The effects of financial literacy and materialism on the savings decision of generation Z Indonesians

Stevanus Pangestu1* and Erwin Bramana Karnadi1

Abstract: The purpose of this research is to analyze the influence of financial literacy and materialism on the savings decision of Indonesia's generation Z. This study was motivated by the country's agenda to achieve financial inclusion and develop human resources throughout the nation. We distributed questionnaires to 430 university students to measure their financial literacy score and materialism level, as well as the savings rate of every respondent. Through a series of regression analyses, we find that (i) age, gender, and major of study significantly influence financial literacy score; (ii) financial literacy positively influences savings decision; and (iii) materialism negatively influences savings decision. Our findings generally foretell favourable financial conditions for future generations of Indonesians. Finally, we also strongly recommend policymakers to start integrating financial education as a compulsory part of every school's curriculum, regardless of level.

Subjects: Economic Psychology; Business, Management and Accounting; Consumer Behaviour

Keywords: Financial literacy; materialism; financial behaviour; savings; generation Z

ABOUT THE AUTHORS

Stevanus Pangestu is an assistant professor at the Faculty of Economics and Business of Atma Jaya Catholic University of Indonesia, where he teaches Introductory and Financial Accounting. Stevanus' research interests include behavioral finance and corporate governance. In 2020, he become a visiting professor at the School of Business and Governance of Ateneo de Davao University.

Erwin Bramana Karnadi is an assistant professor at the Faculty of Economics and Business of Atma Jaya Catholic University of Indonesia, where he teaches econometrics, statistics and mathematics. He received his bachelor's degree from Monash University and master's degree from the University of Sydney. He previously worked as a Data Analyst at Roy Morgan Research Melbourne and was a co-founder of Indonesian startup company "EKRUT". His interests include econometrics, economics, and data science. In 2019, he became an awardee of the DIKTI-Fulbright PhD Scholarship.

PUBLIC INTEREST STATEMENT

Financial literacy determines a person's ability to make financial decisions and achieve financial well-being. Financial literacy is made up of three components: financial attitude, financial behaviour, and financial knowledge. This research attempts to measure the financial literacy of generation Z Indonesians, as their demography will soon take over the country—even the world's population. We find that financial literacy enhances the savings decision of our respondents. Financial literacy score is also found to be higher in males, older respondents, and students pursuing business majors at university. Finally, we also find that materialistic people save less money.
1. Introduction
Financial literacy is crucial for every human being’s survival in society. OECD defines it as a combination of awareness, knowledge, skill, attitude, and behaviour necessary to make financial decisions and achieve financial well-being. If every fellow citizen was financially literate and able to make proper economic decisions, it would not be an exaggeration to say that the country is prosperous.

Indonesia is the fourth largest country in terms of population with 266 million people. It is currently the 16th largest economy in the world by GDP (International Monetary Fund, 2018) and predicted to be one of the five largest economies in 2030. The country’s positive economic outlook has to be balanced with its human development. Otherwise, inequality, both financial and non-financial, will continue to haunt the nation. Indonesia has always had a great wealth inequality, higher than most countries (Credit Suisse, 2018).

In 2013, the Indonesian Financial Services Authority (FSA) conducted a survey and found that 21.84% were financially literate, possessed knowledge, and trusted in the financial services sector. The number increased to 29.66% in 2016 and 31% in 2018. The FSA was formed in 2011 as an oversight institution for the financial services sector. Its main function is to protect the interests of consumers and society and ensure the healthiness and competitiveness of the financial industry. One of its duties is to educate the people, particularly those who live in left-behind regencies, to achieve financial inclusion. This is done by increasing their financial literacy; teaching the people to invest more in a variety of products that are offered by the financial services industry. Such an execution is carried out so that the people can achieve economic well-being. Like every other skill, being financially literate takes practice and we argue that it is better to start as early as possible.

Bloomberg reported that in 2019, the world’s demography would be taken over by Generation Z. The US Census Bureau defines Gen-Z as those who were born starting from the year 2000. Presently, Generation Y or millennials are the Indonesia’s dominating force in the economic and political environments. Millennials are generally known to be unwise in their finances; therefore, we have to move quickly to educate the following generation and not repeat the habits of the preceding generation.

The Gen-Z is facilitated to make sound financial decisions. They grew up with and are capable of navigating the Internet; giving them access to knowledge. Moreover, the financial technology is also on the rise. However, there is also a downside to this. “Adobe” (2018) finds that the Gen-Z spends most time online and on social media. A priori, this exposes them to issues related to materialism.

Cambridge Dictionary defines “materialism” as a belief that having money and possessions is the most important thing in life. Those who are materialistic believe that possessions are central to their happiness (Richins & Dawson, 1992). There have been numerous empirical findings regarding the role of social media in increasing materialism among people; children, adolescents, and adults alike (Debreceni & Hofmeister-Toth, 2018; Ho et al., 2019). This triggers us to formulate this research, to assess whether materialism would hinder a Gen-Z’s savings decision, i.e. less prudent in financial planning. The findings of this research are expected to benefit educators and parents; providing them evidence to be used upon educating the youth.

