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Determinant Factors to E-wallets Adoption among Small-Sized Muslim Merchants: A Preliminary Analysis

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Abstract
Purpose: The purpose of this study are to determine factors influencing the small-sized Muslim merchants in Malaysia to adopt e-wallet and to validate their relationship.
Design/methodology/approach: A set of questionnaires was distributed to the 380 small-sized Muslim merchants in two traditional market in Kelantan and Terengganu, Malaysia. This study employed a descriptives statistics for preliminary analysis using SPSS.
Findings: The results reveal that all independent variables such as perceived usefulness, perceived ease of use trust, technology self-efficacy, government support and structural assurance are significantly positively correlated to e-wallet adoption.
Research limitations/implications: This study focused on two states only, therefore the findings from this study limits its generalizability. Future research may empirically test these antecedents to other regions in Malaysia and other Muslim countries.
Practical implications: This study provides valuable insight for the e-wallet providers and government as well in leveraging their strategies to increase e-wallet adoptions among small-sizes Muslim merchants and accelerating the national aspiration towards a cashless society.
Originality/value: The study is the first study that comprehensively identified determinant for e-wallet adoption from merchant context that integrating both technological and religious contexts. The study confirms that the variables identified from previous researchers on customer's perspective of e-wallet adoption also applicable for merchant's context. Notably, structural assurance emerges as a new variable influencing e-wallet adoption among Muslim merchants.

Keywords: e-wallet, adoption, small-sized merchants, Technology Acceptance Model, preliminary analysis.

Introduction

E-wallets have emerged as a substitute for traditional cash and credit card transactions, promoting the shift to a digital, cashless economy. Essentially, an e-wallet operates like a physical wallet by holding a designated amount of electronic money, which can be utilized for payment transactions via online transfers (Bagla & Sancheti, 2018; Chawla & Joshi, 2019). E-wallets are anticipated to offer significant advantages to small businesses and SMEs, such as enhanced efficiency, resolution of cash leakage issues, improved security, and increased sales (Mallat & Tuunainen, 2008; Sario & Kumar, 2018). A notable feature of e-wallets is their ability to automatically and digitally record all transactions (Izwan, 2021), with real-time processing. This ensures that merchants receive high-quality, timely, and error-free information, enabling better business decision-making (Romney et al., 2021).

The primary challenge for e-wallet service providers is driving adoption (Andrew et al., 2019; Noordin & Subramaniam, 2019; PricewaterhouseCoopers Advisory, 2018; Ying et al., 2020; Zhi Wei & Khaw Peng Tsu, 2018). Although research on consumer adoption of e-wallets is increasing, there is still a lack of studies focusing on merchant adoption (Andrew et al., 2019; Kasirye et al., 2021; Mozdzynski, 2018; Rana et al., 2019; Singh & Sinha, 2020). By February 2019, around 70,000 merchants had registered with Boost (an e-wallet provider), with 65% of these being small businesses such as night market vendors, food trucks and food hawkers (Lee, 2019). However, Lee (2019) stated that these figures are low compared to the total number of registered businesses in Malaysia. Given that Muslims constitute the majority of Malaysia's population, it can be inferred that many small-sized merchants are operated by Muslims. This could be concluded that the adoption rate of e-wallets among small-sized Muslim merchants remains low.

This study aims to identify the possible antecedents and empirically test their relationship to e-wallet adoptions among small-size Muslim merchants in Malaysia. The rest of the paper is structured as follows: the first part presents the literature review on underpinning theory and conceptual research framework that guide this study. The second section present the research methodology employed by this study followed by data analysis. Then, the next sessions provide discussion and implications from this study findings and this study provides conclusions in the end of article.

Literature Review

Technology Acceptance Model

This study is grounded on the Technology Acceptance Model (TAM) introduced by Davis (1989). The TAM model was found as the most frequently model of information technology/information system (T/IS) used in relation to e-payment adoption studies (Kabir et al., 2015; Yan & Yang, 2014). The original TAM version was focused on two fundamental variables in determination IT/IS adoption, named as perceived ease of use and perceived usefulness. The TAM assumes only one kind technology available for customers which limited its applicability in various IT/IS products (Ming & Jais, 2022; Shin, 2009) particularly e-

payment. Meanwhile, there are many new intricate technologies related to e-payment which might need to extend the existing factors for adoption e-payment.

