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**| RESEARCH ARTICLE**

**Consumer's Attitude on Online Payment Systems as Driven by Risks**

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**| ABSTRACT**

An online payment system has brought convenience to its users as it is a tool used to conduct cashless transactions. However, it involves risks that may differ from one person's perspective to another. Hence, the objective of this research is to understand the consumer's attitude regarding the technology, considering their perceived risk after system usage. A non-probability purposive sampling was utilized in this study, and a total of 384 responses were gathered. It has been found that perceived risk has a positive effect on perceived usefulness and ease of use; attitude is positively affected by perceived usefulness and ease, and attitude positively affects the intention to use. The results in this study can be used as a reference in conducting relevant studies, enhancement of the services of FinTech institutions, and for business owners to aid them in facilitating and implementing cashless payment methods in their transactions. Furthermore, the result in this study provides knowledge of the user perception in operating the system and contributes to the benefit of society, seeing that this system of payment portrays a vital role in the world today.

**| KEYWORDS**

Online Payment; Technology Acceptance Model; Perceived Risk; Attitude

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**1. Introduction**

Online payment platforms are a transformation of traditional payment services and transactions into a digital environment. It is a highly technological demand, including innovation in electronic money services for customers that may be used through mobile, distribution channels and technology, and other payment strategies (Nguyen, 2020). It is an alternative mode of payment in modern society despite its several risks. A greater level of security and increased efficacy in processing reduces the constraints in utilizing the system (Salihu *et al.*, 2019). Understanding the development of the new technology is a favorable action for the authorities in the financial industry to oversee, control, and enhance the payment system for its stakeholders and users (León, 2021).

Accordingly, this study has two specific objectives: (1) to know the user's attitude toward online payment systems considering their perceived risk and (2) to know whether it affects other factors such as perceived usefulness, perceived ease of use, and intention to use. Thus, this study will focus on providing answers to the effects of perceived risk on the user's perception of usefulness, ease of use, attitude, and intention to use online payment systems.

This research adopts the Technology Acceptance Model by Davis (1989) to validate in the context of online payment systems and explore factors behind users' perspectives and intentions to use technologies. Perceived risk was incorporated into the Technology Acceptance Model to have a better understanding of how it affects the user's attitude and intention to use the system. Thus, this study is significant for Financial Technology institutions and business owners/merchants.

Liébana-Cabanillas et al. (2020) stated that one of the key factors of adoption is the perceived risk of an individual. A recent review of customer experience literature indicates that there is a lack of studies measuring customer and user experience immediately after digital service encounters (Becker and Jaakkola, 2020). Customers' acceptance of electronic money as a digital payment medium and their behavioral intentions remains unclear, especially among current users of online payment services (Susanto et al., 2020). Due to the fast-growing industry of online payment systems, continuous research must be done to address the constraints and meet the needs of its users regarding the system.

## **2. Literature Review**

### **2.1. Technology Acceptance Model (TAM)**

Technology Acceptance Model (TAM) developed by Fred Davis is a model that studies the acceptance of information technology system that shows empirical and substantial validation of its variables and claims (Setiawan and Setyawati, 2020), and it has three important variables, particularly perceived usefulness (PU), perceived ease of use (PEOU), and behavioural intention to use (ITU). TAM is a modified version of a theory proposed by Ajzen and Fishbein in 1967, which is known as the Theory of Reasoned Action or TRA (Raza et al., 2017). As stated in TRA, the point of view of a person regarding his intention to utilize technology is defined by their perception of usefulness and ease of use (Ali et al., 2021, as cited in Raza et al., 2017).

Cashless payments may be overwhelming as compared to the traditional payment methods due to the fast-paced development of the technology, which results in the user's uncertainties and risks (Rahman et al. 2021). For better understanding the consumer's end of adopting an Internet-based system considering its unpredictability, Mauricio Featherman (2001) extended the Technology Acceptance Model by integrating it with perceived risk. With the rapid development of technology, there is a need to investigate the factors that contribute to the potential and current users' feeling of being uncertain about new systems introduced to them by providing ample information.

### **2.2. Online Payment Systems**

The emergence of technology, particularly e-commerce, has brought traditional payment services into digitalization, such as electronic cash, debit or credit cards, mobile payments, and cashless payments (Khan et al. 2017). Apart from this, people can now make payments via the Internet without the use of cash (Mukherjee & Roy, 2017). Simultaneously, online payment in the Philippines can be easily accessed through mobile devices as it does not require a bank account (Raon et al. 2004). The diverse payment schemes and the convenience brought by the technology encourage individuals to do online transactions based on their preferences influenced by their perceptions (Ching, 2017).

### **2.3. Perceived Risk on Online Payment Systems**

Perceived risk is known to be a predictor of technology acceptance (Stuck & Walker, 2019), which pertains to one's uncertainty as consumers are distressed about the possibility of not receiving their cash if a mistake is made (Noreen et al., 2021). Technically, errors in online payments may be lessened; however, they cannot be entirely averted in this circumstance (Wu et al., 2021). Furthermore, given that there is no need for an individual to be physically present, their perceived risk may arise. A lack of face-to-face interaction causes them to become skeptical of the technology. (Barkhordari et al., 2016).

