

Factors That Influence the Behavioural Intention to Use E-Payments in Indonesia

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Abstract. *This study aims to investigate the factors that influence the intention to use electronic payment in Indonesia. In this study eight variables were identified as influence factors, they are perceived usefulness, perceived ease of use, consumer's perception, enjoyment, trust, social influence, perceived security, and attitude toward behaviour. Based on data from 403 respondents collected through online questionnaire which was then analysed by Lisrel 8.8, it was found that six of the eight variables, namely perceived ease of use, enjoyment, trust, social influence, perceived security, and attitude toward behaviour have significant relationship with the behavioural intention to use e-payment system. Furthermore, this study also found that the behavioural intention significantly leads to the e-payment adoption and e-payment adoption also significantly influences the continuance intention to use e-payment*

Keywords: *e-payment; behavioural intention; e-payment adoption; continuance intention*

INTRODUCTION

Currently, there has been a shift in the use of cash (both coins and paper) to electronic money, or what is known as cashless society. In Indonesia, the use of e-money has been introduced since 2007. Then, in 2017, Bank Indonesia has issued the *National Payment Gateway* program, in which one card can be used anywhere with a minimum fee. In addition, through the Go Digital Vision 2020 program, the Indonesian government also shows serious efforts to become the largest country in the digital economy in Southeast Asia. In this program, it is targeted that Indonesia will achieve an online transaction value of USD 130 billion in 2025 with an annual growth of 50% (Ministry of Foreign Affairs, 2017). These efforts seem to have positive impact to the increasing amount of non-cash transaction from IDR 981 billion in 2011 to IDR 205 trillion in 2020. In addition, based on the data from Bank Indonesia, the money supply in the form of notes and coins decreased from 10.26% in 2018 to 10.07% in 2019. This indicates that there has been a downward trend in the use of cash payments. However, in spite of the increasing number of e-payment transaction, in comparison with other countries in Asia, the level of e-payment use is still lagging behind. Based on Global Consumer Insight survey conducted by PWC in 2019, it is known that the amount of non-cash transaction in Indonesia is in the 5th position, which is below China, Thailand, Hongkong and Vietnam. Even though if we compare it with the number of internet users, Indonesia is higher than Thailand and Vietnam. This condition is certainly interesting to be studied, what factors that influence the adoption of e-payments in Indonesia. This is important because Indonesian government has issued several policies to encourage the use of e-payment in Indonesia, but the growth of e-payment use is still slow.

There are many types of e-payments available in Indonesia, but not all of them are successful in attracting consumers to adopt them. According to Expectation Confirmation Theory by Oliver (1980), consumers define their repurchase intentions by determining whether the product or service meets their initial expectations. It means that the consumer will continue to use if it matches with their expectation. Then, in Technology Acceptance Model (TAM) by Davis (1998) it is revealed that the main factor that determines whether a person uses the system is the overall attitude of the user towards specific information technology (IT) and its application and attitude toward its usage is also determined by perceived ease of use of that IT application. Teoh et al. 2013; Hidayanto et al. 2015; Tella and Olasina, 2014; Lok, 2015; Lee, 2009 also support this statement by confirming the result of their hypotheses that perceived ease of use has significant impact to the intention of consumer to adopt e-payment. Besides perceived ease of use, of course users may continue using an e-payment service if they consider it useful, even if they were dissatisfied with their prior use (Bhattacharjee, 2001a). Other studies also support that perceived usefulness or benefit has significant impact to the e-payment adoption (Teoh et al. 2013; Tella and Olasina, 2014; Lok, 2015; Lee, 2009; Lin and Ong, 2010). Another important thing in the payment system is security. Teoh et al. (2013) security refers to the technical aspects that ensure integrity, confidentiality, authentication, and non-recognition of relationships. Sathye (1999) finds security to be a significant obstacle to online banking usage, which affects the use of e-payment systems. Hidayanto et.al (2015) explained that to build customers' trust, e-payment services must guarantee data security and customer privacy by providing clear rules and a quick response to any complaint or violation. Other factors such as perceived enjoyment, social influence and trust also have an influence on the behavioural intention of consumers in

adopting the e-payment. Tella and Olasina, (2014) and Lee, (2009) found that perceived enjoyment is positively related to the behavioural intention. Lok, (2015) found that the image has positive effect on user perceived of usefulness, but Hidayanto et al. (2015) found the opposite that social influence shows the negative significant to the user's intention.