2. Literature review

2.1. Financial literacy
Messy and Monticone (2016) argue that financial literacy is a critical competency of this century, and efforts to improve it is necessary to support economic growth in any global economy. The Organisation for Economic Co-operation and Development (OECD, 2015) defines financial literacy as “a combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions.
and ultimately achieve individual financial wellbeing”. From this definition, we can see that financial literacy is not a simple concept that is easily measured. The OECD (2013) suggests its measurement done by three dimensions: financial attitude, financial behaviour, and financial knowledge.

To possess a good financial attitude means to possess a favourable state of mind, opinion, and judgment in regards to a person’s economic beliefs. When actualized, this becomes a financial behaviour, i.e. the way in which a person behaves and acts on his/her finances. Meanwhile, a person who possesses financial knowledge would comprehend some key financial concepts (OECD, 2013). The five basic concepts included in the financial knowledge dimension are simple interest, compound interest, time value of money, impact of inflation on prices, and impact of inflation on investment returns (OECD-INFE, 2011).

We propose that those who are financially literate would be more likely to be more prudent in financial planning and expresses it in forms of savings and investment. Lusardi (2008) found that low literacy influences the ability to save and that ignorance about basic financial concepts is associated with lack of wealth. Improving one’s financial literacy may be the solution to this problem. Potrich and Vieira (2018) even found that financial literacy improves compulsive buying behaviour. Lastly, on a macro-level, financial literacy has also been proven to ameliorate country-level financial inclusion (Grohmann et al., 2017).

2.2. The influence of materialism

Materialism has been widely studied from different perspectives such as marketing, psychology, education, and social anthropology. In the context of behavioural finance, it has been found that people with higher materialistic values possess higher financial worries and amount of debt (Garðarsdóttir & Dittmar, 2012). Pradhan et al. (2018) further explained that materialism influences credit card use, therefore increasing the propensity for impulsive buying.

In children, materialism leads to excessive consumption and impulsive purchase (Vandana & Lenka, 2014). Islam et al. (2017) also found materialism to be a predictor of compulsive buying behaviour in adolescence. Meanwhile, King and Datu (2017) found that students with high levels of materialism have lower levels of academic engagement and achievement.

These empirical findings indicate how materialism alters the behaviour of people, particularly concerning spending. Materialistic people put high importance on and spend more on material goods to achieve life goals or desired states (Richins & Dawson, 1992). More spending means less saving, as saving is the difference between income and consumption.

However, Awanis et al. (2017) offered an interesting, contrasting view on materialism. They argue that in Asia, materialism is an important part of the collectivistic culture, and may actually benefit the society as a whole. It may also be the case that people with high materialistic values would be more diligent in obtaining money for their consumptive needs.

Based on the importance of financial literacy in determining well-being, the prevalence of social networking among Gen-Z, and the potentially negative effect of materialism, we would like to investigate the effects of financial literacy and materialism on savings decision of Generation Z students.

3. Methods

3.1. Ordinary least squares

One way to estimate the impact of financial literacy (FL) and materialism (M) on consumption and savings rate is to use Ordinary Least Squares regressions. Consider the following equations:

\[
\text{consumption}_i = \beta_0 + \beta_1 \text{finlit}_i + \beta_2 \text{materialism}_i + X\beta + u_i
\] (3.1)
\[
\text{savings}_i = \theta_0 + \beta_1 \text{finlit}_i + \beta_2 \text{materialism}_i + X \beta + u_i
\]  

(3.2)

where \(\text{consumption}_i\) represents the consumption rate of respondent \(i\), \(\text{savings}_i\) represents the savings rate of respondent \(i\), \(\text{finlit}_i\) represents the financial literacy score of respondent \(i\), \(\text{materialism}_i\) represents the materialism score of respondent \(i\), \(X\) represents other observed variables that can affect the dependent variable such as age and gender and \(u_i\) represents any other unobserved variables that can affect the dependent variable such as personality. Interaction variables between the financial variables and observed demographic variables will also be considered in the models.

3.2. Research instrument
To measure financial literacy, we developed a questionnaire based on the concepts of (OECD, 2015) and scales used by Potrich and Vieiera (2018). All three dimensions are included in this scale: financial attitude (15 items), financial behaviour (13 items), and financial knowledge (comprising 10 questions with varying difficulty).

Meanwhile in operationalizing materialism, we used the 9-item Material Values Scale as developed by Richins (2004). Respondents are asked to answer financial attitude, financial behaviour, and materialism questions using a 5-point Likert scale, where the options are strongly disagree, disagree, neither agree or disagree, agree, and strongly agree. As for the financial knowledge variable, it is measured by grading the respondents’ answers to the 10 questions. The complete instrument can be found in the Appendix section of this report.