There were a vast of studies that enhanced the original TAM with extension of other variables such as technology self-efficacy, trust and government support (see Al-Amri et al., 2018; Andrew et al., 2019; Li, 2018; Mallat & Tuunainen, 2008; Mohd Shafeei, 2020; Mozdzynski, 2018; Singh & Sinha, 2020; Wang et al., 2019) which have shown the validity of the framework in explaining technology acceptance (Shin, 2009). However, most of the studies focused on customer as e-wallet user.

This study noted that technology self-efficacy, trust, government support and structural assurance (see Aji et al., 2020; Mohd Shafeei, 2020; Singh & Sinha, 2020; Andrew et al., 2019; Al-Amri et al., 2018; Mozdzynski, 2018; Wang et al., 2019; Li, 2018; Mallat & Tuunainen, 2008;) are often used to make hypotheses in connection to the intention, acceptance and adoption of financial technology field such as e-payments, e-banking and mobile payments from customer's view. Trough literature, this study also found ignorance of religious factors in TAM and existing variables.

Theoretical Framework

Research on e-wallets from the merchant perspective is still relatively new. This study takes a novel approach by applying the same variables used to examine e-wallet adoption from the consumer perspective to the merchant context. This study proposed variables through the lens of TAM and Islamic view to provide better explanation on e-wallet adoption among small-sized Muslim merchants. In specific, this study proposed perceived usefulness (PU), perceived ease of use (PeoU), trust, technology self-efficacy (TSE) and government support (GS) as the influencing factors towards small-sized Muslims merchants to use e-wallet. Besides, this study brings in a structural assurance (SA) variable to meet Islamic religious principles. This study proposes a first conceptual model which includes all possible variables that influence e-wallet adoption among merchants. The explanation for the variables used in this study is as follows:

E-wallet adoption

Adoption is a dependent variable which been widely used by scholars to understand why and how individuals accept IT/IS (Venkatesh et al., 2003). According to TAM, the term adoption is often used as a dependent variable and interchangeably with other terms such as actual usage, usage and acceptance to represent actual behavior regarding IT/IS.

Perceived usefulness

PU refers to the extent to which a user believes that using a specific system will enhance their task performance (Davis, 1989). In the context of e-payment system, PU represent the positive outcomes users anticipated from adopting such systems (Huang & Cheng, 2012). This paper defines PU as the extent a small-sized Muslim merchant believes that adopting the e-wallet application will facilitate customer's payment, hence help to boost up business performance. There were mixed results on the PU and e-wallet acceptance from previous studies. While some studies found a positive influence of PU on consumer attitudes toward e-wallets (Coskun et al., 2022; Ming & Jais, 2022; Aji et al., 2020; Mohd Shafeei, 2020; Chawla & Joshi, 2019; Yan & Yang, 2014), others, such as Yin & Chen (2022), reported contradictory findings.

Perceived ease of use

Davis (1989) referred to PEoU as the degree of user's belief that using a specific system is effortless. This reflects user's believes that learning and adopting e-wallets would requires very minimal effort due to low level of system difficulties (Chawla & Joshi, 2019; Yan & Yang, 2014). In the context of business operations, PEoU focuses on the instructions required to perform e-wallet transactions. A user-friendly e-payment system provides concise instructions that are easy to understand and follow (Pan, 2020). While from technical standpoint, an easy e-payment system is characterised by intuitive interfaces and effective navigation tool (Amri, 2018; Yan & Yang, 2014). This study defines PEoU as the extent a small-sized Muslim merchant perceives that adopting e-wallet application involves minimal effort as the e-wallet is simple and has minimal instructions but meaningful in handling the payment process. Empirical studies have shown that PEoU positively influences customers' attitudes toward e-wallets (Coskun et al., 2022; Yin & Chen, 2022; Mohd Shafeei, 2020; Chawla & Joshi, 2019; Al-Amri et al., 2018), though Aji et al. (2020) found no significant relationship.