In Indonesia, the same research has been conducted by Hidayanto, et al. (2015) and concludes that perceived trust, privacy, security, ease of use and convertibility are among factors that determine the adoption of e-payment in Indonesia. In contrast Teoh et al. (2013) have found that security and trust are not significantly associated with consumers' perception toward e-payment. So, this research was considered important to proceed because with increasingly sophisticated technological changes it is necessary to study what factors are currently very influential on consumers' intentions to adopt the e-payment. In this study perceived usefulness, perceived ease of use, consumer perception towards e-payment, enjoyment, trust, social influence, perceived security, and e-payment adoption are identified as important factors that influence consumers' behavioural intention toward the e-payment. In addition, this study considers large number of respondents so that the results are expected to be accountable and reliable.

Literature Review

Electronic Payment

E-payment can be defined as any exchange of funds initiated via an electronic communication channel (Shon and Swatman, 1998). E-payment can be made through electronic signals linked directly to deposits or credit accounts (Gans and Scheelings, 1999) or any kind of non-cash payment that does not involve a paper check and without direct face-to-face interaction (Hord, 2005; Turban and King, 2002; Rahardjo, 1999). E-payment can be referred to the transfer of an electronic value of payment from a payer to payee through an e-payment mechanism which allows customers to remotely access and manage their bank accounts and transactions, executed through an electronic network (Lim et al., 2006; Sumanjeet, 2009). E-payment requires internet connection to work, similar to the use of other e-environments such as electronic banking (e-banking), electronic shopping (e-shopping), or electronic learning (e-learning) (Teoh, 2013).

Bank of Indonesia divides non-cash payment instruments into 5 groups: (a) Card Based payments: are divided into credit cards - cards issued by banks and others to enable users to purchase goods that are in debt, credit cards - refer to the customer's savings balance at the bank that can be used to make payments, transfer money or withdraw money from ATM machines without having to go to a bank, and e-money is an electronic card that can be used for a means of payment on the basis of the value of money or funds that have been deposited in advance; (b) Check: is an unconditional warrant from the customer to the bank that maintains the customer's demand deposit account, to pay a sum of money to the parties mentioned in it or to the holder of the check. Check itself has 3 types, namely cross checks, checks on behalf and checks on show; (c) Transfer Form/Bilyet: is a warrant from a bank customer to transfer a number of funds from the owner's account to the recipient's account; (d) Debit note: is a document or letter used to collect other banks or other bank customers through clearing. Debit notes are also used for inter-office transactions, both debit notes with letters and telegram debit notes; and (e) Electronic Money: divided into chip based – type and server-based type. Chip-based type of electronic money is generally in the form of cards, such as e-Money, Flazz, and Brizzi. Server-based electronic money is usually in the form of applications, such as Go-Pay, OVO, and LinkAja

Technology Acceptance Model (TAM)

Technology Acceptance Model (Davis 1989) is an information systems theory that models how users come to accept and use a technology. TAM evolves from TRA (Fishbein & Ajzen, 1975) and proposes 2 primary drivers for technology acceptance which are perceived usefulness and perceived ease of use. TAM was designed to predict information technology acceptance and usage on the job. Davis et al. (1989) modified TRA and incorporates both perceived usefulness and ease of use as beliefs, but drivers of attitude is not considered significant and so is dropped in TAM (Lok, 2015). The goal point of the TAM model is the actual use of everyone to be able to do with technology, so TAM has to form Behavioural Intention, which is a factor that leads people to use the technology. The behavioural intention is influenced by the attitude toward its usage which is the general impression of the technology. The TAM model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it.

