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Determinants of consumer financial behavior: Evidence from households in Indonesia

Sri Zulaihati[a] and Umi Widyastuti[a*]

[a]*Associate Professor, Faculty of Economics, Universitas Negeri Jakarta, Indonesia*

C H R O N I C L E

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A B S T R A C T

Financial behavior can be defined as any behavior associated with money management. It has an important role in achieving someone's financial wellbeing. This study aims to determine the factors of financial behavior in households based on the case in Indonesia. The study uses 229 samples collected with a convenience sampling technique. The primary data is collected by applying an online survey. The measurements of financial behavior consist of 21 indicators. Based on factor analysis, five factors of financial behavior are formed. The first factor is long-term planning, followed by short-term planning, saving behavior, the use of financial advisers, and undesirable behavior.

1. Introduction

Refers to the 2019's National survey conducted by the Financial Service Authority (Otoritas Jasa Keuangan), the level of Indonesian's financial literacy index was 38,03 percent (OJK, 2020). The survey also showed that Indonesian's financial inclusion index was 73.88 percent. According to Widyastuti, Sumiati, Susanti, and Suherman (2019), there were some barriers to financial inclusion, including low income and lack of sufficient citizen's legal document. By surveying the household across the countries in the world, Atkinson, Monticone, and Mess (2016) described that the low level of financial literacy leads to poor financial behavior. They found that budgeting did not become a priority, even though it has proven that planning for the future was beneficial by money management. Several studies have been conducted to describe the household's financial behavior, while financial behavior is commonly explored in many specific types of behavior. East (1993), Bateman, Louviere, Thorp, Islam, and Satchell (2017) and Hassan Al-Tamimi and Anood Bin Kalli (2009) attempted to discuss investment decision making, while some others explore saving behavior (Brounen, Koedijk, & Pownall, 2016; Chatterjee, Fan, Jacobs, & Haas, 2017). Thus, this study is conducted to develop the construct of financial behavior by determining the dimensions of financial behavior.

2. Literature Review

Financial behavior is defined as any human behavior related to money management (Xiao, 2008). As reported by Henager and Cude (2016) and Zulaihati, Susanti, and Widyastuti (2020), financial behavior can be categorized into two types of behavior based on period, namely short-term and long-term financial behavior. They supported the concept of financial behavior which

* Corresponding author.
E-mail address: umiwidyastuti_feunj@unj.ac.id (U. Widyastuti)

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is developed by Huston (2010) who focused on short-term planning and long-term planning. Several studies have attempted to conceptualized financial behavior using several dimensions. Atkinson et al. (2016) measured financial behavior that reflected some dimensions namely: budgeting, thinking before making a purchase, paying bills on time, saving, and borrowing to make ends meet. In line with them, de Bassa Scheresberg (2013) had three subsets of financial behavior associated with day-to-day and long-term financial management reflecting in high-cost methods of borrowing, holding a buffer stock of savings, and planning for retirement. While Dewi, Febrian, Effendi, and Anwar (2020) explored financial behavior by measuring three kinds of behavior, including pay bills on time, investment diversification, and retirement investment. Therefore, financial behavior could be defined in many terms of financial decisions related to money management. Nowadays, financial behavior has been exploring as an interesting topic of research. Huston (2010) stated that financial behavior played an important role in achieving someone's financial well-being. This is also supported by de Bassa Scheresberg (2013), who found that financial behavior can be critical to young adults' financial wellbeing.

3. Research Methodology

Williams et al. (2010) stated that exploratory factor analysis (EFA) can be applied for many purposes. It can be used to reduce a large number of variables into a smaller set of variables (also known as factors or components or dimensions), and also establishes underlying dimensions between measured variables and latent constructs, thereby allowing the formation and refinement of theory. Therefore, this study aims to determine the dimensions of financial behavior. Using a questionnaire which consists of 21 indicators, the primary data were collected conveniently from 229 households in Indonesia. The procedures in EFA is started by the test of the adequacy of sample size. Refer to Hair Jr., Black, Babin, and Anderson (2019), this test applied two criteria in assessing the sufficiency of the data in factor analysis, namely: Kaiser Meyer Olkin - Measure of Sampling Adequacy (KMO - MSA) and Bartlett's Test of Sphericity. The first criterion is KMO-MSA which should be between 0 to 1. If the KMO-MSA exceeds 0.5, it could be said that the data is suitable for factor analysis. The second criterion is Bartlett's Test of Sphericity. Bartlett's test of sphericity should be significant ($p < 0.05$), therefore this could be concluded that the factor analysis is suitable. If the requirement of sample size has been fulfilled, the next step is the reduction of a large number of variables into the dimensions using the principal component analysis (PCA), as one of the extraction methods. Some approaches can be used to determine the factor extraction, including the Eigenvalue, cumulative percent of variance extracted, and scree plot test (Williams et al., 2010), This study used all of the criteria for the procedure of factor extraction. The factor will be formed when the Eigenvalue is more than 1, while the cumulative percent of variance results from the eigenvalue. Lorenzo-Seva (2013) explained that if the eigenvalues are added, the result shown total variance in the correlation matrix. The percentage of explained variance of each component can be easily computed as the corresponding eigenvalue divided by the total variance. Hinkin (1998) argues that 60 percent should be a "minimum" value of the percentage of explained variance.

