

## Personality Traits' Impact on Managing Debt: A Case Study in Indonesia

Jessica Christella Hidayat  
School of Business and Management, Institut Teknologi  
Bandung Indonesia

Taufik Faturohman\*  
School of Business and Management, Institut Teknologi Bandung Indonesia

— *Review of* —  
**Integrative  
Business &  
Economics**  
— *Research* —

### ABSTRACT

As financial technology and consumer behavior in Indonesia evolve, research that assesses their level of risk in debt management is required. This study was conducted to investigate the relationship between personality traits and other factors, such as effective financial decision making, attitude toward debt, locus of control, and financial literacy, in influencing a person's response in unexpected situations and causing them into debt, as a lot happened when covid-19 hit. Our data from an online questionnaire revealed that personality has a significant relationship to risk in debt management; additionally, attitude toward debt and financial behavior significantly affect debt risk. This analysis was obtained through ordinal regression by categorizing respondents into three categories: low, middle, and high-risk debt management. This study has potentially implementation for lenders such as banks or peer-to-peer businesses, regarding the type of people who are most likely to have debt troubles, and also regulators regarding how they can make policies related to borrowing applicants to avoid risky debtor in order to push the non-performing loan (NPL) low.

Keywords: Debt management, personality trait, financial literacy, debt risk.

### 1. INTRODUCTION

Nowadays, people are already familiar with financial technology, usually called fintech. According to Oxford Dictionary, fintech is computer programs and other technology used to provide banking and financial services. Some services provided by fintech are capital raising, fundraising and distribution insurance, transaction settlement, investment management, equity crowdfunding, market support, and other financial support and services activities. In Indonesia, fintech was started in 2006 and has expanded rapidly in recent years. Based on MEDICI's Indonesia Fintech Report 2021, three sectors gaining traction are: 1. Digital wallet (GoPay, OVO, LinkAja, Dana); 2. Peer-to-peer (P2P) lending, in which the total funding from P2P platforms reached IDR 113.46 trillion with close to 26 million borrowers; 3. B2B FinTech, which is also raising funds in 2020.

As of 6 October 2021, 106 fintech peer-to-peer lending or fintech lending are registered and supervised by Financial Services Authority (OJK). The growth of fintech lending is driven by a high number of unbanked populations in Indonesia. The lack of credit history information makes traditional banks face difficulties in reaching the unbanked population, and P2P lending took this opportunity to give a loan through an

online platform by matching borrowers and lenders. It shows that much Indonesian society dares to take a loan to fulfill their household needs.

However, at the beginning of the Covid-19 pandemic, there was an upward trend in the non-performing loan (NPL) ratio (TWP90 or 90-day delinquency rate). The NPL is increasing from 3.92% to 6.23% from February 2020 until June 2020. This issue motivates the researcher to examine how individuals manage their debt when things unexpectedly go wrong and get into debt repayment difficulties through their personality traits.

Managing debt in financial difficulty may lead to sensible or high-risk decisions. In 2019, Response Bank Indonesia researched household over-indebtedness focusing on credit cards and online lending platforms through in-depth-interview. Based on their finding, the characteristic of debt in an online lending platform has a higher ratio of debt to income compared with a ratio of expenditure to income. It concludes that the loan was used not for daily expenditure but to cover other debts. Hence this behavior will lead to a high-risk decision. When someone decides to reduce their expenditure, find another additional income, or seek advice from a professional, it will lead to a sensible decision or has a low risk of managing debt.

This study considers six behavioral and psychological determinants influencing how individuals manage debt: attitude to debt, self-control, locus of control, conscientiousness, neuroticism, and financial literacy. This research has a potential implementation for lenders, such as banks or peer-to-peer businesses, regarding the type of people who are most likely to have debt troubles. Also, implementing regulations regarding how they can make policies related to borrowing applicants to avoid risky debtors to push the non-performing loan (NPL) low.

## **2. LITERATURE REVIEW**

### **2.1 Behavioral and Psychological Variables**

#### **2.1.1 Attitude towards debt**

Attitude toward debt appears to have an important role in indebtedness. Regarding debt, the cognitive component includes an individual's knowledge, opinions, thoughts, and beliefs about taking on debt (Lutz, 1991). Cosma and Pattarin (2011) showed that attitudes influence the use of credit. As attitude toward debt increases, credit users are more likely to finance consumption using debit or credit cards. Also, Arifin and Soleha (2019) found that people willing to take risks tend to be overconfident. At the same time, overconfidence makes people believe they can navigate credit contracts effectively even with the underlying risks (Cwynar et al., 2020). Conversely, Almenberg et al. (2020) found that people uncomfortable with debt have a lower level of debt. This finding leads to the following hypothesis:

**H1:** A more positive attitude towards debt is positively associated with high-risk debt management choices.

#### **2.1.2 Effective financial decision making**

Behavioral finance principles believe that people tend to be more irrational than rational when making a decision. Sometimes, some anomalies can only be explained if people behave irrationally. Richard H. Thaler, the Nobel Memorial Prize in Economic Sciences winner, demonstrated the direct relationship of emotion and feelings to financial decision-making (nudge theory). He wrote a book about the effects of bias-inducing

heuristics on financial decision-making quality. According to Ganbat et al. (2021), respondents who scored high on efficient financial decision-making were described with the phrase "I can maintain costs on budget," implying they were low risk on debt management choices. This finding leads to the following hypothesis:

**H2:** The ability to make effective financial decision-making is negatively associated with high-risk debt management choices.