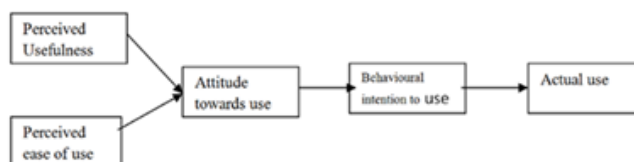


Figure 1.
Technology Acceptance Model (Davis 1989)

The TAM has been continuously studied and expanded by the researcher. The two major replicated and upgraded being the TAM 2 (Venkatesh & Davis 2000 & Venkatesh 2000) and the Unified Theory of Acceptance and Use of Technology (or UTAUT, Venkatesh et al. 2003). The model of TAM 3 has also been proposed in the context of e-commerce with an inclusion of the effects of trust and perceived risk on system use (Venkatesh & Bala 2008). In this study, TAM is chosen by considering the fact that it is one of the most widely applied IS model. Secondly, TAM is regarded as the most prominent model because it includes factors which are specific, simple, easy to understand, and can be manipulated through system design and implementation (Wangpipatwong, et al., 2008). Aside from the large number of TAMs adopted by other researchers, TAM also receives a lot of criticism such as TAM is too focused on individual users by ignoring the essentially social processes of IS development and implementation. Lunceford argues that the framework of perceived usefulness and ease of use overlooks other issues, such as cost and structural imperatives that force users into adopting the technology. Therefore, TAM is adopted in this study as theoretical basis and will be integrated with several constructs adopted from the other theories of technology acceptance. By considering various factors that might influence the acceptance of IT, this research proposes a new model of e-payment continuance intention by TAM as a basis.

Factors That Influence Electronic Payment Adoption

Perceived Usefulness

Davis (1989) defined perceived usefulness as the degree to which a person believes using a particular system would enhance his or her job performance. The usefulness of a technology is determinant that influence customer's attitudes to accept and use (Chou et al. 2004). Users may continue using an e-commerce service if they consider it useful, even if they may be dissatisfied with their prior use (Bhattacharjee 2001a). Eastin (2002) studied e-commerce activities (online shopping, banking, investing, and e-payment systems) found that prior to adoption, perceived convenience and financial benefits predict adoption decision. Several previous researchers found that perceived usefulness predicts IT use and intention to use (e.g., Agarwal & Prasad, 1999; Gefen & Straub, 1997), including e-commerce adoption (Gefen & Straub, 2000). To prove whether perceived usefulness has a major effect on customer acceptance of e-payment in Indonesia, in this study it is proposed that:

Hypothesis 1: There is a significant relationship between perceived usefulness and consumers' behavioural intention toward e-payment.

Perceive Ease of Use

According to Davis (1989), perceived ease of use is defined as the degree to which a person believes that using a particular system would be free of effort. Previous research has shown that perceived ease of use has a significant effect on behavioural intention to use (Davis et al., 1989; Venkatesh & Davis, 2000). Abrazhevich (2001) concludes that a successful design of e-payment is very important characteristics leading to perceived ease of use and subsequently influence consumers' perception of e-payment systems. Other extensive research also supports that perceived ease of use has significant effect to the usage intention (Agarwal & Prasad, 1999; Davis et al., 1989; Hu, Chau, Sheng, & Tam, 1999; Jackson, Chow, & Leitch, 1997; Venkatesh, 1999, 2000; Venkatesh & Davis, 1996, 2000; Venkatesh & Morris, 2000). Based on the explanation above, it is proposed that:

Hypothesis 2: There is a significant relationship between perceived ease of use and behavioural intention toward e-payment.