3.3. Generation Z
We purposefully distributed the questionnaire to members of the Gen-Z cohort who at the time of data collection, were actively enrolled in university. To operationalize Gen-Z, we follow the definition as set by the National Chamber Foundation (2012), i.e. people who were born after the year 2000. Typically, Indonesians graduate high school at the age of 18 and if conditions allow it, they would continue to pursue tertiary education.

3.4. Data description
We were able to gather data from 430 respondents, aged 17 to 21, using online questionnaires that were spread using emails. Respondents were asked questions that are used to determine their financial attitude, financial behaviour, financial knowledge, and materialism scores. The scores from financial attitude, financial behaviour, and financial knowledge are used to calculate the financial literacy score. Furthermore, they also reported their income group, their consumption rate (as a percentage of income) and savings rate (as a percentage of income). Additionally, they were also asked to provide their birthday, gender, employment status, highest completed education, faculty, marital status, ethnicity, domicile, source of income and purpose of savings. Respondents were asked thoroughly by research assistants who have been trained to gather data properly. We checked all 430 data from respondents and found them to be valid with no outliers, so no data were removed.

4. Findings & discussion
4.1. Preliminary analysis
The first thing we want to do is to make sure that the financial attitude (FA), financial behaviour (FB), and materialism (M) scores calculated based on the survey instrument are valid. The following tables show the correlation values of each financial item with their corresponding totals, with their p-values in round brackets.

We can see from Tables 1, 2 and 3 that all items are significantly correlated with the corresponding totals at 1% level of significance. Therefore, we can conclude that all financial attitude,
financial behaviour, and materialism items are valid. Next, we test the validity of all these items by looking at the following table.

As we can see from Table 4, the Cronbach's Alpha values are sufficient for all variables, as all Cronbach’s Alpha values that are higher than 0.7 are considered good (Nunally, 1978). Thus, we can conclude that the financial attitude, financial behaviour, and materialism items are reliable.
Next, we want to look at the factorial validity of the three components of financial literacy, which are financial attitude, financial behaviour, and financial knowledge. The following figure shows the scree plot based on those three components.

We can see from Figure 1 that only one component has an eigenvalue that is larger than 1. Therefore, we can conclude that there is only one principal component between the three variables.

Table 5 displays the relative frequency of each category in a variable. We can see that most of our respondents are women. Most of our respondents are studying business. In addition, it can be seen that most of our respondents are ethnically Chinese. Furthermore, 91.40% of the respondents claimed that they receive their monthly earnings from family allowance, and 78% of the respondents claimed that they are saving their money for insurance purposes.

Table 6 shows the descriptive statistics of the financial variables that are used in this research. We can see that our respondents earn (or receive) Rp2,318,023 per month on average, and the average consumption and savings rate are 60.49% and 32.53% of income, respectively. Furthermore, we can also see that all the minimum and maximum values make sense, which shows that we do not have any outliers in our dataset. Financial attitude, financial behaviour, and materialism are measured as indices with limit points of 15 to 75, 13 to 65 and 9 to 45, respectively. Financial knowledge is obtained by having respondents answer financial questions, and thus the limit points are from 0 to 100. As for consumptions and savings, the numbers are reasonable as some of our respondents are completely dependent on their parents. For example, a savings rate of 100 means that they save all their allowances and use their parents’ money for all their expenses. On the other hand, a consumption rate of 100 means they use all their allowances as they can always depend on their parents for any sudden expenses in the future.
Meanwhile, Table 7 shows that 54.88% of our respondents displayed a higher than average financial literacy score.

Table 8 shows the correlation values between the continuous variables that we have in our data set, with its corresponding p-values in round brackets. It can be seen that there is a significant negative correlation between consumption and savings. Financial literacy also has a significant negative correlation with consumption, while having a significant positive correlation with savings. In contrast, materialism has a significant positive correlation with consumption and a significant negative correlation with savings. Furthermore, there is no significant correlation between financial literacy and materialism. Finally, there is a significant positive correlation between age and both financial literacy and materialism, although the correlation between age and materialism is only significant at 10% level of significance, but not at 5% level of significance.

### 4.2. Determinants of financial literacy

Consider the following equation:

\[
\text{finlit}_i = \beta_0 + \beta_1 \text{age}_i + \beta_2 \text{business}_i + \beta_3 \text{female}_i + u_i
\]  

(4.1)

where \( \text{finlit}_i \) represents the financial literacy score of respondent \( i \) (measured as an index from 9.33 to 80, as they are the average values of financial attitude, financial behaviour, and financial knowledge), \( \text{age}_i \) represents the age of respondent \( i \) (measured in years), \( \text{business}_i \) is a binary variable that takes the value of 1 if respondent \( i \) is a business student/graduate and 0 otherwise, \( \text{female}_i \) is a binary variable that takes the value of 1 if respondent \( i \) is female and 0 otherwise and \( u_i \) represents any other unobserved variables that can affect financial literacy. We decided not to include marital status as a huge portion of our respondents are single. Ethnicity was excluded because the respondents are of Indonesian nationality. Furthermore, the purpose of savings and source of income was not included in the model because the respondents had highly similar savings purpose and income sources, i.e. all students.