Findings from studies that integrated perceived risk into the TAM concluded that perceived risk was directly and negatively associated with perceived usefulness (Ozturk, 2016). The preceding considerations and empirical support from the studies of Lwoga, E. T. and Lwoga, N. B. (2017), Li et al. (2019), and Ali et al. (2021) conceptualized and validated that perceived security risk have negative effects on usefulness; however, opposing to the claims of Ozturk (2016), the authors stated that it has an indirect effect.

A study conducted by Raza et al. (2017) states that the perceived ease of use of mobile payment systems is negatively influenced by perceived risk, and it has a direct impact on users' attitudes and intentions to use mobile payment systems (Li et al., 2019).

According to Nguyen (2020), an increase in the customer's positive attitude towards the system is determined by the reduced risk. Studies conducted by Ho et al. (2020), Nguyen (2020), Liébana-Cabanillas et al. (2017), and Alaeddin et al. (2018) states that the user's attitude is negatively influenced by the perceived risk.

Recent studies conducted by Salloum et al. (2019), Setiawan and Setyawati (2020), and Kalinic et al. (2019) established that a user's intention to use is substantially negative by the perception of risk. Fortes and Rita (2016) supported this claim stating that customers continue to react negatively to issues that cause them risks or damages. One's avoidance of adapting or using new technology is due to their perceived risk. In contrast, a higher level of self-confidence and risk acceptance toward the system will not affect their intention to use (Marafon et al., 2018).

Based on the previous findings, it is hypothesized that:

*H1: Perceived risk has a negative effect on perceived usefulness.*

*H2: Perceived risk has a negative effect on perceived ease of use.*

*H3: Perceived risk has a negative effect on the user's attitude toward the system.*

*H4: Perceived risk has a negative effect on the intention to use.*

#### **2.4. Perceived Usefulness on Online Payment Systems**

In terms of online payment, perceived usefulness refers to how often people assume a service can help them perform payment transactions (Phonthanukithaworn *et al.*, 2016). If a person thinks that the system helps in his productivity, it means that he perceives it to be useful (Davis, 1989). The greatest antecedent of intention to use is perceived usefulness since the convenience and time-saving advantages of mobile payment systems are what consumers enjoy the most (Kalinic *et al.*, 2019).

Ho *et al.* (2020) agree that the attitude toward the service is influenced by their perceived usefulness. A study conducted by Safari *et al.* (2020) shows that an increase in perceived usefulness is the determinant of a positive attitude of the users, while for non-users, the key determinants of their positive attitudes are reflected in the perceived usefulness as well as internet trust. Users believe that these types of systems improve their productivity as it is an efficient tools to do monetary transactions (Kustono *et al.*, 2020). In contrast, Changchit *et al.* (2017) claim that perceived risk does not play a significant role and has a positive effect on the attitude of users toward the system.

Thus, it is hypothesized that:

*H5: Perceived usefulness has a positive effect on the attitude toward the system.*

#### **2.5. Perceived Ease of Use of Online Payment Systems**

The significance of perceived ease of use will enhance the banking experience and contribute to increased adoption of mobile banking (Mehrad and Mohammadi, 2016; Raza *et al.*, 2017). When a technological system is perceived as easy to use, it simply indicates that it can be operated effortlessly (Davis, 1989).

The user's attitude and behavioral intentions to adopt and utilize technology are mainly determined by its ease of use (Yang *et al.*, 2021). The user's perceived ease of use was found to influence their attitude towards use which leads to utilization (Setiawan and Setyawati, 2020). This emphasizes that to build an attitude to use the system, the technology must be easy to use. Additionally, users can easily adjust to technological advancements and engage in using online payment systems. In contrast, it was found that perceived ease of use does not directly affect one's attitude towards the system as users focus more on the technology's usefulness. Results from Kavitha and Kannan (2020) reported that the attitude toward using the system is negatively and significantly affected by the perceived ease of use.

*H6: Perceived ease of use has a positive effect on the attitude toward the system.*

#### **2.6. Attitude and Intention to Use Online Payment Systems**

According to Davis (1989), the positive or negative reactions of an individual to a new technology introduced are referred to as their attitude, while the intention to use refers to the extent of their readiness in accepting, adopting, and continuing of using the technology. The intention to use the service is driven by multiple factors (Fortes and Rita, 2016). The users' interest is interpreted by their behaviors or actions, yet it may change in the long run (Yani *et al.*, 2018).

A good experience with the product or service of the technology develops a positive attitude towards using the system, which also increases the intention to use (Hsu and Lin, 2016). Setiawan and Setyawati (2020) concluded that the intention to use has a significant and positive influence on attitude towards use. This implies that the user's belief towards the payment system will indicate the necessity to use the technology. The results are supported by the research conducted by Chuang *et al.* (2016) that this attitude toward use positively influences the intention to use electronic payment.

