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Financial Literacy, Risk Perception, and Investment Preferences: A Study on Millennials in Jakarta

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Abstract. The investment trend in Indonesia has increased with the presence of investors categorized as the millennial generation. The determination of investment instruments selected is influenced by the level of financial literacy and risk perception of the investors. This study aims to analyze how financial literacy and risk perception affect investment preferences amongst the millennials. Using the millennials in the five municipalities of Jakarta as a case in point, this study contributes to providing analytical data and an overview of the level of financial literacy and risk perception as well as the investment preferences of the millennial generation. The findings of this study serve as material for investors to consider in making investments and offer information or insights to existing and new investors. Financial literacy is comprised of financial knowledge, financial behavior, and financial attitude as stated by Rooij, Lusardi, and Alessie. Risk perception is measured by risk propensity and risk aversion. Investment preferences in this study are regarded as investment instruments prioritized and preferred by the millennials, namely stocks, mutual funds, bonds, gold, deposits, foreign currencies, property, and peer-to-peer lending. This study employed a quantitative approach and collected data through questionnaires. The data obtained from a total of 148 respondents were processed using descriptive statistical analysis by SPSS. The findings of this study indicate that the millennials in the five municipalities of Jakarta have a high level of financial literacy and risk perception. The most preferred investment instrument is stock investment. The majority of the millennial generation in Jakarta owns mutual funds, gold, and equities, and most began investing when they were 20 years old. The 20- to 29-year-old age group in the five municipalities of Jakarta choose to invest in equities, while the 30- to 39-year-old age group in gold.

Keywords: Financial Literacy, Risk Perception, Investment Preferences, the Millennial Generation.

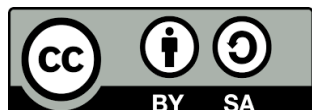
INTRODUCTION

Investment refers to placing funds with an expectation that it will generate positive income or return or increase in value over a period of time (Gitman et al. 2015, Faure 2013, Chen 2020). Investment activities are not limited to business organizations, but also to individuals. Regardless of the different forms of investors, the purpose of investment remains the same, namely to have potential financial security in the future based on the sacrificed present assets. The expected return on investment is calculated as a function of the level of investment risk (Reilly & Brown, 2012). As a function, higher expected return indicates higher level of risk, and vice versa. Risks and returns, in other words, are positively correlated.

Notwithstanding the traditional approach to investments, Lusardi and Oggero (2017) discover that the preference for investment instruments is influenced by the financial literacy and risk perception of the investors. According to Cox and Rich (1964), risk

perception is a function of the consequences and the uncertainty of gain or loss from a transaction. Investments as individual choices, apart from being influenced by risk perception, are also influenced by the level of financial literacy that individuals have. Financial literacy is defined by Remund (2010) and Huston (2010) as a benchmark of the extent to which an individual understands the main concepts of finance and has the ability and confidence to manage personal finances by making the right short-term decisions and long-term financial plans, while remain paying attention to changes in economic conditions.

The relationship of financial literacy and risk perception to investment preferences has also been investigated by previous scholars, whereby a positive relationship is revealed. This study primarily refers to Aren and Zengin (2016) who discover that the level of financial literacy and risk perception simultaneously affects individual investment preferences in Istanbul. While Istanbul investors with low financial literacy choose bank time deposits and foreign currencies as



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their preferred investment instruments, those with high financial literacy choose portfolios and equities. Risk-avoidance investors tend to choose bank time deposits for their investment, while risk-lover investors tend to invest in foreign currencies, portfolios, and equities. A consistent finding is obtained by Ademola, Musa, and Innocent (2019) that Nigerian future investment decisions will be influenced by the level of risk perception or tolerance as well as the financial literacy and education of the investors. Saputro and Lestari (2019) also disclose that students in Jakarta make investment selections based on their financial literacy, in which it is considered simpler for students to make investing decisions supposing they have a high level of financial literacy. The risk perception of those students is impacted. Students who regard investments as relatively secure are encouraged to invest, whereas those who perceive investments as dangerous are more likely to take their time to make selections. Thus, it can be concluded that financial literacy has a favorable and considerable impact on risk tolerance but a negligible influence on risk perception. Meanwhile, Li, Li, and Wei (2020) find a different result where financial literacy has no bearing on the decision of investors to invest with a particular rate of return. Conclusively, investors with low level of financial literacy favor relatively safe investment instruments, whereas investors with high financial literacy favor high-return investments.

The millennial generation is chosen for this study due to their large demographic share in Indonesia with a total of 33.75% (Statistics Indonesia, 2018). According to the National Socio-Economic Survey of Statistics Indonesia, 55.01% of the entire millennial generation in Indonesia live in urban areas instead of rural areas, thus the capital city of Indonesia, DKI Jakarta, is chosen as the locus of the study. The total population of DKI Jakarta in 2019 reaches 10,557,810 people with the millennials amounting to 3,692,122 people (34.97%). This study focuses on the five municipalities, namely South Jakarta, East Jakarta, West Jakarta, North Jakarta, and Central Jakarta, excluding Thousand Islands due to its relatively small population and the limitations for the authors to reach them.

