



Intention to Use FinTech Payments: The Perspectives of Benefits, Risks, and Openness to Change



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ABSTRACT

Objective - The COVID-19 pandemic has significantly transformed many aspects of daily life, including the way payments are made. While the usage of cashless payments has increased, cash remains the main mode of payment in Malaysia. Therefore, this study aims to explore the factors driving the intention to use FinTech payments based on the Unified Theory of Acceptance and Use of Technology (UTAUT) with the Value-based Adoption Model (VAM).

Methodology/Technique – 546 usable responses were collected using a stratified sampling technique across 13 states in Malaysia. Then, structural equation modeling using the partial least squares approach was applied to test the hypotheses.

Finding – The findings show that performance expectancy, effort expectancy, social benefit, privacy risk, and openness to change are the significant determinants of intention to use FinTech payments. Openness to change was found to be the most significant predictor of intention to use FinTech payments. However, the study failed to confirm the impact of social influence, economic benefit, security risk, and regulatory support on the intention to use FinTech payments. This study does not fully validate the significance of UTAUT and VAM constructs.

Novelty – To the best of our knowledge, this is the first study that uses the UTAUT and VAM on intention to use FinTech payments together with openness to change and regulatory support. This is a framework that covers the decision-making determinants from the perspectives of benefits, risks, individual characteristics, and the external environment.

Type of Paper: Empirical

JEL Classification: G23, G28, G29

Keywords: FinTech Payment, Intention to Use, UTAUT, VAM, Benefits, Risks

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1. Introduction

The COVID-19 pandemic has caused significant changes in healthcare and socioeconomic fields. To mitigate the spread of the COVID-19 virus and to control movement, contactless payments using technology have become a popular choice among the public. FinTech payment fields include digital wallets, mobile banking, cryptocurrency, digital remittances, and Buy Now Pay Later (BNPL).

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Globally, payments and lending represent the two largest FinTech segments that received the most funding from venture capital companies (McKinsey & Company, 2023b). Despite being one of the largest segments, the monetary resources that flow into the FinTech payment segment have declined in the first half of 2023 (KPMG, 2023). A similar trend was observed in ASEAN that the investment into the FinTech payment sector is heading south (United Overseas Bank et al., 2023). Restricted monetary resources may impact the adoption, especially for customers motivated by incentives to use the payments. PayNet's study has unveiled that consumers are driven by incentives when deciding to use digital payments (PayNet, 2022). The trends are on the rise in adoption, but the usage is not consistently robust across different settings. In the USA, 73% of consumers surveyed used digital payments in online stores, but only 25% used digital payments for in-store shopping (McKinsey & Company, 2023a). In Malaysia, the acceptance of digital payments is increasing, but cash remains the most preferred mode of payment (PayNet, 2022). Furthermore, the penetration rates of digital payments vary across different states in Malaysia, with Selangor and Penang at the top of the list (90%), while Johor and Perak registered only 50% and 49%, respectively, based on PayNet's statistics (Malaymail, 2023).

Hence, this gives rise to the crucial need for further study to understand the drivers behind the usage of FinTech payments, given that the behaviors used to use FinTech payments are not consistent across different settings. However, most of the existing mobile payment research was carried out in developed countries (Mouakket, 2020; Siyal et al., 2019) and little emphasis has been placed on emerging markets (Liébana-Cabanillas et al., 2020). The popular theoretical lens used by prior scholars in the FinTech context is the Technology Acceptance Model (TAM) (Haqqi & Suzianti, 2020; Patil et al., 2020). However, TAM is insufficient to provide a conclusive answer as it is often extended to include other variables (Flavian et al., 2020). Thus, a more comprehensive model is needed to better explain the issue of FinTech payment adoption by a wide range of consumers from different backgrounds.

Therefore, this study is conducted to address the research gaps by investigating the intention to use FinTech payments in the emerging market context i.e. Malaysia. The UTAUT was selected as the underpinning theory for developing the framework. UTAUT is one of the widely used theories to explain the intention to use new technology, as this theory synthesizes past theoretical models used to explain technology adoption, including TAM. Despite this, UTAUT has been criticized by past scholars for its failure to consider the deterrents to technology adoption, such as perceived risk (Cao & Niu, 2019; Sharma et al., 2020). Past researchers have confirmed the trade-off between benefits and risks (Suzianti et al., 2021) as an important influencing factor of the intention to adopt new technologies, especially monetary-related services. Yet, UTAUT discounted risk-related factors in the model. Hence, this study will combine both UTAUT and VAM, which consider both benefits and risks, to study the intention to use FinTech payments.

