gain/Loss is the difference between the end of period stock price and the original price. If the end of the period price is higher than the original price, then the investor is said to acquire capital gain, whereas if the opposite holds, then the investor is said to suffer a capital loss. Stock trading is conducted in a stock exchange that brings together buyers and sellers in the capital market. Shares that have been acquired in the primary market (Initial Public Offering) will be traded in the stock exchange or secondary market. The Jakarta Composite Index (JCI) in December 2013 stood at 4,274, and in December 2019, it rose to 6,299, which means that there was an increase of 47.3% over those 6 years.

Table 1. JCI Annual Gain/Loss

Year	JCI	Gain/Loss
2013	4,274	-
2014	5,226	22.27%
2015	4,593	-12.11%
2016	5,296	15.31%
2017	6,355	20.00%
2018	6,194	-2.53%
2019	6,299	1.70%

Based on Table 1, over the last 6 years, negative growths of JCI only occurred in 2015 (-12.11%) and 2018 (-2.53%). In 2019 the JCI was able to achieve positive growth, despite so slightly. The rest of the JCI trend showed positive and robust growth. The overall JCI achievement above is a good reference for investing in the stock market.

Financial literacy and personal financial management are crucial when an individual wants to carefully plan their investment decisions so as to have a clear direction. Financial literacy can be interpreted as financial knowledge with the aim of achieving prosperity (Lusardi and Mitchell, 2007). Financial literacy is the knowledge and understanding of financial concepts and risks, as well as the skills, motivation, and confidence to apply such knowledge and understanding to make effective decisions in a variety of financial contexts, to improve the financial well-being of individuals and communities, and to enable participation in economic life (Stolper and Walter., 2017).

Rai et al. (2019) found that financial attitude and financial behavior have strong relationships with financial literacy. Putri and Henny (2017) revealed that the influence of financial literacy variable is directly affecting individual investment decision-making behavior, which means that the higher a person's financial literacy, the better the individual investment decision behavior. Similar findings were also made by Aren and Zengin (2016), Fachrudin and Fachrudin (2016), and Ullah (2015), where financial literacy had a positive effect on investment decisions.

Personal financial management consists of two simple concepts, namely income and expenses. Income is the amount of money earned, such as monthly salaries, income from the business, investment income, pension, and rent. Expenses are payments for products or services using income. Personal finance consists of finance management, personal financial records, and proper loans management. An understanding of financial literacy and good financial management will lead life towards a better direction and build a stable financial future.

The Ministry of Women's Empowerment said that millennials are individuals born in the year 1980-2000. This millennial generation will bear a double burden when they get married, which is to raise a family and at the same time take responsibility for the wellbeing of their parents. Millennials must immediately recognize this challenge and prepare a thorough financial plan to deal with it while trying to avoid becoming a financial burden for the next generation.

Data from the Indonesian Central Bureau of Statistics in 2018 shows that the portion of the Indonesian population that falls into the productive age group (aged 15-65 years) reaches 183.36 million people. Putra (2019) wrote that according to PT. Indonesian Securities Custodian (KSEI), at the end of October 2019, there were 2 million Single Investor Identifications (SID) registered as capital market investor identities in Indonesia, 59.72% of them were investors aged 21-40 years. This implies that only 0.65% of Indonesia's productive age population are millennials who have SIDs. According to Gideon (2019) on *Liputan 6*, the Rating and Investment Information, Inc. (R&I) rating agency granted BBB investment grade with a stable outlook for Indonesia. The results of a survey

conducted by the IDN Research Institute entitled "Indonesia Millennial Report 2019" showed the millennials only set aside 2% of their total income from investing. This phenomenon indicates poor financial literacy and behavior among millennials, as seen from the way they spend their income. This phenomenon is shown in Figure 2, which illustrates the lack of awareness among millennials on the importance of investing.
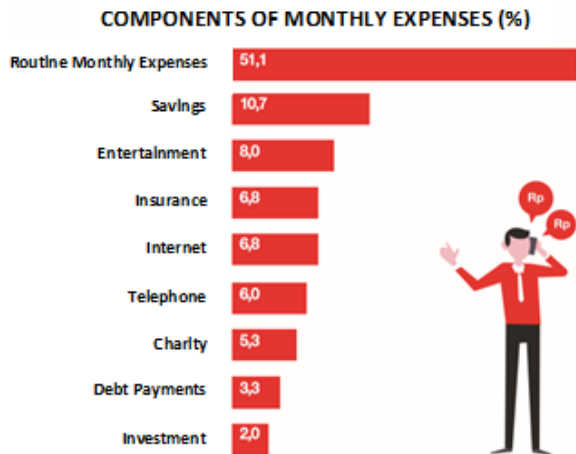

