

The Moderating Role of Knowledge about Riba on Intention to Use E-Money : Findings from Indonesia

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Abstract—Payment transaction is now experiencing revolution as the rapid advancement of financial technology system. There is growing usage of e-money as a mean of payment in Indonesia. Besides, there is also a growing concern on the ethical aspect of e-money from an Islamic perspective, that is riba or usury. Previous studies have examined customers' behavioral intention to use e-money by implementing Theory of Planned Behavior (TPB) and Technology Acceptance Model (TAM). However, none of them considering customers' knowledge about riba that might become ethical aspect detaining them to use e-money as the mode of payment. The objective of this research is to examine the moderating effect of knowledge about riba on Technology Acceptance Model (TAM) variables, such as perceived usefulness, perceived ease of use and intention to use e-money. Data of this research are collected by distributing online questionnaires. By convenience sampling method, there are total 253 respondents. From the statistical computation, it is found that intention to use e-money is significantly affected by respondents' perception of e-money usefulness and ease of use. Interestingly, it is also found that customers' intention to use e-money are moderated by their knowledge about riba. Therefore, as managerial implication, it is suggested for e-money providers to build a Muslim-friendly system that is free from riba. Finally, this research also suggests future research agenda to consider subjective norm and religiosity variables in a single model.

Keywords—perceived usefulness; perceived ease of use; e-money; intention; riba

I. INTRODUCTION

The trend in using electronic money (e-money) for payment in Indonesia is growing each year. It is reported that by November 2013, the payment made by e-money reached IDR 286.756.651. The number increased by 59.4% until 2012 and keep growing to date. From the survey conducted by [1], it was found in 2017 that approximately 56.8% of Indonesian consumers used e-money less than 1 year (growing e-money users), 34.4% have used it in between 1 to

3 years, whereas the rest have used e-money more than 3 years. That trend stimulated several providers to develop their own e-money.

In response to it, the Indonesian government through the Central Bank amended its previous regulation concerning electronic money to be more strict. The amendment was contained in Bank Indonesia Regulation (PBI) No. 20/6/PBI/2018 on e-money, which supersedes Bank Indonesia Regulation (PBI) No. 11/12/PBI/2009 on e-money [2]. It was made to prevent consumers from further problems as the cashless society namely Non-Cash National Movement (NCNM) was also encouraged by the government [3]. The new regulation, on the other hand, has a negative implication for several e-money providers. Several of them were banned from the operation, they are Grab, Tokopedia, and BukaLapak. However, there are also several new e-money introduced, such as OVO from Lippo group and PayTren.

Research about e-money has attracted many attentions. In Indonesia, there are for instance as conducted by reference [4] and [5]. However, their studies did not examine consumer's reason in using e-money. In order to fill the gap, [6], [7] and, [3], conducted research on e-money by considering Theory of Planned Behavior (TPB). The last mentioned added the analysis of Locus of Control (LoC) to predict intention to use e-money. As an alternative, [8] and [9] used Theory of Acceptance Model (TAM) to predict behavioral intention in using mobile wallet in the context of Bangladesh and Indonesia. From previous research, it was found that TPB and TAM can predict consumers' attitude and intention to use e-money. However, those researchers did not consider the growing concern of riba (usury) that is potentially exist in e-money business model.

The growing numbers of a cashless society are also followed up by the growing awareness about riba. Communities against riba practice that consisted of ex-bankers such as X-Bank, Komunitas Anti Riba (Anti Riba Community), Masyarakat Tanpa Riba (Society Without Riba)

and many more have been established in several cities in Indonesia. This growing awareness might influence consumers' behavior to use or buy any financial products, including financial technology (fintech). That reason leads the authors to objective of this paper, that is to examine the moderating effect of knowledge about riba on Technological Acceptance Model (TAM) variabels, such as perceived usefulness, perceived ease of use and intention to use e-money. Therefore, it becomes the novelty this research offers to academic literature concerning e-money and consumer behavior.

II. LITERATURE REVIEW

A. Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM) was initially developed by [10]. It was adapted from Theory of Reasoned Action (TRA). The main objective of TAM is to examine external factors that might influence internal belief, attitude and behavioral intention [10] and [11]. It is the most widely referred model to describe and explain user acceptance and usage toward information system [12], [13], [14], [15], [16], and [17].

TAM can also be used to explain customer behavior in e-commerce [18], using electronic payment (e-payment) [19], [20], via smartphone [21]. TAM explained that the main motivation for adopting and using a new system influenced by three factors: perceive usefulness, perceive ease of use and attitude [22], [23], directly or indirectly [17].