Therefore, we hypothesized that:

*H7: The attitude toward online payment systems has a positive effect on the intention to use.*

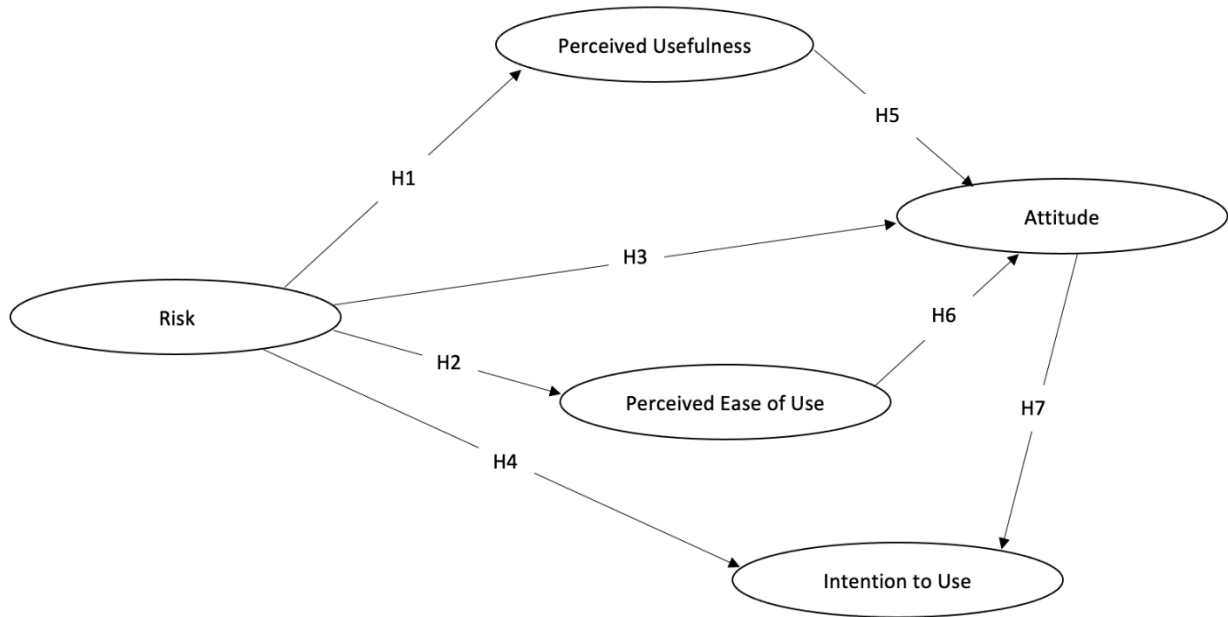


Figure 1. Proposed model showing the relationship of perceived risk to perceived ease of use, usefulness, attitude towards using, and intention to use.

### 3. Methodology

#### 3.1. Subject and Data Collection

This study applies a quantitative research design for the purpose of quantifying the intensity of factors that affects the attitudes and intention to use online payment (Suárez et al. 2017). The data were analyzed through applicable statistical tools and presented in numerical form and tables. Furthermore, a descriptive research design was applied as it was used to describe the status and make judgements (Grove et al. 2013) of the various factors in this study. The participants of this study are (1) online payment users, (2) aged 18 years old and above, and (3) residing in the National Capital Region (NCR), Philippines. The researchers have utilized purposive sampling to obtain a sample that would be considered to be representative of the general population (Lavrakas, 2008), and this will be combined with a referral method. The Raosoft sample size calculator was utilized to come up with the minimum number of respondents. The participants of this study were composed of three-hundred, and eighty-four (384) qualified respondents.

The survey questionnaire was administered through Google Forms for fast and easy distribution. After the data gathering process, the researchers sought the assistance of the statistician in the computation of data for the analysis and interpretation of data.

#### 3.2. Instrumentation

The questionnaire was based on the variables of the Technology Acceptance Model by Davis (1989). Its existing validated measures were modified to create the contents in our questionnaire; by remembering the meanings of the structures to be evaluated. Improvements were made in each component to produce the final instrument used for data collection. The questionnaire also included some questions about demographic characteristics and behavior (e.g., age, gender, monthly family income, highest educational attainment, how long they have been using online payment systems, transactions done). The age bracket is based on how Philippine Statistics Authority (PSA) groups their data, and the monthly family income is based on the 2020 data of the Philippine Institute for Developmental Studies (PIDS).