Another criterion in determining factor extraction is the rotation method. This study applied the varimax rotation to represent the factor that uncorrelated. After the rotation step, the final procedure is to give the label for the factor extracted by referring to the theory or relevant research.

4. Results and Discussion

The EFA is the analysis which is used to extract a large number of a variable into dimensions. Table 1 displays the value of anti-image correlation for each item that measures financial behavior. Based on the anti-image correlation, we know that all of the items were valid because the value of the anti-image correlation exceeds 0.5. Therefore the EFA analysis could proceed into the next step.

Table 1
Anti Image Correlation

Items	Anti-image correlation	Items	Anti-image correlation	Items	Anti-image correlation	Items	Anti-image correlation
FB1	0.863	FB 7	0.516	FB 13	0.671	FB 19	0.67
FB2	0.904	FB 8	0.57	FB 14	0.907	FB 20	0.912
FB3	0.881	FB 9	0.927	FB 15	0.889	FB 21	0.909
FB4	0.914	FB 10	0.897	FB 16	0.916		
FB5	0.831	FB 11	0.907	FB 17	0.884		
FB 6	0.741	FB 12	0.905	FB 18	0.892		

After the validity test, the next step in EFA is the test of adequacy sample size based on KMO-MSA and Bartlett's test of sphericity. As represented in Table 2, this study has the KMO-MSA 0.877, while Barlett's test of sphericity is significant at 5 percent level of significance. Based on both criteria, it means that this study has a sufficient sample size to be analyzed using EFA. Therefore, the step could proceed further.

Table 2
Kaiser-Meyer-Olkin Measure of Sampling Adequacy

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.877
Bartlett's Test of Sphericity	Approx. Chi-Square	2587.404
	df	210
	Sig.	.000

In this study, the factor extraction is conducted by applying PCA. The findings show in the scree plot in Fig. 1 that represents the number of factors extracted based on the Eigenvalue > 1.

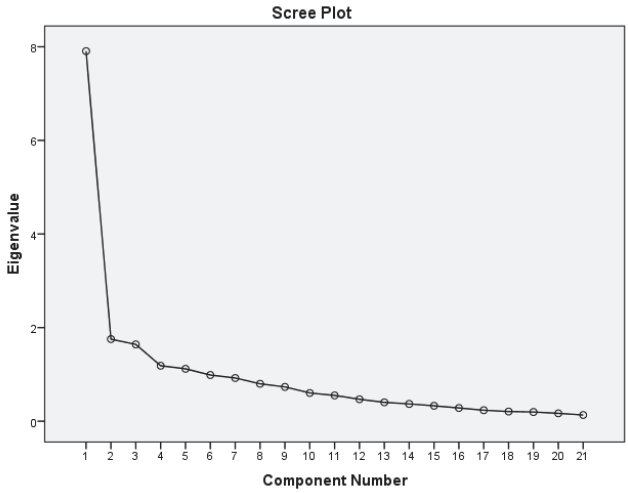

Fig. 1. Scree Plot for Factors Extraction

This figure is reinforced by the result of factor extraction based on the Eigenvalue represented in Table 3. Based on Table 3, five factors have been extracted from this analysis. Each factor has the Eigenvalue as follows: 7.908 for the first factor; 1.755 for the second factor; 1.641 for the third factor; 1.185 for the fourth factor; and 1.120 for the latest factor. Another criterion in factor extraction is the total cumulative variance. According to Hinkin (1998), the minimum value of total cumulative variance which is accepted in EFA is sixty percent. This study has a total variance explained by five factors in the amount of 64.80 percent.

Table 3
Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.908	37.657	37.657	7.908	37.657	37.657
2	1.755	8.356	46.013	1.755	8.356	46.013
3	1.641	7.814	53.827	1.641	7.814	53.827
4	1.185	5.643	59.470	1.185	5.643	59.470
5	1.120	5.332	64.802	1.120	5.332	64.802
6	.987	4.699	69.501			
7	.923	4.397	73.898			
8	.799	3.805	77.704			
9	.732	3.488	81.192			
10	.604	2.875	84.067			
11	.552	2.627	86.694			
12	.469	2.234	88.928			
13	.404	1.924	90.852			
14	.370	1.760	92.612			
15	.330	1.571	94.183			
16	.283	1.345	95.529			
17	.235	1.119	96.648			
18	.207	.984	97.632			
19	.197	.937	98.569			
20	.168	.799	99.368			
21	.133	.632	100.000			

Note: Extraction Method is Principal Component Analysis.