According to a survey by Financial Services Authority in 2019, Indonesia has a financial literacy rate of 38.03%, which is considered low. The millennials, on the other hand, have an increasingly high interest in investment. Therefore, this study will discuss and analyze the level of financial literacy, risk perception, and investment preferences of the millennials in the five municipalities of Jakarta. The investment instruments employed are stocks, mutual funds, bonds, gold, property, deposits, foreign currencies, and peer-to-peer lending.

There are several constructs related to financial literacy, which include a spectrum of knowledge, behavior, and decision making. Lusardi and Mitchell (2007) first link financial literacy and retirement planning with a demographic profile as a latent variable,

then moving into young adults (Lusardi, Mitchell & Curto, 2010) to further develop the indicators into cognitive numerical skills. Considered as one of the pioneers in financial literacy, Lusardi introduces his approach to financial knowledge through the work of Rooij, Lusardi, and Alessie (2011). Financial knowledge is divided into basic and advanced financial literacy.

Basic Financial Literacy aims to determine the basic knowledge (or skills) of financial literacy with regards to topics on:

a) Numeracy, which in this part is beneficial for assessing the capacity to perform basic calculations. b) Interest compounding, which is excellent for gauging the comprehension of how compound interest operates in this section. c) Inflation, which is helpful in this part for estimating the understanding of its impact. d) Time value of money, which is valuable in this area for evaluating comprehension or expertise regarding time compression. e) Money illusion, which in this section is useful for measuring understanding or knowledge about time reduction.

These five elements are regarded as the fundamental understanding of everyday financial decisions, financial planning, and transactions.

Advanced Financial Literacy aims to measure a more sophisticated financial knowledge (or skills) marked by higher level questions related to the topics of differences between stocks, bonds, or other investment instruments, the function of the stock market, how risk diversification works, and the relationship between bonds and interest rates. Therefore, individual financial literacy is seen to be strongly influenced by financial knowledge (OECD, 2016). It is expected to be able to assist people in making the best financial decisions by comparing financial products and services, enabling them to handle their financial issues on their own and improve their financial well-being.

In addition to financial knowledge, two other dimensions form financial literacy, namely financial attitude and financial behavior. Alvarez and Gonzalez (2017) define financial attitude as individual characteristics that represent their tendency towards their financial practices. In other words, the inclination of an individual to use their money and assets is captured by their emotional capacity regarding their personal problems (Marsh 2006). According to OECD (2016), having a positive financial attitude is crucial for making wise financial decisions at an individual level and achieving financial well-being. In this context, financial attitude is assessed by examining how each individual views their finances and future plans. In this study, the indicators for financial attitude are categorized into short- or long-term view on the subject.

Financial behavior, as specified by Tezel (2015), is the ability to understand the overall impact of financial decisions on the circumstances of an individual and make the right decisions related to cash management as well as preventive actions and opportunities for budget planning. Likewise, the definition conveyed by Marsh (2006) refers to how an individual

behaves in the face of personal financial problems as measured by responses to the statements of action or activity. Financial behavior is defined by Alvarez and Gonzalez (2017) as an actual financial decision making, practice, and decision. OECD (2016) evaluates how people manage their money and how it affects their short- and long-term financial situation and well-being as well as concentrates on these financial habits, such as setting a budget, considering before making a purchase, paying bills promptly, and saving and borrowing to cover expenses.

Financial knowledge is measured in “true” or “false” category, while attitude and behavior are measured using a 6-point Likert scale.

The second variable used in this study is risk perception. Cox and Rich (1964) construct risk perception as a function of consequences or risks and the uncertainty of gain or loss from a transaction. Stikin and Weingart (1995) define risk perception as a measure of the degree of situational ambiguity, the ability to regulate uncertainty, and the level of confidence in estimating. Risk perception is assessed as an indispensable component in the financial decision-making process and other risk-taking behavior (Garling et al., 2009). Rohrmann (2005) divides risk into two, namely risk propensity and risk aversion. Risk propensity is the attitude of individuals who tend to take risks, while risk aversion is the attitude of individuals who tend to avoid risk. In this study, a high level of risk perception is described by risk propensity while a low level of risk perception is represented by risk aversion. Risk perception is measured based on the ability of an individual to plan, foresee, and mitigate good or bad results, to be intuitive, and to take necessary risks. Similar to financial attitude and behavior, risk perception applies a 6-point Likert scale.

The dependent variable in this study is investment preferences. Gitman, et al. (2015) identify investment as a placement of funds in the hope that it will generate positive income or return or increase in value. As previously mentioned, the preference of individual for investment instruments is influenced by their risk perception. Along with the perception, issues arise regarding the knowledge of investors about the investment instruments. There are various types of investment instruments with their respective risks. This study used instruments that are considered appropriate for the millennials in Indonesia, namely stocks, mutual funds, bonds, gold, bank deposits, property, foreign currencies, and peer-to-peer lending.