This study contributes to the literature in a few aspects. Firstly, to the best of our knowledge, this study is the first to combine UTAUT and VAM to explore the intention to use FinTech payments issues. This combination will provide a more comprehensive framework to understand the issue of FinTech payment usage as additional constructions on benefits and risks included compared to the original form of the theories.

Secondly, the determinants employed will be extended to cover the individual, social, and external environment (policymakers) role. Past research often considers utilitarian benefits or economic benefits in studying the issue of technology adoption, but not social benefits in evaluating the altruistic aspects of humans. This study will take into account performance expectancy, effort expectancy, economic benefit, social benefit, privacy, and security risk on the benefits and risks part. Additionally, the framework includes openness to change and regulatory support that covers individual characteristics and policymakers' role.

The remainder of this paper is structured as follows: Section 2 presents the theoretical background and hypotheses' development. Section 3 highlights the research methodology, followed by results and a discussion of the results in Section 4. Section 5 concludes the research with implications, limitations, and future research.

2. Theoretical Background and Hypothesis Development

2.1 Theoretical Background

Unified Theory of Acceptance and Use of Technology (UTAUT)

There are a few theoretical models that past scholars commonly used to evaluate the issue of technology usage ie. the Innovation Diffusion Theory (Rogers, 1962), the Theory of Reasoned Action (Fishbein & Ajzen, 1975), the Theory of Planned Behaviour (Ajzen, 1985), the Technology Acceptance Model (TAM) (Davis, 1985), the Social Cognitive Theory (Bandura, 1986), the Model of PC Utilisation (Thompson et al., 1991), the Motivational Model, the Combined TAM and TPB (Taylor & Todd, 1995), and the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003). Some of these theories shared similar constructs, and UTAUT was created to synthesize all the past technology acceptance models.

UTAUT is one of the theories that was adopted widely in many information systems/ information technology studies (Dwivedi et al., 2020). The applications of UTAUT span different contexts such as the internet, websites, healthcare systems, mobile technologies, intelligent education systems, recommender systems, tax systems, mobile government, mobile commerce, smartphone, mobile banking, mobile wallet, mobile payment, and Blockchain (Dwivedi et al., 2020; Sohn & Kwon, 2020; Williams et al., 2015). Based on the meta-analysis of 127 empirical articles related to mobile banking adoption using the UTAUT by Jadir et al. (2021), all the UTAUT relationships were confirmed, with performance expectancy as the strongest predictor of intention. These findings shed light on the significance of UTAUT in FinTech-related studies.

Despite its great explanatory potential, several researchers have questioned the ability of UTAUT to predict voluntary usage since this theory was developed to explain mandatory usage contexts (Boonsiritomachai & Pitchayadejanant, 2017). For FinTech adoption, security and privacy factors have been validated to be the barriers (Baabdullah et al., 2019; Loh et al., 2021). Yet, these hindrances are not included in the UTAUT.

Value-based Adoption Model (VAM)

Consumers' purchasing decision-making is influenced by the perceived benefits of the products/ services. However, the inclination to use the products will be discounted if the risks are high, as argued by Kim et al. (2008) and Lee & Kim (2020). Based on this, it is important to factor in benefits and risks when evaluating the intention to use FinTech services.

Kim et al. (2007) then created the VAM to explain the adoption of mobile internet using the concepts of perceived value. It was developed to resolve the weaknesses of TAM, but it failed to explain technology adoption in the individual context, where costs have to be borne by the users. This model was developed based on the definition of value (trade-off between sacrifices and benefits) by Zeithaml (1988). VAM posits that usefulness and enjoyment are the benefit constructs, and technicality and perceived fee are the sacrifice constructs. The design of benefit constructs in VAM follows the concepts of Holbrook & Hirschman (1982), with both hedonic and utilitarian values included.

