

THE ROLE OF FINANCIAL LITERACY AND RELIGIOSITY IN THE BNPL MISUSE: THE CASE OF INDONESIA'S GENERATIONS Y AND Z

Qurratu Aina¹, Dony Abdul Chalid^{1a*}

¹Department of Management, Faculty Economics and Business, Universitas Indonesia,
Depok, 16424, Indonesia

^adony.abdul@ui.ac.id

*Corresponding Author dony.abdul@ui.ac.id

Abstract: *This study examines the factors that cause excessive use of Buy Now, Pay Later (BNPL) in Indonesia. This research focus on variables such as financial literacy, risk perception, credit attitude, impulsiveness, economic vulnerability, materialism, and religiosity. This study also analyzes the moderating effect of religiosity and other demographic factors. Based on the data collected from 318 respondents among Generations Y and Z, the researcher tested the conceptual model using Partial Least Square-Structural Equation Modelling (PLS-SEM) and Multi-Group Analysis (MGA). The results showed that credit attitudes and materialism had a significantly positive effect and found a mediating role for materialism. However, there is no moderating effect of religiosity and several other demographic factors on the model. The findings of this study are expected to help the general public understand the use of BNPL and assist authorities in developing measures to limit BNPL misuse.*

Keywords: BNPL, Credit Attitude, Materialism, Excessive Use of BNPL, Debt

1. Introduction

One of the impacts of technological and information advancements is the financial technology product known as Buy-Now-Pay-Later (or BNPL), which is a product that facilitates consumers' choice to pay for their purchases at a later date with one or more interest-free installments (Guttman-Kenney et al., 2022). BNPL is considered to have grown massively among the public, with an expected annual increase of 94.7% in 2022 (NASDAQ OMX's News Release Distribution Channel, 2022). The emergence of e-commerce has become one of the factors causing the rapid development of BNPL usage among the public.

In addition to the positive impact, the usage of BNPL can lead to significant losses if users do not exercise caution in its use, such as using it solely to fulfil consumptive emotional desires that are not essential needs (Chernovita, 2020). According to a study by Credit Karma (2021), 34% of BNPL users need to catch up on one or more payments. The research also found that younger generations are more likely to miss payments, as over half of Gen Z and Millennial respondents who use BNPL admitted to having missed at least one payment, compared to 22% of Gen X and 10% of Baby Boomers (Credit Karma, 2021). In such circumstances, both BNPL companies and users themselves will face significant losses. Companies may encounter potential losses, while users risk being burdened with debt.

Furthermore, risk perception, impulsiveness, credit attitude, and materialism also influence the excessive use of BNPL. Someone prepared to face risks is more likely to incur debt, in this case, use of BNPL (Oosterbeek & van den Broek, 2009). The study by Chan et al. (2012) found that impulsiveness within individuals drives them to make impulsive purchases, leading to a tendency to accumulate multiple credit payment methods and debts. On the other hand, individuals with a favorable credit attitude are also found to have a higher likelihood of incurring debt (Lebdaoui & Chetioui, 2021). In addition to risk perception, impulsiveness, and credit attitude, previous research has also found that individuals with a high level of materialism tend to incur debt and are less likely to repay it (Watson, 2003). Additionally, an individual's level of economic vulnerability also contributes to the BNPL missuses (Lebdaoui & Chetioui, 2021).

Although several studies have examined the influencing factors, there is still an opportunity for the influence of other factors, hence the need for further research. This study revisits the factors considered to influence misuse. Furthermore, this research explores the role of religiosity in influencing the excessive use of BNPL. Based on the examination and exposition above, this research focuses on the excessive use of BNPL in Indonesia, particularly among Generation Y and Z. The selection of these two generational groups is based on the high susceptibility to excessive use of BNPL within these generations. In analyzing the excessive use of BNPL in Indonesia, researchers adopt factors closely related to BNPL usage itself, including financial literacy, risk perception, credit attitude, impulsiveness, economic vulnerability, materialism, and religiosity based on research conducted by Lebdaoui & Chetioui (2021). Additionally, other demographic factors such as gender, age, religion, domicile, education, employment status, and monthly income will be discussed to analyze the relationship between these factors and the excessive use of BNPL among Generation Y and Z in Indonesia.

Indonesia provides interesting context in understanding the use of BNPL. Firstly, the use of BNPL in Indonesia has increased and there has been an increase in non-performing loans -- - According to data from the Otoritas Jasa Keuangan (2023), BNPL users surged from 14 million to over 19 million by the end of 2022. Throughout 2022, the number of users classified as having problematic credit did not decrease. This can be seen in the increased number of users classified as having delinquent loans (30-90 days), which reached 10.71% or equivalent to 2,110,237 users, and users classified as in default (>90 days), reaching 2.35% or equivalent to 463,127 users. In total, these figures indicate a significant increase in non-performing loans. In addition to user-related aspects, the outstanding value of BNPL also reflects concerning figures, as evidenced by the spike in outstanding amounts from 25.9 trillion to 44.7 trillion by the end of 2022. The value of loans classified as delinquent (30-90 days) and in default (>90 days) is also high, as reflected in the delinquent loan value reaching 7.43% or equivalent to 1.9 trillion as of January 2022 and increasing to 3.3 trillion with a proportion of 7.43% by December 2022. Meanwhile, loans classified as in default (>90 days) reached 0.72 trillion or 2.78% as of January 2022 and increased to 1.1 trillion or 2.67% by the end of 2022. A study by Katadata Insight Center & Kredivo (2022) found that nearly 90% of BNPL users utilize this payment tool for online shopping. BNPL has been established as one of Indonesia's most frequently used payment methods during the past four to eight quarters, coinciding with the emergence of e-commerce (NASDAQ OMX's News Release Distribution Channel, 2022). One of the causes for the high number of excessive use of BNPL in Indonesia is the low level of financial literacy compared to its financial inclusion rate (Otoritas Jasa Keuangan, 2023). The financial literacy rate related to Financial Technology products, including BNPL, stands at 10.90% (Otoritas Jasa Keuangan, 2022). This is undoubtedly very low and poses risks for

BNPL users, considering that the financial inclusion rate related to Financial Technology products is also meager at 2.56% in 2022 (Otoritas Jasa Keuangan, 2022).