Five measuring elements were used, particularly the perceived ease of use (PEOU), perceived usefulness (PU), perceived risk (PR), attitude towards the system (ATT), and intention to use (ITU). The questions about Perceived Ease of Use were adapted from Fortes and Rita (2016) and Yang et al. (2021); Perceived Usefulness from Fortes and Rita (2016); Kalinic et al., 2019; and Ali et al. (2021); Perceived Risk from Fortes and Rita (2016) and Alaeddin et al. (2018); Attitude towards using the system from Fortes and Rita (2016) and Alaeddin et al. (2018); and Intention to Use from Kalinic et al. (2019), and Nguyen (2020). A total of thirty-two (32) items were evaluated using the six-point Likert scale ranging from "strongly agree" (6) to "strongly disagree" (1).

#### 3.3. Data Analysis

A reliability test was conducted and distributed to thirty-two (32) qualified respondents for the pilot study, and the results were computed using Cronbach's Alpha, wherein all the constructs are considered reliable if the values of the factors were 0.70 (Hair et

al., 2014 as cited in Lwoga E.T. & Lwoga N.B., 2020) to 0.90. Section one (1) and two (2) of the survey questionnaire are checklists; therefore, frequency and percentage distribution have been applied. Additionally, section three (3) contains a Likert scale; thus, the weighted mean and standard deviation were utilized as the statistical treatment of data. The standard deviation has determined the diversity of the responses based on the Likert scale. Structural Equation Modeling (SEM) was also used to assess the effect of the independent to the dependent variable (Wong, 2013), particularly perceived risks to perceived ease of use, perceived usefulness, attitude towards using, and intention to use the system.

**3.4. Ethical Consideration**

The researchers ensure that respondents' participation is all voluntary and no one is forced to answer. The respondents of the study have the freedom to withdraw their involvement. The study will comply with Republic Act 10173 - Data Privacy Act of 2012, that the researchers must preserve the confidentiality and anonymity of their research respondents. Respondents are well-informed about their involvement in this research, and the data gathered in this research were solely used for academic purposes. Lastly, there is no financial gain for the researchers in this study; hence there is no conflict of interest.

**4. Results and Discussion**

**4.1. Descriptive Analysis**

*Table 1. Profile of Respondents*

	f	%		f	%
<b>Gender</b>			<b>Age</b>		
Female	257	66.9	24 and below	289	75.3
Male	127	33.1	25 – 29 years old	32	8.3
	384	100	30 – 34 years old	21	5.5
			35 – 39 years old	7	1.8
			40 and above	35	9.1
				384	100
	f	%		f	%
<b>Highest Educational Attainment</b>			<b>Monthly Family Income</b>		
Junior/Senior High School Degree	98	25.5	Below ₱10,957	42	10.9
Some College (Undergraduate)	148	38.5	Between ₱10,957 to ₱21,914	40	10.4
Bachelor's Degree	132	34.4	Between ₱21,914 to ₱43,828	95	24.7
Master's Degree	6	1.6	Between ₱43,828 to ₱76,699	101	26.3
	384	100	Between ₱76,699 to ₱131,484	49	12.8
			Between ₱131,484 to ₱219,140	31	8.1
			₱219,140 and above	26	6.8
				384	100

As shown in Table 1, 66.9% are female. Most of the respondents are from ages 24 years old and below (75.3%). Additionally, 38.5% are undergraduate students, and 34.4% have a bachelor's degree. Lastly, one hundred one out of three hundred eighty-four respondents have a family income between ₱43,828 to ₱76,699.

*Table 2. Descriptive Statistics of Years of Usage of Online Payment Systems and the Transaction(s) Accomplished*

	f	%		f	%
<b>Years of Usage</b>			<b>Transactions Accomplished</b>		
Less than a year	57	14.8	Bills Payment	26	6.8
1 year	103	26.8	Purchase of goods and services	110	28.6
2 years	111	28.9	Both (Bills payment and purchase of goods and services)	248	64.6
More than 3 years	113	29.4		384	100
	384	100			

As presented in Table 2, the majority of the respondents have been online payment systems users for more than three years. A more significant number of the respondents have accomplished both transactions, particularly bills payment and the purchase of goods and services.

*Table 3. Descriptive Statistics of Perceived Ease of Use of Online Payment Systems*

	Mean	Std. Deviation
I easily learned to pay through online payment systems.	5.26	1.015
Paying via online systems is a clear and understandable process.	5.19	1.017
It is easy for me to become skillful at using online payment systems.	5.22	.968
I believe that online payment services would be easy to use.	5.36	.957
Using online payment systems is straightforward.	5.23	1.013
I like the fact that payments done through an online payment system require minimum effort.	5.34	.981
Overall Perceived Ease of Use	5.27	.863

Table 3 illustrates the descriptive data of the perceived ease of use of online payment. Results revealed that participants have a high level of perception about the system's ease of use (5.27, sd = .863). Among the five indicators, "I believe that online payment services would be easy to use" (mean = 5.36, sd = .957) and "I like the fact that payments done through an online payment system require minimum effort" (mean = 5.34, sd = .981) obtained the highest, meanwhile "Paying via online systems is a clear and understandable process" (mean = 5.19, sd = 1.017) obtained the lowest mean.