The rotation method using varimax is conducted to determine the loading factor for each item and to categorize the items which built each factor. Hinkin (1998) stated that the loading factor is greater than 0.4. The first component or factor consists of five items namely: item number 17, 20, 16, 18, and 21. The second component or factor consists sof eight items, including item number 12, 10, 15, 11, 14, 4, 9, and 3. The third component or factor consists of four items, including item number 7, 5, 1, and 2. The fourth component or factor consists of two items namely: item number 19 and 13. The fifth factor consists of two items that reflect the latest dimension. The detail loading factor for each item is represented in Table 4, while the details of the items in each dimension are displayed in Table 5.

Table 4
Rotated Component Matrix

	Component				
	1	2	3	4	5
VAR00017	**.846**	.244		.160	
VAR00020	**.798**	.224		.105	
VAR00016	**.795**	.306		.156	
VAR00018	**.725**	.244	.152	.206	-.279
VAR00021	**.697**	.332	.138		
VAR00012	.279	**.729**	.134	.248	-.218
VAR00010	.166	**.718**	.206	.275	-.232
VAR00015	.450	**.704**			
VAR00011	.445	**.695**		.173	
VAR00014	.421	**.684**			
VAR00004	.379	**.546**	.176		-.144
VAR00009		**.454**	.183	.428	-.277
VAR00003	.323	**.449**	.340	-.136	.180
VAR00007			**.710**		
VAR00005	.189	.218	**.708**		-.314
VAR00001		.191	**.687**		
VAR00002	.405	.446	**.481**	-.137	
VAR00019	.220			**.866**	
VAR00013	.101	.190		**.862**	.134
VAR00006		-.290			**.690**
VAR00008	-.172	.103			**.647**

Note: Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 10 iterations.

Table 5
Dimensions of Financial Behavior

Dimension	No of Items	Items of Financial Behavior	Loading
Long-term planning	FB17	Decide beforehand how to use money in the next 1-2 years.	.846
	FB20	Look at the budget for the next 1-2 years	.798
	FB16	Set financial goals for the next 1-2 years.	.795
	FB18	Consider the steps that need to take to stick to the budget in the next 1-2 years.	.725
	FB21	Planned out my finance in the next 1-2 years.	.697
Short-term budgeting	FB12	Consider the steps that need to take to stick to the budget in the next 1-2 months.	.729
	FB10	Set financial goals for the next 1-2 months.	.718
	FB15	Planned out my finance in the next 1-2 months.	.704
	FB11	Decide beforehand how to use money in the next 1-2 months.	.695
	FB14	Look at the budget for the next 1-2 months.	.684
	FB4	Do a good job of budgeting my money.	.546
	FB9	Checking account.	.454
	FB3	Saving money, no matter what.	.449
Saving behavior	FB7	Buying items on sale.	.710
	FB5	Comparing prices when shopping	.708
	FB1	Saving money by packing the lunch instead of buying it out.	.687
	FB2	Saving money for the future is something I think about.	.481
The use of the financial adviser	FB19	Consulting the long-term budget.	.866
	FB13	Consulting the short-term budget.	.862
Undesirable behavior	FB6	Impulse buying.	.690
	FB8	Having difficulties in paying all the expenses and bills.	.647

After the rotation method using varimax, the five factors that have been extracted will be labeled by referring to the previous research. According to Wagner (2015), the first factor is named as long-term planning. This factor reflects the individual's planning behavior related to future spending, budgeting, and setting financial goals in the future, especially in the next 1-2 years. It is also supported by Henager and Cude (2016) who categorize financial behavior into two types of the period including short-

term and long-term financial behavior. According to Henager and Cude (2016) and Wagner (2015), the second factor is labeled as a short-term planning. This factor represents someone's financial behavior that is related to the short-term financial goals, checking account routinely, planning in spending money, and doing a budget for the next 1-2 months coming. The third factor reflects the behavior to save more money by doing shopping when there is a sale, comparing price before shopping, saving money by packing the lunch instead of buying it and the awareness of saving money for the future. These factors are named as saving behavior by referring to Knoll and Houts (2012) and Varcoe, Martin, Devitto, and Go (2005).

The fourth factor is labeled as the use of financial advisers. It measures people's behavior in consulting their budget to the adviser both for the long-term and short-term periods. This label refers to Wagner (2015) who explore financial behavior in terms of long-term and short-term behavior. The latest factor is labeled as undesirable behavior which reflects in an impulse buying behavior and the difficulties in paying all the bills. It is supported by Xiao, Tang, Serido, and Shim (2011).

Based on the data analysis, the findings show that the dimensions of financial behavior in this study are categorized into five types of financial behavior, including long-term planning, short-term planning, saving behavior, the use of financial adviser, and undesirable behavior.

5. Conclusion

This study aimed to identify potential underlying dimensions of financial behavior. Based on factor analysis, five factors of financial behavior are extracted, and these factors are labeled as follows: the first factor is long-term planning, the second factor is short-term planning, the third factor is saving behavior, the fourth factor is the use of financial advisers, and the last one is undesirable behavior. The study used the households without grouping the sample into different incomes. Therefore, it should be applied for the next study to describe each type of behavior and compare the results for each group of income. This implies for future research to explore each dimension related to another variable in explaining the consequences of financial behavior.

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