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Article

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MANAGEMENT | RESEARCH ARTICLE

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

Stevanus Pangestu^{1*} 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

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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 (Debrececi & 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:

$$consumption_i = \theta_0 + \theta_1 finlit_i + \theta_2 materialism_i + \mathbf{X}\boldsymbol{\theta} + u_i \quad (3.1)$$

$$savings_i = \theta_0 + \theta_1 finlit_i + \theta_2 materialism_i + X\theta + u_i \quad (3.2)$$

where $consumption_i$ represents the consumption rate of respondent i , $savings_i$ represents the savings rate of respondent i , $finlit_i$ represents the financial literacy score of respondent i , $materialism_i$ 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 Vieira (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,

Table 1. Pearson correlation of FA items with FA total

FA Item	Correlation with FA Total	FA Item	Correlation with FA Total
FA1	0.655	FA9	0.523
	(0.000)***		(0.000)***
FA2	0.504	FA10	0.510
	(0.000)***		(0.000)***
FA3	0.525	FA11	0.679
	(0.000)***		(0.000)***
FA4	0.647	FA12	0.683
	(0.000)***		(0.000)***
FA5	0.653	FA13	0.591
	(0.000)***		(0.000)***
FA6	0.625	FA14	0.718
	(0.000)***		(0.000)***
FA7	0.454	FA15	0.670
	(0.000)***		(0.000)***
FA8	0.310		
	(0.000)***		

***significant at 1%

Table 2. Pearson correlation of FB items with FB total

FB Item	Correlation with FB Total	FB Item	Correlation with FB total
FB1	0.559	FB8	0.653
	(0.000)***		(0.000)***
FB2	0.547	FB9	0.511
	(0.000)***		(0.000)***
FB3	0.760	FB10	0.798
	(0.000)***		(0.000)***
FB4	0.647	FB11	0.722
	(0.000)***		(0.000)***
FB5	0.527	FB12	0.660
	(0.000)***		(0.000)***
FB6	0.626	FB13	0.735
	(0.000)***		(0.000)***
FB7	0.794		
	(0.000)***		

***significant at 1%

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.

Table 3. Pearson correlation of M items with M total

M Item	Correlation with M Total	M Item	Correlation with M Total
M1	0.110	M6	0.745
	(0.023)**		(0.000)***
M2	0.486	M7	0.712
	(0.000)***		(0.000)***
M3	0.684	M8	0.746
	(0.000)***		(0.000)***
M4	0.665	M9	0.609
	(0.000)***		(0.000)***
M5	0.677		
	(0.000)***		

**significant at 5%;

***significant at 1%

Table 4. Cronbach's alpha values for FA, FB dan M

Variable	Cronbach's Alpha
Financial Attitude	0.859
Financial Behaviour	0.885
Materialism	0.791

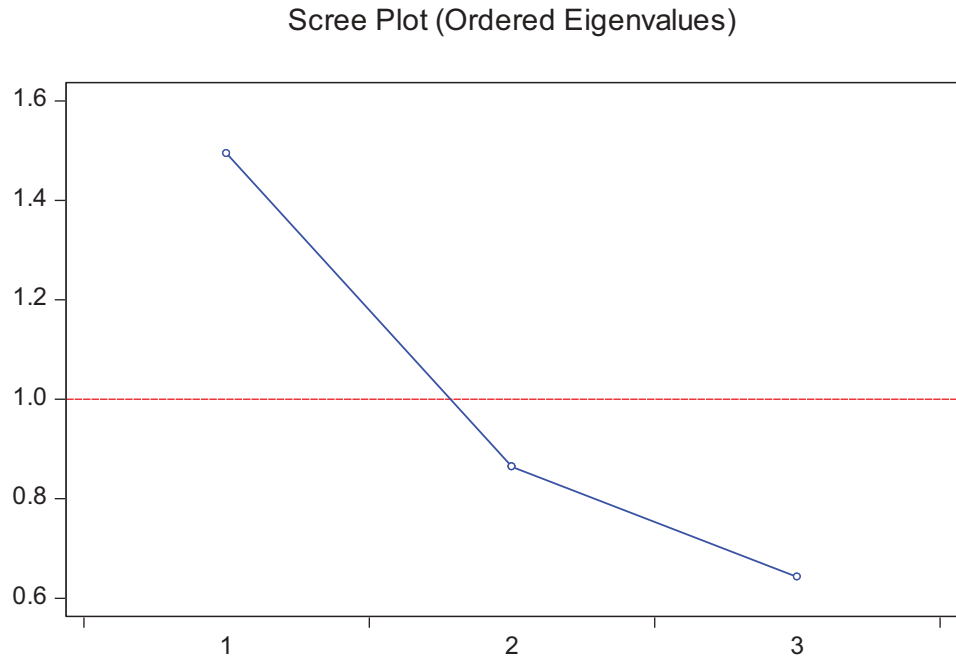
Next, we want to look at the factorial validity of the three components of financial literacy, which are financial attitude, financial behaviour, and financial knowledge. The following figure shows the scree plot based on those three components.