*Table 4. Descriptive Statistics of Perceived Usefulness of Online Payment Systems*

	Mean	Std. Deviation
Online payment systems allow me to save money.	3.98	1.555
Online payment systems allow me to save time.	5.58	.925
Online payment system provides me access to different payment services.	5.41	.976
The use of online payment systems is beneficial for me.	5.37	.958
The use of online payment systems will help me in making a quick transaction.	5.52	.899
Online payment systems provide greater control over financial transactions.	4.89	1.164
In general, I find it useful to pay my purchases through online payment systems	5.39	.938
Overall Perceived Usefulness	5.16	.819

Table 4 shows the descriptive statistics of the perceived usefulness of online payment. Results revealed that participants have a high positive perception about the usefulness of online payment (mean = 5.16, sd = .819). Among the seven indicators, "Online payment systems allow me to save time" (mean = 5.58, sd = .925) and "The use of online payment systems will help me in making a quick transaction" (mean = 5.52, sd = .899) obtained the highest, meanwhile, "Online payment systems allow me to save money" (mean = 3.98, sd = 1.555) has the lowest mean.

Table 5. Descriptive Statistics of Perceived Risk of Online Payment Systems

	Mean	Std. Deviation
Paying through an online payment system is risky.	4.47	1.290
Providing personal information online is risky.	4.90	1.273
There may be leaked information when using online payment systems.	4.81	1.289
There may be errors in the process of payment online.	4.81	1.244
There may be fraud or loss of money when using online payment systems.	4.73	1.366
There may be personal data hackers.	4.87	1.273
Online payment transactions may not be secure.	4.44	1.343
I find using online payment systems riskier than paying via cash.	4.38	1.417
Overall Perceived Risk	4.68	1.135

Table 5 shows the descriptive statistics of the perceived risk when using online payment. Results revealed that participants have a high perception that using online payment is risky (mean = 4.68, sd = 1.135). Among the eight indicators, "Providing personal information online is risky" (mean = 4.90, sd = 1.273) and "There may be personal data hackers" (mean = 4.87, sd = 1.273) obtained the highest mean, while "I find using online payment systems riskier than paying via cash" (mean = 4.38, sd = 1.417) and "Online payment transactions may not be secure" (mean = 4.44, sd = 1.343) have the lowest mean.

Table 6. Descriptive Statistics of Attitude towards Online Payment Systems

	Mean	Std. Deviation
I like making payments online.	5.10	1.031
Paying via online payment systems is a wise idea.	5.07	1.000
Paying via online payment systems is a good idea.	5.11	.962
Paying via online payment systems is a pleasant idea.	5.09	.992
It is advisable to pay through online payment systems.	4.87	1.038
It is a good choice to use an online payment system when paying.	4.98	1.074
Overall Attitude towards online payment	5.04	.917

Table 6 shows the descriptive statistics of the participants' attitudes towards online payment. Results revealed that participants have a positive attitude towards online payment (mean = 5.04, sd = .917). Among the six indicators, "Paying via online payment systems is a good idea" (mean = 5.11, sd = .962) and "I like making payments online" (mean = 5.10, sd = 1.031) obtained the highest mean, while "It is advisable to pay through online payment systems" (mean = 4.87, sd = 1.038) and "It is a good choice to use an online payment system when paying" (mean = 4.98, sd = 1.074) have the lowest mean.

*Table 7. Descriptive Statistics of Intention to Use towards Online Payment Systems*

	Mean	Std. Deviation
Given the opportunity, I will use online payment systems.	5.22	1.057
I am likely to use online payment systems in the near future.	5.24	1.063
I will use online payment systems if needed.	5.39	.964
I think that the use of online payment systems should be encouraged by all people.	4.88	1.125
I will recommend the use of online payment systems to my friends, family, etc.	5.11	1.028
Overall Intention to Use	5.17	.918

Table 7 shows the descriptive statistics about the participants' intention to use online payment. Results revealed that participants have high intention to use online payment (mean = 5.17, sd = .918). Among the five indicators, "I will use online payment systems if needed" (mean = 39, sd = .964) and "I am likely to use online payment systems in the near future" (mean = 5.24, sd = 1.063) obtained the highest mean, while "I think that the use of online payment systems should be encouraged by all people" (mean = 4.88, sd = 1.125) has the lowest mean.