Fig. 2 Percentage of Millennial Expenses
Source: Indonesia Millennial Report 2019

Millennials tend to prefer saving to investing, which is expected to provide a return greater than inflation so as not to erode the real value of their assets. This is the fact that drives the development of behavioral finance theory, which is an application of psychology in the financial field and personal finance theory that discusses the fulfillment of personal financial goals, retirement planning, and saving for children's education. In utilizing income and savings, it is important to be financially literate in order to be able to distinguish the good advice from bad ones and make smart decisions. Kahneman and Tversky (1979) introduced the Prospect theory, which posits that decision-making in risky conditions can be viewed as a choice between prospect and gamble.

This study aims to examine the effect of millennials' financial literacy and sociodemography on investment decisions in the stock market. The millennial generation is a technology-savvy generation that makes it easy to access various information through various platforms available today. This is an ideal condition for millennials to invest in the stock market. Sociodemographic factors observed in this study are income and profession. Previous studies found that income has no significant effect on investment decision-making behavior (Putri and Henny, 2017). Al-Tamimi (2009), in his study, stated that high-income respondents have a high level of financial literacy, and there is a significant relationship between financial literacy and investment decisions. Other studies examining the influence of profession on investment decision behavior state that working in finance, banking, or investment has a significant impact on individual investment decisions (Al-Tamimi et al., 2009). However, Baruah et al. (2018) found

that profession can not significantly predict investment decisions.

II. LITERATURE REVIEW

Behavioral finance is a branch of finance that has been recognized and researched by various researchers. Behavioral finance discusses the application of psychology in finance, focusing on individual-level cognitive biases (Hirshleifer, 2015). Some research results suggest that behavioral finance is highly influential on investors' decision-making process in a business or capital market. Cognitive and emotional bias factors play a significant role in investment decision-making, especially in a fluctuating financial market environment. This is especially the case for emotional bias. Cognitive bias, however, can be minimized through education in finance and investment.

Financial literacy is a knowledge and understanding of financial concepts, financial risks, financial resources, financial motivation, and confidence to apply this knowledge and understanding in making effective financial decisions, to improve the financial well-being of individuals and communities, and to participate in the economy (Liebowitz and Morrison, 2016). High levels of financial literacy have clear beneficial effects and are prevalent at the cross-country level (Grohmann et al., 2018). Financial literacy focuses on three dimensions, namely financial knowledge, financial attitude, and financial behavior (Organization for Economic Cooperation and Development, 2012).

The effect of the financial literacy variable directly correlates to individual investment decision-making behavior, meaning that the higher a person's financial literacy, the better the individual investment decision-making behavior (Putri and Henny, 2017). Studies conducted by Aren and Zengin (2016), Fachrudin and Fachrudin (2016), and Ullah (2015) corroborate that financial literacy has a positive effect on investment decisions. The results of research conducted by Lusardi and Mitchell (2007) found that an adequate level of financial literacy will promote planning, including investment planning starting from a productive age. Based on the above description, the following hypothesis is formulated:

**H1: Financial Literacy has a positive effect on Investment Decision-making Behavior**

Sociodemography consists of individual characteristics that describe the social conditions of a population in an area. Sociodemography is a combination of social and demography terminologies. The term social refers to non-demographic variables such as income, employment, education, and others. At the same time, demography is a study on the characteristics of a population in an area, such as age, gender, and others (Harli, 2015). Demography is a study that deals with population problems with a very broad spectrum and dimensions. The spectrum includes gender, age,

educational background, income, marital status, and profession (Nitisusastro, 2012).

Al-Tamimi et al. (2009) found that sociodemography, which was measured by income, influences the level of investment decisions. Wahla et al. (2019) stated that people with lower incomes tend to suffer losses when making investment decisions. Al-Tamimi et al. (2009) found that sociodemography, as seen from the professional factors, affects an investment decision. Jobs in finance, banking, or investment had a significant impact on investment decisions. Based on the description above, the following hypothesis is formulated:

H2: Sociodemography has a positive effect on Investment Decision-making Behavior

III. CONCEPTUAL FRAMEWORK
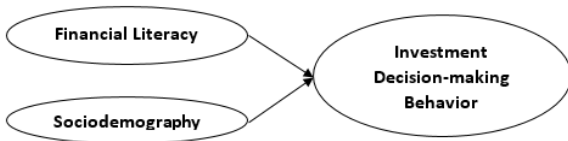
IV. RESEARCH METHODOLOGY

The population in this study is the millennial generation born between 1980 - 2000 in Denpasar City. The total population cannot be counted (infinite population). The sampling technique is non-probability sampling with an accidental sampling approach. The sampling technique is based on coincidence, i.e., anyone who was accidentally encountered can be treated as the sample. The sample size is based on the formula from Sekaran and Bougie (2016), who posit that in survey research, the sample size should be at least 10 times the number of variables/dimensions/indicators. This study uses 6 indicators, so the sample size is set at 60 respondents.