Secondly, Indonesia is the Moslem Majority Country. The proportion of Muslims in Indonesia reaches 86.93% or approximately 238.09 million people (Kusnandar, 2021). Using BNPL is considered prohibited in Islam as it falls under the practice of *riba* (usury). Given this situation, the average Indonesian practicing Islam should use BNPL sparingly. Nevertheless, based on data from previous studies, such as Lebdaoui & Chetaoui (2021), many Muslims still engage in credit practices in this predominantly Muslim country.

2. Theoretical Background

2.1 Related research influencing the use of BNPL

The Theory of Planned Behavior is an extension of the Theory of Reasoned Action (Ajzen & Fishbein, 1980), which assumes that intention is the best predictor of adopting a behavior (Steinmetz et al., 2016). The difference between these two theories lies in the addition of perceived behavioral control (PBC) as a determinant of an individual's intention, in addition to attitude (ATT) and subjective norm (SBN) (Boonroungrut & Huang, 2021). The Theory of Planned Behavior explains that when something is believed to have a positive impact, and there is the ease in performing it, the individual is more likely to have a positive intention to engage in a specific behavior (Memon et al., 2019). This theory focuses on the factors that influence an individual's intention, ultimately affecting their behavioral change (Boonroungrut & Huang, 2021). The Theory of Planned Behavior is widely used to predict specific behaviors, including an individual's borrowing behavior.

2.2 Hypothesis Development

Financial literacy is a concept that measures the extent to which an individual understands critical financial concepts, possesses the skills, and has the confidence to manage personal finances through making sound short-term decisions and appropriate long-term financial planning while considering life events and changes in economic conditions (Fernandes et al., 2014). By providing financial literacy, individuals can sort out risky credit behaviour (e.g. conspicuous consumption, compulsive purchases, and credit abuse) in the future (Liu & Zhang, 2021). So far, financial literacy is considered a significant "investment" in financial management because the costs incurred from unwise financial decision-making can significantly affect an individual (Dolan et al., 2012).

A good level of financial literacy in individuals can positively influence various aspects of financial behaviour and help individuals fight negative financial trends, such as excessive debt levels (Lee et al., 2017). Consumers with poor financial literacy will need help managing their finances, whereas BNPL will make them have expenses beyond their ability to pay (Lux & Epps, 2022). A study by Liu & Zhang (2021) found a significant negative relationship between financial literacy and risky credit behaviour. Research conducted by Strömbäck et al. (2017) found that financial literacy positively impacts good financial behaviour. This was also found in a study by Lebdaoui & Chetioui (2021), where financial literacy significantly negatively correlated with credit attitude. Based on the findings from the studies mentioned above, the researcher hypothesizes that:

H1: Financial literacy has a negative impact on credit attitude.

Individual risk perception is one factor that influences how individuals perceive and assess risks in decision-making (Lebdaoui & Chetioui, 2021), in this case, credit decisions. An individual is judged to see a particular activity based on whether they like it or not, not from an analytical and in-depth evaluation of the pros and cons (Wang et al., 2011). When they like something, they tend to believe it is low risk and the benefits they receive are higher, and vice versa (Wang et al., 2011).

Individuals with a high perceived risk tend to have lower debt levels because their risk aversion can prevent unplanned expenses (Flores & Vieira, 2014). Conversely, people who take risks are more willing to take on debt (Flores & Vieira, 2014). Individuals ready for the risks they face have a greater possibility of going into debt because of their readiness to face them (Oosterbeek & van den Broek, 2009). Meanwhile, individuals with a high-risk perception tend to have low debt levels (Azma et al., 2019). Hindered risk perception within individuals can increase risky credit behavior (Liu & Zhang, 2021). This indicates that the higher an individual's risk perception, the lower their willingness to incur debt (Bachan, 2013). Based on the findings from the studies, the researcher hypothesizes that:

H2: Risk perception has a negative impact on credit attitude.

Credit attitude can be described as individuals' general beliefs, feelings, and opinions about credit, loans, and debt, which encompass attitudes toward credit usage, including attitudes towards creditworthiness, access to credit, debt management, and financial responsibility (Chien & Devaney, 2001). Individuals with a favorable credit attitude towards debt tend to make more purchases and have higher levels of materialism. Norvilitis et al. (2003) and Norvilitis et al. (2006) found that individuals who like credit tend to engage in periodic borrowing. The credit attitude within an individual is also closely related to compulsive buying, moderated using credit itself (Roberts & Jones, 2001). Individuals tend to exhibit high materialism with a favourable credit attitude.

Research conducted by Lebdaoui & Chetioui (2021) found a significant effect on a person's credit attitude towards debt, where someone with a favourable credit attitude is shown to be more in debt than those who do not like using debt. However, the continuous trend of increasing credit card arrears indicates that more users face debt burdens and need responsible credit management (Lee & Lee, 2021). This implies that a comprehensive and careful approach to credit behaviour is needed to avoid misuse of the credit itself. Based on the findings from the previous studies mentioned above, the researchers hypothesize that:

H3: Credit attitude positively influences materialism.

H4: Credit attitude positively influences excessive use of BNPL.

Impulsiveness is a decision-making process in which consumers feel obligated to purchase at the right moment without thorough analysis due to feelings of pleasure and urgency (Mette et al., 2019). Individuals with a high level of impulsivity tend to have less self-control than individuals with a low level of impulsivity (Zhang et al., 2018). Individuals with high levels of impulsiveness are considered more likely to incur debt (Mette et al., 2019). Meanwhile, individuals who are not materialistic and not impulsive tend to have low debt levels (Vieira et al., 2016).