### **2.1.3 Locus of control**

Locus of control is defined as an individual's perception of his/her ability to control their immediate environment and how well people believe they are in control of their own lives (Rotter, 1966). The locus of control consists of two construction, internal and external. When people believe they are in charge of everything that happens in their life, they tend to have an internal locus of control. Conversely, when people believe what happened in their life is out of their control, they tend to have an external locus of control (Kreitner & Kinicki, 2001). Regarding indebtedness, Wang et al. (2008) showed that participants with a stronger external locus of control were likelier to have a lower risk of debt management on mortgage loans. This finding leads to the following hypothesis:

**H3:** An external locus of control is negatively associated with high-risk debt management choices.

### **2.1.4 Conscientiousness**

Conscientiousness is the relatively stable pattern of individual differences in the tendencies to follow socially prescribed norms for impulse control, to be goal-directed and planful, to delay gratification, and to follow norms and rules (Leary & Hoyle, 2009). Based on its definition, conscientiousness can be described as organized, disciplined, detail-oriented, thoughtful, and careful.

Amongst the Big Five personality traits, Exley et al. (2021) found that conscientiousness correlated positively with financial literacy, income, and net worth but negatively with financial risk tolerance. Gagarina and Shantseva's (2017) research paper found that debtors have a lower level of conscientiousness, debt avoidance, and rational debt behavior than borrowers/payers and non-borrowers. This finding leads to the following hypothesis:

**H4:** Conscientiousness is negatively associated with high-risk debt management choices.

### **2.1.5 Neuroticism**

In contrast with conscientiousness, Caspi & Shiner (2006) defined neuroticism as the frequent experience of negative emotions such as anger, fear, and sadness. Thus, it may increase the risk of an internalizing problem because highly neurotic individuals frequently experience the negative emotions that underlie such disorders as anxiety and depression. Exley et al. (2021) found that neuroticism correlated negatively with financial literacy, income, and net worth. Rendall et al. (2021) also found that those high on neuroticism will be unable to cope with a difficult financial situation and are likely to panic and endorse ill-considered strategies such as taking out more credit and ignoring the situation. This finding leads to the following hypothesis:

**H5:** Neuroticism is positively associated with high-risk debt management choices.

### **2.1.6 Financial literacy**

Financial literacy is "a combination of conscientiousness, knowledge, skills, attitudes, and behaviors necessary to make sound financial decisions and ultimately achieve individual financial well-being" (Organisation for Economic Cooperation and Development; OECD, 2015). Healthy personal financial management will be based on good financial knowledge or literacy (Timmons & Spinelli, 2007). Lack of knowledge in finance is related directly to debt (Norvilitis et al., 2006). According to Dai et al. (2021), financial literacy partially and simultaneously affects behavioral finance, which controls financial decision-making.

French and McKillop (2016) found that financial literacy is numeracy and money management skill that determine consumer debt and household net worth among credit union members. Gathergood (2011) also found that poor financial literacy is positively associated with over-indebtedness. In this study, we divide financial literacy into three components: financial attitude, financial knowledge, and financial behavior. Thus, the finding leads to the following hypothesis:

**H6a:** Higher financial attitude is negatively associated with high-risk debt management choices.

**H6b:** Higher financial knowledge is negatively associated with high-risk debt management choices.

**H6c:** Higher financial behavior is negatively associated with high-risk debt management choices.

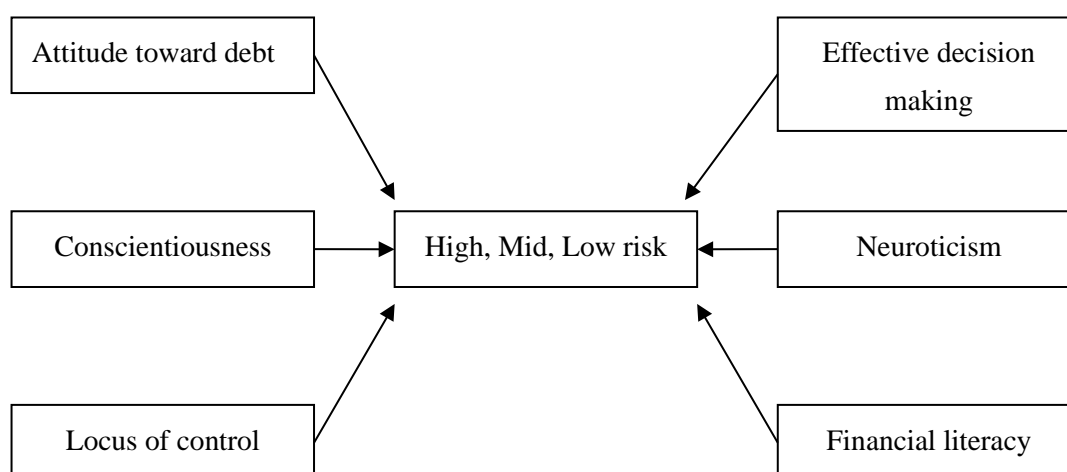


Figure 1 Proposed model of the relationship of personality traits, attitude toward debt, effective decision making, locus of control and financial literacy on debt risk.

