

Do perceived risk and perceived value impact the adoption of cashless system?

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ABSTRACT

For the modernization of society, the adoption of technology is needed. It is very important to understand the factors that influence society's behavior toward accepting cashless system technology. People make risks and benefits as decision-making materials. In this study, we use internal factors from the UTAUT model and the influence of perceived risk and perceived value as intervening variables on the intention to use cashless systems. To collect data, we distributed questionnaires online, resulting in 119 samples that we used for further tests. The results of this study indicate that effort expectancy and perceived value have a direct influence on the intention to use cashless systems, while performance expectancy and perceived risk do not. The results of the Sobel test show that performance expectancy and effort expectancy have an influence on the intention to use cashless systems with perceived value as an intervening variable. From these results, cashless system technology providers maximize benefits, especially in ease of use. The disadvantage of this study is that the number of samples is not too large.

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1. Introduction

Technology was created to make it easier for humans to carry out their daily lives. This era of technological advancement has created many modern societies where this technology has influenced people's lifestyles, one of which is financial technology (fintech). To support the advancement of technology, there needs to be behavioral acceptance by society on adopting this technology. Even implementation is a challenge for providers of this financial technology.

The cashless system is part of financial technology that operates as a provider of digital financial platforms (Mirwan et al., 2023). The cashless system helps in making transactions anytime and anywhere. People choose to use the cashless system technology in their daily lives because of the benefits and ease of use (Bemby & Qomariyah, 2023). This statement can be proven by the data released by the Capgemini Research Institute, which states that there was an increase of 20.3% in 2021 compared to the previous year. This year, there was an increase due to the lockdown policy that limited physical contact. Not only in 2021, but the following years also showed good growth every year. In Indonesia itself, according to data from Bank Indonesia, cashless transactions in Indonesia in 2023 totaled IDR 57,487 trillion or a growth of 13.48% compared to the previous year. This large growth demonstrates that the cashless system has promising future prospects (Srouji & Torre, 2022).

Fintech adoption depends on individual access to new technology (Xie et al., 2021). For fintech adoption, it is necessary to know the public's attitude in adopting new technology. This phenomenon can be explained by the unified theory of acceptance and use of technology (UTAUT) model initiated by Venkatesh et al. (2003), which is a model to explain the attitude of technology adoption in society. The UTAUT model

provides four factors that explain technology adoption, which are divided into two external and two internal factors. This study focuses on the internal factors of society's intention to adopt fintech. We also added internal factors outside the UTAUT model, namely perceived risk and perceived value, which are in line with behavioral decision theories. According to UTAUT model, this model explain the connection between social influence and adoption of technology (Venkatesh et al., 2003). In this study, social influence are not included because we focus on internal factors of adopting the cashless system technology. However, can cause some behavioral changes (Bhuiyan et al., 2024). Cashless system have an impact on user economic. As explained in this study, performance expectancy is a believe that cashless system technology can increase their income.

In the use of technology, of course, there is effort that must be paid. In adopting technology, the effort given is the cost, time and energy expended when using the technology. In the UTAUT model, Effort Expectancy is an expectation that technology will be easy to use and learn (Ng et al., 2021; Venkatesh et al., 2003). Technology will be more accepted if individuals feel that the technology is easy (Nabila et al., 2023). The high level of effort expectancy can also be a benefit of using technology, as it can increase individual perceived value. Effort expectancy is seen as a 'given' in perceived value (Zeithaml, 1988). The high ease of a technology will motivate the adoption of a technology.

Technology has entered people's lives, including the world of work. Technology is used to make work easier so that it can improve performance. If a new technology is believed to improve performance, it will increase the intention to use the technology. This phenomenon is called performance expectancy (Noer et al., 2023; Venkatesh et al., 2003, 2012). In the case of cashless system technology, performance expectancy is the hope that using a cashless system will increase income and make work easier. Performance expectancy becomes 'receive' in perceived value (Zeithaml, 1988). The higher the performance expectancy, the more it will motivate the adoption of a technology.

The use of technology is certainly inseparable from the possibility of losses. Fear of getting consequences after making a decision can be associated with perceived risk (Juniwati, 2014). Losses in using this cashless system technology can result in loss of money and leaked data (Raj L. et al., 2024). Perceived risk is often used to compare the risks of using a cashless system with a traditional system (D. J. Kim et al., 2008). Perceived risk is a consideration in decision-making. Perceived risk can reduce the perceived value of using a cashless system. High perceived risk can also discourage the intention to use a cashless system.