A myriad of researchers have used VAM to examine the acceptance of various things. For instance, Kim et al.(2017) employed it to study PC tablets, Jayashankar et al.(2018) on IoT, Wang et al.(2018) on global positioning system (GPS), S. H. Kim et al. (2019) on accommodation apps, Rajkumar et al.(2020) on showrooms, Sohn & Kwon (2020) on artificial intelligence (AI) products, Vishwakarma et al.(2020) on virtual reality, etc. Interestingly, the majority of the scholars used VAM in its extended and modified form but not its original form. Additional constructs on benefits and risks were included, which signifies the need for more constructs to explain the benefits and risks.

The UTAUT model is one of the great theories explaining the intention to use FinTech payments. However, it ignores risk factors in evaluating intention. As discussed above, the benefits and risks shape users' intentions. Hence, VAM was employed together with UTAUT to better assess the intention to use FinTech payments in Malaysia, particularly from the perspectives of benefits and risks.

2.2 Hypothesis Development

Performance Expectancy

Performance expectancy was first defined by Venkatesh et al. (2003) as the extent to which users believe that usage of the system will boost their job performance, mostly in the context of mandatory usage. With this limitation in mind, performance expectancy is defined as “the degree to which the technology will provide benefits to consumers in performing certain activities” by Venkatesh et al. (2012). Performance expectancy has been identified as the strongest driver of mobile banking adoption among the UTAUT variables in the meta-analysis study conducted by Jadil et al. (2021). Its significance on intention is acknowledged in both pre-and post-adoption settings.

In the pre-adoption settings, the role of performance expectancy on intention is backed by the findings of Karjaluoto et al. (2020) on contactless payment, Rahi et al.(2019) on Internet banking and Shaikh et al. (2020) on Islamic FinTech. In the post-adoption settings, the predictive ability of performance expectancy on the continuous intention is confirmed by the findings of Gupta & Arora (2020), Talwar et al.(2020), and C.C & Prathap (2020) on mobile wallets, Cheng (2020) on Robo advisors, and Shiau et al. (2020) on FinTech. Thus, the following hypothesis is developed:

H1: *Performance expectancy positively impacts the user's intention to use FinTech payments.*

Effort Expectancy

Effort expectancy refers to how easily a technology can be put to use (Venkatesh et al., 2012). Consumers' willingness to use the products will increase if the products require less effort to use and possess user-friendliness features. The presence of effort expectancy in many well-established models, such as perceived ease of use in TAM/TAM2, ease of use in IDT, and complexity in MPCU, also indicates its relevance in predicting the intention to use a new technology.

Despite its significant role, the influence of effort expectancy is not consistent across different research and contexts. The findings of Al-Saedi et al. (2020), Hussain et al. (2019), and Senyo & Osabutey(2020) support the positive impact of effort expectancy on the use of mobile payment services across African (Ghana), Middle Eastern (Ghana), and South Asian (Bangladesh, India) countries. Nonetheless, Zhao et al.(2019) failed to provide evidence on the predictability of effort expectancy on the usage intention of NFC payment in the USA.

The findings of Merhi et al.(2019) Again, this testifies to the inconsistent influence of effort expectancy as a significant relationship was found between the intention to use mobile banking in the UK and Lebanon. At the same time, Mohd Thas Thaker et al. (2019) also failed to confirm a significant effort expectancy-intention to adopt Malaysia's Islamic mobile banking relationship.

Notwithstanding that, the impact of effort expectancy is still salient during the initial adoption phase, especially in the context of some complicated FinTech services. Hence, the second hypothesis is formed:

H2: *Effort expectancy positively impacts the user's intention to use FinTech payments*

Social Influence

When encountering uncertainties, others' opinions might influence their behavior. Social influence is defined as the significance of others' thoughts and views on the users' adoption of a new system (Venkatesh et al., 2003, 2012).

Despite its significance in the UTAUT model, its presence is less emphasized by other researchers in exploring technology adoption compared to performance and effort expectancy. This could be attributed to the assertion by Venkatesh et al. (2003) that social influence plays important roles in the mandatory but not the voluntary context. In the voluntary context, social influence mainly affects perception but not the acceptance of the technology. Empirical findings align with the argument by Venkatesh et al. (2003) to some degree, as inconclusive evidence can be drawn from past research on the social influence-intention relationship.