### 3. RESEARCH METHODOLOGY AND DATA

In order to find the variables that significantly influence the ability to manage debt, a questionnaire is conducted through an online platform. Participants will be asked about various demographics, including personality traits, effective financial decision making, locus of control, attitude to debt, and financial literacy. Also, there are open-ended questions about how they manage several debt scenarios.

#### 3.1 The independent variables

All independent variables were measured using scale items obtained from previous research. Attitude toward debt will be measured using a 12-items questionnaire adapted from Lea et al. (1995). Two personality factors: conscientiousness and neuroticism, will be measured using the Big Five Inventory (John & Srivastava, 1999). Effective financial decision-making will adopt the Ganbat et al. (2021) questionnaire. Locus of control will be measured using Lumpkin's (1985), and financial literacy will have a 34-items questionnaire that will be evaluated through financial attitude, financial behavior, and financial knowledge adapted from Parrotta and Johnson (1998) and OECD (2015).

### **3.2 The dependent variable**

The dependent variable will be categorized into high, mid, and low-risk debt management strategies adapted from Rendall et al. (2021). The participants will be given six hypothetical debt-related scenarios. They need to imagine some situation where they face financial difficulty and will be asked how they can manage it. Later, their responses will be coded into six themes: 1. Borrow from friends and family; 2. Reduce expenditure or sell assets to raise money; 3. Use a credit card, get a loan, or bank overdraft; 4. Seek advice from debt advisory firms or the Citizen's Advice Bureau; 5. Negotiate with creditors; 6. Other. Based on Rendall et al. (2021), responses under themes 2, 4, and 5 were classified as low risk (scored with 0), while responses under theme 1 were deemed as mid risk (scored with 1), and theme under 3 and 6 included in high risk (scored with 2). The score will be summed up over six scenarios; therefore, the dependent variable will variate from 0 to 12, where higher scores indicate higher risk debt management strategies.

## **4. RESULT AND ANALYSIS**

### **4.1 Preliminary data analysis**

In this study, a questionnaire was conducted around March until May 2022 with a total of 402 participants, consisting of 300 participants from Populix, a start-up company that provides a consumer insights service provider that connects the surveyor with a collection of qualified and targeted respondents throughout Indonesia, and 102 participants from online platform questionnaire. The target population was Indonesians who were older than 17 years old.

The data were screened for outliers and missing values, which resulted in removing ten outliers and fifty-three unreliable answers (for dependent variable). The final sample size for this study was 339 people, and the demographics of the sample are shown in Table 1. Most participants were female, with the majority being between the ages of 32 and 40. Two-thirds have not yet married, and half have a university degree, with the majority residing in Java and being either an employee or a student. Most participants have income and expenses that are less than 5 million rupiah, and only a quarter used a credit card. This study began with analyzing different tests for each demographic, followed by ordinal regression modeling.

Table 1 Demographic characteristics of respondents (n=339).

<i>Demographic variable</i>	<i>Number (%)</i>	<i>Demographic variable</i>	<i>Number (%)</i>
<i>Gender</i>		<i>Type of occupation</i>	
Male (R)	133 (33.3%)	Employee (R)	127 (37.5%)
Female	226 (66.7%)	Entrepreneur	38 (11.2%)
<i>Age group (year)</i>		Student	115 (33.9%)
17-21 (R)	21 (6.2%)	Others	59 (17.4%)
22-31	103 (30.4%)	<i>Monthly income</i>	
32-40	150 (44.2%)	<Rp2.500.000 (R)	162 (47.8%)
41-58	65 (19.2%)	Rp2.500.000-Rp4.999.999	80 (23.6%)
<i>Marital status</i>		Rp5.000.000-Rp7.499.999	36 (10.6%)
Not married (R)	230 (67.8%)	Rp7.500.000-Rp9.999.999	18 (5.3%)
Married	106 (31.3%)	Rp10.000.000-Rp12.499.999	14 (4.1%)
Divorced	3 (0.9%)	Rp12.500.000-Rp14.999.999	8 (2.4%)
<i>Education attainment</i>		>Rp15.000.000	21 (6.2%)
Junior High School (R)	6 (1.8%)	<i>Monthly expense</i>	
Senior High School	141 (41.6%)	<Rp2.500.000 (R)	202 (59.6%)
Undergraduate Degree	168 (49.6%)	Rp2.500.000-Rp4.999.999	89 (26.3%)
Graduate Degree	23 (6.8%)	Rp5.000.000-Rp7.499.999	22 (6.5%)
Post-graduate Degree	1 (0.3%)	Rp7.500.000-Rp9.999.999	12 (3.5%)
<i>Domicile</i>		Rp10.000.000-Rp12.499.999	6 (1.8%)
Java (R)	208 (61.4%)	Rp12.500.000-Rp14.999.999	1 (0.3%)
Sumatera	67 (19.8%)	>Rp15.000.000	7 (2.1%)
Kalimantan	18 (5.3%)	<i>Use of credit card</i>	
Sulawesi	21 (6.2%)	Yes (R)	94 (27.7%)
Bali, NTT and NTB	24 (7.1%)	No	245 (72.3%)
Papua	1 (0.3%)	Total sample = 339	