Perceived value is the view that using a cashless system will be more beneficial than what is spent. Behavioral decisions theory states that decision-making cannot be separated from the aspects of 'given' (effort expectancy) and 'received' (performance expectancy) (Gordon et al., 2018; Malini, 2021; Zeithaml, 1988). Perceived risk can also affect perceived value. Too great a loss can cover the benefits of a technology (Rahadi et al., 2022). However, if the benefits outweigh the losses, people tend to ignore the risks. High perceived value can increase the intention to use a cashless system.

This research is based on research gaps from previous research. Research conducted by Chan et al. (2022) finds that effort expectancy, performance expectancy, and perceived risk affect behaviour intention and shows that performance expectancy has the largest impact. A study by Baptista & Oliveira (2015) and Alalwan & Williams (2014) also shows the same result, with performance expectancy having the greatest effect. This result is the same as a study by Bemby & Qomariyah (2023), where effort expectancy shows a positive effect on the intention to use. The research conducted by Bemby & Qomariyah (2023) also shows that financial literacy does not moderate the relationship between the UTAUT model and adoption intention to use cashless payment. Research by Xie et al. (2021) shows that performance expectancy and effort expectancy are supported by perceived value as intervening variables to influence intention to use. However, a study by Salim (2012) shows that performance expectations do not affect intention to use. A study by Raj L. (2024) demonstrate that perceived risk does not affect intention to use. A study by Nguyen & Huynh (2018) shows that perceived value does not have an intervening effect on perceived risk to intention to use. With this research gap from previous studies, we conducted research entitled "Do Perceived Risk and Perceived Value Impact the Adoption of Cashless Systems?".

2. Research Method

The goal of this study was to determine the variables impacting the adoption of cashless systems. This research is a causal study aimed at determining the influence of the causal relationship among variables. A quantitative approach was employed, incorporating numerical data to clarify the hypothesis. This study

utilizes primary data obtained through the distribution of online questionnaires. Linear regression tests and sobel tests are used to test the hypothesis. The analysis for this study was conducted using SPSS version 27 software.

This study utilizes five variables categorized into three types. The three types of variables include independent variables (X), intervening variables (M), and dependent variables (Y). This study examines five variables consisting of effort expectancy (X1), performance expectancy (X2), and perceived risk (X3) as independent variables; perceived value (M) as an intervening variable; and intention to use a cashless system (Y) as a dependent variable. The conceptual framework of this research can be established based on the arrangement of variables as follows.

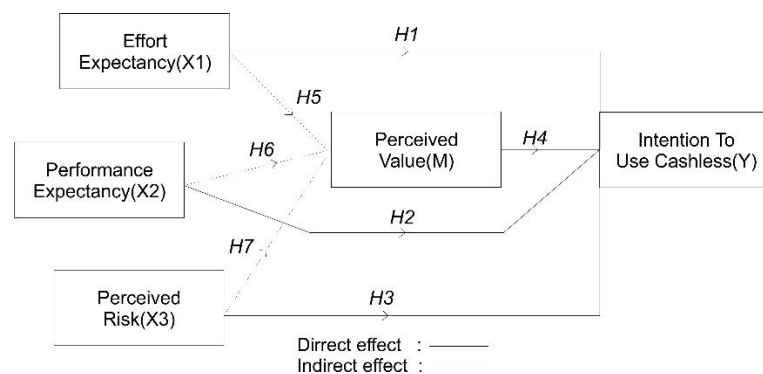


Figure 1. Conceptual framework

Using the above conceptual framework, seven hypotheses can be formulated and divided into two different parts. The first section (hypotheses 1-4) explains the direct relationship, while the second section (hypotheses 5-7) explains the indirect relationship. The seven hypotheses are as follows:

H1 = Effort expectancy (X1) influences the intention to use a cashless system (Y) directly.

H2 = Performance expectancy (X2) influences the intention to use a cashless system (Y) directly.

H3 = Perceived risk (X3) influences the intention to use a cashless system (Y) directly.

H4 = Perceived value (M) influences the intention to use a cashless system (Y) directly.

H5 = Effort expectancy (X1) influences the intention to use a cashless system (Y) indirectly mediated by perceived value (M).