Equation (4.1) is estimated using OLS to get the following output, with the p-values in round brackets and White heteroskedasticity-consistent p-values in square brackets. Note that person's financial
| Variable        | Category            | Relative Frequency | Variable        | Category            | Relative Frequency |
|-----------------|---------------------|--------------------|-----------------|---------------------|--------------------|
| Gender          | Male                | 47.21%             | Ethnicity       | Batak               | 5.12%              |
|                 | Female              | 51.16%             |                 | Batavian            | 1.86%              |
|                 | Prefer not to answer| 1.63%              |                 | Chinese             | 51.86%             |
|                 | Total               | 100.00%            |                 | Javanese            | 12.56%             |
| Faculty         | Agriculture         | 1.63%              |                 | Korean              | 0.23%              |
|                 | Art, Design and Multimedia | 3.25%            |                 | Makassarese        | 0.47%              |
|                 | Business            | 35.81%             |                 | Minang              | 0.70%              |
|                 | Economics           | 0.93%              |                 | Other/Mixed        | 17.44%             |
|                 | Education           | 1.86%              |                 | Prefer not to answer| 6.98%              |
|                 | Engineering         | 19.07%             |                 | Sundanese          | 2.79%              |
|                 | Hospitality and Tourism | 3.49%          |                 |                      | 100.00%            |
|                 | Law                 | 2.09%              | Domicile        | Jakarta            | 63.26%             |
|                 | Mathematics and Natural Science | 3.95%          |                 | Bodetabek (Metropolitan area) | 23.26%         |
|                 | Medicine, Nursery Studies and Public Health | 4.88%          |                 | Other               | 13.49%             |
|                 | Pharmacy            | 2.56%              |                  |                      | 100.00%            |
|                 | Psychology          | 5.81%              |                  | Fewer than 1 million IDR | 24.88%         |
|                 | Social Science and Political Science | 8.84%          |                  | 1 to 2 million IDR | 32.33%             |
|                 | Other               | 5.81%              |                  | 2 to 3 million IDR | 18.60%             |
|                 | Total               | 100.00%            |                  | 3 to 4 million IDR | 12.56%             |
Table 5. (Continued)

| Variable                  | Category | Relative Frequency | Variable                  | Category                  | Relative Frequency |
|---------------------------|----------|--------------------|---------------------------|---------------------------|--------------------|
| Marital Status            | Single   | 99.07%             | 5 to 7.5 million IDR      |                           | 7.21%              |
|                           | Married  | 0.70%              | Greater than 7.5 million IDR |                         | 4.42%              |
|                           | Divorced | 0.23%              | Total                     |                           | 100.00%            |
| Source of Income (not mutually exclusive) | Family Allowance | 91.40% | Working Part-Time | 27.91% |
| Purpose of Savings        | Investment | 48%   | Working Full-Time      | 3.95%                      |
|                           | Entertainment | 31%  | Inheritance            | 1.63%                      |
|                           | Education   | 20%   | Freelancing            | 8.37%                      |
|                           | Marriage    | 13%   | Investment             | 14.42%                     |
|                           | Insurance   | 78%   |                          |                           |
Table 6. Descriptive statistics of financial variables and age

|                | Income      | Consumption | Savings | Financial Attitude | Financial Behaviour | Financial Knowledge | Financial Literacy | Materialism | Age   |
|----------------|-------------|-------------|---------|--------------------|---------------------|---------------------|--------------------|-------------|-------|
| **Mean**       | 2,318,023   | 60.49       | 32.53   | 59.31              | 46.99               | 51.85               | 52.72              | 28.67       | 19.02 |
| **Median**     | 1,500,000   | 60.00       | 25.00   | 61.00              | 47.00               | 53.00               | 53.67              | 28.00       | 19.00 |
| **Maximum**    | 8,000,000   | 100.00      | 100.00  | 75.00              | 65.00               | 100.00              | 77.33              | 45.00       | 21.00 |
| **Minimum**    | 500,000     | 0.00        | 0.00    | 15.00              | 13.00               | 0.00                | 25.33              | 13.00       | 17.00 |
| **Std. Dev.**  | 1,941,720   | 26.46       | 24.21   | 8.69               | 9.65                | 26.62               | 11.14              | 5.50        | 0.96  |
literacy score is calculated as the average of their financial attitude, financial behaviour, and financial knowledge scores. The average financial literacy score based on our sample set is 52.72.