Consumers' Perceptions Towards E-Payment

Davis (1989) finds that a user's overall attitude toward a specific information technology (IT) and its applications is a major factor determining whether an individual uses that system. Abrazhevich (2001) confirms that users' perception of e-payment has a significant effect on its acceptance. In this research we will examine whether Consumers' perception towards e-payment systems affect consumer intention by comparing with traditional payments. In this study, it is proposed that:

Hypothesis 3: There is a significant relationship between consumers' perception towards e-payment and consumers' behaviour intention toward e-payment.

Enjoyment

Tella and Olasina (2014) defined enjoyment as the extent to which the activity of using e-payment system is perceived to be personally enjoyed. (Davis et al., 1992; Venkatesh et al., 2002) proved that the enjoyment in using a Web site significantly affects the intentions to use. In this study the enjoyment is interpreted by asking whether the user enjoys transactions using electronic payments. In this research we will test whether the user feels enjoyable with e-payment that has been used. So, the hypothesis proposed is:

Hypothesis 4: There is a significant relationship between enjoyment and consumers' behavioural intention toward e-payment.

Trust

Trust is defined as a function of the degree of risk involved in financial transactions, and the outcome of trust is reduced perceived risk, leading to positive intentions toward e-payment adoption (Yousafzai et al., 2003). Gefen (2003) defined trust as an expectation that others will not behave opportunistically. Prior studies proved that trust has significant effect to the consumers' willingness to adopt e-commerce and e-payment money (Friedman et al., 2000; Gefen, 2000, 2003; Hoffman et al., 1999; Jarvenpaa et al., 2000; Wang et al., 2003). Another research said that trust is essential for understanding consumer's behaviour and perception toward e-payment (Abrazhevich, 2001; Chou et al., 2004; Tsiakis and Sthephanides, 2005). In this study it is proposed that:

Hypothesis 5: There is a significant relationship between the trust and the consumers' behavioural intention toward e-payment.

Social influence

Social influences refer to the pressure from society on the adoption of technology or innovation (Lu et al., 2005; Yang et al., 2011). In this study the image is part of social influences. Moore and Benbasat (1996) explained image as the degree to which the use of an innovation is perceived to enhance one's image or status in one's social system. Besides that, we also want to test whether people in the environment influence users in adopting the technology. To examine how social influences effect the consumers' intention, so in this study it is proposed that:

Hypothesis 6: There is a significant relationship between social influences and consumers' behavioural intention toward e-payment.

Perceived Security

To build customers' trust, e-payment services must guarantee data security and customer privacy by providing clear rules and a quick response to any complaint or violation (Hidayanto, 2015). Generally, security is a set of procedures and programs to verify the information source and guarantee the integrity and privacy of the information (Tsiakis and Sthephanides, 2005). Sathye (1999) finds security to be a significant obstacle to online banking usage, which affects the use of e-payment systems. This study will test whether security has a major effect on the consumers' intention, so it is proposed that:

Hypothesis 7: There is a significant relationship between perceived security and consumers' behavioural intention toward e-payment.

Attitude toward Behaviour

Attitude toward behaviour refers to the user's feelings about using the information technology. This factor is adopted from Davis et al. (1989) and Thompson et al. (1991). Amoroso and Hunsinger (2009) said that the attitude toward using the Internet is positively correlated to behavioural intention to use the Internet (Tella and Olasina, 2014). This study will test whether the attitude toward behaviour has a major effect on the consumers' intention to adopt e-payment in Indonesia, so in this study it is proposed that:

Hypothesis 8: There is a significant relationship between attitude toward behaviour and consumers' behavioural intention toward e-payment.

E-payment Adoption

E-payment adoption in this context refers to the consumer's decision to choose to use e-payment. Mao (2002) studied information technology usage and adoption suggested research model predicts that both perceived usefulness and attitude were related to actual usage. This extended Technology Acceptance Model research will lead the construct to predict the actual used of the e-payment. So, this study refers to the end of the actual use model and propose that:

Hypothesis 9: There is a significant relationship between consumers' behaviour intention and consumers' adoption of e-payment.