It was empirically proven that customers' perception toward a system or application usefulness is influenced by their perception of easiness in using it [24], [25], [26]. Moreover, perceive usefulness and ease of use are also significantly proven as the predictor of behavioral intention to do e-commerce transaction [27], [28], [29], [30], [31], and [32]. Overall, TAM can be used to explain customers' intention to use e-money in payment transaction.

B. Knowledge about Riba

Riba can be defined as usury or an excess, addition, or increase. In Islamic terminology, riba is defined as an excess, addition or increase that occurs in debt transaction. [33] defined it as a "compensation for the time value of money". The discussion about riba in Islamic finance is still a hot issue these days. Especially to judge specific activity to be related to riba. In the context of e-money, for instance, there are two strong opinions who believed that e-money business model falls into riba and free from riba. Those who opposed e-money, as for its correlation with riba, argued that in e-money business model there is a compensation for detained money. Customers who topped-up certain money to e-money systems are actually giving a loan to providers, which in turn certain compensation like discounts or advantageous is given to customers. Those who have no problem with e-money argued that customers who topped-up cannot be considered as lending money, but they are buying services offered by e-money providers. It is termed as *ijaraah* in Islamic terminology.

However, regardless of the debate, it is undebatable that riba or usury is unlawful in accordance with Islamic jurisprudence (fiqh). It is agreed by all educated Muslims that certain compensation or addition in any means in debt transaction is riba that is prohibited.

Knowledge or level of education can influence customer intention to purchase a product, as it was proven by [34] in the context of halal label. The findings are also similar in the context of e-commerce [35], [29], [31]. Therefore, the intention to use e-money is highly depended on customers' level of knowledge about riba. Customers who are highly understood the concept of riba might hold their intention to use e-money.

III. RESEARCH METHODS

A. Hypotheses

Based on the problems stated in the introduction section and the literature reviews, the authors proposed following research hypotheses:

- H1** : *perceived ease of use (PEU) affects perceived usefulness (PU)*
- H2** : *perceived ease of use (PEU) affects intention to use e-money (INT)*
- H3** : *perceived usefulness affects intention to use e-money*
- H4a** : *knowledge about riba (KR) moderates the effect of perceived ease of use (PEU) on intention to use e-money (INT)*
- H4b** : *knowledge about riba (KR) moderates the effect of perceived usefulness (PU) on intention to use e-money (INT)*

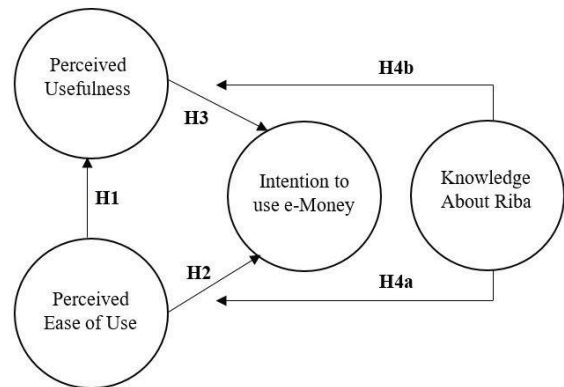


Figure 1. Research model.

B. Data Collection

All data both from pilot and real test are collected online by using Microsoft online form. The sample size is determined following [46] rule of thumb that sample sizes larger than 30 and less than 500 are appropriate for most research. In total, there are 253 respondents that vary in terms of age occupation. The population of respondents in this research is all of the users of electronic money in

Indonesia. The data were collected at one time (cross-section) using a convenience sampling method. This sampling method has a drawback due to its difficulty in convincing others to accept the research findings [36]. However, this method has the advantage to easily accessed the respondents who are available and willing to fill the questionnaires at any time [37].

C. Analysis Tools and Methods

To test the hypothesized model, AMOS-Structural Equation Modeling (SEM) was implemented. In SEM, there are two tests need to be conducted which are measurement and structural model test. The measurement model test is conducted to test all items validity. The technique used in this test is Confirmatory Factor Analysis (CFA). The hypotheses are examined in the structural model test if all items used passed the CFA. In structural model testing, hypotheses are supported if the p-value for each estimate or β score is less than 0.05 [45]. The goodness-of-fit model in SEM can be decided by a certain rule of thumbs developed by previous researchers as shown in Table I [38].

TABLE I. RULE OF THUMBS FOR MODEL FIT

No.	Criteria	Threshold	Rule of Thumbs
1	CMIN/DF	<2.00	Good
		<5.00	Acceptable
2	GFI	>0.95 ^a	Great
3	AGFI	>0.90	Good
4	RMSEA	<0.06	Good
		0.05-0.10	Fair
		>0.10	Poor
5	NFI	>0.95	Great
		>0.90	Good
6	CFI	>0.95	Great
		>0.90	Good

a. depends on the factor loadings and sample sizes. The lower the sample sizes the greater the GFI

To find out whether knowledge about riba moderates intention to use e-money, this research uses interaction test following [39] approach. If perceived ease of use (PEU) is indicated as X1, perceived usefulness (PU) as X2, knowledge about riba (KR) as Z and intention to use e-money (INT) as Y, therefore the moderation effect occurs if there is a significant effect of X1*Z to Y and X2*Z to Y while variables X1, X2, and Z are controlled.