RESEARCH METHOD

The methodology employed in this study is a quantitative approach, which is defined by Creswell (2009) as a methodology that begins from a theory to become a research framework that will then be tested with a deductive methodology. The survey was conducted by distributing online questionnaires to those aged 20-40 years living in the five municipalities of Jakarta. The purposive sampling technique was applied based on

age and place of domicile. The respondents amounted to 148 people and collected through various social media digital platforms, namely Instagram, Line, WhatsApp, Facebook, and Telegram. Of the 148 respondents, 120 people (81.08%) are investors or have invested.

Financial literacy is measured by the mean values of three dimensions, namely financial knowledge (FK), financial attitude (FA), and financial behavior (FB). The measurement of financial knowledge uses a nominal scale. Meanwhile, the measurement of financial attitude, financial behavior, and risk perception uses an interval scale with a Likert scale of 1-6.

There are 13 indicators for financial knowledge which include basic and advanced knowledge, as shown in Table 1 (Rooij et al., 2012).

Table 1. Indicators for Financial Knowledge

Indicator	Questions
FK1	Suppose you have IDR 100,000 in a savings account and the interest rate is 2% per year. After five years, how much do you think you will have in the account if you left the money to grow? (i) More than IDR 102,000; (ii) Exactly IDR 102,000; (iii) Less than IDR 102,000; (iv) Do not know; (v) Refusal.
FK2	Suppose you have IDR 100,000 in a savings account and the interest rate is 20% per year and you never withdraw money or interest payments. After five years, how much will you have in this account in total? (i) More than IDR 200,000; (ii) Exactly IDR 200,000; (iii) Less than IDR 200,000; (iv) Do not know; (v) Refusal.
FK3	Imagine that the interest rate on your savings account is 1% per year and inflation is 2% per year. After one year, how much will you be able to buy with the money in this account? (i) More than today; (ii) Exactly the same; (iii) Less than today; (iv) Do not know; (v) Refusal.
FK4	Suppose that in 2025, your income has doubled and the prices of all goods have also doubled. In 2025, how much will you be able to buy with your income? (i) More than today; (ii) The same; (iii) Less than today; (iv) Do not know; (v) Refusal.
FK5	What happens suppose somebody buys the stock of firm B in the stock market? (i) He owns part of firm B; (ii) He has lent money to firm B; (iii) He is liable for the debt of firm B; (iv) None of the above; (v) Do not know; (vi) Refusal.
FK6	Which statement about mutual funds is correct? (i) Once one invests in mutual funds, one cannot withdraw the money in the first year; (ii) Mutual funds can invest in several assets, for example, in both stocks and bonds; (iii) Mutual funds pay a guaranteed rate of return which depends on their past performance; (iv) None of the above; (v) Do not know; (vi) Refusal.
FK7	What happens if somebody buys a bond of firm B? (i) He owns part of firm B; (ii) He has lent money to firm B; (iii) He is liable for the debts of firm B; (iv) None of the above; (v) Do not know; (vi) Refusal.
FK8	Considering a long time period (e.g. 10 or 20 years), which asset normally provides the highest return? (i) Savings accounts; (ii) Bonds; (iii) Stocks; (iv) Do not know; (v) Refusal.
FK9	Normally, which asset displays the highest fluctuations over time? (i) Savings accounts; (ii) Bonds; (iii) Stocks; (iv) Do not know; (v) Refusal.
FK10	When an investor spreads his money among different assets, does the risk of losing money? (i) Increase; (ii) Decrease; (iii) Stay the same; (iv) Do not know; (v) Refusal.
FK11	If you buy a 10-year bond, it means you cannot sell it after five years without incurring a major penalty, (i) True; (ii) False; (iii) Do not know; (iv) Refusal.
FK12	Stocks are normally riskier than bonds, (i) True; (ii) False; (iii) Do not know; (iv) Refusal.
FK13	Buying a company fund usually provides a safer return than a stock mutual fund, (i) True; (ii) False; (iii) Do not know; (iv) Refusal.

To each question, a binary value is applied, 1 = if the answer is correct and 0 = if the answer is incorrect. It brings the category into “Low” (a mean value of 0 to 0.5) and “High” (a mean value of 0.6 to 1). Financial attitude consists of two indicators, as presented in Table 2 (Atkinson & Messy, 2012).

Financial Behavior covers seven indicators, as displayed in Table 3 (Atkinson & Messy, 2012).

Table 2. Indicators for Financial Attitude

Indicator	Questions
FA1	I tend to live for today and let tomorrow take care of itself.
FA2	I find it more satisfying to spend than save money for the long term.

Table 3. Indicators for Financial Behavior

Indicator	Questions
FB1	I keep track of my individual costs.
FB2	I have been actively saving or buying investments in the past year.
FB3	I carefully consider purchases.
FB4	I pay bills on time.
FB5	I keep a close watch on personal financial affairs.
FB6	I set long term goals and strive to achieve them.
FB7	When making a purchase, I always do a pricing comparison.