H6 = Performance expectancy (X2) influences the intention to use a cashless system (Y) indirectly mediated by perceived value (M).

H7 = Perceived risk (X3) influences the intention to use a cashless system (Y) indirectly mediated by perceived value (M).

Data Collection

This research aimed to examine the West Kalimantan people as the research population. Purposive sampling was the method used, and it was based on established requirements of: 1) prior use of a non-cash system, 2) experience with non-cash transactions, and 3) having a source of income. The assessment used a Likert scale of 1 to 5. Strongly disagree is assigned a value of 1, while strongly agree is assigned a value of 5.

The indicators utilized in the questionnaire were derived from previous research. The indicators of effort expectancy, performance expectancy, and intention to use a cashless system are derived from the research conducted by Venkatesh et al. (2003, 2012). The perceived risk indicator is based on the findings of Kim et al. (2008), while the perceived value indicator was derived from research conducted by H.-W. Kim et al. (2007) and Sirdeshmukh et al. (2002).

The surveys were distributed through social networking sites, resulting in 126 responses. Following the elimination of inaccurate surveys, 119 precise responses were retained for further analysis. The 119 respondent are not representative enough to describe the population of Indonesia. However, 116 respondents are coming from West Kalimantan (mostly Pontianak) and the remaining are from outside West Kalimantan (2 from java, 1 from sumatra). To improve this research, we change the population of Indonesia to West

Kalimantan. The sample consisted of 31.4% males and 68.6% females. The age range of the respondents was between 17 and 29, with the majority falling between the ages of 19 and 21 (80.2%), while only 19.8% were outside this age range.

3. Result and Discussion

Before conducting multiple linear regression tests, the data used passed the normality, multicollinearity, and heteroscedasticity tests, which means that the data met the classical assumption requirements. In the linear regression test, two models are used. The first model uses variables X1, X2, and X3 as independent and variable M as dependent; the second model uses variables X1, X2, X3, and M as independent and variable Y as dependent. Table 1. below displays the outcomes of the linear regression test.

Table 1. Multiple regression linear

Model 1				
Model	Unstandardized Coefficient		Probability (sig.)	Note
	B	Std. error		
(Constant)	2.927	1.316		
EE (X1)	.431	.089	.001	Significant
PE (X2)	.431	.060	.001	Significant
PR (X3)	.102	.056	.070	Not Significant
Dependent Variable: M				
Model 2				
Model	Unstandardized Coefficient		Probability (sig.)	Note
	B	Std. error		
(Constant)	1.745	1.092		
EE (X1)	.301	.082	.001	Significant
PE (X2)	.066	.061	.279	Not Significant
PR (X3)	-.030	.047	.527	Not Significant
PV (M)	.375	.078	.001	Significant
Dependent Variable: Y				

From the results of linear regression, a formula can be formed from model 1, namely: $M = 2.927 + 0.431X1 + 0.431X2 + 0.102X3 + e$; and model 2 $Y = 1.745 + 0.301X1 + 0.066X2 - 0.030X3 + 0.375M + e$. The significant effect can be determined by calculating the probability value (P-value). The P-value must be below 0.05 to produce a significant effect. Based on the results of Table 1, the results of model 1 show that EE (X1) and PE (X2) have a significant effect on PV (M), while PR (X3) does not. Model 2 shows that EE (X1) and PV (M) have a significant effect on IT (Y), while PE (X2) and PR (X3) do not.

In Table 2. Shows the results of the Sobel test. The Sobel test is used to determine the role of intervening variables in causal relationships.

Table 2. Sobel test result

Model	Probability	Note
X1 > M > Y	.001	Significant
X2 > M > Y	.001	Significant
X3 > M > Y	.088	Not Significant

The probability value of the test result must be below 0.05 to indicate a significant influence of the intervening variable on the causal relationship. The results of Table 2 show that PV (M) affects the relationship between EE (X1) and IT (Y) and PE (X2) to IT (Y). PV (M) does not affect the relationship between PR (X3) and IT (Y).

Discussion

Hypothesis 1 is accepted, as the linear regression results of model 2 show that EE notably enhances IT directly. This result is in line with the UTAUT model theory and has the same results as the research conducted by Bemby & Qomariyah (2023) and Yang et al. (2023). In adopting the cashless system technology, people prefer the ease of use of technology. With a high level of EE, people expect this non-cash system technology to be easy to understand and learn.