E-Payment Continuance

Information system continuance refers to the intention to participate and continue using the IS Bhattacharjee (2001). Tella and Olasina, 2014 have done research that proves the actual use is positively associated with continuance intention to use e-payment. While Lee (2009) and Lin and Ong (2010) proved that satisfaction has the most significant effect on users' continuance intention. In this research, continuance e-payment will be tested with consumers' opinion

whether after making a transaction using e-payment or adopt e-payment, they will decide to keep using it both now and in the future. So, in this study it is proposed that:

Hypothesis 10: There is a significant relationship between consumers' adoption and consumers' continuance adoption of e-payment.

METHOD

In this study, survey method by using questionnaire was applied. There were 403 respondents participated in this study. Eight variables were identified as determinant factors of the behavioural intention to adopt the e-payment systems, which are perceived usefulness, perceived ease of use, consumer's perception toward e-payment, enjoyment, trust, social influence, perceived security, and attitude toward behaviour. Each variable was measured by instrument that adopted from previous study. Below are the operational definition and indicator of each variable:

RESULTS

This study uses primary data obtained through questionnaire distributed to consumers and obtained 403 respondents. This research has passed the validity test. Validity test in this study uses confirmatory factor analysis technique (confirmatory factor analysis) to test whether the items statements or indicators of each latent variable used can confirm a factor or construct. Validity testing is done from 43 statement items. According to Wijayanto (2008) all indicators can be declared valid if they have a standardized loading factor greater than 0.50 and the t-value is above the critical value (t-critical), 1.96. The summary of the validity test results shows that 44 of 47 indicators of variables are declared valid because they have a standardized loading factor greater than 0.50 and the t-value is above the critical value (t-critical) 1.96 which is in accordance with the provisions. 3 of the indicators do not meet the criteria so that the items are declared unfeasible and must be eliminated. So that this study has met the assumptions of validity. Reliability test has also been conducted in this study. Reliability is done by looking at the reliability measure of the composite. Hair et. al. (2010) states that a construct has good reliability if the value of construct reliability (CR) is ≥ 0.70 . For exploratory research, the value should be more than 0.6. (Widarjono, 2014). From the reliability test results, it shown that all variables and indicators have a construct reliability value (CR) greater or equal to (\geq) 0.6 that can be categorized as reliable. It can be concluded that the statement items contained in the questionnaire are reliable and suitable to be used as research instruments

Structural Model Analysis and Hypothesis Testing

According to Hair et al, (2010), statistically significant and in the predicted direction are greater than zero for a positive relationship and less than zero for a negative relationship. To evaluate the magnitude of the effect of each independent latent variable is by looking at the coefficient of analysis path. If the value is positive, it has an effect, if it is negative, it has no effect. To find out whether it is significant or not through the T test so the statistical T / T-Value must > 1.96 with an error rate of 5% are significant (Widarjono, 2014). While the coefficient of determination R^2 , measuring how much the variation of the dependent latent variable is explained by the independent latent variable (Widarjono, 2014). Based on the results of the structural equation model output from the LISREL 8.8 program for Behavioural Intention, E-payment adoption and Continuance intention of e-payment are as follows:

Structural Equations of the hypotheses:

$BI = 0.054*PU + 0.30*PE - 0.14*PT + 0.23*EJ + 0.14*TR + 0.21*SI + 0.086*PS + 0.35*AT$; Errorvar. = 0.18; $R^2 = 0.81$

$EA = 0.80*BI$; Errorvar. = 0.35; $R^2 = 0.64$; $CI = 0.90*EA$; Errorvar. = 0.19; $R^2 = 0.81$

The structural equation results above show the behavioural intention of the respondents to the e-payment obtained the value of R^2 is 0.81 and has an error value of 0.18 which means that this model can explain 81% of changes in the variable behavioural intention to the e-payment. While e-payment adoption and continuance intention in this model also from the result above showed that the variables can explain 64% and 81% to the e-payment respectively.