Both FA and FB use a 6-point Likert scale of Strongly Disagree = 1, Disagree = 2, Somewhat Disagree = 3, Somewhat Agree = 4, Agree = 5, and Strongly Agree = 6. The “Low” and “High” categories are designed for the mean values of 1 to 3.50 and the mean values of 3.51 to 6, respectively.

Risk Perception consists of nine indicators, as shown in Table 4.

Table 4. Indicators for Risk Perception

Indicator	Questions
RP1	I take great care when developing plans and executing them.
RP2	I follow the motto 'do not dare start, there is nothing to gain.'
RP3	I do not fully understand/sympathize with such a brave decision.
RP4	Even if I am unsure of my ability to complete a task, I will opt to attempt it if it appears intriguing.
RP5	Even though I am aware of how limited my opportunities are, I still try my luck.
RP6	Even when most individuals hold contrary ideas, I voice my perspective.
RP7	Even if there is a chance of making mistakes, I once want to contribute to the work of my superior to demonstrate my competence.
RP8	I tend to imagine the negative outcomes of my actions.
RP9	Success encourages me to take higher risks.

Descriptive Statistical Analysis

This analysis is carried out by examining the data in the form of mean value, minimum, maximum, mode, and standard deviation of each variable studied. This analysis aims to determine the level of financial literacy and risk perception as well as to discover the main investment options for the millennial generation in the five municipalities of Jakarta. The investment options use an ordinal scale.

Investment Preferences

This variable applies an ordinal scale, in which the respondents are requested to fill in the type of investment instruments they will or have invested in. Stocks, mutual funds, bonds, gold, real estate, deposits, foreign currencies, and peer-to-peer lending are merely a few of the several types of financial instruments available (Van Horne & Wachowicz, 2009). These eight types of financial instruments are divided into three risk categories: high, medium, and low.

Stocks convey ownership in a corporation. This financial product has a high degree of fluctuation, which increases its risk. Foreign currencies involve purchasing and selling different currencies. The risk

associated with this investment is significant. Stocks and foreign currencies are regarded as posing a high level of risk.

Mutual funds are collected by pooling small sums of money from various investors and investing them in high-denomination money market instruments. Investors can select to invest in equities or bonds. The risk associated with this instrument is modest. Bonds are long-term debt obligations issued by governments or corporations. The risk involved with this financial product is also modest. Mutual funds and bonds are both financial products with a moderate level of risk.

A real asset investment concentrating on gold and property such as land or buildings are considered to have quite a low risk. Deposits are established through commercial banks using savings that are not allowed to be taken until a certain maturity. The risk involved in this investment is minimal. Peer-to-peer lending is a form of investment in which people lend each other money in exchange for a fixed interest rate. This type of investment also has a minimal rate of risk.

Validity and Reliability Test

Referring to Hair et al. (2010), validity indicates the degree to which a measure accurately depicts what it should be, while reliability depicts the extent to which the observed variable measures its true value and is error-free. Neuman (2014), on the other hand, defines validity as a term frequently employed to denote right or wrong as well as the level to which an indicator measures the conceptual definition that it asserts to measure. Meanwhile, reliability is described as the ability of an indicator to provide numerical data unaffected by the parameters of the measurement process or instrument, where dependability or consistency of the measure of a variable occurs (Neuman, 2014). To determine validity, this study employed r table at 5% using the SPSS program and Pearson analysis. The measuring indicators are valid supposing the value obtained from the Pearson analysis is higher than the value in the r table, and vice versa. Furthermore, reliability is tested using Cronbach alpha. The measuring indicators are reliable supposing the score is less than 0.6.

RESULT AND DISCUSSION

The information was gleaned via the questionnaires distributed to 148 respondents. Observed from the characteristics of respondents by gender, women (56.1%) predominate the data compared to men (43.9%). According to the age category, the respondents are dominated by those in the age group of 20 to 24 years (31.1%). People aged 25 and 29 years old come in second, accounting for 26.4% of the total respondents. Then, the age ranges of 30 to 34 years and 35 to 40 years have a 22.3% and a 20.3% population, respectively.

In terms of reported places of residence, 33.8% of respondents live in East Jakarta, 13.5% in West Jakarta, 21.6% in South Jakarta, 16.2% in North