Furthermore, impulsiveness is predicted as one of the causes of high materialism in a person, which is very closely related to a person's decision to go into debt (Ottaviani & Vandone, 2011). This is because a person's impulsivity level is considered a supporting factor for materialism (Lebdaoui & Chetioui, 2021), indirectly affecting a person's debt level. In addition, impulsiveness encourages someone to buy something compulsively, so they tend to have many credit payment instruments and accumulate debt (Chan et al., 2012). Individuals with high levels of compulsive buying are likely to face problems with debt. Conversely, individuals with low levels of compulsive buying are more likely to avoid debt (Vieira et al., 2016). Based on the findings from the previous studies mentioned above, the researchers hypothesize that:

H5: Impulsiveness positively influences materialism.

Economic vulnerability refers to an individual's ability to generate sufficient income to cover expenses and cope with unexpected events (Gesthuizen & Scheepers, 2010). Economic vulnerability can lead to impatient and petty behaviour patterns that make it difficult to fully realize the consequences of their financial and spending decisions (Anderloni et al., 2012). Hence, the consequences of appearing materialistic are more significant. Economic vulnerability is positively related to the repayment of one's debt, and the effect is more substantial for individuals who have unsecured debt, for example, consumer credit (Anderloni et al., 2012).

A study conducted by Cifuentes et al. (2020) in Chile found that 22% of individuals with high levels of economic vulnerability had debt. Individuals with high economic vulnerability also found face excessive debt problems (Leandro & Botelho, 2022). Economic vulnerability is the second most crucial supporting factor of materialism, indirectly influencing an individual's debt level (Lebdaoui & Chetioui, 2021). Based on the findings from the previous studies mentioned above, the researchers hypothesize that:

H6: Economic vulnerability positively influences materialism.

Materialism refers to an attitude that emphasizes extrinsic goals such as wealth, popularity, fame, and physical attractiveness over intrinsic goals such as health, togetherness, and personal growth (Kasser & Ryan, 1996). Individuals with higher levels of materialism tend to exhibit consistent behaviours that reflect a positive attitude toward using credit for installment purchases and unpaid debts (Watson, 2003). Materialism in individuals drives them to engage in impulsive spending, ultimately having to their debt (Garðarsdóttir & Dittmar, 2012). This is because people who see money as a form of power and status or people who are materialistic tend to maintain high consumption levels (Flores & Vieira, 2014). High consumption levels without sufficient financial readiness can cause debt for the individual.

People with a high level of materialism (compared to people with a low level of materialism) also tend to exhibit behaviour consistent with a positive attitude towards the use of debt from instalment loans and unpaid debts (Watson, 2003). A study by Lebdaoui & Chetioui (2021) found a mediating effect of materialism between credit attitude and misuse. Based on the findings from the previous studies mentioned above, the researchers hypothesize that:

H7: Materialism positively influences the excessive use of BNPL.

H8: Materialism mediates the relationship between credit attitude and excessive use of BNPL.

Religion is an essential cultural determinant influencing many aspects of society (Hsieh et al., 2022). Religiosity describes how individuals perceive and live according to their beliefs (Hsieh et al., 2022), likely influenced by their involvement in religious activities (Rahman, 2019). In general, religiosity teaches individuals to think positively and behave well (Jia et al., 2017). Usually, people express their religiosity through religious activities, devotion to rituals, adherence to doctrines, and service to their religion (Kashif et al., 2017).

Religiosity was found to affect economic outcomes (Hsieh et al., 2022) and to influence one's level of debt. Religiosity makes borrowers more willing to pay lenders and lenders more willing to provide informal credit (Jia et al., 2017). A study conducted by Lebdaoui & Chetaoui (2021) in a predominantly Muslim country found that religiosity does not moderate the use of BNPL. Based on the findings from the previous studies described above, the researcher hypothesizes that:

H9: There is a moderating effect of religiosity on excessive use of BNPL.

3. Research Methods

The primary data utilized in this research were obtained through the distribution of an online questionnaire through social media, including Instagram, Twitter, and WhatsApp. Before the data collection, a wording test and pre-test were conducted to ensure the clarity and appropriateness of the questionnaire's content and structure. Feedback and suggestions for improvement were sought from the respondents whenever questions were deemed unclear. It is important to note that the data obtained from the wording test and pre-test were not included in the main test, and the data collection period spanned over eleven days, from March 2nd to March 12th, 2023, resulting in 318 successfully collected samples for the study.

The study employs a Likert scale ranging from 1-5, indicating "strongly disagree" to "strongly agree," based on Rensis Likert's findings. In this study, the subjects do not have a predetermined or known chance of being selected. Thus, the sampling technique falls under non-probability sampling (Sekaran & Bougie, 2016). The study uses a sample of individuals who have used or are currently using BNPL, explicitly targeting the younger generation who are employed or have income, specifically Generation Y, born between 1993 and 1995, and Generation Z, born between 1996 and 2002, within Indonesia. The study adopts a research model by Lebdaoui & Chetioui (2021) with slight modifications and nearly similar variables. This study examines the relationship between financial literacy, risk perception, credit attitude, impulsiveness, economic vulnerability, materialism, and religiosity toward excessive use of BNPL. The model of this study is presented below.