Trust

McNight et al. (2002) defined trust as individual's beliefs in his/her inclination to rely on others. In the online environment, trust could reduce perceived risk and minimise people's worries on the cash asset towards e-wallet transaction (Coskun et al., 2022; Yousafzai et al., 2003). A sense of trust emerges when individuals believe that the privacy and protection of their sensitive data are assured (Yousafzai et al., 2003). This paper defines trust as the degree of merchant's beliefs that they can rely on e-wallet when performing transactions related to cash. Research has consistently shown that trust plays a pivotal role in influencing the adoption of electronic payments by consumers (Abdullah et al., 2020; Al-Amri et al., 2018; Chawla & Joshi, 2019; Coskun et al., 2022; Kulathunga & Ekanayake, 2019; Wang et al., 2019).

Technology self-efficacy

Self-efficacy is defined as the extent to which an individual believes they have the ability to perform a specific task (Roberts & Candi, 2014). In the context of technology, self-efficacy pertains to a person's belief in their capability to use technological tools to achieve desired outcomes (Pan, 2020). Individuals with high TSE are seen as confident and knowledgeable in utilizing e-commerce platforms and applications (Carter & Christian Schaupp, 2008; Kulathunga & Ekanayake, 2019; Li, 2018). This study refers TSE as a merchant's belief in their ability to execute e-wallet transaction independently. Technology self-efficacy makes the person certain that he/she has the necessary knowledge, skill, and competence to perform e-payment transactions (Jusoh & Jing, 2019). Previous research has shown mixed results regarding the relationship between TSE and e-wallet adoption. While studies by Coskun et al. (2022) and Jusoh and Jing (2019) found that TSE positively influences consumer attitudes toward e-wallet adoption, Kulathunga and Ekanayake (2019) reported contradictory findings.

Government support

This study refers government support as government endorsement and incentives that encourage user keen to use e-wallet application. In addition, the Government can also influence fintech industry players in providing e-wallets based on Islamic principles to meet the needs of Muslims. The government is pivotal in encouraging the adoption of e-wallets; however, there is a scarcity of empirical research examining the link between government support and e-wallet adoption (Ming & Jais, 2022). Their study has confirmed that government support positively impacts the uptake of e-wallets among the citizens.

Among incentives introduced by the Malaysian government are e-Tunai Rakyat and e-Penjana. These programs provide e-money (RM30 via e-Tunai Rakyat and RM50 through e-Penjana) that is electronically transferred to Malaysians' e-wallets. This dual approach aims both to assist those in financial need and to promote the usage of e-wallets. This kind of incentives event provided to customers at first but, directly impact merchants in using e-wallets. These incentives cannot be converted into cash; thus, customers can only redeem them via purchase with a merchant that use e-payments, i.e. e-wallets. This prompts merchants to use e-wallets, otherwise customers make purchases with other merchants who use e-wallets. The effectiveness of these programs could be seen where small-sized merchant's sales increased 86% for the 6 months period ended October 2020, which is during the movement control order period (Editor,2020). In addition, the introduction of national QR standard, DuitNow QR also significant initiative by the government. The DuitNow QR, enable merchants received payment from customers who use banks app or major e-wallet with just one standard QR code (Izwan, 2021). Meanwhile, through the the National Digital Network (JENDELA) program that aim to expand broadband coverage and improvised cyber security mater may bring significant changes in virtual business landscape where people can transact securely at high internet speed (Editor,2020), resulted more people adopt e-wallet.

Finally, from the legal perspective, relevant regulations and policy to protect customers and merchant should be established to govern e-payment system (Yee, 2019). A Payment Systems Act (PSA) 2003 (Act 627) is primary legislation on electronic payment system in Malaysia, but the provision of this acts should be revised as e-payment technology growing rapidly (Zulhuda, 2012), so that could effectively protect all parties. As reported Nielsen Payment Landscape Report, security is the main barrier for adoption e-wallet among non-users (Yee, 2019). In the rise of cybercrime cases, financial institutions, small business and customers are the major targeted victims (Murugiah, 2022; Segal,2022). Thus, improvised cyber security should be government's agenda in providing secure environment e-payment (Editor, 2020) to protect these three parties which also shows government support to e-wallet development.