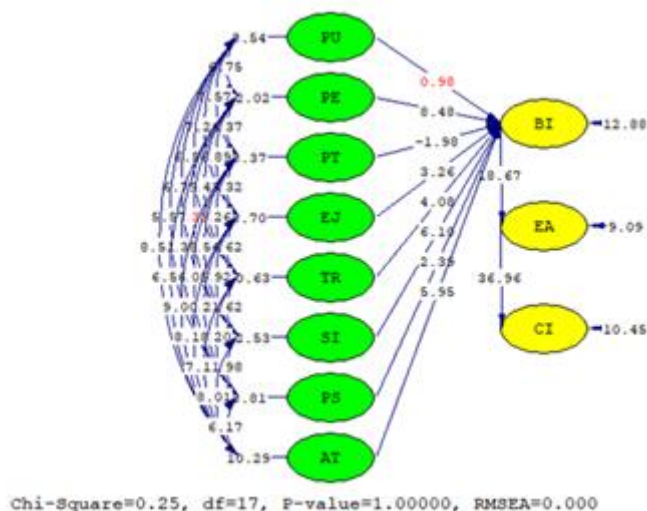


Figure 2

Path diagram: Structural models and Estimates (t-value)

Source: data processing

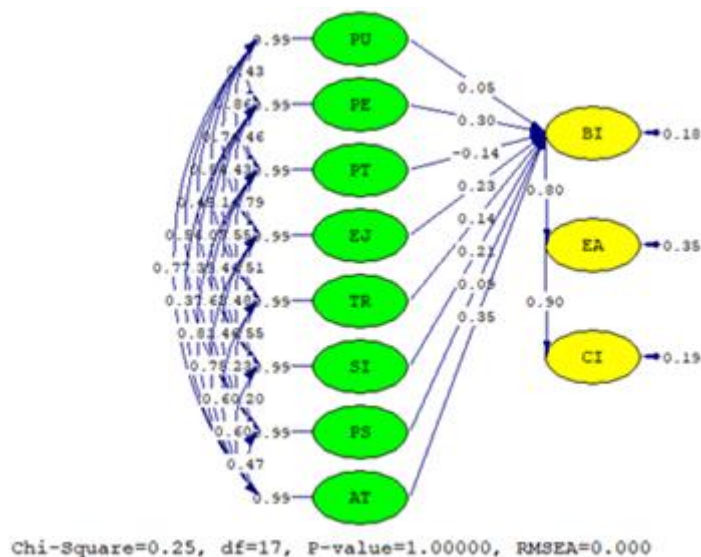


Figure3

Path diagram: Structural models and Estimates

Source: data processing

The relationship between constructs is statistically significant if it is at the level of $\alpha = 0.05$ and $t\text{-value} > 1.96$ t-critical. Based on the results of the output image above, it is seen that the results of the structural model analysis show that the results of the hypothesis test in this study have significant and not significant results.

Table 1

Evaluation in the structural model of the results of the research hypothesis

Path Diagram	t-value	Estimate	Conclusion
H1: PU→BI	0.98	0.05	Not significant
H2: PE→BI	8.48	0.30	Significant
H3: PT→ BI	-1.98	-0.14	Not significant
H4: EJ→BI	3.26	0.23	Significant
H5: TR → BI	4.08	0.14	Significant
H6: SI → BI	6.10	0.21	Significant
H7: PS→ BI	2.39	0.09	Significant
H8: AT→ BI	5.95	0.35	Significant
H9: BI→ EA	18.67	0.80	Significant
H10: EA→CI	36.96	0.90	Significant