Table 6. Mean Values of Financial Knowledge

No	Indicator	Min	Max	Mode	Mean	Standard Deviation	Category
1	FK1: Suppose you have IDR 100,000 in a savings account and the interest rate is 2% per year. After five years, how much do you think you will have in the account if you left the money to grow?	0	1	1	0.6757	0.47	High
2	FK2: Suppose you have IDR 100,000 in a savings account and the interest rate is 20% per year and you never withdraw money or interest payments. After five years, how much will you have on this account in total?	0	1	0	0.4527	0.50	Low
3	FK3: Imagine that the interest rate on your savings account is 1% per year and inflation is 2% per year. After one year, how much will you be able to buy with the money in this account?	0	1	1	0.5135	0.50	High
4	FK4: Suppose that in 2025, your income has doubled and the prices of all goods have also doubled. In 2025, how much will you be able to buy with your income?	0	1	1	0.7365	0.44	High
5	FK5: What happens suppose somebody buys the stock of firm B in the stock market?	0	1	1	0.8581	0.35	High
6	FK6: Which statement about mutual funds is correct?	0	1	1	0.5405	0.50	High
7	FK7: What happens if somebody buys a bond of firm B?	0	1	1	0.5338	0.50	High
8	FK8: Considering a long time period (e.g. 10 or 20 years), which asset normally provides the highest return?	0	1	1	0.5608	0.50	High
9	FK9: Normally, which asset displays the highest fluctuations over time?	0	1	1	0.7162	0.45	High
10	FK10: When an investor spreads his money among different assets, does the risk of losing money?	0	1	1	0.6757	0.47	High
11	FK11: If you buy a 10-year bond, it means you cannot sell it after five years without incurring a major penalty.	0	1	0	0.2230	0.42	Low
12	FK12: Stocks are normally riskier than bonds.	0	1	1	0.6757	0.47	High
13	FK13: Buying a company fund usually provides a safer return than a stock mutual fund.	0	1	1	0.5270	0.50	High
Subtotal Mean of the Financial Knowledge Dimension					0.5915		High

Table 7. Mean Values of Financial Knowledge

No	Indicator	Min	Max	Mode	Mean	Standard Deviation	Category
1	FA1: I tend to live for today and let tomorrow take care of itself.	1	6	2	2.4595	1.37	High
2	FA2: I find it more satisfying to spend than save money for the long term.	1	6	1	2.1554	1.29	High
Subtotal Mean of Financial Attitude Dimension					2.3075		High

Referring to Table 7, the millennial generation in the five municipalities of Jakarta has a high or good degree of financial attitude, with a mean value of 2.3075. It suggests a tendency to live for the future and a preference for long-term financial planning.

Table 8 discloses that the millennial generation in the five municipalities of Jakarta has a high or good level of financial behavior with an overall mean value of 4.8687. They always shop around and compare prices prior to making a purchase. They pay their bills on time and have actively been investing or saving during the previous year. They maintain a close eye on their personal finances, set long-term objectives, work hard to accomplish those objectives, and monitor their expenses.

Table 8. Mean Values of Financial Behavior

No	Indicator	Min	Max	Mode	Mean	Standard Deviation	Category
1	FB1: I keep track of my individual costs.	1	6	4	3.9257	1.49	High
2	FB2: I have been actively saving or buying investments in the past year.	1	6	6	4.9662	1.51	High
3	FB3: I carefully consider purchases.	1	6	6	5.1689	0.89	High
4	FB4: I pay bills on time.	1	6	6	5.1284	1.06	High
5	FB5: I keep a close watch on personal financial affairs.	1	6	6	4.8784	1.11	High
6	FB6: I set long term goals and strive to achieve them.	1	6	6	4.7500	1.18	High
7	FB7: When making a purchase, I always do a pricing comparison.	1	6	6	5.2635	1.01	High
Subtotal Mean of the Financial Behavior Dimension					4.8687		High

Thus, it is evident that the millennials in five municipalities of Jakarta have a high level of financial literacy as the three dimensions of financial literacy fall into a high category (Table 9).

Table 9 Mean Values of Financial Literacy

Dimension	Mean	Category
Financial Behavior	4.8687	High
Financial Attitude	2.3075	High
Financial Knowledge	0.5915	High
Financial Literacy Variable	2.5892	High

The results of the next variable, namely risk perception, are presented in Table 10. Based on the table, the variable obtains a high level, implying that the millennials tend to take risks. The analysis explores how fear, regret, and optimism affect cognitive assessment. The level of risk perception is assessed from the responses provided by 148 respondents to questions about planning carefully, taking chances, imagining unfavorable outcomes, feeling successful and wanting to take big risks, adhering to the adage "nothing is sacrificed, nothing is gained," and engaging in interesting activities despite uncertainty about how to carry them out.

The first and eighth indicators, which measure

Table 10. Mean Values of Risk Perception

No	Indicator	Min	Max	Mode	Mean	Standard Deviation	Category
1	RP1: I take great care when developing plans and executing them.	1	6	5	4.9797	0.88	Risk Aversion
2	RP2: I follow the motto 'do not dare start, there is nothing to gain.'	1	6	4	4.5676	1.14	Risk Propensity
3	RP3: I do not fully understand/sympathize with such a brave decision.	1	6	3	3.3851	1.32	Risk Propensity
4	RP4: Even if I am unsure of my ability to complete a task, I will opt to attempt it if it appears intriguing.	1	6	4	4.0541	1.36	Risk Propensity
5	RP5: Even though I am aware of how limited my opportunities are, I still try my luck.	1	6	4	4.2095	1.14	Risk Propensity
6	RP6: Even when most individuals hold contrary ideas, I voice my perspective.	1	6	5	4.4527	1.09	Risk Propensity
7	RP7: Even if there is a chance of making mistakes, I once want to contribute to the work of my superior to demonstrate my competence.	1	6	5	4.4932	1.10	Risk Propensity
8	RP8: I tend to imagine the negative outcomes of my actions.	1	6	5	4.2568	1.37	Risk Aversion
9	RP9: Success encourages me to take higher risks.	1	6	4	4.6014	1.09	Risk Propensity
Subtotal Mean of the Risk Perception Variable					4.3333		Risk Propensity