Structural assurance

Structural assurance refers to the extent the user is confident with the availability of protection from institutional structures and systems (McNight et al. 2002; Sha 2009). Structural assurances provide warranty there are availability of technological infrastructure and legal structures to protect e-wallet (Yan & Yang, 2014). Generally, the provision of technological and legal tools such as data encryption and clear data policies can alleviate people's concerns regarding e-payment security (Wang et al., 2019). Wang et al. (2019) identified that structural assurance significantly influenced customer intentions to use FinTech services. Meanwhile, from the Islamic perspective, structural assurance measures the extent to which business practices comply with Shariah principles, including the absence of *riba* (interest), *gharar* (uncertainty) and *maisir* (gambling), as well as have clear *aqad* (contract). Aji et al. (2020) discovered that Muslim customers' knowledge and awareness of *riba* weakens the correlation between perceived usefulness and e-wallet intention adoption. This study defines structural assurance as the level of a merchant's belief that the e-wallet system is permissible by Islamic principles. To date, no empirical studies have investigated the direct relationship between structural assurance (excluding riba) from a Shariah perspective and the adoption of e-wallets.

Method

The purpose of this study is to identify the determinant factors of e-wallet adoption among small-sized Muslim merchants in Malaysia. The study utilized a questionnaire survey method to gather responses from small-sized Muslim merchants operating in two states: Pasar Besar Siti Khadijah, Kelantan, and Pasar Besar Kedai Payang, Terengganu. This study has chosen these two locations because most of the merchants in these traditional markets are small-sized Muslims and most payment activities are still conducted in cash. Additionally, the internet and payment technology infrastructure are less available compared to the Central Region of Malaysia.

The questionnaire was developed from literature reviews. Items for most variables were adopted mainly from prior studies with modification to suit the study context. However, government support and structural assurance variables were newly developed based on literature. All variables were measured by using the five-point Likert scale, where 1 represents 'strongly disagree' and 5 represents 'strongly agree'. The respondents are local Malaysians who are more fluent in Malay; therefore, the questionnaire was prepared in the Bahasa Malaysia. The original questions were translated into Bahasa Malaysia by this study and then retranslated into English by an expert. Then the back-translated questionnaire was compared with the original questionnaire to check its accuracy. This study referred two academicians who are experts in the Fin-tech field and theory to seek their opinions and advice on the suitability of items used to measure the constructs. This study applied content, specifically face validity, for items validation purposes. In total, 380 data were collected from small-sized Muslim merchants trading in these two markets represented 190 respondents from each market. This study uses a descriptive statistic to perform preliminary analysis using SPSS.

Findings

Reliability Analysis

The reliability test was conducted in this study using the questionnaire that is distributed to the respondents. The reliability result is presents as in Table 1. The values of alpha coefficients for each variable ranges from 0.974 (for SA) to 0.996 (for Trust) indicates all variables are highly reliable.

Table 1: Reliability results

Variables	Cronbach's Alpha	No. of Items
Adoption	0.977	5
Intention	0.988	5
PU	0.992	6
PEoU	0.983	6
Trust	0.996	7
TSE	0.990	6
GS	0.981	5
SA	0.974	7

Demographic Profile & E-wallet Usage Analysis

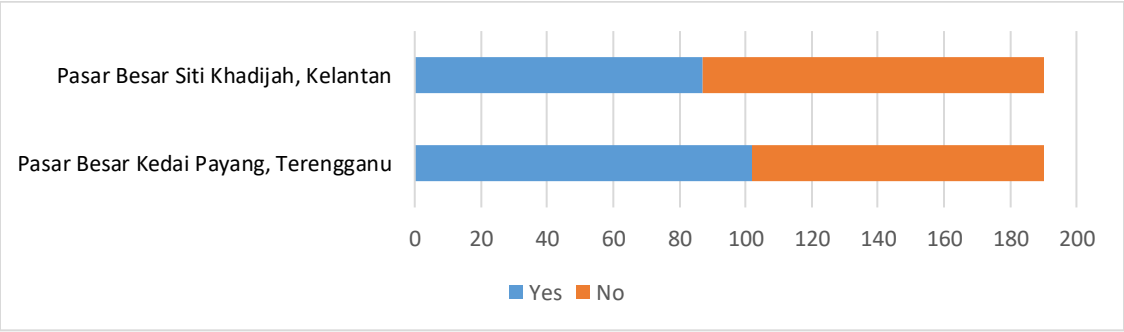
Table 2 presents demographics profile of respondents. Most of the respondents are from the age range between 21-30 years old, representing 23.4% and the least are 20 years old and below, representing 6.3% of the respondents. Most of respondents were female (63.2%) representing nearly two third of the total respondents. For academic background, most respondents completed secondary school, representing 56.3% and only 3.7% of them are degree holders.