There are 3 variables in this study, namely Financial Literacy, Sociodemography, and Investment Decision-making Behavior. Financial Literacy consists of 3 indicators: financial attitude, financial behavior, and financial knowledge (Organization for Economic Cooperation and Development, 2012). Sociodemography consists of 2 indicators, namely income and profession (Nitisusastro, 2012). Investment Decision-making Behavior consists of 3 indicators: investment motives, investment products, and expected returns. The research instrument is questionnaires containing questions related to research variables. The questionnaires in this study replicated the questionnaires employed by Potrich et al. (2014).

This research adopts the Likert scale. According to Sekaran and Bougie (2016), the Likert scale is used to measure the attitudes, opinions, and perceptions of a person or a group of people about certain social phenomena. The variables measured on the Likert scale will be elaborated into variable indicators. Those indicators are then used as a starting point for constructing

questionnaire items which can be either statements or questions. The data analysis method used in this study is the Partial Least Square (PLS) approach with the assistance of the Smart PLS program.

V. RESULTS AND DISCUSSION

Prior to data analysis, the research instrument must meet the validity and reliability criteria for all variables, namely: Financial Literacy (X1), Sociodemography (X2), and Investment Decision-making Behavior (Y). The minimum requirement to be considered valid is when r = 0.3, so every question item must have a correlation coefficient > 0.3. In the first validity test, it was found that 3 out of the 10 indicators in the financial attitude variable are invalid, 5 out of 27 indicators in the financial behavior variable are invalid, and 6 out of 10 indicators in the financial knowledge variable are invalid. Invalid indicators were removed, and the instrument was re-analyzed.

Table 2. Second Validity Test Result

Variable	Indicator	Indicator	Pearson's Correlation	Sig	Information
Financial Literacy	Financial Attitude	X1.1.2	0.663	0.000	Valid
		X1.1.3	0.589	0.001	Valid
		X1.1.4	0.709	0.000	Valid
		X1.1.5	0.766	0.000	Valid
		X1.1.6	0.746	0.000	Valid
		X1.1.9	0.753	0.000	Valid
		X1.1.10	0.620	0.000	Valid
	Financial Behavior	X1.2.1	0.575	0.000	Valid
		X1.2.2	0.381	0.038	Valid
		X1.2.3	0.706	0.000	Valid
		X1.2.4	0.719	0.000	Valid
		X1.2.5	0.378	0.000	Valid
		X1.2.6	0.641	0.000	Valid
		X1.2.7	0.689	0.000	Valid
		X1.2.9	0.446	0.014	Valid
		X1.2.10	0.699	0.000	Valid
		X1.2.13	0.439	0.015	Valid
		X1.2.14	0.791	0.000	Valid
		X1.2.16	0.476	0.008	Valid
		X1.2.18	0.743	0.000	Valid
		X1.2.19	0.627	0.000	Valid
		X1.2.20	0.783	0.000	Valid
		X1.2.21	0.499	0.000	Valid
		X1.2.22	0.701	0.000	Valid
		X1.2.23	0.593	0.001	Valid
		X1.2.24	0.594	0.001	Valid
		X1.2.26	0.547	0.002	Valid
		X1.2.27	0.709	0.000	Valid
	Financial Knowledge	X1.3.3	0.800	0.000	Valid
		X1.3.4	0.545	0.002	Valid
		X1.3.7	0.674	0.000	Valid
		X1.3.8	0.619	0.000	Valid
		X1.3.9	0.674	0.000	Valid
		X1.3.11	0.578	0.001	Valid
Investment Decision		Y1	0.690	0.000	Valid
		Y2	0.887	0.000	Valid
		Y3	0.757	0.000	Valid

Based on the results of the second validity test in Table 2, it can be seen that all items in the questionnaire used in this study are valid. The correlation values of all indicators are above 0.3 with significance below 0.05.

The reliability test measures the Cronbach's Alpha values for each indicator. If the Cronbach's Alpha value is> 0.6, then the instrument is said to be reliable.