All the variable items from TAM are taken from [40], [41], [42] and [43]. There are 5 items to measure Perceived Usefulness, which are: a) faster, b) improve quality, c) productivity, and d) enhance effectivity. Perceived Ease of Use was measured by 5 items, they are: a) lean to operate e-money is easy, b) skilled to operate e-money is easy; c) finding information about the advantage of e-money is easy,

d) using e-money is easy; e) the use of e-money is clear and understandable. There are two items to measure intention to use e-money: a) I intend to use e-money; and b) I intend to use e-money routinely. Finally, there are four items to measure knowledge about riba that are taken from *fiqh* or Islamic literature, they are:

- Additional money required in debt transaction is considered riba
- Any advantages in debt transaction are considered riba
- Additional charge when the deadline payment is due considered as riba
- Fine or penalty in installment transaction is considered as riba.

IV. RESULTS AND DISCUSSION

A. Demography of Respondents

As many as 253 respondents are participated to fill the online questionnaires. Male respondents are dominated by 52.6% while the percentage of female respondents is 47.4%. In terms of educational background, 49.8% of respondents hold bachelor degrees, 26.9% hold master degrees, 5.9% hold doctoral degrees, while 17.4% of respondents' education high school graduate and 0.4% are lower. Even though the main context of this research discussing Islamic unethical aspect (riba), however, there are still non-Muslim respondents who are willing to participate. There are 3 respondents (1.2%) Christian and 3 more (1.2%) are Catholic.

B. Measurement Model-Confirmatory Factor Analysis

Before the items are tested further, they must be valid and reliable. Validity test is run by using dimension reduction analysis in SPSS and CFA in AMOS. From the test, it was found that all of the items weight scores are greater than 0.50. Items that score lower than 0.50 must be eliminated from the analysis. All of the items are also grouped into and confirmed specified factors as mentioned in the theory. Furthermore, the Keiser-Meyer-Oklin (KMO) Measure of Sampling Adequacy score is 0.86 indicating that the sample is adequate and all of the items are valid. All of the variables items are also reliable since its Cronbach alpha score is greater than 0.70 [44] and [45]. Complete validity and reliability results can be seen in Table II. Thus, since the items are valid and reliable, further analysis can proceed.

The research model can also be considered as good-fit as all of the criteria for model fit are achieved. CMIN/DF score for the default model is 1,600 indicating that the model is good. The GFI, AGFI and RMSEA scores are 0.934 (somehow great), 0.905 (good), 0.049 (good) respectively. All of the criteria are made following [38] rule of thumbs shown in Table I.

TABLE II. CONFIRMATORY FACTOR ANALYSIS AND RELIABILITY SCORE

	Factors				KMO	Cronbach Alpha
	1	2	3	4		
PU1	0.71				0.86	0.90

	Factors				KMO	Cronbach Alpha
	1	2	3	4		
PU2	0.86				0.90	
PU3	0.86					
PU4	0.80					
PEU1		0.83				
PEU2		0.84			0.88	
PEU3		0.75				
PEU4		0.80				
PEU5		0.79				
INT1			0.87		0.89	
INT2			0.90			
KR1				0.86	0.89	
KR2				0.82		
KR3				0.91		
KR4				0.89		

C. Structural Model-Hypotheses Testing

Based on simultaneous interaction model testing, it is found that the estimate path score (β) from perceived ease of use (PEU) on perceived usefulness (PU) is 0.60 with $\alpha = 1\%$ (0.01). The statistical result also shows that perceive ease of use (PEU) significantly affects behavioral intention to use e-money (INT), with estimate score (β) 0.19 ($\alpha = 1\%$) and perceive usefulness (PU) on intention to use e-money (INT) ($\beta=0.36$, $\alpha=1\%$). This results clearly support Technology Acceptance Model (TAM) in predicting intention to use e-money. Therefore, H1, H2 and H3 are supported.