**4.2. Measurement Model**

*Table 8. Construct and Convergent Validity*

	Factor Loading	Composite Reliability	Cronbach's Alpha	Average Variance Extracted		Factor Loading	Composite Reliability	Cronbach's Alpha	Average Variance Extracted
Perceived Risk		0.96	0.952	0.75	Attitude towards Online Payment		0.963	0.954	0.814
PR1	0.828				ATT1	0.865			
PR2	0.869				ATT2	0.92			
PR3	0.9				ATT3	0.921			
PR4	0.851				ATT4	0.922			
PR5	0.915				ATT5	0.875			
PR6	0.884				ATT6	0.91			
PR7	0.876				Intention to Use		0.943	0.924	0.769
PR8	0.799				ITU1	0.893			
Perceived Usefulness		0.928	0.904	0.657	ITU2	0.894			
PU1	0.413				ITU3	0.83			
PU2	0.876				ITU4	0.857			
PU3	0.874				ITU5	0.907			
PU4	0.902								
PU5	0.904								
PU6	0.677								
PU7	0.898								
Perceived Ease of Use		0.949	0.936	0.758					
PEU1	0.88								
PEU2	0.872								
PEU3	0.889								
PEU4	0.89								
PEU5	0.857								
PEU6	0.832								



Table 8 shows the indicators' factor loading, composite reliability, Cronbach's alpha reliability coefficient, and average variance extracted. Results revealed that factor loading is all significant at  $p < 0.01$  and ranging from .413 to .922. The composite reliabilities range from .928 to .963, while the average variance extracted ranges from .657 to .814. These results indicated the instrument has good convergent validity. However, Cronbach's alpha reliability coefficient ranging from .904 to .954 indicated good construct validity.

Table 9. Discriminant Validity

	PR	PU	PEU	ATT	ITU
Perceived Risk (PR)	(0.866)				
Perceived Usefulness (PU)	0.273**	(0.811)			
Perceived Ease of Use (PEU)	0.233**	0.765**	(0.870)		
Attitude (ATT)	0.169**	0.635**	0.689**	(0.902)	
Intention to Use (ITU)	0.211**	0.686**	0.700**	0.770**	(0.877)

Note: Square roots of average variances extracted (AVEs) shown on diagonal.

Table 9 shows the correlation between the different latent variables and the square root of the average variance extracted. Results revealed that the square root of the average variance extracted of each latent variable is greater than the correlation coefficient when it is correlated to the other latent variables. This result indicated that the instrument has good discriminant validity.

### 4.3. Structural Model

#### Model Fit and Quality Indices

Average path coefficient (APC)=0.314, $P < 0.001$
Average R-squared (ARS)=0.322, $P < 0.001$
Average adjusted R-squared (AARS)=0.319, $P < 0.001$
Average block VIF (AVIF)=1.710, acceptable if $\leq 5$ , ideally $\leq 3.3$
Average full collinearity VIF (AFVIF)=2.525, acceptable if $\leq 5$ , ideally $\leq 3.3$
Tenenhaus GoF (GoF)=0.491, small $\geq 0.1$ , medium $\geq 0.25$ , large $\geq 0.36$
Sympson's paradox ratio (SPR)=1.000, acceptable if $\geq 0.7$ , ideally = 1
R-squared contribution ratio (RSCR)=1.000, acceptable if $\geq 0.9$ , ideally = 1
Statistical suppression ratio (SSR)=1.000, acceptable if $\geq 0.7$
Nonlinear bivariate causality direction ratio (NLBCDR)=0.857, acceptable if $\geq 0.7$

Different model fit and quality indices were used to assess the structural model. Results revealed that Average path coefficient (APC = 0.314), Average R-squared (ARS = 0.322), and Average adjusted R-squared (AARS = 0.319) are all significant at  $p < 0.01$ . Both the Average block VIF (AVIF = 1.710) and Average full collinearity VIF (AFVIF = 2.525) are acceptable and ideal since the values are less than 3.3. Tenenhaus GoF (GoF = 0.491) is considered large. Sympson's paradox ratio (SPR = 1.00), R-squared contribution ratio (RSCR = 1.00), Statistical suppression ratio (SSR = 1.00), and Nonlinear bivariate causality direction ratio (NLBCDR = 0.857) are all acceptable.