caution in forming plans and a propensity to anticipate bad outcomes, have the mean values of 4.9797 and 4.2568, respectively, which fall into the low or risk aversion category. The mean value between 3.51 and 6 means the low category (RP1, RP3 and RP8). On the other hand, based on their mean value, the remaining seven indicators fall into the high group or have a propensity to take risks. The mean value ranging from 3.51 to 6 indicates the high category.

Table 11. Investment Preferences

Investment Instrument	Value
Stocks	27.5%
Mutual Funds	16.3%
Bonds	1.3%
Gold	24.8%
Property	15.7%
Foreign Currencies	0.7%
Deposits	9.8%
Peer to Peer Lending	0.7%

Table 11 shows that shares (stocks), prioritized by 42 respondents (27.5%), are the preferred form of investment. Gold occupies the second place with a total of 38 respondents (24.8%), followed by mutual funds with 25 respondents (16.3%), property with 24 respondents (15.7%), and deposits with 15 respondents (9.8%). The least prioritized investment instruments are bonds with only 2 respondents (1.3%) as well as foreign currencies and peer-to-peer lending with 1 respondent each (0.7%). It is consistent with Aren and Zengin (2016), claiming that individuals with a high degree of financial literacy and risk perception tend to choose portfolio and equity investment.

Precisely 120 out of the total 148 respondents are investors or have invested. Table 12 shows consistent preferences with the overall group. The 120 millennial respondents from the five municipalities of Jakarta started investing at various ages.

Table 12. Owned Investment Instruments

Investment Instrument	Number of People
Stocks	49
Gold	70
Property	20
Mutual Funds	47
Bonds	7
Deposits	34
Foreign Currencies	6
A Business	2
Peer-to-Peer Lending	5

Table 13 reveals that the investment activities began as early as 20 to 24 years old despite the level of financial knowledge that they have at this age. Interestingly, their risk preference is the highest amongst the rest of the age groups. The preference for investing in a risky instrument, i.e. stocks, can be attributed to the inclination towards risk. The absence of personal financial responsibilities and the lack of need for future financial planning have motivated the respondents in this group to prioritize risk over financial literacy.

Table 13. Comparison by Age Classification

Age	FB	FA	FK	RP	Investment Preferences
20-24	4.7112	2.3044	0.5719	4.4565	Stocks
25-29	5.0403	1.9615	0.6351	4.2222	Stocks
30-34	4.9697	2.3485	0.5968	4.3064	Gold
35-40	4.7761	2.7167	0.5590	4.1852	Gold

The 120 millennial respondents from five municipalities of Jakarta started making investments at various ages. Observed from Table 14, they began investing when they were between 15 and 31 years old. However, a total of 31 respondents began investing when they were 20 years old. It is consistent with Aren and Zengin (2016) that claim that younger people are more likely to take risks than older people. Another reference is Jianakoplos and Bernasek (2006) that state that age and financial risk-taking are correlated; risk taking peaks at 22.5 years and declines with age.

The millennials in Jakarta with an age range of 20 to 24 years from a total of 148 respondents amounts to 46 individuals. Tables 15 and 16 provide the analysis of financial behavior (FB), financial attitude (FA) towards money, financial knowledge (FK) of money, risk perception (RP), investment preferences, investments already owned, and age to start investing of this specific age range.

Referring to Table 15, the mean values of financial behavior (4.7112), financial attitude (2.3044), and financial knowledge (0.5719) show a high or favorable degree, indicating a high level of financial

Table 14. Age to Start Investing

No	Age to start investing (years old)	Total (Person)
1	15	3
2	17	2
3	18	5
4	19	9
5	20	31
6	21	8
7	22	19
8	23	9
9	24	11
10	25	13
11	26	2
12	27	4
13	28	3
14	30	1
15	31	1
Total		120

Table 15. Millennial Generation Statistics in Jakarta, 20-24 Years Old

Statistic	FB	FA	FK	RP
Min	1	1	0	1
Max	6	6	1	6
Mode	6	1	1	5
Mean	4.7112	2.3044	0.5719	4.4565
Std. Dev	1.1462	1.3297	0.4738	1.1137
Category	High	High	High	High

literacy. In addition, the mean value of risk perception obtained (4.4565) denotes a tendency for taking risks. These results suggest that the millennial generation in Jakarta aged 20 to 24 years old will be more adept at making investment decisions the higher their level of financial literacy. It is in line with Aren and Zengin (2016) that emphasize the necessity of having the understanding of finances to prevent making poor investment decisions. It also suggests that in terms of future outcomes, the 20- to 24-year-old millennial generation with good risk assessment is likely to make more investment decisions.