It can be seen from Table 9 that age, focus of study, and gender have a significant impact on financial literacy, even after taking heteroskedasticity into account. An increase in age by 1 year is expected to increase financial literacy, on average, by 1.13 points, ceteris paribus. Business students are expected to have higher financial literacy, on average, by 3.98 points, than students from other areas of study, ceteris paribus. Finally, women are expected to have less financial literacy by 2.69 points than men, ceteris paribus.

### 4.3. Impact of Financial Literacy on Consumption and Savings

Next, we want to see how financial literacy impact both consumption and savings. Consider the following equations:

\[
\text{consumption}_i = \theta_0 + \theta_1 \text{finlit}_i + \theta_2 \text{materialism}_i + u_i
\]  

\[
\text{consumption}_i = \theta_0 + \theta_1 \text{finlit}_i + \theta_2 \text{materialism}_i + \theta_3 \text{age}_i + \theta_4 \text{business}_i + \theta_5 \text{female}_i + u_i
\]  

\[
\text{savings}_i = \theta_0 + \theta_1 \text{finlit}_i + \theta_2 \text{materialism}_i + u_i
\]  

\[
\text{savings}_i = \theta_0 + \theta_1 \text{finlit}_i + \theta_2 \text{materialism}_i + \theta_3 \text{age}_i + \theta_4 \text{business}_i + \theta_5 \text{female}_i + u_i
\]

where \( \text{consumption}_i \) represents the consumption rate of respondent \( i \) (measured in percentage), \( \text{savings}_i \) represents the savings rate of respondent \( i \) (measured in percentage), \( \text{materialism} \) represents the materialism score of respondent \( i \) (measured as an index from 9 to 45 inclusive) and \( u \), represents any other unobserved variables that can affect the dependent variable. We estimate Equations (4.2) to (4.5) using OLS, the results are summarized in the following table, with the p-values in round brackets.

It can be seen from Table 10 that financial literacy and materialism have a significant impact on consumption. An increase in financial literacy by 1 point is expected to decrease consumption, on average, by 0.43% points, ceteris paribus. Furthermore, an increase in materialism by 1 point is expected to increase estimated consumption by 0.44% points, ceteris paribus. Age, gender, and being a business student/graduate have no significant impact on consumption.

Similarly, financial literacy and materialism also have a significant impact on savings. An increase in financial literacy by 1 point is expected to increase savings, on average, by 0.30% points, ceteris paribus. On the other hand, an increase in materialism by 1 point is expected to decrease estimated savings by 0.35% points, ceteris paribus. Meanwhile, gender, age, and being a business student/graduate also have no significant impact on savings.

Thus, financial literacy has a significant impact on both consumption and savings rate. After taking financial literacy into account, gender, age, and area of study are proven not to be predictors of consumption and savings.

### 4.4. Discussion

#### 4.4.1. The influences of age, gender, and study program on financial literacy

Our descriptive statistics show that our respondents obtained an average financial literacy score of 52.72, and our first regression analysis gives evidence that age, study program, and gender
| Variable  | Income | Consumption | Savings | Financial Literacy | Materialism | Age |
|-----------|--------|-------------|---------|-------------------|-------------|-----|
| Income    | 1.000  |             |         |                   |             |     |
| Consumption | 0.0616 | 1.0000      | -0.0616 |                   |             |     |
| Savings   | -0.0359| -0.2787     | 1.0000  |                   |             |     |
| Financial Literacy | 0.0431 | -0.1831     | 0.1413  | 1.0000            |             |     |
| Materialism | 0.0459 | 0.0979      | -0.0840 | -0.0333           | 1.0000      |     |
| Age       | 0.0652 | 0.0228      | -0.0669 | 0.1113            | 0.0910      | 1.000|

*(significant at 10%)*

**(significant at 5%)*

*** (significant at 1%)
Table 9. Factors of financial literacy

| Variable     | Model (4.1) |
|--------------|-------------|
| Constant     | 31.2534     |
|              | (0.0029)*** |
|              | (0.0015)*** |
| Age          | 1.1264      |
|              | (0.0392)**  |
|              | (0.0278)**  |
| Business     | 3.9778      |
|              | (0.0003)*** |
|              | (0.0004)*** |
| Female       | -2.6932     |
|              | (0.0106)**  |
|              | (0.0114)**  |
| R-squared    | 0.0579      |
| F-statistics | 8.7278      |
|              | (0.0000)*** |
| Akaike Info Criterion (AIC) | 7.6157      |
| White Statistics | 16.9903    |
|              | (0.0175)**  |
| Observations | 430         |

**significant at 5%;
***significant at 1%

Table 10. OLS regression—(4.2): consumption on financial literacy and materialism; (4.3): consumption on financial literacy, materialism, and others; (4.4): savings on financial literacy and materialism; (4.5): savings on financial literacy, materialism, and others [***], [**], [*] correspond to 1%, 5%, and 10% level of significance, respectively.