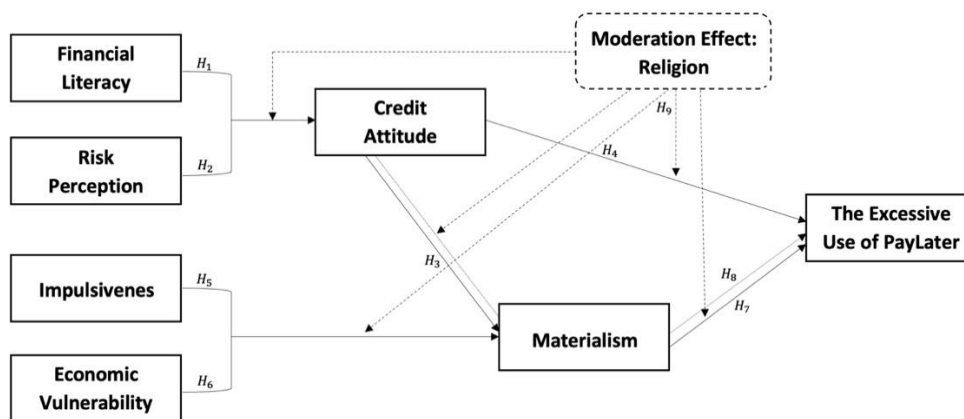


Figure 1. Conceptual Model

The researcher employed a quantitative method with frequency distribution analysis. The study also utilized the SmartPLS software to process the data, which was analyzed using Partial Least Squares-Structural Equation Modeling (PLS-SEM) and Multi-Group Analysis (MGA) to evaluate the moderation effects within various relationships in the research model (Cheah et al., 2020).

4. Results

Table 1. Survey respondent's demographic characteristics (N = 318).

Measure	Item	N	%	Measure	Item	N	%
Gender	Female	252	79.2%	Employment Status	Full-timer	177	55.7%
	Male	66	20.8%		Freelancer	72	22.6%
Age (Generation)	Gen Y	259	81.4%		Entrepreneur	20	6.3%
	Gen Z	59	18.6%		Part-timer	9	2.8%
Religion	Islam	283	89%		Intern	40	12.6%
	Christianity	19	6%	Income	0-IDR2 Million	117	36.8%
	Buddhism	7	2.2%		IDR2-4 Million	97	30.5%
	Catholicism	6	1.9%		IDR4-6 Million	50	15.7%
	Hinduism	3	0.9%		IDR6-8 Million	36	11.3%
	Confucianism	0	0%		>IDR8 Million	18	5.7%
City of Origin	Java Island	241	75.8%	BNPL Product		269	
	Outside Java Island	77	24.2%		Shopee BNPL	115	47.8%
Education		2	0.6%		Gopay Later	64	20.4%
	Lower than high school	92	28.5%		Kredivo	60	11.4%
	High school only	32	9.9%		Akulaku	22	10.7%
	Vocational education	191	59.1%	Traveloka BNPL		3.9%	
	Bachelor degree	5	1.5%				
	Master degree	1	0.3%				
	Postgraduate degree						

4.1 Assessment of measurement model

This study's generated outer loading values and p-values are acceptable (Appendix), with an average outer loading value above 0.7 and p-values below 0.05 (Hair & Sarstedt, 2019), indicating indicator reliability. Internal consistency in the model is assessed through construct reliability, which is considered acceptable if Cronbach's alpha (α) and Composite Reliabilities (CR) exceed 0.7 (Hair & Sarstedt, 2019).

Table 3. Descriptive statistics, Cronbach's alphas, Composite Reliability, and Average Variance Extracted

Constructs	M	SD	CA	CRa	CRc	AVE
1. Financial Literacy	3.6715	1,168	0,737	1,302	0,807	0,520
2. Risk Perception	1.6907	1,01067	0,473	0,477	0,741	0,489
3. Credit Attitude	2.9175	1,0955	0,779	0,791	0,857	0,601
4. Impulsiveness	3.0533	1.267	0,732	0,771	0,844	0,645
5. Economic Vulnerability	3.0297	3.725	0,877	0,922	0,924	0,801
6. Materialism	2.8845	1.1705	0,670	0,693	0,798	0,499
7. The Excessive Use of BNPL	2.4198	1.25225	0,763	0,816	0,847	0,587
8. Religiosity	3.4080	1.0235	0,768	-0,503	0,326	0,252

According to Table 3, the Risk Perception and Materialism variables have Cronbach's Alpha values below 0.7. However, their Composite Reliability (ρ_C) values are still above 0.7, indicating that these variables can still be considered reliable. On the other hand, the Religiosity variable has a Cronbach's Alpha value above 0.7 but a Composite Reliability value below 0.7, indicating that this variable can still be considered reliable. The other variables, Financial Literacy Impulsiveness, Economic Vulnerability, Credit Attitude, and The Excessive Use of BNPL, all have Cronbach's Alpha and Composite Reliability values above 0.7, indicating their reliability.

Discriminant validity is measured using the HTMT ratio, Fornell-Larcker Criterion, and Cross Loadings, which reflect the extent to which a construct explains the variance in its indicators better than the variance in other constructs. The HTMT ratio condition is that each variable's value must be less than 0.90 (Hair & Alamer, 2022). For the Fornell-Larcker Criterion, the condition to be met is that the value of a variable must be higher than the values of other variables in the same column. As for Cross Loadings, the value of each indicator of a variable must be higher than the values of other indicators in the same column.

Tabel 4. Discriminant Validity with Fornell-Larcker Criterion

	ATT	EV	FL	IM	MAT	PAY	RLG	RP
ATT	0.775							
EV	0.095	0.895						
FL	-0.105	0.422	0.721					
IM	0.217	-0.129	-0.108	0.803				
MAT	0.224	-0.128	-0.043	0.336	0.706			
PAY	0.242	-0.172	-0.248	0.373	0.292	0.766		
RLG	-0.130	0.088	0.185	-0.069	-0.068	-0.139	0.502	
RP	0.293	0.087	-0.057	0.248	0.188	0.243	-0.093	0.699

Based on Table 4 above, the variables' values are higher than those of other variables in the same column. This reflects discriminant validity. The analysis results using the HTMT ratio and Cross Loadings also show the same result, available upon request.