Table 16 lists the owned investments and investment preferences available to 20- to 24- year-old millennials in Jakarta. It is evident that the millennials of this age range prefer investing in stocks. It is consistent with Aren and Zengin (2016) that investors with a high tendency to take risks choose foreign currencies, equities, and portfolios, while risk-averse investors prefer deposits. However, the majority of

Table 16. Investment Preferences and Owned Investments of the 20- to 24-year-old Millennial Generation in Jakarta

Investment Preferences	Owned Investments	Age to Start Investing
Stocks	Gold (17 person)	20 years old
	Mutual Funds (15 person)	(7 people)
	Stocks (11 person)	22 years old
		(7 people)
		Various Ages

the millennials of this age group invest in gold (17 people), followed by mutual funds and stocks by 15 and 11 people, respectively. Most started investing at 20 and 22 years old (seven people each).

The millennial generation in Jakarta included in the age group of 25 to 29 years amounts to 39 individuals from a total of 148 respondents. The analysis of financial behavior (FB), financial attitude (FA) towards money, financial knowledge (FK) of money, risk perception (RP), investment preferences, investments already owned, and age to start investing of this age range is presented at Tables 17 and 18.

Observed from Table 17, the mean values of financial behavior (5.0403) as well as financial attitude (1.9615) and financial knowledge (0.6351) show a high or positive level, indicating a high level of financial literacy. In addition, the mean value of risk perception obtained (4.4565) indicates a propensity to take risks.

Table 18 lists the owned investments and investment preferences available to 25- to 29-year-old millennials in Jakarta. It is obvious that they prefer investing in stocks. However, the majority of the group invests in gold (18 people), followed by mutual funds and stocks with a total of 15 and 13 people,

Table 17. Millennial Generation Statistics in Jakarta, 25-29 Years Old

Statistic	FB	FA	FK	RP
Min	1	1	0	1
Max	6	6	1	6
Mode	6	1	1	4
Mean	5.0403	1.9615	0.6351	4.2222
Std. Dev	1.0589	1.1388	0.4528	1.1513
Category	High	High	High	High

Table 18. Investment Preferences and Owned Investments of the 25- to 29-year-old Millennial Generation in Jakarta

Investing Preferences	Owned Investments	Age to Start Investing
Stocks	Gold (18 person)	20 years old
	Mutual Funds (15 person)	(11 person)
	Stocks (13 person)	Various Ages

Table 19. Millennial Generation Statistics in Jakarta, 30-34 Years Old

Statistic	FB	FA	FK	RP
Min	1	1	0	1
Max	6	6	1	6
Mode	5	1	1	5
Mean	4.9697	2.3485	0.5968	4.3064
Std. Dev	1.0117	1.1855	0.4656	1.1082
Category	High	High	High	High

respectively. Most began investing at the age of 20 years, represented by a total of eleven individuals. It is consistent with Aren and Zengin (2016) that claim that younger people are more likely to take risks than older people.

The majority of the millennials aged 25-29 years old are likely to already have fixed income of less than or equal to IDR 10,000,000 with short-term goals such as down payment on a house and private vehicles as well as a long-term goal of building a pension fund. They are considered to still have a protracted period of investment, thus it is deemed suitable to take high-risk investments, which are stocks in the results of this study

Furthermore, from a total of 148 respondents, 33 individuals of the millennials in Jakarta aged 30 to 34 years old. Tables 19 and 20 provide the analysis of financial behavior (FB), financial attitude (FA) towards money, financial knowledge (FK) of money, risk perception (RP), investment preferences, investments already owned, and age to start investing of this age group.

Referring to Table 19, the millennials in Jakarta between the ages of 30 and 34 years old have good financial literacy, as concluded from the mean values of financial behavior (4.9697), financial attitude (2.3485), and financial knowledge (0.5968), which are considered high or good scores. Risk perception obtains a mean score of 4.3064, indicating that people perceive risk favorably.

The following table lists the owned investments and investment preferences available to 30- to 34-year-old millennials in Jakarta. It is clear that the millennials in this age group prefer investing in gold. A total of 15 people invest in gold, followed by stocks and deposits with a total of 13 and 12 people. The bulk of the group, comprising seven individuals, started investing at the age of 25 years.

Meanwhile, the millennial generation in Jakarta with an age range of 35 to 40 years amounts to 30 individuals from a total of 148 respondents. The analysis of financial behavior (FB), financial attitude (FA) towards money, financial knowledge (FK) of money, risk perception (RP), investment preferences, investments already owned, and age to start investing of this age group is presented in Tables 21 and 22.