Cao & Niu (2019), Sivathanu (2019), and Widyanto et al. (2021) confirm the positive influence of social influence on the adoption intention in mobile payment research in China, India, and Indonesia, respectively. In the meantime, Pinochet et al. (2019), Sharma et al.(2020), and Farzin et al. (2021) also support the impact of social influence on intention in the context of FinTech loan services, internet banking, and mobile banking, respectively. Nevertheless, deviation from this relationship is also observed in mobile payment-related studies (Gupta & Arora, 2020; Senyo & Osabutey, 2020; Sobti, 2019).

Given its inclusion in various established theories and the support from previous researchers, the hypothesis is formulated as follows:

H3: *Social Influence positively impacts the user's intention to use FinTech payments*

Economic Benefit

Economic benefit is defined as the cognitive assessment of the trade-off between potential cost savings and financial gains (Gerlach & Lutz, 2019). Past scholars have examined this construction either from cost perspectives or the trade-off between price and value.

Past findings on the cost-intention relationship have been mixed. While Al-Saedi et al. (2020) and Humbani & Wiese (2019) confirm the significance of cost on the intention to use mobile payment, Jünger & Mietzner (2019), Sobti(2019), and Singh & Sinha (2020) did not find the same strong influence of cost. Similar trends are demonstrated in price and value studies. Alalwan et al.(2017) and Al-Okaily et al. (2020) suggest that price value impacts the intention to adopt mobile banking and digital payment positively, but Hussain et al. (2019), Loh et al. (2021), and Senyo & Osabutey (2020) did not replicate the findings.

Despite the variations in findings, Gerlach & Lutz (2019) and Suzianti et al. (2021) endorse the positive and significant role of economic benefit on the intention to adopt FinTech using evidence collected in Germany and Indonesia. Therefore, the following hypothesis is developed:

H4: *Economic benefit positively impacts the user's intention to use FinTech payments*

Social Benefit

According to Li et al. (2021) There are two dimensions of social benefit: egoistic and altruistic. Egoistic social benefit focuses on self-social gains, while altruistic social benefit focuses on helping others or society. Li et al. (2021) Further, research that emphasizes altruistic social benefits is not common. Given the paucity of research and the change in consumers' decision-making after the COVID-19 pandemic, this study's construction is designed based on an altruistic perspective.

Existing research on altruism validates the role of altruistic social benefit on the intention to use financial services. Sayuti & Amin (2021) and Amin (2021) discover that Islamic altruism affects Muslim consumers' intention to opt for Islamic home financing and use Murabahah to purchase orderer vehicle financing in Malaysia. In the non-financial context, the impact of altruism is equally robust as evidenced by the insights drawn from Panda et al. (2020) and Ali et al. (2020) on the purchase of green products. Given this, we propose the following hypothesis:

H5: *Social benefit positively impacts the user's intention to use FinTech payments*

Privacy Risk

Privacy risk will be triggered if the user is concerned that their personal data will be compromised (Johnson et al., 2018) While the available studies have confirmed the role of privacy, studies on privacy risk and adoption intention remain scarce. The majority of prior researchers explored privacy from the perspective of protective measures instead of risk (concerns about losses).

Al-Okaily et al. (2020), Baabdullah et al. (2019), Chiu et al. (2017), Kala Kamdjoug et al. (2021), Merhi et al. (2019), and Seiler & Fanenbruck (2021) provide empirical evidence collectively that users emphasize privacy protection when considering the usage of digital payment, mobile banking, and Robo Advisor, respectively. In addition, Seiler & Fanenbruck (2021) further affirm that privacy emerges as one of the most significant determinants of Robo advisor adoption. The findings of Liu et al. (2021) also, aligns with Seiler & Fanenbruck (2021) that privacy risk is the most significant deterrent to facial recognition payment usage propensity.