The non-parametric test is used in this study to determine whether two or more samples are likely to come from the same population. In this test, 339 respondents were used for each demographic variable category, and the results are shown in Table 2. Our data indicated that debt management was significantly related to age, education level, domicile, monthly income, and monthly expense. Our data suggested that respondents between 32 and 40 are at a higher risk than other age groups in managing debt. While respondents with graduate degrees have a lower debt risk than the others, respondents who are domiciled in Java, Sumatra, and Sulawesi have a higher debt risk than others. Respondents with monthly incomes ranging from 10 million rupiah to 12.5 million rupiah and monthly expenses ranging from 5 million rupiah to 7.5 million rupiah have the highest debt risk compared to other groups.

#### 4.2 Model specification

Table 3 presents the means, standard deviation, and Cronbach's alphas for all scale measures. According to George and Mallery (2003), a Cronbach's alpha value greater than 0.7 indicates good internal consistency, and we can conclude that our questionnaire is reliable. As shown in Table 3, neuroticism, conscientiousness, attitude toward debt and financial behavior have Cronbach's alpha values greater than 0.7. However, the locus of control, effective financial decision-making, and financial attitude have Cronbach's alpha values less than 0.7, so we did not include them in this study's model specification. The Cronbach's alpha is not reported for financial knowledge because the measurement is multiple choice with correct and incorrect answers.

Table 2 Demographic variables associated with debt risk (n=339).

Demographic variable	Risk mean (±SD)	p-value	Demographic variable	Risk mean (±SD)	p-value
<i>Gender</i>			<i>Type of occupation</i>		0.421 <sup>b</sup> (ns)
Male (R)	4.05±2.758	-	Employee (R)	3.82±2.583	-
Female	4.17±2.637	0.303 <sup>a</sup> (ns)	Entrepreneur	4.18±2.481	-
<i>Age group (year)</i>		0.001 <sup>b</sup> (***)	Student	4.31±2.709	-
17-21 (R)	4.29±2.969	-	Others	4.42±2.908	-
22-31	3.93±2.398	0.640 <sup>a</sup> (ns)	<i>Monthly income</i>		0.000 <sup>b</sup> (***)
32-40	4.44±2.841	0.020 <sup>a</sup> (**)	<Rp2.500.000 (R)	4.18±2.682	-
41-58	3.69±2.561	0.072 <sup>a</sup> (*)	Rp2.500.000-Rp4.999.999	4.24±2.567	0.750 <sup>a</sup> (ns)
<i>Marital status</i>		0.285 <sup>b</sup> (ns)	Rp5.000.000-Rp7.499.999	4.00±2.798	0.028 <sup>a</sup> (**)
Not married (R)	4.10±2.674	-	Rp7.500.000-Rp9.999.999	3.61±2.062	0.098 <sup>a</sup> (*)
Married	4.14±2.606	-	Rp10.000.000-Rp12.499.999	5.57±3.131	0.000 <sup>a</sup> (***)
Divorced	6.00±5.292	-	Rp12.500.000-Rp14.999.999	2.75±2.252	0.418 <sup>a</sup> (ns)
<i>Education attainment</i>		0.000 <sup>b</sup> (***)	>Rp15.000.000	3.62±2.941	0.000 <sup>a</sup> (***)
Junior High School (R)	6.83±3.764	-	<i>Monthly expense</i>		0.000 <sup>b</sup> (***)
Senior High School	3.91±2.452	0.010 <sup>a</sup> (***)	<Rp2.500.000 (R)	4.13±2.737	-
Undergraduate Degree	4.37±2.728	0.070 <sup>a</sup> (*)	Rp2.500.000-Rp4.999.999	4.28±2.486	0.235 <sup>a</sup> (ns)
Graduate Degree	2.87±2.528	0.201 <sup>a</sup> (ns)	Rp5.000.000-Rp7.499.999	4.36±2.821	0.000 <sup>a</sup> (***)
Post-graduate Degree	9.00	0.295 <sup>a</sup> (ns)	Rp7.500.000-Rp9.999.999	3.58±2.065	0.058 <sup>a</sup> (*)
<i>Domicile</i>		0.014 <sup>b</sup> (**)	Rp10.000.000-Rp12.499.999	3.83±4.119	0.020 <sup>a</sup> (**)
Java (R)	4.00±2.661	-	Rp12.500.000-Rp14.999.999	3.00	0.344 <sup>a</sup> (ns)
Sumatera	4.72±2.724	0.159 <sup>a</sup> (ns)	>Rp15.000.000	2.86±2.854	0.041 <sup>a</sup> (**)
Kalimantan	3.33±3.049	0.025 <sup>a</sup> (**)	<i>Use of credit card</i>		
Sulawesi	4.62±2.655	0.202 <sup>a</sup> (ns)	Yes (R)	3.83±2.695	-
Bali, NTT and NTB	3.88±2.252	0.006 <sup>a</sup> (***)	No	4.25±2.663	0.358 <sup>a</sup> (ns)
Papua	3.00	0.236 <sup>a</sup> (ns)			