Hypothesis 2 is rejected, as the linear regression results of model 2 show that PE does not have any effect on IT directly. This result is in contrast to the UTAUT model theory and has different results from Alalwan & Williams (2014) and Yang et al. (2023). However, a study by Salim (2012) shows the same

result. These results explain that users do not expect to use cashless system technology to increase their performance. There might be other factors that affect IT users.

Hypothesis 3 is rejected, as the linear regression results of model 2 show that PR does not have any effect on IT directly. These results are contrary to behavioral decision theory and contrary to research by Marafon et al. (2018) dan Liébana-Cabanillas et al. (2020). However, a study by Raj L. (2024) shows the same result. These results explain that when adopting cashless system technology, users do not really worry about the risk, as it can be avoided by increasing their awareness.

Hypothesis 4 is accepted, as the linear regression results of model 2 show that PR notably enhances IT directly. These results are in line with behavioral decision theory and in line with research by Kumala et al. (2020) and Xie et al. (2021). This result explains that users use cashless system technology because they perceive the value of cashless systems. The results of linear regression model 1 show that EE and PE have a significant effect on PV, while PR does not have a significant effect. These results align with behavioral decision theory, which explains that PV has two aspects: the 'receive' aspect (PE) and the 'given' aspect (EE). These two aspects are seen as the value that supports PV. As PR does not affect PV, the user perceived the value as bigger than the risk, so the trade-off between value and risk shows that the value is much more valuable than the risk.

Hypothesis 5 is accepted, as the Sobel test results show that PV has intervened in the connection between EE and IT. These results are the same as those of studies by Yousef & Albattat (2023) and Xie et al. (2021). The 'given' aspect (EE) that is explained by behavioral decisions theory is aligned with these results. These results demonstrate that users feel effort expectancy is a benefit of using cashless system technology. The less effort an individual gives to use this cashless system technology, the greater their intention to adopt this technology.

Hypothesis 6 is accepted, as the Sobel test results show that PV has intervened in the connection between PE and IT. These results are the same as those of studies by Xie et al. (2021) and H.-W. Kim et al. (2007). The 'receive' aspect (PE) that is explained by behavioral decisions theory is aligned with these results. These results demonstrate that users feel performance expectancy is a benefit of using cashless system technology. When they feel the cashless system technology could increase their performance, their intention to adopt this technology will increase.

Hypothesis 7 is rejected, as the Sobel test results show that PV does not influence the connection between PR and IT. These results are in contrast with studies by Xie et al. (2021) and Kumari & Devi (2022). However, this result is the same as a study by Nguyen & Huynh (2018). PR is the opposite of PV, which can have a negative impact on IT. These results show that perceived risk plays a minimal role in influencing the intention to use a cashless system, as it should act as a 'loss' for perceived value. This happens because the user does not worry about potential risks.

4. Conclusion

This study was conducted to determine what factors influence the intention to adopt cashless system technology. The factors used in this study are seen as direct and indirect effects on the adoption of non-cash systems. The results of this study can be described as EE has a direct and indirect effect on IT with PV as an intervening. These results indicate that ease of use of technology is one of the factors that positively influence the adoption of non-cash system technology. PE shows that the results do not have a direct effect, but there is an indirect effect on IT with PV as an intervening. These results explain that individuals do not use cashless system technology in the hope of improving their performance. However, if they can feel that there are benefits that can improve their performance, then PE becomes a factor in the adoption of cashless system technology. PR itself does not have a significant direct or indirect influence on IT. People see the risk of cashless system technology as not a big problem. PV has the greatest direct influence on IT. The benefits of using cashless system technology are the biggest reasons why cashless system technology has been adopted.

From the results of this study, we suggest that cashless system technology providers focus on the benefits of their technology, especially on ease of use to bait more costumer. Since PR does not have any significant effect on IT, risk is not a major threat. This could happen if costumer have high trust on cashless system. However, users should remain vigilant about the risks to maintain the company's good name. The results of this study are expected to provide additional understanding of the factors of cashless system technology adoption and new understanding compared to previous studies. We hope that this study will

continue using new variables other than those in this study, such as trust. The disadvantages of this study are that the number of samples is not large enough to represent a wide population, and there is still the possibility that there will be invalid answers from the respondents.

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