Table 2: Demographic profile of respondents

Demographic	Category	Frequency	Percentage
Age	< 20	24	6.3%
	21-30	89	23.4%
	31-40	81	21.3%
	41-50	64	16.8%
	51-60	71	18.7%
	>60	51	13.4%
Gender	Male	140	36.8%
	Female	240	63.2%
Education level	Never attend school	25	6.6%
	Primary school	33	8.7%
	Secondary school	214	56.3%
	Certification / Diploma	94	24.7%
	Degree and above	14	3.7%

Figure 1 presents the result on status of e-wallet usage among respondents. In total, 189 respondents admitted they uses e-walled while 191 respondents not yet use e-wallet in their business. Overall, the number of respondents between who use e-wallet and who do not yet use e-wallet are almost balanced. But the number of respondents from Pasar Besar Kedai Payang, Terengganu who admitted use e-wallet were higher compared to respondents from Pasar Besar Siti Khadijah, Kelantan.

Figure 1: E-wallet usage status



Descriptive Statistics of the study variables.

Table 3 presents result of central tendency using mean value. The mean score was 2.76 for adoption indicates that the respondents towards disagree to use of e-wallet in their business. The respondents' perception on GS, SA, trust and PEoU towards e-wallets are moderate; signify respondents toward almost agree that these factors have influence on e-wallet.

However, their perception on PU and TSE towards e-wallets are low which explain respondent toward disagree on the influence of the factors toward e-wallet usage.

Table 3: Mean of respondents' perception towards e-wallet usage

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Adoption	380	1.00	5.00	2.76	1.26
PU	380	1.00	5.00	2.95	1.14
PEoU	380	1.00	5.00	3.00	1.12
Trust	380	1.00	5.00	3.14	1.07
TSE	380	1.00	5.00	2.89	1.13
GS	380	1.00	5.00	3.48	0.79
SA	380	1.00	5.00	3.35	0.69

This study measures the strength of the correlation between two variables using Pearson's correlation coefficient (r). Table 4 presents the correlation between each of the six independent variables and dependent variable (adoption) as proposed in the conceptual model (Note that this study assumes all independent variables as positively influence e-wallet adoption). Statically, all variables: PU (r=0.806), PeoU (r=0.792), trust (r=0.684),TSE (r=0.785), GS (r=0.661) and SA (r=0.552) are significantly positively correlated to adoption. In addition, PU is found as the most highly correlated to adoption.

	Adoption	PU	PEoU	Trust	TSE	GS	SA
Adoption	1.000	0.806	0.792	0.684	0.782	0.661	0.552
Sig. (1-tailed)		0.000	0.000	0.000	0.000	0.000	0.000
N	380	380	380	380	380	380	380
PU	0.806	1	0.886	0.818	0.839	0.699	0.603
Sig. (1-tailed)	0		0	0	0	0	0
N	380	380	380	380	380	380	380
PEoU	0.792	0.886	1.000	0.843	0.914	0.739	0.606
Sig. (1-tailed)	0.000	0.000		0.000	0.000	0.000	0.000
N	380	380	380	380	380	380	380
Trust	0.684	0.818	0.843	1.000	0.844	0.673	0.627
Sig. (1-tailed)	0.000	0.000	0.000		0.000	0.000	0.000
N	380	380	380	380	380	380	380
TSE	0.782	0.839	0.914	0.844	1.000	0.737	0.660
Sig. (1-tailed)	0.000	0.000	0.000	0.000		0.000	0.000
N	380	380	380	380	380	380	380
GS	0.661	0.699	0.739	0.673	0.737	1.000	0.627
Sig. (1-tailed)	0.000	0.000	0.000	0.000	0.000		0.000
N	380	380	380	380	380	380	380
SA	0.552	0.603	0.606	0.627	0.66	0.627	1.000
Sig. (1-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	
N	380	380	380	380	380	380	380