4.2 Assessment of the structural model

This research used the data processing method of bootstrapping with 500 resamples, a two-tailed test type, and a significance level (α) of 5% or 0.05. The structural model was analyzed using the coefficient of determination (R-squared) and predictive relevance (Q-squared). The data processing results show an R-squared value of 11% for credit attitude, 17.2% for materialism, 14.6% for excessive use of BNPL, and positive Q-squared values.

In terms of the generated p-values, the results obtained from the testing vary considerably. This is indicated by several variables that have significant impacts, including risk perception on credit attitude (supporting H2), credit attitude on materialism (supporting H3), credit attitude on excessive use of BNPL (supporting H4), impulsiveness on materialism (supporting H5), and materialism on excessive use of BNPL (supporting H8), with p-values ranging below 0.05 (5%). On the other hand, some variables do not have a significant relationship, including financial literacy on credit attitude (H1 rejected), economic vulnerability on materialism (H6 rejected), and the moderating effect of religiosity on the existing variables (H9 rejected), with p-values ranging above 0.05 (5%).

When compared with previous studies, the results of this study are pretty consistent, except for Hypothesis 1 and 6. Where previous studies such as Novritis et al. (2014), Flores & Vieira (2014), Zainudin & Mahdzan (2019), Azma et al. (2019), Mette et al. (2019), Lebdaoui & Chetaoui (2021), Liu & Zhang (2021), and Leandro & Botelho (2022) found a link between financial literacy and economic vulnerability in excessive use of BNPL or credit, whereas in this study it was not. This can be caused by differences in demographic research locations and differences in perceptions about financial literacy itself.

Table 5. Direct Effects

Variable	Original Sample	Sample Mean	Standard Deviation	T-Value	P-Value	Decision
FL → ATT	-0,059	-0,084	0,076	0,851	0,395	Rejected
RP →> ATT	0,271	0,290	0,058	4,760	0,000	Do not reject
ATT → MAT	0,173	0,172	0,065	2,487	0,013	Do not reject
ATT → PAY	0,185	0,185	0,062	3,071	0,002	Do not reject
IM → MAT	0,284	0,289	0,059	5,104	0,000	Do not reject
EV → MAT	-0,107	-0,115	0,063	1,716	0,137	Rejected
MAT → PAY	0,258	0,260	0,055	4,586	0,000	Do not reject

Indirect Effects

According to the p-values generated in Table 5, it can be observed that the relationship between financial literacy and excessive use of BNPL, and economic vulnerability on excessive use of BNPL, is not significant based on the total indirect effects and total effects. This can be seen from p-values ranging above 0.05 (5%). Additionally, the relationship between risk perception and excessive use of BNPL, also impulsiveness and excessive use of BNPL, can be considered significant based on the total indirect and total effects. This is evident from p-values ranging below 0.05 (5%).

Table 5. Specific Indirect Effects, Total Indirect Effects, and Total Effects

Variabel	P-value (Specific Indirect Effects)	Variabel	P-value (Total Indirect Effects)	P-value (Total Effects)
FL → ATT → MAT → PAY	0,250	FL → PAY	0,231	0,231
RP → ATT → MAT → PAY	0,028	RP → PAY	0,007	0,007
FL → ATT → PAY	0,240	IM → PAY	0,001	0,001
RP → ATT → PAY	0,016	EV → PAY	0,061	0,061
EV → MAT → PAY	0,061			
IM → MAT → PAY	0,001			
ATT → MAT → PAY	0,011			

Moreover, the p-values obtained from the testing vary considerably. This is indicated by several variables that have significant impacts, including risk perception on excessive use of BNPL through credit attitude and materialism, risk perception on excessive use of BNPL through credit attitude, impulsiveness on excessive use of BNPL through materialism, and credit attitude on excessive use of BNPL through materialism (H7 accepted), with p-values ranging below 0.05 (5%). On the other hand, some variables do not have a significant relationship, including financial literacy on excessive use of BNPL through credit attitude and materialism, financial literacy on excessive use of BNPL through credit attitude, and economic vulnerability on excessive use of BNPL through materialism, with p-values ranging above 0.05 (5%).

Moderating Effects

The moderation effect of religiosity on credit attitude, materialism, and excessive use of BNPL has p-values of 0.430 (43%), 0.751 (75.1%), and 0.355 (35.5%), respectively, as well as T-values of 0.790, 0.317, and 0.926. These values indicate a lack of significant relationship, meaning that religiosity does not moderate the variables of credit attitude, materialism, and excessive use of BNPL.

Table 6. Moderating Effects of Religiosity

Variable	Original Sample	Sample Mean	Standard Deviation	T-Value	P-Value
RLG → ATT	-0,085	-0,020	0,108	0,790	0,430
RLG → MAT	-0,029	0,070	0,091	0,317	0,751
RLG → PAY	-0,106	-0,026	0,114	0,926	0,355
RLG x FL → ATT	0,036	0,024	0,057	0,623	0,534
RLG x RP → ATT	0,096	0,016	0,086	1,123	0,262
RLG x IM → MAT	-0,038	0,048	0,072	0,522	0,602
RLG x EV → MAT	-0,147	-0,025	0,108	1,361	0,174
RLG x ATT → MAT	0,013	-0,055	0,066	0,191	0,849
RLG x ATT → PAY	-0,058	0,031	0,077	0,756	0,450
RLG x MAT → PAY	-0,096	-0,003	0,089	1,083	0,279

Furthermore, the researcher examined the moderation effect within the relationship between two variables. The results of the tests showed in Table 6 that there is no significant moderation effect of religiosity on the relationship between variables too. This can be observed from the p-values of each variable relationship, which are above 0.000 (0%), indicating that religiosity does not moderate these seven variable relationships, leading to the absence of a moderation effect of religiosity on excessive use of BNPL in Indonesia (H9 rejected). This aligns with research conducted by Lebdaoui & Chetioui (2021), which found no moderating effect of religiosity on the variables or the variable relationships.