Note:

ns=not significant

\*p < 0.1

\*\*p < 0.05

\*\*\*p < 0.01

<sup>a</sup> Analyzed with Mann-Whitney test

<sup>b</sup> Analyzed with Kruskal-Wallis rank test

Given that the dependent variable is organized into three categories (low, medium, and high risk), ordinal regression analysis using a logit model is used to examine the relationship between the independent and dependent variables. Our primary model is as follows:

$$Logit(risk_i) = \alpha' + \beta_1 Neuroticism_i + \beta_2 Conscientiousness_i + \beta_3 FinKnowledge_i + \beta_4 FinBehavior_i + \beta_5 AttitudeDebt_i + \gamma'_i X_i + \epsilon_i$$

where  $\alpha'$  is a vector of cut-off points estimated in ordinal regression models,  $Neuroticism_i$ ,  $Conscientiousness_i$ ,  $FinBehavior_i$ ,  $FinKnowledge_i$ , and  $AttitudeDebt_i$  are an aggregate score for each variable,  $\epsilon_i$  is the i.i.d. standard normal error term, and  $X_i$  is a vector of control variables (covariates) for gender, age, marital status, education, domicile, monthly income, monthly expenses, and use of credit card.

Table 3 Means, standard deviation and Cronbach's alpha for all scale measures.

Measures	Mean	Std. dev	Cronbach's alpha
Neuroticism	21.30	5.847	0.839
Conscientiousness	34.28	5.069	0.852
Locus of Control	19.51	2.434	0.097
Effective financial decision making	15.23	6.230	0.255
Attitude toward debt	23.78	6.524	0.783
Financial literacy			
Financial attitude	38.57	3.971	0.306
Financial behaviour	51.61	7.893	0.843
Financial knowledge	7.66	2.050	n/a

In this study, ten models were developed, as shown in Table 4. The first model employs all covariates in the regression model, while the others employ variations of the covariates with the same dependent variable. The effect of independent variables is shown by the regression coefficient, odd ratio, and 95 percent confidence intervals. The odd ratios illustrate the consistent effect of an independent variable on the likelihood of one outcome occurring. The statistical significance of the models is also reported, as are essential metrics of the overall goodness of fit (likelihood-ratio tests, Pearson and Deviance goodness of fit tests, and the Cox and Snell measure of R-Square).

Conscientiousness, debt attitude, gender, marital status, and occupation strongly connect with debt risk in Model 1. Conscientiousness, debt attitude, and occupation have a significant positive association, but gender and marital status significantly negatively affect the risk. This result supports hypotheses 1 and 4, but the sign for conscientiousness differed from what was indicated in the hypothesis. According to it, the stronger one's conscientiousness or attitude toward debt, the more likely one is to make high-risk debt management decisions. Whereas, for Model 1 in this study, hypotheses 5, 6b, and 6c involving neuroticism, financial knowledge, and financial behavior are not validated. They have no statistically meaningful relationship with the risk.

Model 10, on the other hand, is modeled without covariates and provides three significant variables, neuroticism, financial behavior, and attitude toward debt, while conscientiousness and financial knowledge are not significant. It shows that higher neuroticism or attitude toward debt will result in higher risk in debt management, whereas financial behavior has a negative relation with risk; thus, the higher the financial behavior score, the lower the risk.

Looking at models 2 through 9, the factors change from one to another covariate to examine their effect on debt management. Except for marital status in model 4, neuroticism substantially affects debt risk. While attitude toward debt and financial behavior alternate with each other. For demographic variables, only gender is statistically significant with debt risk, and the negative relationship indicates that females have a lower risk of debt management than males. The value of pseudo-R-square for the ten models built in this study ranges from 0.125-0.256., which indicates that the independent variables explain 12.5 to 25.6 percent of the variance in debt management risk. Our data suggested that the model that incorporates all covariates (model 1) has the highest pseudo-R-square value, and as a goodness of fit test, all models pass.



Table 4 Results of ordinal regression analyses on debt risk.