Table 3. Research Reliability Test Result

Variable	Indicator	Cronbach's Alpha
Financial Literacy	Financial Attitude	0.812
	Financial Behaviour	0.902
	Financial Knowledge	0.698
Investment Decision		0.650

The test results in Table 3 show that all indicators have Cronbach's Alpha values greater than 0.60, so that all indicators are said to be reliable, and the research instrument can be used.

Table 4. Outer Loading Test Result

Variable	Indicator	Outer Loading
Sociodemography	Profession	0.823
	Income	0.988
Financial Literacy	Financial Attitude	0.557
	Financial Behaviour	0.857
	Financial Knowledge	0.798
Investment Decision	Investment Motive	0.826
	Investment Product Offering	0.772
	Expected Rate of Return	0.833

The outer loading values in Table 4 meet the convergent validity criteria because all indicators have loading factor values above 0.50.

Table 5. Discriminant Validity Test Result

Variable	Average Variance Extracted (AVE)
Sociodemography	0.560
Financial Literacy	0.658
Investment Decision	0.827

The results of the discriminant validity test in Table 5 show that the three variables have AVE values above 0.50, and all variables have AVE root values higher than the correlation coefficient between variables. It can be concluded that the data in this study has good discriminant validity.

Table 6. Composite Reliability Test Result

Variable	Composite Reliability
Sociodemography	0,788
Financial Literacy	0,852
Investation Decision	0,904

Table 6 exhibits that all variables meet the composite reliability criteria because the value is above the recommended limit, which is above 0.70. Based on the results of the overall evaluation on convergent and discriminant validity, as well as composite reliability as described above, it can be concluded that all indicators as measurements of latent variables are valid and reliable.
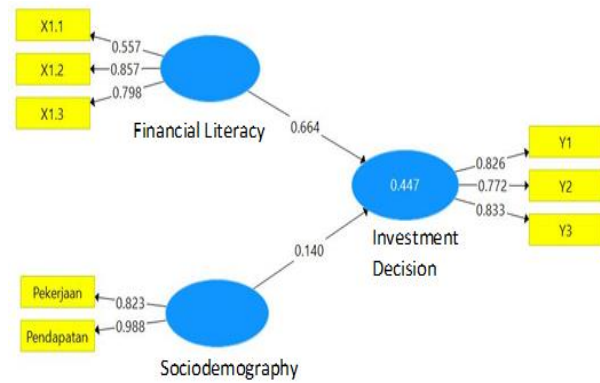

Fig. 3 PLS Output

From Figure 3, it can be seen that the covariance measurement of an indicator is influenced by latent construct, which reflects variations from unidimensional construct depicted as elliptical shapes with several arrows pointing towards the indicator. This model hypothesizes that changes in latent construct affect changes in indicators. In this model, there are two exogenous variables, namely Financial Literacy and Sociodemography, and one endogenous variable, namely Investment Decision-making Behavior.

The analysis of a PLS model starts with examining the R-Square values of the latent dependent variable. Changes in R-square value can be used to assess the substantive effect of the certain exogenous latent variable on the endogenous latent variable. Table 7 shows the results of the R-Square estimation using Smart PLS.

Table 7. R-Square Value of Investment Decisions

Variable	R-Square
Investment Decision	0.447

Table 7 shows the R-Square value of the investment decision-making variable is 0.447, which means that 44.7 percent of investment decision-making can be explained by Financial Literacy and Sociodemography, while the remaining 55.3 percent can be explained by other variables outside the model. The higher the R-Square value, the greater the ability of the exogenous variables in explaining

the endogenous variable and the better the structural equation.

The results of hypothesis testing with the Partial Least Square structural equation model are shown in Figure 4.
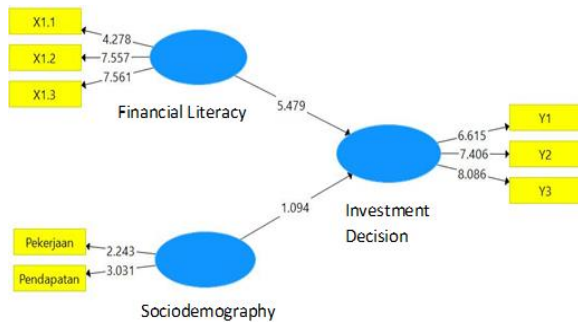

Fig. 4 Bootstrapped PLS Output

The significance of the estimated parameters provides very useful information about the relationship between research variables. The basis used in testing the hypotheses is the values stated in the output results for inner weight. Table 8 provides the estimated output for structural model testing.