Multi-Group Analysis

In conducting the Multi-Group Analysis, the researcher divided the respondents into two groups, low/medium religiosity (average score < 4) and high religiosity (average score ≥ 4). Gender was divided into male and female, generation into Generation Y and Generation Z, domicile into outside Java Island and on Java Island, education into high school & below and above high school, type of employment status into permanent and non-permanent, and monthly income into lower-middle and upper-middle. The results of the Multi-Group Analysis for the religiosity level indicate no moderation effect or influence on each hypothesis and no difference between individuals classified as having low/medium religiosity and high religiosity regarding excessive use of BNPL in Indonesia. This aligns with the results of the Multi-Group Analysis for generation and employment status.

The results of the Multi-Group Analysis for gender show no moderation effect or influence on each hypothesis and no difference between males and females regarding the excessive use of BNPL in Indonesia, except for the relationship between economic vulnerability and materialism (H6). This aligns with the results of the Multi-Group Analysis for domicile and monthly income. Lastly, the results of the Multi-Group Analysis for education show no moderation effect or influence on each hypothesis and no difference between individuals with high school & below and those above high school regarding excessive use of BNPL in Indonesia, except for the relationship between risk perception and credit attitude (H2).

5. Conclusion

This study aims to look at factors that influence the misuse of BNPL, such as financial literacy, risk perception, credit attitude, impulsiveness, economic vulnerability, and materialism that influence debt levels. The results of this study have similarities and differences with previous research. First, financial literacy and economic vulnerability do not significantly influence the excessive use of BNPL among Indonesian Generation Y and Z. On the other hand, risk perception, credit attitude, impulsiveness, and materialism were found to have a significant relationship and influence on excessive use of BNPL among the Indonesian Generation Y and Z. Second, there is no moderating effect of religiosity on excessive use of BNPL among Generation Y and Z in Indonesia. This result aligns with the findings in the reference journal used. It means that religiosity does not influence credit attitude, materialism, excessive use of BNPL, or the relationship between financial literacy, risk perception, impulsiveness, economic vulnerability, materialism, and excessive use of BNPL.

Gender, age, generation, domicile, education, employment status, and monthly income, for the most part, do not have a significant relationship and influence on the relationship between financial literacy, risk perception, credit attitude, impulsiveness, economic vulnerability, materialism, and excessive use of BNPL among Generation Y and Z in Indonesia, as analyzed using Multi-Group Analysis. This indicates no significant differences between the two groups. However, significant influences were found in education on the relationship between risk perception and credit attitude, and significant influences of gender, domicile, and monthly income on the relationship between economic vulnerability and materialism. It means there are differences between the two groups in the relationship between these variables.

In the implementation of this research, several things could be improved. First, the sample size of female participants greatly outweighed the male participants, which does not align with the proportion of BNPL users in Indonesia's actual situation. Second, the sample dominantly consists of participants residing in Java Island, which makes the data obtained not sufficiently representative. Third, this study also attempted to examine the moderating effect of religiosity on the variables and the relationships between the research variables. However, the representation of each religion in Indonesia is not adequately fulfilled, even though the data obtained corresponds to the percentage of religions in Indonesia, where most of the population is Muslim. Additionally, the measurement of religiosity still needs to be clarified, as individuals may have different perspectives on measuring religiosity.

Furthermore, there are managerial implications that can be derived from the findings of this research. First, BNPL companies need to pay attention to factors that influence the excessive use of BNPL, particularly credit influenced by financial literacy and risk perception, as well as materialism influenced by economic vulnerability and impulsiveness. Companies and regulators should ensure that users understand how these factors affect the use of BNPL to avoid negative consequences. Third, in this study, BNPL users were predominantly individuals with lower-middle income and tended to have unstable employment. Therefore, BNPL companies and regulators should carefully target their market to avoid excessive use of BNPL, which could negatively impact and harm the company.

Given the limitations experienced in this research, future studies could balance the gender, generation, and domicile ratio of BNPL users by using stratified sampling methods. This is intended to obtain broader knowledge regarding the excessive use of BNPL with a focus on gender, generation, and domicile factors. Second, questionnaires can be distributed offline

to ensure respondents fill out and understand the research questions. Finally, future research can incorporate variables beyond behavioural finance to gain a broader understanding of the factors that influence the excessive use of BNPL among the public.