| Variables/ Model | (4.2) | (4.3) | (4.4) | (4.5) |
|------------------|-------|-------|-------|-------|
| Constant         | 70.4342| 51.0839| 26.5939| 62.1755|
|                  | (0.0000)***| (0.0472)*| (0.0015)***| (0.0088)***|
| Financial Literacy| -0.4278| -0.4423| 0.3014| 0.3143|
|                  | (0.0002)***| (0.0002)***| (0.0039)***| (0.0036)***|
| Materialism      | 0.4427| 0.4268| -0.3497| -0.3224|
|                  | (0.0531)**| (0.0646)*| (0.0974)**| (0.1295)|
| Age              | -    | 0.9986| -    | -1.9408|
|                  | (0.4490) |       |       | (0.1106)|
| Business         | -    | 1.9359| -    | 0.4025|
|                  | (0.4677) |       |       | (0.8698)|
| Female           | -    | 1.7118| -    | -0.5211|
|                  | (0.5008) |       |       | (0.8239)|
| R-squared        | 0.0420| 0.0454| 0.0263| 0.0322|
| F-statistics     | 9.3533| 4.0302| 5.7566| 2.8208|
|                  | (0.0001)***| (0.0014)***| (0.0034)***| (0.0161)***|
| Akaike Info Criterion (AIC) | 9.3580| 9.3684| 9.1965| 9.2043|
| White Statistics | 2.3611| 21.0119| 1.3756| 10.6918|
|                  | (0.7972) | (0.2788)| (0.9270) | (0.9070)|
| Observations     | 430   | 430   | 430   | 430   |
significantly affect financial literacy. Our first demographic variable, age, is shown to positively influence financial literacy, i.e. the older the student, the higher the literacy score gets. Students do not necessarily have fixed, recurrent expenses; particularly those who still receive allowances. This enables them to save more to prepare them before entering the job market upon graduating.

Secondly, we find that female students are expected to have lower financial literacy score than their male counterparts. Our finding supports those of Lusardi and Mitchell (2011) and Potrich et al. (2015) that women generally have lower financial literacy levels than men. We demonstrate that this difference in literacy begins at adolescence. We argue that female students have less pressure than men to be financially prudent and that they can afford to be more lenient in their financial planning and decisions. Even though the number of women professionals and entrepreneurs are rising, normatively, men still provide for their family.

Thirdly, Business and Economics students possess a higher financial literacy score than those from other majors of study. Their curriculum design enables them to possess more financial knowledge, which makes a great part in the financial literacy composite construct.

4.4.2. Financial literacy, materialism, and savings decision

As expected, we find that (i) financial literacy positively influences savings decision and (ii) materialism decreases savings.

Those who have favourable financial attitude, sufficient financial knowledge, and bring it to reality by action through proper financial behaviour tend to save more of their money, which reflects a good financial decision. Saving money is not without purpose and the majority of our respondents keep percentages of their money for insurance and investment. Despite their young age, students show that they can be prudent in planning their finances. Moreover, higher financial literacy also leads to less consumption; which is logical, i.e. the more money a person saves, the less they have for spending.

Furthermore, materialism is shown to increase spending, which supports the findings of Watson (2003). Students with higher materialistic values would be more consumptive and save less money. This is triggered by their views of possessions and the need to show them. Therefore, sacrificing the money they have for goods and services that others perceive to be impressive, which is more practical than parading around and carrying around huge stacks of money.

5. Conclusion

The objective of this study was to determine how financial literacy and materialism affect the savings decision of Generation Z students. After a series of regression analyses, we can determine that savings decision is influenced: (i) positively by financial literacy and (ii) negatively by materialism. We also find age, gender, and academic major to be some demographic determinants of financial literacy.

Based on our findings, we are optimistic that the upcoming generation can achieve financial well-being in the future. When it comes to their financial knowledge, financial attitude, and financial behaviour, there is still room for improvement and growth. We strongly recommend policymakers to start integrating financial education as a compulsory part of every school’s curriculum, regardless of level. Autonomous universities in the country may also want to consider introducing financial education to their non-business students. This opportunity should also be capitalized by the Financial Services Authority by including the younger generations as participants in the financial market. We also recommend future researchers to take into account parental spending habits, as they may affect students’ financial literacy and savings rate.

This study is, however, not without its limitations: (i) Nearly all of our respondents lived at urban areas and were dominantly Chinese. Non-urbanized areas and other ethnicities still need to be
studied further to generate results that can be generalized better. (ii) Our data lacks respondents from the lower-income group. (iii) The scale used to measure materialism merely reflected the materialistic values of respondents, i.e. attitudes, not actual acts of spending.

**Funding**

The authors received no direct funding for this research.