Despite evidence suggesting a positive relationship between perceived privacy and continuous intention to adopt mobile payment (Mombeuil & Uhde, 2021), other studies haven't found this significant relationship (Nelloh et al., 2019). Following the major trends observed in the past literature, the fifth hypothesis:

H6: *Privacy risk negatively impacts the user's intention to use FinTech payments*

Security Risk

If there is any incident that will jeopardize the safety of customers' financial transactions, then security will arise (Lee & Kim, 2020; Lin et al., 2020) Similar to privacy risk, most past scholars examined security from the perspective of protection rather than concerns about losses.

The significance of security on the intention has been validated in the study of Chiu et al. (2017), Khalilzadeh et al. (2017), Pal et al. (2021), Safari et al. (2020), T.P. et al. (2019), and Widyanto et al. (2021) in the context of mobile banking, mobile payment, FinTech, and Internet banking, respectively. Safari et al. (2020) further, testify that security is one of the key determinants of FinTech services usage. However, Gerlach & Lutz(2019) failed to provide further endorsement of this relationship. This relationship is also confirmed in the post-adoption context by Lee & Kim (2020) on internet-only banks, Mombeuil & Uhde (2021), and Nelloh et al. (2019) on mobile payment. Therefore, the sixth hypothesis is formed:

H7: *Security risk negatively impacts the user's intention to use FinTech payments*

Regulatory Support

Regulatory support refers to the users' perception of the ability of the prevailing regulatory framework to protect their interests from any dispute (Madan & Yadav, 2018). This construction serves as a double-edged sword in the adoption of FinTech services. On the one hand, regulators play a pivotal role in setting up and providing the necessary infrastructure to promote FinTech adoption. On the other hand, the nature of the new invention, namely cryptocurrency, is meant to eliminate the regulatory influence and intermediaries. Despite this, the study of Borri & Shakhnov (2020) reveals the significant impact of government roles, as evidenced by a decline in the trading volumes in the Chinese cryptocurrency market after the prohibition of Bitcoin trading. Charag et al. (2019) and Ezech & Nkamnebe (2020) Furthermore, it further endorses the compelling role played by the government in affecting the adoption intention of Islamic banking. In the post-adoption settings, government influence is equally robust, as confirmed by Verma et al.(2020) and Wang et al. (2019) in the context of mobile payment. Following past findings, the following hypothesis is developed:

H8: *Regulatory support positively impacts the user's intention to use FinTech payments.*

Openness to Change

According to Miller et al.(1994), openness to change involves two aspects: a) being willing to support change and b) having positive feelings about the anticipated consequences of change. This is a common factor in the organizational change context and is often tested in the opposite form, i.e., resistance to change. However, research on this construct in the aspects of FinTech remains limited.

Current research supports the influence of openness on intention to change. Flavián et al. (2022) validate the significance of openness to change as their study found that optimistic people tend to use Robo-advisor better. Similarly, Loh et al. (2021) Also, reluctance to change inhibits the intention to switch to mobile payment in Malaysia. Thus, the eighth hypothesis is proposed as follows:

H9: *Openness to change positively impacts the user's intention to use FinTech payments.*

All the hypotheses above are formulated based on UTAUT and VAM to explore the adoption issues of FinTech payments. Performance expectancy, effort expectancy, and social influence are drawn from the UTAUT, while economic benefit, social benefit, privacy risk, and security risk are included based on the theoretical lens of VAM. The benefit and risk factors are extended to include both internal influence (individual characteristics- openness to change) and external influence (regulatory support), providing a more holistic perspective to investigate the intention to use FinTech payments in Malaysia. The conceptual model that this study intends to explore is shown in Figure 1.