References

- Anderloni, L., Bacchiocchi, E., & Vandone, D. (2012). Household financial vulnerability: An empirical analysis. *Research in Economics*, 66(3), 284–296. <https://doi.org/10.1016/j.rie.2012.03.001>
- Australian Securities and Investments Commission (ASIC). (2018). Review of buy now pay later arrangements. REP600, report. <https://asic.gov.au/regulatory-resources/find-a-document/reports/rep-600-review-of-buy-now-pay-later-arrangements/>
- Azma, N., Rahman, M., Adeyemi, A., & Rahman, M. S. (2019). Propensity toward indebtedness: evidence from Malaysia. *Review of Behavioral Finance*, 11(2), 188–200. <https://doi.org/10.1108/rbf-05-2017-0046>
- Bachan, R. (2013). Students' expectations of debt in UK higher education. *Studies in Higher Education*, 39:5, 848-873. <https://doi.org/10.1080/03075079.2012.754859>
- Boonroungrut, C., & Huang, F. (2021). Reforming theory of planned behavior to measure money management intention: a validation study among student debtors. *RAUSP Management Journal*, 56(1), 24–37. <https://doi.org/10.1108/rausp-02-2019-0029>
- Cesar Leandro, J., & Botelho, D. (2022). Consumer over-indebtedness: A review and future research agenda. *Journal of Business Research*, 145, 535–551. <https://doi.org/10.1016/j.jbusres.2022.03.023>
- Chan, S. F., Chau, A. W. L., & Chan, K. Y. K. (2012). Financial Knowledge and Aptitudes: Impacts on College Students' Financial Well-being. *College Student Journal*, 46(1).
- Cheah, J., Thurasamy, R., Memon, M. A., Chuah, F., & Ting, H. (2020). Multigroup Analysis using SmartPLS: Step-by-Step Guidelines for Business Research. *Asian Journal of Business Research*, 10(3). <https://doi.org/10.14707/ajbr.200087>
- Chernovita, H. P. (2020). The Role of Financial Literacy to Suppress Temptation of Using PayLater Service. 2020 IEEE 10th Symposium on Computer Applications & Industrial Electronics (ISCAIE). <https://doi.org/10.1109/iscaie47305.2020.9108830>
- Chien, Y. W., & Devaney, S. A. (2001). The Effects of Credit Attitude and Socioeconomic Factors on Credit Card and Installment Debt. *Journal of Consumer Affairs*, 35(1), 162–179. <https://doi.org/10.1111/j.1745-6606.2001.tb00107.x>
- Cifuentes, R., Margaretic, P., & Saavedra, T. (2020). Measuring households' financial vulnerabilities from consumer debt: Evidence from Chile. *Emerging Markets Review*, 43, 100677. <https://doi.org/10.1016/j.ememar.2020.100677>
- Cooper, D. R., & Schindler, P. S. (2013). *Business Research Methods*, 12th Edition (12th ed.). McGraw-Hill Education.
- Credit Karma. (2021). Buy now pay later surges throughout pandemic, consumers' credit takes a hit. <https://www.creditkarma.com/about/commentary/buy-now-pay-later-surges-throughout-pandemic-consumers-credit-takes-a-hit>
- Dolan, P., Elliott, A., Metcalfe, R., & Vlaev, I. (2012). Influencing Financial Behavior: From Changing Minds to Changing Contexts. *Journal of Behavioral Finance*, 13(2), 126–142.

<https://doi.org/10.1080/15427560.2012.680995>

- Farrugia, D., Cook, J., Senior, K., Threadgold, S., Coffey, J., Davies, K., Haro, A., & Shannon, B. (2022). Youth and the Consumption of Credit. <https://doi.org/10.1177/00113921221114925>
- Fernandes, D., Lynch, J. G., & Netemeyer, R. G. (2014). Financial Literacy, Financial Education, and Downstream Financial Behaviors. *Management Science*, 60(8), pp. 1861–1883. <https://doi.org/10.1287/mnsc.2013.1849>
- Flores, S. A. M., & Vieira, K. M. (2014). Propensity toward indebtedness: An analysis using behavioral factors. *Journal of Behavioral and Experimental Finance*, 3, 1-10. <https://doi.org/10.1016/j.jbef.2014.05.001>
- 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>
- Gesthuizen, M., & Scheepers, P. (2010). Economic Vulnerability among Low-Educated Europeans. *Acta Sociologica*, 53(3), 247–267. <https://doi.org/10.1177/0001699310374491>
- Google. (2021). Laporan e-Conomy SEA. https://economysea.withgoogle.com/intl/id_id/home/
- Guttman-Kenney, B., Firth, C., & Gathergood, J. (2022). Buy Now, Pay Later (BNPL) On Your Credit Card.
- Hair, J., & Alamer, A. (2022). Partial Least Squares Structural Equation Modeling (PLS-SEM) in second language and education research: Guidelines using an applied example. *Research Methods in Applied Linguistics*, 1(3), 100027. <https://doi.org/10.1016/j.rmal.2022.100027>
- Hair, J. F., & Sarstedt, M. (2019). Factors versus Composites: Guidelines for Choosing the Right Structural Equation Modeling Method. *Project Management Journal*, 50(6), 619–624. <https://doi.org/10.1177/8756972819882132>
- Hsieh, W., Wu, W., & Tu, A. T. (2022). Religiosity and sovereign credit quality. *Journal of Empirical Finance*, 68, 84–103. <https://doi.org/10.1016/j.jempfin.2022.07.004>
- Jia, F., Salahudeen, A. A., Chan, K. C., & Xie, S. (2017). The impact of religiosity on corporate loans and maturity structure: evidence from China. *Pacific Accounting Review*, 29(3), 307–329. <https://doi.org/10.1108/par-02-2017-0012>
- Katadata Insight Center & Kredivo. (2022). Perilaku Konsumen E-commerce Indonesia. <https://katadata.co.id/perilaku-ecommerce-2022>
- NASDAQ OMX's News Release Distribution Channel. (2022). Indonesia Buy Now Pay Later Business and Investment Opportunities Q1 2022: Compound Annual Growth of 44% Forecast During 2022-2028. <https://www.proquest.com/wire-feeds/indonesia-buy-now-pay-later-business-investment/docview/2650183142/se-2>
- Kashif, M., Zarkada, A., & Ramayah, T. (2017). The moderating effect of religiosity on ethical behavioural intentions. *Personnel Review*, 46(2), 429–448. <https://doi.org/10.1108/pr-10-2015-0256>
- Kasser, T., & Ryan, R. M. (1996). Further examining the American dream: Differential correlates of intrinsic and extrinsic goals. *Personality and Social Psychology Bulletin*.
- Kementerian Komunikasi dan Informatika Republik Indonesia. (2023).