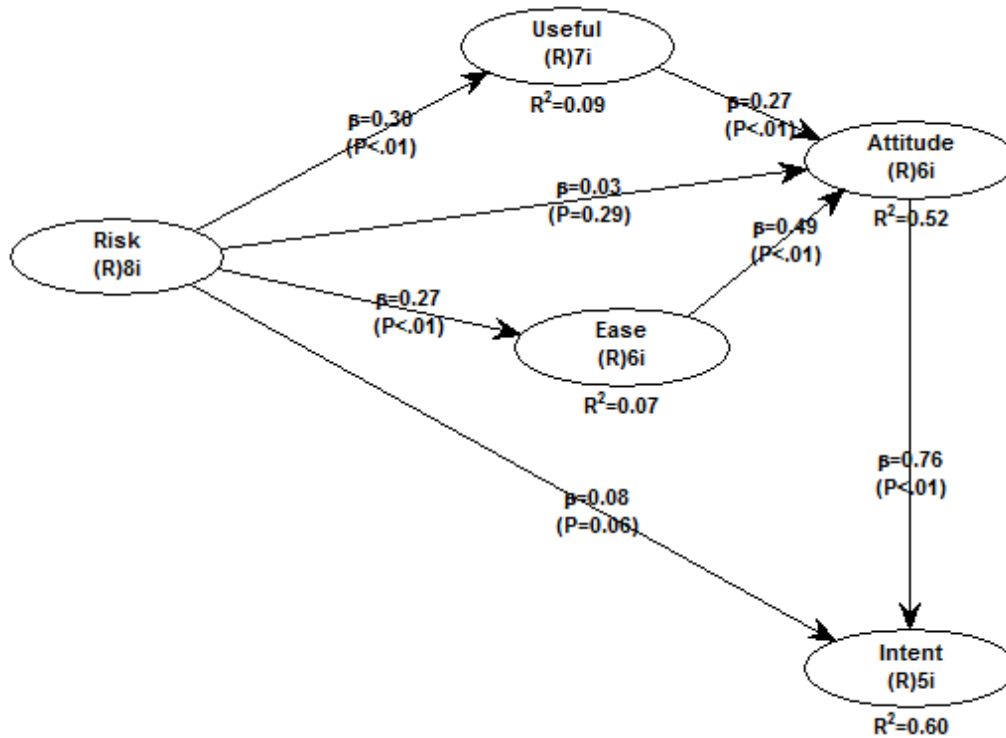


Figure 2. Structural Equation Model of the Factors Affecting Attitude and Intention to Use Online Payment

Table 10. Path Coefficients of the factors affecting attitude and intention to use online payment

Independent Variable	Dependent Variable	Path Coefficient	Standard Error	p-value	Effect Size
Perceived Risk	Perceived Usefulness	0.302	0.049	<0.001	0.091
Perceived Risk	Perceived Ease of Use	0.268	0.049	<0.001	0.072
Perceived Risk	Attitude	0.028	0.051	0.292	0.005
Perceived Risk	Intention to Use	0.081	0.051	0.056	0.018
Perceived Usefulness	Attitude	0.266	0.049	<0.001	0.172
Perceived Ease of Use	Attitude	0.493	0.048	<0.001	0.342
Attitude	Intention to Use	0.757	0.046	<0.001	0.586

Table 10 shows the path coefficients, standard error, p-value, and effect size obtained from the structural equation model. SEM results revealed that perceived risk has a significant positive effect on the perceived usefulness of online payment ( $\beta = 0.302$ , p-value < 0.01,  $f^2 = 0.091$ ), indicating that higher perceived risk results in higher perceived usefulness of online payment. Perceived risk also has a positive effect on perceived ease of use of online payment ( $\beta = 0.268$ , p-value < 0.01,  $f^2 = 0.072$ ), which indicates that higher perceived risk results in higher perceived ease of use of online payment. However, perceived risk has no significant effect on attitude ( $\beta = 0.028$ , p-value > 0.05,  $f^2 = 0.005$ ) and intention to use online payment ( $\beta = 0.081$ , p-value > 0.05,  $f^2 = 0.018$ ).

The model also concluded that attitude towards online payment is affected by the system perceived usefulness ( $\beta = 0.266$ , p-value < 0.01,  $f^2 = 0.172$ ) and system perceived ease of use ( $\beta = 0.493$ , p-value < 0.01,  $f^2 = 0.342$ ). These results indicated that better perception about the usefulness and ease of use of online payment resulted in a more positive attitude towards the system. Additionally, attitude towards online payment positively affects the participants' intention to use online payment ( $\beta = 0.757$ , p-value < 0.01,  $f^2 = 0.586$ ), indicating that a more positive attitude towards online payment resulted in a higher intention to use the system.

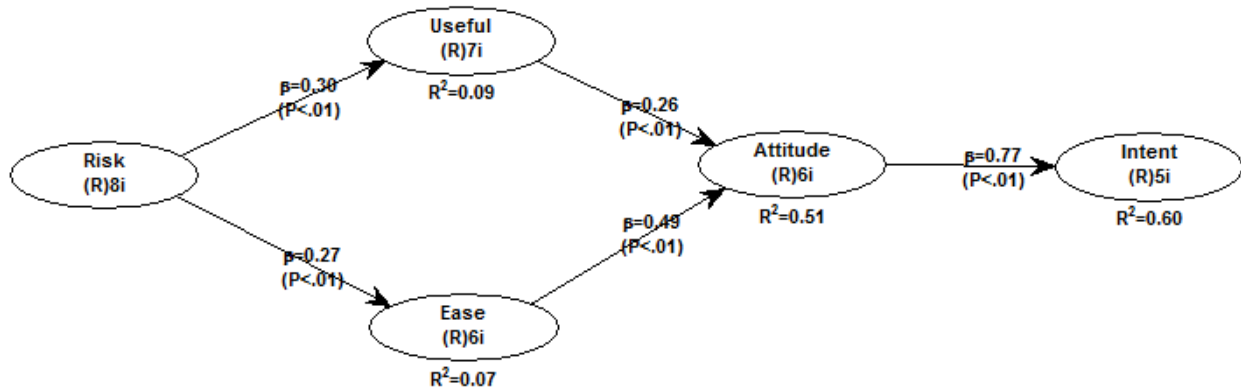


Figure 3. Final model showing the factors affecting attitude and intention to use online payment

The final model shows that perceived risk has a significant effect on the perceived ease of use (PEOU) and perceived usefulness (PU) of online payment, and the effect of perceived risk is a little higher in perceived usefulness than perceived ease of use. Moreover, perceived ease of use (PEOU) and perceived usefulness (PU) has a significant positive effect on attitude towards online payment. The combined effect of perceived usefulness and perceived ease of use can explain 51% of the variability in the attitude of the participants towards online payment. The final model also shows that attitude significantly affects the participant's intention to use online payment.