TABLE III. HYPOTHESES TESTING RESULTS

Hypotheses		β Scores	Results
H1	PEU \rightarrow PU	0.60*** ^a	Supported
H2	PEU \rightarrow INT	0.19**	Supported
H3	PU \rightarrow INT	0.36**	Supported
H4a	KR moderates PEU \rightarrow INT	0.17**	Supported
H4b	KR moderates PU \rightarrow INT	-0.20**	Supported

Note:
a. p -value < 0.05

In moderation interaction test, the effect occurs if there is a significant effect of $X1*Z$ to Y and $X2*Z$ to Y . From the calculation, it is found that the interaction between PEU and KR significantly affect intention to use e-money ($\beta=0.17$, $\alpha=1\%$) and also interaction between PU and KR on intention to use e-money ($\beta=-0.20$, $\alpha=1\%$). These results give support for H4a and H4b. Complete results for hypotheses testing can be seen in Table III.

More insightful explanation toward the interaction test can be seen in figure 2. Knowledge about riba moderates the relationship between perceived ease of use on intention to use e-money by strengthening the relationship. Meaning that low perceived ease of use can significantly lower customers' intention to use e-money, however, the consequence is depended by their level of knowledge about riba. Even they are perceiving low on e-money ease of use, but, high knowledge about riba has more power to influence their intention to use e-money. On the contrary, knowledge about riba dampened the relationship between perceive usefulness on intention to use e-money. It means that knowledge about riba plays the important role in determining customers intention to use e-money as it might cause customers to cancel the intention to use e-money.

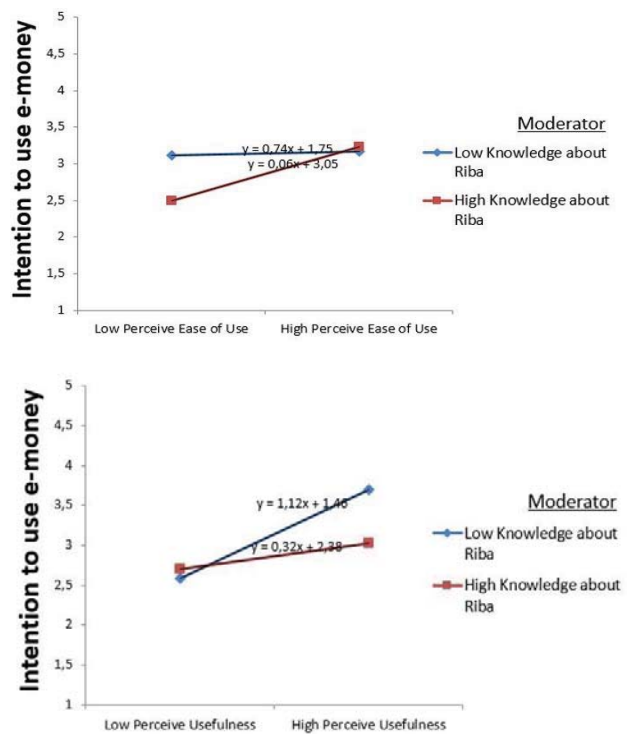


Figure 2. Interaction test.

D. Discussion and Limitation

The result show that perceives ease of use (PEU) and usefulness (PU) as the main predictor of intention to use e-money (INT). The findings provide support for TAM to explain user acceptance and usage toward information system which has been proven by prior researchers such as [27], [12], [13], [28], [14], [15], [29], [16], [30], [31], [17], and [32]. Therefore, it can be implied that customers want to accept new technology or system if they perceive it is easy to operate and useful to improve customer performance.

Interestingly, this research also shows that customers' intention to use e-money is not always predicted by their perception toward system easiness or usefulness but highly depended on the level of knowledge about riba. Knowledge

about riba moderates the TAM model as it is considered as unethical aspects for Muslims. Muslims consumer behavior is unique. Their life decision, including purchase decision, is highly regulated by the religious system. They may decide to purchase or not purchase a product based on the ethical aspect in accordance with religious principle. Riba is considered as unethical according to Islamic jurisprudence, therefore, knowing a product (read: system or technology) has a high association with riba will have a consequence on intention to use it. The argument and finding are actually supported [35], [29], [31].

Knowing the important role of knowledge about riba as moderating variable in TAM model, it is really suggested for future research to conduct research to validate its' scale measurement. The item measurement of knowledge about riba perhaps becomes one limitation in this research that can be addressed as an opportunity for future research to improve. Moreover, it is also really suggested for future research to consider subjective norm and religiosity in a single model. It can be presumed that customer intention to use e-money is highly influenced by social pressures. This research found that customer intention to use or not to use e-money is depended by their knowledge about riba. However, sometimes knowledgeable customer about riba does not guarantee his/her level of religiosity, vice versa.

V. CONCLUSION

It can be concluded that TAM can explain customers willingness to accept and use electronic money (e-money). Their willingness are depended on knowledge about riba, since it significantly moderate all of the hypotheses. It can be inferred that Muslim consumers in Indonesia are really aware and knowledgeable about riba. A deeper and wider research to explore what and how it affecting intention and behavior to use e-money need to be conducted.

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