Table 8. Result for Inner Weight

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	t Statistics (|O/STDEV|)	P Values
Financial Literacy -> Investment Decision-making	0.664	0.662	0.121	5.479	0.000
Sosiodemografi -> Investment Decision-making	0.140	0.169	0.128	1.094	0.275

Based on the results of the Partial Least Square structural equation, the analysis that can be derived from those results are as follows:

1) Hypothesis 1 states that Financial Literacy has a positive effect on Investment Decision-making Behavior. The result of the parameter coefficient test between Financial Literacy and Investment Decision-making Behavior showed a positive relationship with a coefficient value of 0.664 and t-statistics value of 5.479, which is significant at $\alpha = 0.05$, and the t-statistics value is above a critical value of 1.96. Thereby Hypothesis 1 (H1) is accepted or proven.

2) Hypothesis 2 states that Sociodemography has a positive effect on Investment Decision-making Behavior. The result of the parameter coefficient test between Sociodemography and Investment Decision-making Behavior showed a positive but insignificant relationship with a coefficient value of 0.140 and t-statistics value of 1.094; p-value 0.275 is insignificant at $\alpha = 0.05$ and t-statistics value is below the critical value of 1.96. Thereby Hypothesis 2 (H2) is rejected or not proven.

This study found that Financial Literacy has a positive effect on Investment Decision-making Behavior. The results of this study support the Financial Behavior Theory, which states that individuals with high Financial Literacy tend to have high Investment Decision-making Behavior as well. The increase in millennial's financial literacy in Denpasar City as measured by financial attitude, financial behavior, and financial knowledge can improve their stock investment decision-making behavior, specifically by (1) making investment decisions because of having investment motives; (2) making investment decisions because of the availability of numerous investment product offers; (3) making investment decisions because of desire to achieve a certain rate of return as expected.

Financial Knowledge, which represents a person's basic knowledge in finance, is the largest dimension of millennials' financial literacy in Denpasar City. A person's understanding of general personal finance, knowledge of investing and savings is an absolute necessity in making choices about where to allocate assets among financial instruments.

Financial Behavior, which reflects a person's attitude and behavior in managing finances, is a considerable dimension of millennials' financial literacy in Denpasar City. Sufficient knowledge, as well as good financial management, are required in order to achieve optimal results in investing. The formulation of long-term, medium-term, short-term financial goals, as well as the allocation of financial resources, are crucial in investing.

Financial Attitude, which reflects one's attitude towards finances, is the smallest dimension of millennials' financial literacy in Denpasar City. Someone with a decent level of financial attitude will possess a good mindset about money, such as perception about the future (obsession), refrain from using money to control others or as a solution to problems (power), ability to control the financial situation at hand (effort), capability to adjust the use of money to make ends meet (inadequacy), refrain from spending money (retention), and having a dynamic understanding about money or not old-fashioned (securities) so as to be able to control consumption, balance expenses with income (cash flow), set aside money for savings and investment, and manage outstanding debts.

The results of this study corroborate the results from studies conducted by Aren and Zengin (2016), Fachrudin and Fachrudin (2016), and Ullah (2015), which all found that financial literacy has a positive effect on investment decisions. The result of another study conducted by Lusardi and Mitchell (2007) found that an adequate level of financial literacy will encourage people to make investment plans starting from productive age.

The analysis in this study also reveals that sociodemography has no significant effect on investment decision-making behavior. This implies that the sociodemography of the millennial generation in Denpasar City, which is seen from their income and profession, does not affect their investment decision-making behavior.

The results of this study are in line with the research from Putri and Henny (2017), which found that income has no significant effect on investment decision-making behavior. A job in finance does not necessarily provide knowledge and information about investing. The results of this study contradict the results from research conducted by Al-Tamimi et al. (2009), which found that there is a significant difference in the level of financial literacy based on the profession that directly influences investment decision-making behavior.

VI. CONCLUSION AND RECOMMENDATIONS
Conclusion

Financial Literacy has a positive and significant effect on investment decision-making behavior. This result implies that the increase in Financial Literacy, which consists of financial attitude, financial behavior, and financial knowledge, leads to the increase in Investment Decision-making Behavior among millennials in Denpasar City.

Sociodemography, as measured by income and profession, does not significantly influence investment decision-making behavior. This result means that sociodemography which consists of income and profession, does not determine stock investment decision-making among millennials in Denpasar City

RECOMMENDATION

This study has a limitation. This study only includes two variables as determinants of Investment Decision-making Behavior. Recommendation for further researches includes adding other variables as determinants of Investment Decision-making Behavior. Planned Behavior Theory can be a basis for determining such variables.

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