Discussion and Implications

This study empirically tests the relationship between factors such as PU, PeoU,TSE, GS and SA with adoption of e-wallet. The results reveal that all the above-mentioned variables are significantly and positively influence e-wallet usage. In particular, result of this study for PU is consistent with previous the studieds (Coskun et al., 2022; Ming & Jais, 2022; Aji et al., 2020; Mohd Shafeei, 2020; Chawla & Joshi, 2019; Yan & Yang, 2014), but contradict with Yin & Chen's (2022). This finding suggest that e-wallet providers should emphasize the practical benefits of their services to merchants, such as increased transaction speed and; customer's satisfaction and convenience. Additionally, e-wallet providers should highlight that using e-wallet can help merchant improve financial tracking and prepare report for various stakeholder.

Second, result of this study for PEoU is consistent with previous studies (Coskun et al., 2022; Yin & Chen, 2022; Mohd Shafeei, 2020; Chawla & Joshi, 2019; Al-Amri et al., 2018;); however, against Aji et al. (2020). As implication to the finding, this study suggests that e-wallet providers should focus on user-centric approach when developing e-wallets application by focusing on user-friendly interface and apps that reduce the learning curve for new e-wallet users.

Third, the result for trust also aligns with previous studies (Abdullah et al., 2020; Al-Amri et al., 2018; Chawla & Joshi, 2019; Coskun et al., 2022; Kulathunga & Ekanayake, 2019; Wang et al., 2019) where trust has positive corelation to e-wallet adoption. The result indicates that e-wallet providers must ensure robust security measures, transparent transaction processes, and consistent service reliability of e-wallet service. Forth, the result for TSE , this study reveals that the finding is consistent with previous study (Coskun et al.; 2022, Jusoh and Jing;2019) but contradict with Kulathunga and Ekanayake (2019). The result explains that, if merchant believe in their capabilities to perform e-wallet , they will adopt e-wallet in payment transaction. Hence, this study suggest that e-wallet providers should instil merchants' confidence in using e-wallet by working closely with them continuously such as through education, training and support programs to improve their technical skills related to e-wallets.

Then, GS is also found as significantly influence e-wallet adoption, consistent with Ming & Jais (2022). This finding indicates that government's intervention trough e-Tunai Rakyat, e-Penjana, DuitNow QR, JENDELA and PSA are crucial in encouraging e-wallet adoption. As an implication of this finding, the government should continue to provide support through increasing financial incentives, awareness campaigns, improving internet services quality and updating regulations that support security, thus encouraging the use of e-wallets.

Lastly, the result statistically indicates that SA is correlated to e-wallet adoption. The result demonstrates that Muslim merchants are aware of and emphasize the importance of ensuring that e-wallets is comply with Islamic principles. This suggests that e-wallet providers should incorporate structural assurances that align with Shariah law to make their services more appealing to this necessity.

Conclusion

This study was conducted as a response to matters pertaining low level of e-wallet adoption and lack of academic work identifying factors that contributes to e-wallet adoption among

small-sized Muslim merchant. The result statistically provide evidence that PU, PeoU, Trust , TSE, GS and SA are correlated to e-wallet adoption. This study provides valuable insight for the e-wallet providers and government as well in leveraging their strategies to increase e-wallet adoptions among small-sizes Muslim merchants and accelerating the national aspiration towards a cashless society.

For academic contributions, this study highlights several key points. It can be concluded that variables identified from previous researchers who examined the customer's perspective of e-wallet adoption also applicable for merchant's context. Moreover, the study is the first study that comprehensively identified determinant for e-wallet adoption from merchant context and Islamic perspective. As this study had focused on two states only, the findings from this study are insufficient to be generalised. Therefore, future research should extend these antecedents to other regions in Malaysia and other Muslim countries. Notably, SA emerges as a new variable influencing e-wallet usage among Muslim merchants. It would be interesting to test SA variable from the customer's perspective in future research.

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