#### 4.3. Discussion

The results presented that perceived risk has a significant positive effect on the user's perceived usefulness of online payment systems, which implies that H1 is not supported. Contrarily, Li et al. (2019) and Rifat et al. (2019) have shown that perceived risk has a negative effect on the user's perceived usefulness of the system. Additionally, H2 is not supported as it appears that perceived risk has a positive effect on perceived ease of use of online payment. This implies that the users may consider the online payment system to be risky; however, they also perceive it to be useful and easy to use, which results in their continuance. Coherent to the findings of Muñoz-Lieva et al. (2017), they showed that the claim is unsupported by empirical evidence that there is a negative relationship between the user's perceived risk and intention to use and is statistically insignificant (Suebtimrat & Vonguai, 2021). Based on the analysis, perceived risk has no significant effect on the user's attitude and intention to use, therefore rejecting H3 and H4.

This study supports the fifth hypothesis, which states that perceived usefulness positively affects attitude (PU→ATT:  $\beta = 0.266$ ,  $p$ -value < 0.01). It is supported by previous studies conducted by Liébana-Cabanillas *et al.* (2017) and Kavitha and Kannan (2020) that perceived usefulness has a significant and positive effect on users' attitudes toward using mobile payment applications. The relationship proposed in H6 is supported; perceived ease of use has a positive and significant impact on attitude toward using online payment systems (PEOU→ATT:  $\beta = 0.493$ ,  $p$ -value < 0.01). According to Setiawan and Setyawati (2020), users will be more willing to accept new technology if it is perceived to be easy to use and demands less time and effort, and its impact indicates that the ease of using mobile payment systems will influence people's attitude to utilize it in transactions. The findings of this study are also supported by Jiwassiddi *et al.* (2019), who concluded that perceived ease of use is one of the significant factors in determining the user's attitude. Finally, H7 was also supported; attitude towards online payment positively affects the participants' intention to use (ATT→IN:  $\beta = 0.757$ ,  $p$ -value < 0.01). Previous research conducted by Alswaigh & Aloud (2021) is in line with this result, and they have determined that attitude has a positive and significant influence on intention to use.

#### 5. Conclusion

This study aimed to examine and provide answers to the effects of perceived risk, particularly on how it will affect the user's perception of usefulness, ease of use, attitude, and intention to use online payment systems. The study is significant because of modernization in information and financial technology, which have resulted in advancements in e-commerce and technologies, including online payment systems. The Technology Acceptance Model by Davis was adopted and extended by incorporating risk perception to understand better how it influences the user's attitude toward the system and their intention to use it.

The findings show that Perceived Risk (PR) significantly influenced the perceived usefulness and perceived ease of use of online payment systems. The results also showed the significant positive effect of Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) on attitude towards online payment systems, and there is a positive and significant effect if the users have a positive attitude towards the intention to use the system.

The researchers, therefore, recommend helping Financial Technology institutions, online payment system providers, and business owners to integrate mobile payment systems in their industry. Financial Technology institutions and online payment system providers may heavily advertise their services, emphasizing the security and privacy protection aspects of the services to ensure that prospective users feel protected by all their personal information given in the system Lim et al. (2018).

Improving the system's ease of use and usefulness will enhance the user's attitude and will lead to their intention to use (Alaeddin et al., 2018). Individuals continue to utilize online payment systems despite that it is risky. This is because they also perceive it to be useful and easy to use. Entrepreneurs are also suggested to adopt online payment technology to make their transactions quick and aid them to save time which will later be helpful for their productivity. To make it more useful, Financial Technology institutions and providers should be able to communicate how online payment could help them save through investment, or the system may have a feature that reminds its users of their monthly spending. However, it must be noted that the users have a high perception of the system that mainly concerns leakage of personal information and data hackers. Thus, it is important to focus on the security of the system (Rahmiati & Jelitalia, 2021).

With the high level of diligence, future researchers should study other variables that may influence consumer attitudes regarding online payment systems (Muñoz-Lieva et al., 2017). They may also consider including the different risk dimensions, particularly physical risk, performance risk, psychological risk, time-loss risk, and financial risk (Ho & Ng, 1994), to know what type of risk is mostly perceived to affect the user's attitudes.

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