Dependent variable: low, mid, high risk	Model 1		Model 2		Model 3		Model 4		Model 5	
	β	OR (CI <sub>95%</sub> )	β	OR (CI <sub>95%</sub> )	β	OR (CI <sub>95%</sub> )	β	OR (CI <sub>95%</sub> )	β	OR (CI <sub>95%</sub> )
Independent variables:										
Neuroticism	0.051	1.052 (0.953-1.163)	0.097**	1.102 (1.006-1.206)	0.090**	1.095 (1.003-1.195)	0.066	1.068 (0.973-1.173)	0.090**	1.095 (1.003-1.194)
Conscientiousness	0.159**	1.172 (1.009-1.361)	0.083	1.086 (0.955-1.235)	0.085	1.089 (0.956-1.241)	0.096	1.100 (0.966-1.253)	0.074	1.077 (0.948-1.224)
Financial knowledge	-0.221	0.802 (0.591-1.088)	-0.107	0.899 (0.692-1.167)	-0.032	0.968 (0.756-1.239)	-0.043	0.958 (0.755-1.216)	0.017	1.017 (0.792-1.306)
Financial behavior	-0.058	0.944 (0.856-1.041)	-0.075*	0.928 (0.855-1.007)	-0.076*	0.927 (0.854-1.007)	-0.071*	0.932 (0.860-1.010)	-0.066	0.936 (0.862-1.017)
Attitude toward debt	0.095**	1.100 (1.003-1.206)	0.062	1.064 (0.986-1.148)	0.063	1.065 (0.987-1.149)	0.061	1.063 (0.985-1.147)	0.070*	1.072 (0.992-1.158)
Covariates:										
Gender	-1.529**	0.217 (0.060-0.777)	-0.992*	0.371 (0.128-1.076)						
Age	-0.154	0.857 (0.449-1.638)			-0.183	0.832 (0.524-1.323)				
Marital status	-1.819*	0.162 (0.026-1.021)					-0.853	0.426 (0.132-1.375)		
Education	-0.417	0.659 (0.246-1.762)							-0.137	0.872 (0.421-1.808)
Domicile	-1.558	0.211 (0.017-2.572)								
Occupation	0.658*	1.931 (0.966-3.859)								
Income	0.096	1.101 (0.649-1.865)								
Expense	0.211	1.235 (0.649-2.348)								
Use of credit card	0.843	2.323 (0.534-10.104)								
P-value:										
Model fit	0.018**		0.015**		0.045**		0.024**		0.052*	
Pearson	0.248ns		0.911ns		0.726ns		0.801ns		0.795ns	
Deviance	1.000ns		0.999ns		0.998ns		0.999ns		0.998ns	
Pseudo R-Square	0.256		0.157		0.151		0.146		0.126	

Note:  
 ns=not significant  
 \*p < 0.1  
 \*\*p < 0.05  
 \*\*\*p < 0.01

Dependent variable: low, mid, high risk	Model 6		Model 7		Model 8		Model 9		Model 10	
	$\beta$	OR (CI <sub>95%</sub> )	$\beta$	OR (CI <sub>95%</sub> )	$\beta$	OR (CI <sub>95%</sub> )	$\beta$	OR (CI <sub>95%</sub> )	$\beta$	OR (CI <sub>95%</sub> )
Independent variables:										
Neuroticism	0.095**	1.100 (1.006-1.203)	0.089**	1.093 (1.003-1.192)	0.084*	1.088 (0.995-1.190)	0.089**	1.093 (1.001-1.193)	0.091**	1.095 (1.004-1.195)
Conscientiousness	0.081	1.084 (0.954-1.232)	0.084	1.087 (0.955-1.238)	0.089	1.093 (0.956-1.251)	0.079	1.082 (0.950-1.233)	0.075	1.077 (0.949-1.224)
Financial knowledge	0.011	1.011 (0.800-1.278)	0.007	1.007 (0.795-1.275)	0.016	1.016 (0.800-1.291)	0.005	1.005 (0.793-1.273)	0.000	1.000 (0.791-1.264)
Financial behavior	-0.075*	0.928 (0.855-1.007)	-0.062	0.940 (0.867-1.020)	-0.071	0.931 (0.854-1.015)	-0.069*	0.934 (0.862-1.011)	-0.069*	0.933 (0.862-1.010)
Attitude toward debt	0.064*	1.066 (0.989-1.149)	0.085**	1.089 (1.002-1.184)	0.073*	1.076 (0.993-1.166)	0.070*	1.072 (0.993-1.158)	0.067*	1.069 (0.992-1.153)
Covariates:										
Gender										
Age										
Marital status										
Education										
Domicile	-1.078	0.340 (0.048-2.410)								
Occupation			0.243	1.275 (0.813-1.999)						
Income					-0.017	0.983 (0.642-1.505)				
Expense					-0.100	0.905 (0.538-1.523)				
Credit card use							0.166	1.181 (0.422-3.303)		
P-value:										
Model fit	0.021**		0.037**		0.075*		0.054*		0.031**	
Pearson	0.837ns		0.792ns		0.745ns		0.686ns		0.785ns	
Deviance	0.999ns		0.998ns		0.998ns		0.998ns		0.998ns	
Pseudo R-Square	0.149		0.136		0.131		0.126		0.125	