**Author details**

Stevanus Pangestu
E-mail: pangestu@atmajaya.ac.id
ORCID ID: http://orcid.org/0000-0003-2546-9449

Erwin Bramana Karnadi
E-mail: erwin.karnadi@atmajaya.ac.id
ORCID ID: http://orcid.org/0000-0001-7116-1678

1 Faculty of Economics and Business, Atma Jaya Catholic University of Indonesia, Jakarta, Indonesia.

**Citation information**

Cite this article as: The effects of financial literacy and materialism on the savings decision of generation Z Indonesians, Stevanus Pangestu & Erwin Bramana Karnadi, Cogent Business & Management (2020), 7: 1743618.

**References**

Adobe reveals Gen Z are UK’s biggest content consumers, engaging with over 10 hours of online content a day. (2018, February 8). https://marcommnews.com/adobe-reveals-gen-z-are-the-uk’s-biggest-content-consumers-engaging-with-over-10-hours-of-online-content-a-day/

Awanis, S., Schlegelmilch, B. B., & Cui, C. C. (2017). Asia’s materialists: Reconciling collectivism and materialism. Journal of International Business Studies, 48(8), 964-991. https://doi.org/10.1057/s41267-017-0096-6

Credit Suisse. (2018). Global wealth report.

Debreceni, J., & Hofmeister-Toth, A. (2018). Materialism among teenagers, the relationship between terminal values and social media use. International Journal of Multidisciplinarity in Business and Science, 4(5), S-12. UDK: 17.031.2:316.774-053.6(439)

Garðarsdóttir, R. B., & Dittmar, H. (2012). The relationship of materialism to debt and financial well-being: The case of Iceland’s perceived prosperity. Journal of Economic Psychology, 33(3), 471-481. https://doi.org/10.1016/j.joep.2011.12.008

Grohmann, A., Klus, T., & Menkhoff, L. (2017). Does financial literacy improve financial inclusion? Cross country evidence. DIW Berlin Discussion Papers.

Ho, H., Shin, W., & Lwin, M. O. (2019). Social networking site use and materialistic values among youth: The safeguarding role of the parent-child relationship and self-regulation. Communication Research, 46(8), 1119–1144. https://doi.org/10.11177/0093650216683775

International Monetary Fund. (2018). World Economic Outlook Database.

Islam, T., Wei, J., Sheikh, Z., Hameed, Z., & Azam, R. I. (2017). Determinants of compulsive buying behavior among young adults: The mediating role of materialism. Journal of Adolescence, 61, 117–130. https://doi.org/10.1016/j.jadolescence.2017.10.004 Retrieved from https://www.researchgate.net/profile/Tahir_Islam/publication/320555190_Determinants_of_compulsive_buying_behavior_among_young_adults_The_mediating_role_of_materialism/links/59ec68b6b6dcee18b0c7a7e7/Determinants-of-compulsive-buying-behavior-among-young-adults-The-mediating-role-of-materialism.pdf

King, R. B., & Dutu, J. A. D. (2017). Materialism does not pay: Materialistic students have lower motivation, engagement, and achievement. Contemporary Educational Psychology, 49, 289–301. https://doi.org/10.1016/j.cedpsych.2017.03.003 Retrieved from https://www.sciencedirect.com/science/article/pii/S0361470X17300383

Lusardi, A. (2008). Household saving behavior: The role of financial literacy, information, and financial education programs. NBER Working Paper Series 13824.

National Bureau of Economic Research. Lusardi, A., & Mitchell, O. S. (2011). Financial literacy and retirement planning in the United States. Journal of Pension Economics and Finance, 10(4), 509–525. https://doi.org/10.1017/S147474721100045X

Messy, F., & Monticone, C. (2016). Financial education policies in Asia and the Pacific. OECD Working Papers on Finance, Insurance, and Private Pensions. OECD Publishing.

National Chamber Foundation, (2012). The Millennial generation research review. US Chamber of Commerce.

Nunally, J. C. (1978). Psychometric theory (2nd ed.). McGraw-Hill.

OECD. (2013). Financial literacy and inclusion: Results of OECD/INFE survey across countries and by gender. OECD-INFE. (2011). Measuring financial literacy: Core questionnaire in measuring financial literacy: Questionnaire and guidance notes for conducting an internationally comparable survey of financial literacy. OECD Publishing. Organisation for Economic Co-Operation and Development (OECD). (2015). OECD/INFE toolkit for measuring financial literacy and financial inclusion. OECD Publishing.