Table 20. Investment Preference and Owned Investments of the 30- to 34-year-old Millennial Generation in Jakarta

Investment Preferences	Owned Investments	Age to Start Investing
Gold	Gold (15 person)	25 years old
	Stocks (13 person)	(7 people)
	Deposits (12 person)	Various Ages

Table 21. Millennial Generation Statistics in Jakarta, 35-40 Years Old

Statistic	FB	FA	FK	RP
Min	1	1	0	1
Max	6	6	1	6
Mode	6	2	0	5
Mean	4.7761	2.7167	0.5590	4.1852
Std. Dev	1.2449	1.5344	0.4772	1.3061
Category	High	High	High	High

Table 22. Investment Preferences and Owned Investments of the 35- to 40-year-old Millennial Generation in Jakarta

Investment Preferences	Owned Investments	Age to Start Investing
Gold	Gold (20 person)	20 years old
	Stocks (12 person)	(8 person)
	Deposits (9 person)	Various Ages

Overall, the financial literacy of the millennial generation in Jakarta aged 35 to 40 years old falls into the good category. It is corroborated by the mean values obtained for financial behavior, financial attitude, and financial knowledge, which are 4.7761, 2.7167, and 0.5590, respectively. All signify a high or good level. Furthermore, risk perception with a mean value of 4.1852 indicates that people regard risk favorably.

Table 22 lists the owned investments and investment preferences available to 35- to 40-year-old millennials in Jakarta. It is obvious that the millennials in this age range prefer investing in gold. A total of 20 people invest in gold, followed by 12 and 9 people investing in stocks and deposits, respectively. The majority of the group, consisting of eight individuals, began investing at the age of 20 years.

The millennial generations aged 30-40 years are likely to have a family, children, and a higher level of income than expenses. In this study, the majority earns income of more than IDR 15,000,000 with the short-term goals of family needs, school fees of children, and others and the long-term goal of retirement needs. Even though this age range also still has a lengthy period, taking other short-term needs into consideration, it is suitable to lower the level of risk taken in investment preferences. It is in line with the

results of this study that those aged 30-40 years old choose to invest in gold.

Discussion

This study discovered a significant favorable influence on individual investment choices. It can be demonstrated that the millennial generation with a high level of financial literacy tend to find it simpler to make investing decisions. Making investment decisions involves concluding consequent to considering a variety of options between two or more types of investment. To reach their desired goals, the millennials who wish to invest are expected to be able to understand the advantages and disadvantages of each investment product. It suggests that the risk perception of an individual can influence information regarding risk and the adjusted rate of return on investment.

The way people view risk and their level of financial literacy influence how they choose to invest. Investors who are more prone to taking chances favor stocks, portfolios, equities, and foreign currencies, whereas risk-averse investors typically have deposits. The findings of the study show that the millennials in the five municipalities of Jakarta have a high level of financial literacy and risk perception as well as main investment preferences in stocks. There is a strong correlation between investment preferences and financial literacy. Supposing investors have a poor level of financial literacy, they favor deposits and foreign currencies, taking into account both the simple and advanced levels of financial literacy. However, when financial literacy increases, investors are more likely to build portfolios or buy stocks. It is in line with Aren and Zengin (2016) that investors with the lowest level of risk aversion (high risk appetite) favor investing in equities, while investors with an intermediate level of risk aversion favor currencies and portfolios and investors with high a level of risk aversion prefer deposits.

In addition, the findings show that the majority of the millennials in the five municipalities of Jakarta invest in gold, followed by stocks and mutual funds, and started investing since the age of twenty. The majority of them invest in gold, perhaps because they feel protected from fluctuations or economic shocks. However, they also attempt to diversify their investment holdings by utilizing stocks, mutual funds, and deposits.

The findings of this study also disclose that, based on the age classification, the age of 25-29 years has the highest level of financial literacy, while the age of 20-24 years has the highest level of risk perception compared to other age classifications. Based on the data obtained, those aged 20-29 years have the main investment preferences in stocks, while those aged 30-40 years in gold. It is in accordance with the theory of asset allocation decisions (Reilly & Brown, 2012) stating that the differences in age, income, and interests or objectives of each individual lead to differences in investment preferences.

CONCLUSION

This study aims to examine the financial literacy, risk perception, and investment preferences of the millennial generation in the five municipalities of Jakarta. A high level of financial literacy and risk perception are the characteristics of this millennial generation as corroborated by the findings of the study and the previous discussion. The millennials from the five municipalities of Jakarta prefer to invest in stocks rather than other types of investment.

The majority of the millennial generation of Jakarta, which began investing when they were 20 years old, already have several forms of investment, including gold, stocks, and mutual funds. The 20- to 29-year-old age group in the five municipalities of Jakarta has the option of investing in equities, while the 30- to 40-year-old age group has the option of investing in gold. Referring to the asset allocation decision theory, it is due to the distinctive objectives of each phase.

Considering the limitations of this study, the future research may provide further details regarding the education level of investors, the classification of instruments by time, and a greater number of respondents. In addition, it is advisable to conduct studies on various generations and demographic profiles. The findings are also beneficial for any promotional materials to encourage retail investments from a young age, for example, 18 years old, when they are still unmarried and have abundant energy and time to learn and follow all the information to gain a profit from their investment.

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