Note:  
 ns=not significant  
 \*p < 0.1  
 \*\*p<0.05  
 \*\*\*p<0.01

## 5. CONCLUSION AND RECOMMENDATION

This study aims to investigate the factors that can influence a person's decision-making when faced with financial difficulties. When all demographic variables were considered, we discovered that personality with high conscientiousness scores significantly affected high debt management risk. However, the sign differed from our initial hypothesis (H4), which is supposed to be negatively associated. However, when we performed additional analyses controlling for demographic variables, the significant personality associated with the debt risk was neuroticism, not conscientiousness, which supported our hypothesis (H5), and it can be stated that neuroticism has a significant positive effect on debt risk across all models. So, the first conclusion is that the higher the value of a person's neuroticism, the higher the risk when faced with financial difficulties.

Regarding financial literacy, our study employed two variables to assess it: financial knowledge and financial behavior. Financial behavior had a significant negative relationship to debt risk in the model with demographic variables such as gender, age, marital status, domicile, and credit card use. Unfortunately, financial knowledge did not significantly affect debt risk in this study. It clearly showed that one's financial behavior is more important than financial knowledge, where knowledge does not guarantee that one can manage debt in difficult circumstances. As a result, our second conclusion is that higher financial behavior scores lead to lower risk in debt management. However, high financial knowledge has not been shown to affect debt risk significantly.

Our study also discovered that the attitude toward debt was significantly influenced the risk when combined with education, domicile, occupation, income, expenses, and credit card use. A person with a positive attitude toward debt is more willing to take out a loan even in a difficult situation, increasing the risk of default in that situation. For example, in the case of emergencies, they will not hesitate to use a credit card or make loans to third parties where repayment of the debt is uncertain, and their confidence may be misplaced in such circumstances. Therefore, we can conclude that a positive attitude toward debt could increase debt management risk.

This study found that debt risk was found significantly influenced by gender, marital status, and occupation when considering demographic variables. In our modeling, males, not married, and employees were used as the baseline. Males are more likely to have higher debt risk than females. Someone married is less likely to be in debt than someone not married. When employees, entrepreneurs, and students are compared, students have a higher risk than entrepreneurs, and entrepreneurs have a higher risk than employees.

Our findings on personality traits, financial literacy, and attitude toward debt in determining how someone manages their debt can be used by lenders to sort individuals based on their risk and the capability to repay. It can also be used in the implementation of government policies in handling online loans, which are booming in Indonesia, so that people can get loans, and also the businesses can minimize the non-performing loan. Furthermore, the government, organizations, and schools can collaborate to raise a generation prepared to overcome difficult financial situations by practicing good financial behavior.

## REFERENCES

- [1] Achtziger, A., Hubert, M., Kenning, P., Raab, G., Reisch, L. (2015), "Debt out of control: The links between self-control, compulsive buying, and real debts", *Journal of Economic Psychology*, Vol 49, pp. 141-149.
- [2] Almenberg, J., Lusardi, A., Save-Soderbergh, J., Vestman, R. (2020), "Attitudes toward debt and debt behavior", *Scandinavian Journal of Economics*, 123(4).
- [3] Arifin, Z., Soleha, E. (2019), "Overconfidence, attitude toward risk, and financial literacy: A case in Indonesia Stock Exchange", *Review of Integrative Business and Economics Research*, Vol. 8, Supplementary Issue 4.
- [4] Caspi, A., Shiner, R. L. (2006), "Personality development", In N. Eisenberg, W. Damon, & R. M. Lerner (Eds.), *Handbook of child psychology: Social, emotional, and personality development* (pp. 300-365). *John Wiley & Sons, Inc.*
- [5] Cosma, S., Pattarin, F. (2011), "Attitudes, personality factors and household debt decisions: A study of consumer credit", *Bank strategy, governance and ratings*, pp. 194-216.
- [6] Cwynar, A., Cwynar W., Patena W., Sibanda W. (2020), "Young adults' financial literacy and overconfidence bias in debt markets", *International Journal of Business Performance Management*, Vol. 21, No. 1/2.
- [7] Dai, R., M., Kostini, N., Tresna, P., W. (2021), "The influence of financial attitude and financial literacy on behavioral finance: A study on leading small and medium enterprise in Cimahi City, Indonesia", *Review of Integrative Business and Economics Research*, Vol. 10, Supplementary Issue 1.
- [8] Donnelly, G., Iyer, R., Howell, R. T. (2012), "The big five personality traits, material values, and financial well-being of self-described money managers", *Journal of Economic Psychology*, Vol. 33, pp. 1129-1142.
- [9] Exley, J., Doyle, P., Snell, M., Campbell, W., K. (2021), "O.C.E.A.N.: How does personality predict financial success?", *Journal of Financial Planning*, October 2021.
- [10] French, D., McKillop, D. (2016), "Financial literacy and over-indebtedness in low-income households", *International Review of Financial Analysis*, Vol. 48, pp. 1-11.
- [11] Frydman, C., Camerer, C. (2016), "The psychology and neuroscience of financial decision making", *Trend in Cognitive Sciences*, Vol. 20, pp. 661-675.
- [12] Gagarina, M. A., Shantseva, A. A. (2017), "Socio-psychological peculiarities and level of financial literacy of Russian debtors", *Review of Business and Economics Studies*, Vol 5, No 2.
- [13] Ganbat, M., Batbaatar, E., Bazarragchaa, G., Ider, T., Gantumur, E., Dashkhorol, L., Altantsatsealt, K., Nemekh, M., Dashdondog, E., Namsrai, O. E. (2021), "Effect of psychological factors on credit risk: a case study of the microlending service in Mongolia", *Behavioral Sciences*, Vol. 11, No. 47.
- [14] Gathergood, J. (2011), "Self-control, financial literacy, and consumer over-indebtedness", *Journal of Economic Psychology*, Vol. 33, No. 3.