<https://www.kominfo.go.id/>

- Kusnandar, Viva Budy. (2022). Sebanyak 86,93% Penduduk Indonesia Beragama Islam pada 31 Desember 2021. <https://databoks.katadata.co.id/datapublish/2022/02/12/sebanyak-8693-penduduk-indonesia-beragama-islam-pada-31-desember-2021>
- Leandro, J., & Botelho, D. (2022). Consumer over-indebtedness: A review and future research agenda. *Journal of Business Research*, 145, 535–551. <https://doi.org/10.1016/j.jbusres.2022.03.023>
- Lebdaoui, H., & Chetioui, Y. (2021). Antecedents of consumer indebtedness in a majority-Muslim country: Assessing the moderating effects of gender and religiosity using PLS-MGA. *Journal of Behavioral and Experimental Finance*, 29, 100443. <https://doi.org/10.1016/j.jbef.2020.100443>
- Lee, T., Yun, T., & Haley, E. (2017). What You Think You Know: The Effects of Prior Financial Education and Readability on Financial Disclosure Processing. *Journal of Behavioral Finance*, 18(2), 125–142. <https://doi.org/10.1080/15427560.2017.1276064>
- Lee, J. S., & Lee, Y. S. (2021). Multidimensional credit attitude and credit card debt behavior in the United States. *Review of Behavioral Finance*. <https://doi.org/10.1108/rbf-09-2020-0239>
- Liu, L., & Zhang, H. (2021). Financial literacy, self-efficacy and risky credit behavior among college students: Evidence from online consumer credit. *Journal of Behavioral and Experimental Finance*, 32, 100569. <https://doi.org/10.1016/j.jbef.2021.100569>
- Lux, M., & Epps, B. (2022). Grow Now, Regulate Later? Regulation urgently needed to support transparency and sustainable growth for Buy-Now, Pay-Later. (M-RCBG Associate Working Paper Series No. 182). https://www.hks.harvard.edu/sites/default/files/centers/mrcbg/files/182_AWP_final.pdf
- Memon, Y. J., Azhar, S. M., Haque, R., & Bhutto, N. A. (2019). Religiosity as a moderator between theory of planned behavior and halal purchase intention. *Journal of Islamic Marketing*, 11(6), 1821–1836. <https://doi.org/10.1108/jima-01-2019-0006>
- Mette, F. M. B., de Matos, C. A., Rohden, S. F., & Ponchio, M. C. (2019). Explanatory mechanisms of the decision to buy on credit: The role of materialism, impulsivity and financial knowledge. *Journal of Behavioral and Experimental Finance*, 21, 15–21. <https://doi.org/10.1016/j.jbef.2018.10.002>
- Norvilitis, J., Merwin, M., Osberg, T., Roehling, P., Young, P. and Kamas, M. (2006). Personality factors, money attitudes, financial knowledge, and credit-card debt in college students. *Journal of Applied Social Psychology*, 36(6), pp. 1395–1413.
- Norvilitis, J., Szablicki, P. B., & Wilson, S. D. (2003). Factors influencing levels of credit-card debt in college students. *Journal of Applied Social Psychology*, 33(5), pp. 935–947.
- Oosterbeek, H., & van den Broek, A. (2009). An empirical analysis of borrowing behaviour of higher education students in the Netherlands. *Economics of Education Review*, 28(2), 170–177. <https://doi.org/10.1016/j.econedurev.2008.01.005>
- Ottaviani, C., & Vandone, D. (2011). Impulsivity and household indebtedness: Evidence from real life. *Journal of Economic Psychology*, 32(5), 754–761. <https://doi.org/10.1016/j.joep.2011.05.002>
- Otoritas Jasa Keuangan. (2023). <https://www.ojk.go.id/id/>
- Rahman, M. (2019). Propensity toward financial risk tolerance: an analysis using behavioural

- factors. *Review of Behavioral Finance*, 12(3), 259–281. <https://doi.org/10.1108/rbf-01-2019-0002>
- Roberts, J., & Jones, E. (2001). Money attitudes, credit card use, and compulsive buying among American college students. *Journal of Consumer Affairs*, 35(2), pp. 213–240.
- Sekaran, U., & Bougie, R. (2016). *Research Methods For Business: A Skill Building Approach* (7th ed.). Wiley.
- Steinmetz, H., Knappstein, M., Ajzen, I., Schmidt, P., & Kabst, R. (2016). How Effective are Behavior Change Interventions Based on the Theory of Planned Behavior? *Zeitschrift Fur Psychologie-journal of Psychology*, 224(3), 216–233. <https://doi.org/10.1027/2151-2604/a000255>
- Strömbäck, C., Lind, T., Skagerlund, K., Västfjäll, D., & Tinghög, G. (2017). Does self-control predict financial behavior and financial well-being? *Journal of Behavioral and Experimental Finance*, 14, 30–38. <https://doi.org/10.1016/j.jbef.2017.04.002>
- Vieira, K. M., de Oliveira, M. O. R., & Kunkel, F. I. R. (2016). The Credit Card Use and Debt: Is there a trade-off between compulsive buying and ill-being perception? *Journal of Behavioral and Experimental Finance*, 10, 75–87. <https://doi.org/10.1016/j.jbef.2016.03.001>
- Wang, M. L., Keller, C., & Siegrist, M. (2011). The Less You Know, the More You Are Afraid of—A Survey on Risk Perceptions of Investment Products. *Journal of Behavioral Finance*, 12(1), 9–19. <https://doi.org/10.1080/15427560.2011.548760>
- 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>
- Zainudin, Rozaimah., & Mahdzan, Nurul Sahnaz. (2019). Determinants of credit card misuse among Gen Y consumers in urban Malaysia. *International Journal of Bank Marketing* Vol. 37 No. 5, 2019 pp. 1350-1370. <https://doi.org/10.1108/ijbm-08-2018-0215>
- Zhang, K. Z., Xu, H., Zhao, S. J., & Yu, Y. (2018). Online reviews and impulse buying behavior: the role of browsing and impulsiveness. *Internet Research*, 28(3), 522–543. <https://doi.org/10.1108/intr-12-2016-0377>