Source: data processing

The first hypotheses (H1) is based on the structural equation, it is known that the t-value of latent variable of perceived usefulness is smaller than t-critical ($t\text{-value}=0.98 < t\text{-critical}=1.96$). It can be concluded that perceived usefulness does not have a significant effect on consumer's behavioural intention toward e-payment statistically at the 5% significant level. It is also known that the path coefficient value shows positive relation effect on consumer's behavioural intention toward e-payment. The result was contradiction to the result obtained by Agarwal & Prasad, 1999; Gefen & Straub, 1997; and Gefen & Straub, 2000 that found that perceived usefulness predicts IT use and intention to use. While this result supports the research of Park et al. (2012), Kim (2014), and Ismail (2016) in the case of the influence of perceived usefulness to the behavioural intention of using smartphone. They assumed that the reason of user owned the smartphone is only a prestige and the users do not understand the benefit of features in the smartphones. In our cases, the perceived usefulness is not significant to influence the behavioural intention to use e-payment, but the effect is positive. We can assume the reason is because some of the respondents do not really understand the usefulness of e-payment. Another reason that might be an assumption is that users are already familiar to the presence of e-payment so that they no longer think about the basic benefits of using e-payment but continue to use it because it has become an existing culture. In this case, the role of government is very important in educating the public about the basic uses and benefits that will be received by users when adopting the e-payment. Besides the government, other e-payment service providers can also help socialize the benefits of e-payment while introducing their service product. In our opinion this is very important to do to realize the Cash Less Society in Indonesia.

Another insignificant result is consumer perception towards e-payment. It does not have a significant and a positive relation effect on the consumer's behavioural intention toward the e-payment. This result was opposite to Abrazhevich (2001) that confirms users' perception of e-payment has a significant effect on its acceptance. This result also contradiction to Pai H. (2018) that the consumer's perception towards e-payment has a significant effect and positive impact on the adoption of digital wallets. So, this result means that a user's overall attitude toward an e-payment and its applications is not the major factor determining whether an individual uses e-payment. This might be caused by the environmental conditions where customers have no other choice in making payments so the perception is no longer a big influence. Like in Padang City, Trans Padang Bus payments no longer accept cash payments but must use a Brizzi card. So, the demand or needs is more pressing for users than customer perception in using the e-payment. The remainder of the results shows perceived ease of use, enjoyment, trust, social influence, perceived security and attitude toward behaviour has a significant effect to the consumers' behavioural intention toward the e-payment. Ninth hypothesis (H9) also shows the consumer behavioural intention has significant effect to the e-payment adoption and consumer e-payment adoption has significant effect to the e-payment continuance intention. This result support the research of Lok (2015), Mao (2002) and Lee (2009) whose also found the same. (Fishbein & Ajzen, 1975) also proved their statement that behaviour of individuals is influenced by their intention. Continuance intention in this study refers to the costumers' plan about adopting the e-payment in the future. The result above supports the research of Tella and Olasina, 2014; Lee, 2009; Lin and Ong, 2010 that also found the same. According to the test result, it is proved that e-payment adoption positively and significantly influences the continuance intention of costumers to adopt the e-payment. We can conclude that to maintain the continuance intention of users to adopt the e-payment is started from maintaining the user's behavioural intention. When the users have intention to the e-payment, so it will lead to the adoption of the e-payment. Then the last, when the users have adopted the system and the evaluation is good, so the costumers will continue to use the e-payment by themselves

CONCLUSION

The study examines the factors that influence the adoption of e-payment to support the development of micro small and medium enterprise in Indonesia. The study tests 8 exogenous latent variables: *perceived usefulness*, *perceived ease of use*, *consumer perception*, *enjoyment*, *trust*, *social influence*, *perceived security*, and *attitude toward behaviour* and 3 endogenous latent variables: *behavioural intention*, *e-payment adoption*, and *continuance intention*. The study uses primary data obtained by distributing the questionnaire through google form. The total respondent was 403 and then the data processed by using Microsoft Excel and Lisrel 8.8. From 8 variables tested, 6 of the variables significantly and positively affect the behaviour intention of consumers and 2 variables which are perceived usefulness and consumers perception do not significantly influence the behavioural intention of the consumers to adopt the e-payment. Further, the behavioural intention significantly leads the e-payment adoption and the e-payment adoption also significantly influence the continuance intention of consumers to use the e-payment.

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