- [15] Indonesia digital report 2021, data is obtained from website:  
<https://andi.link/hootsuite-we-are-social-indonesian-digital-report-2021/>.
- [16] Indonesia fintech report 2021 – by MEDICI, data is obtained from website:  
<https://gomedici.com/indonesia-fintech-report-2021-by-medici>.
- [17] John, O. P., Srivastava, S. (1999), “The big five trait taxonomyL history, measurement, and theoretical perspectives”, In L. A. Pervin, O. P. John (Eds.), vol. 2. Handbook of personality: Theory and research (pp. 102-138). *Guilford Press*.
- [18] Khan, K. A., Akhtar, M. A., Tripathi, P. K. (2020), “Perceived usefulness of social media in financial decision-making: differenes and similarities”, *Innovative Marketing*, Vol. 16, No. 4.
- [19] Kreitner, R., Kinicki, A. (2001), “Organizational behavior”, *McGraw-Hill*.
- [20] Lea, Y. G., Lown, J. M., Sharpe, D. L. (2007), “Predictors of holding consumer and mortgage debt among older Americans”, *Journal of Family and Economic Issues*, Vol. 28. No. 2, pp. 305-320.
- [21] Leary, M. R., Hoyle, R. H. (2009), “Handbook of individual differences in social behavior”, *The Guilford Press*.
- [22] Lumpkin, J. R. (1985), “Validity of a brief locus of control scale for survey research”, *Psychological Reports*, Vol. 57, No. 2, pp. 655-659.
- [23] Lutz, R. J. (1991), “An experimental investigation of causal relations among cognitions, affect, and behavioral intention”, *Journal of Consumer Research*, Vol, 3, pp. 197-208.
- [24] Norvilitis, J. M., Osberg, T. M., Young, P., Merwin, M. M., Roehling, P. V., Kamas, M. M. (2006), “Personality factors, money attitudes, financial knowledge, and credit-card debt in college students”, *Journal of Applied Social Psychology*, Vol. 36, No. 6, pp. 1395-1413.
- [25] Oliveira, A. (2007), “A discussion of rational and psychological decision-making theories and models: the search for a cultural-ethical decision-making model”, *Electronic Journal of Business Ethics and Organization Studies*, Vol 12, No. 2.
- [26] Organization for Economic Cooperation and Development (OECD, 2015) Survey on measuring financial literacy and financial inclusion Report. Available at:  
<https://www.oecd.org/finance/financialeducation/2015finlitmeasurementexercise.htm>
- [27] Parrotta, L., Johnson, P. J. (1998), “The impact of financial attitudes and knowledge on financial management and satisfaction of recently married individuals”, *Financial counselling and planning*, Vol. 9, pp. 59-75.
- [28] Pompian, M. M. (2006), “Behavioral finance and wealth management”, *Wiley Finance*.
- [29] Raghubir, P., Das, S. R. (1970), “The psychology of financial decision making: a case for theory-driven experimental enquiry”, *Association for Investment Management and Research*.

- [30] Rendall, S., Brooks, C., Hillenbrand, C. (2020), “The impact of emotions and personality on borrowers’ abilities to manage their debt”, *International Review of Financial Analysis*, Vol. 74, No. 3.
- [31] Rotter, J. B. (1966), “Generalized expectancies for internal versus external control of reinforcement”, *Psychological Monographs: General and Applied*, Vol. 80, No. 1, pp. 1-28.
- [32] Stein, J. G., Welch, D. A. (1997), “Rational and psychological approaches to the study of international conflict: Comparative strengths and weaknesses”, *The cognitive-rational debate*, pp. 51-80.
- [33] Wang, M., Chen, H., Wang, L. (2008), “Locus of control and home mortgage loan behavior”, *International Journal of Psychology*, Vol. 43, No. 2, pp. 125-9.