Potrich, A. C. G., & Vieiera, K. M. (2018). Demystifying financial literacy: A behavioral perspective analysis. Management Research Review, 41(9), 1047–1068. https://doi.org/10.1108/MRR-08-2017-0263

Potrich, A. C. G., Vieiera, K. M., & Kirch, G. (2015). Determinants of financial literacy: Analysis of the influence of socioeconomic and demographic variables. R. Cont. Fin USP, 26(69), 362–377. https://doi.org/10.1590/1808-057x201501040

Pradhan, D., Israel, D., & Jena, A. K. (2018). Materialism and compulsive buying behaviour: The role of consumer credit card use and impulse buying. Asia Pacific Journal of Marketing and Logistics, 30(5), 1239–1258. https://doi.org/10.11108/APJML.2017.0164

Richins, M. L. (2004). The material values scale: Measurement properties and development of a short form. Journal of Consumer Research, 31(1), 209–219. https://doi.org/10.1086/383436

Richins, M. L., & Dawson, S. (1992). A consumer values orientation for materialism and its measurement: Scale development and validation. Journal of Consumer Research, 19(3), 303–316. https://doi.org/10.1086/208960

Vandana, & Lenka, U. (2014). A review on the role of media in increasing materialism among children. Procedia-Social and Behavioral Sciences, 133, 456–464. https://doi.org/10.1016/j.sbspro.2014.04.212 Retrieved from https://www.sciencedirect.com/science/article/pii/S187704281403122X

Watson, J. J. (2003). The relationship of materialism to spending tendencies, saving, and debt. Journal of Economic Psychology, 24(6), 723–739. https://doi.org/10.1016/j.joep.2003.06.001
Appendix A. Research instrument measuring our main variables Questions/statements concerning the construct of financial literacy and materialism

Financial attitude
1. It is important for me to possess a regular saving habit
2. We have to write down financial plans to help us prioritize spending activities
3. Written budget is important for financial management success
4. It is important for families to be prudent in case of loss or disability of the breadwinner
5. Planning my money spending is an important aspect of my life management
6. It is important to set goals in life to succeed
7. Imagining my assets in 5-10 years into the future help me succeed financially
8. We have to focus on today when planning our finances
9. We do not need to plan our retirement
10. Financial plans hinder investment decisions
11. Savings plan is not really needed
12. Financial planning hinders me in fulfilling my needs
13. Keeping records of my finances takes too much time
14. Saving money is not important
15. As long as I can fulfill my monthly needs, I do not have to think about the time I need to settle my debts

Financial behavior
1. I keep records of and control my personal spending
2. I compare prices before purchasing something
3. I save some money I earn for future needs
4. I have a budget for my spending
5. I am well aware of my credit purchases (credit card, installment, pay-later features on payment gateway applications)
6. I pay all my bills without delay
7. I save money every month
8. I would contemplate my financial conditions before making a significant purchase/spending
9. I pay my debts on time to avoid paying interests
10. I save my money regularly to achieve my long-term financial target
11. I save more when I earn more money this month
12. I have a saving of at least three times my monthly earnings, which I can use at any time
13. I have been able to consistently save money over the last 12 months

Financial knowledge
1. If you had Rp100,000 in a savings account which yields an interest rate of 10% per year, how much would you own after five years?
   a. Greater than Rp150,000

(Continued)
b. Rp150,000

c. Lower than Rp150,000

d. I do not know

2. Imagine you had a sum of money in your account. If your interest rate on your savings is 6% per year and the inflation rate is 10% per year, how much would you be able to buy with this money after a year has passed?

a. More than today's value

b. Exactly the same

c. Less than today

d. I do not know

3. You borrowed Rp1,000,000 today from the bank. When you settle your debt a year later, you are required to pay an interest of Rp60,000. The interest rate on your loan is ...

a. 3%

b. 0.6%

c. 6%

d. I do not know

4. The smartphone that you want to buy is priced at Rp10,000,000. Store A offers a discount of Rp1,500,000 and Store B offers a 10% discount. Which store would you choose?

a. Store A

b. Store B

c. I do not know

5. A group of five friends went out for dinner and they split a bill of Rp100,000 equally. How much did a friend owe?

a. Rp10,000

b. Rp20,000

c. Rp25,000

d. I do not know

6. In 10 years, which option would normally yield the highest return?

a. Time deposit

b. Stock

c. Bonds

d. I do not know

7. Which of the following investment has a value that fluctuates the most? Deposito

a. Stock

b. Bond

c. I do not know

8. When an investor diversifies, he/she allocates his/her capital into multiple investments. This would lead to a .... risk of losing money.

a. Increasing

b. Decreasing

c. Unchanged

d. I do not know

9. A 10-year loan has a higher monthly payment than a 20-year loan. However, the total amount of interest paid at the end of the 10-year loan is lower. This statement is ..

(Continued)
(Continued)

10. An investment with a high rate of return has a low risk rate. This statement is...
   a. True
   b. False
   c. I do not know

Materialism (Potrich & Vieira, 2018; Adapted from Richins (2004))

1. In terms of possessions, I try to keep my life simple
2. Things that I own show others how well I am doing in life
3. I like owning stuff that impress others
4. I admire people who own expensive houses, clothes, and cars
5. Buying things give me pleasure
6. I like living a luxurious life
7. My life would be better if I owned certain things that I do not (yet) have
8. I would be happier if I could buy more things
9. It bothers me that I am unable to afford the things I want to buy