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.

Figure 1. Scree plot of financial attitude, financial behaviour, and financial knowledge.



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:

$$finlit_i = \theta_0 + \theta_1 age_i + \theta_2 business_i + \theta_3 female_i + u_i \quad (4.1)$$

where $finlit_i$ 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), age_i represents the age of respondent i (measured in years), $business_i$ is a binary variable that takes the value of 1 if respondent i is a business student/graduate and 0 otherwise, $female_i$ 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 a person's financial

Table 5. Relative frequency table

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%		Total	100.00%
	Law	2.09%		Jakarta	63.26%
	Mathematics and Natural Science	3.95%	Domicile	Bodetabek (Metropolitan area)	23.26%
	Medicine, Nursery Studies and Public Health	4.88%		Other	13.49%
	Pharmacy	2.56%		Total	100.00%
	Psychology	5.81%		Fewer than 1 million IDR	24.88%
	Social Science and Political Science	8.84%	Income	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%

(Continued)

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%
Purpose of Savings (not mutually exclusive)				Family Allowance	91.40%
	Investment	48%	Source of Income (not mutually exclusive)	Working Part-Time	27.91%
	Entertainment	31%		Inheritance	1.63%
	Education	20%		Working Full-Time	3.95%
	Marriage	13%		Freelancing	8.37%
	Insurance	78%		Investment	14.42%

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	28.47	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

Table 7. Frequency of average financial literacy scores

Above average score (>52)	54.88%
Below average score (<52)	45.12%
Total	100.00%

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:

$$consumption_i = \theta_0 + \theta_1 finlit_i + \theta_2 materialism_i + u_i \quad (4.2)$$

$$consumption_i = \theta_0 + \theta_1 finlit_i + \theta_2 materialism_i + \theta_3 age_i + \theta_4 business_i + \theta_5 female_i + u_i \quad (4.3)$$

$$savings_i = \theta_0 + \theta_1 finlit_i + \theta_2 materialism_i + u_i \quad (4.4)$$

$$savings_i = \theta_0 + \theta_1 finlit_i + \theta_2 materialism_i + \theta_3 age_i + \theta_4 business_i + \theta_5 female_i + u_i \quad (4.5)$$

where $consumption_i$ represents the consumption rate of respondent i (measured in percentage), $savings_i$ represents the savings rate of respondent i (measured in percentage), $materialism_i$ represents the materialism score of respondent i (measured as an index from 9 to 45 inclusive) and u_i 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

Table 8. Correlation analysis

Variable	Income	Consumption	Savings	Financial Literacy	Materialism	Age
Income	1.0000	-	-	-	-	-
Consumption	-0.0616 (0.2022)	1.0000	-	-	-	-
Savings	-0.0359 (0.4578)	-0.2787 (0.0000)***	1.0000	-	-	-
Financial Literacy	0.0431 (0.3726)	-0.1831 (0.0001)***	0.1413 (0.0033)***	1.0000	-	-
Materialism	0.0459 (0.3424)	0.0979 (0.0424)**	-0.0840 (0.0819)*	-0.0333 (0.4905)	1.0000	-
Age	0.0652 (0.1770)	0.0228 (0.6374)	-0.0669 (0.1663)	0.1113 (0.0209)**	0.0910 (0.0594)*	1.0000

*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, recurring 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.

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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)

- a. True
 - b. False
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



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