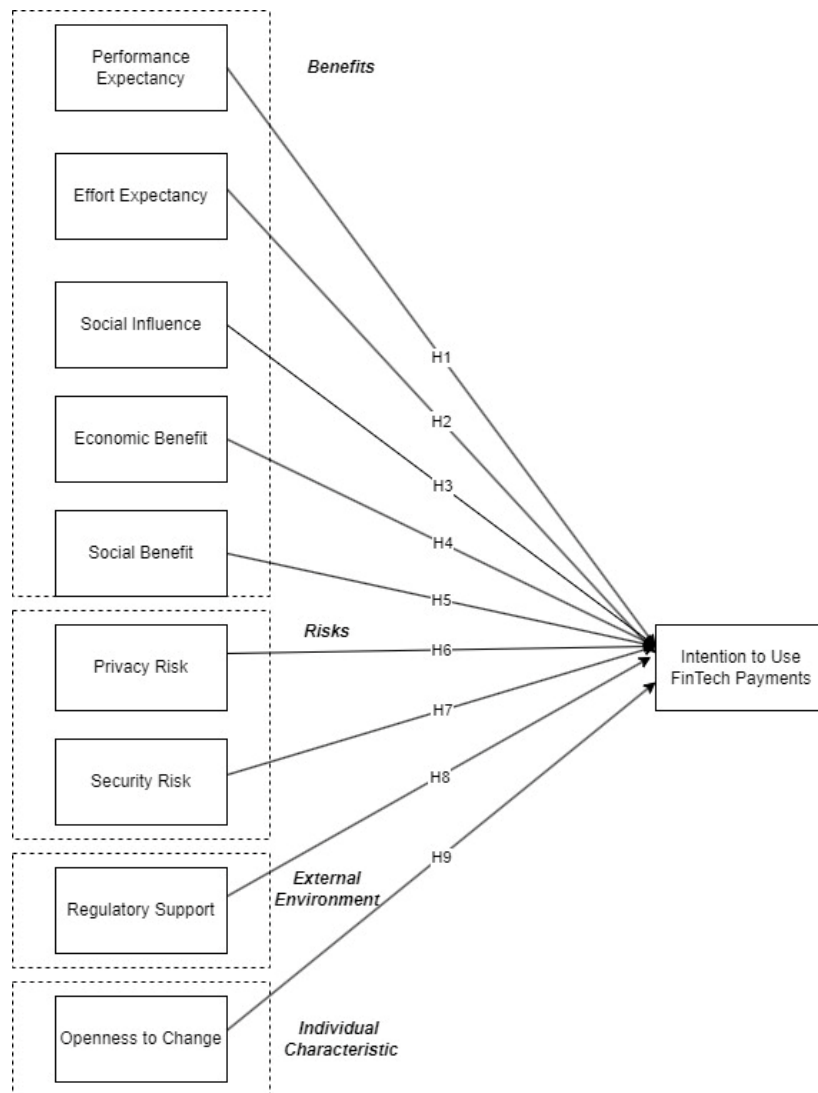


Figure 1: Research Framework

3. Research Methodology

3.1 Instruments and Measurement Items

A survey was carried out to test the hypotheses developed earlier. Measurement scales of the construction used in the previous research were adapted to fit the context of FinTech payments. We utilized a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree) to measure each construct through multiple survey items. The questions in the survey were developed based on operational definitions. Measurement scale items were attached in the Appendix. The questionnaire was split into two main components, i.e., Section A, respondents' demographic profile, and Section B, questions about the independent and dependent variables.

To examine the validity and reliability of the survey items, the questionnaire was pilot-tested with 30 respondents invited randomly. The respondents raised concerns about the understanding of FinTech terms. Hence, the definition of FinTech was provided in the form, and examples were given to help the respondents understand it better. No major reliability and validity issues were found.

3.2 Sample and Data Collection

The stratified random sampling technique was used to collect responses to ensure the samples represent the Malaysian population. The population was divided into 13 states of Malaysia, and responses were collected randomly from each stratum based on the population estimates by the Department of Statistics Malaysia (2022).

A total of 547 responses were gathered, and 1 was discarded due to significant missing values. The collection period started in November 2022 and ended in March 2023, using face-to-face techniques and Google Forms.

IBM SPSS Statistics 26 was used to analyze the descriptive statistics. Thereafter, partial least squares structural equation modeling (PLS-SEM) was employed to test the research model using SmartPLS4 software. PLS-SEM is favored against Covariance-based SEM (CB-SEM) in line with the recommendation of Hair et al.(2019) that PLS-SEM should be used when the study involves multiple constructs and theoretical extensions of established theories, with no requirement for normality of data.

4. Findings and Discussion

4.1 Descriptive Statistics

546 usable responses were collected. Out of the 546 respondents, 42.9% are male, while 56.8% are female. A majority of them came from the age group of 26-45. 48.9% are Malay, while 31.3% are Chinese, 6.6% are Indian, and 12.8% are Thai, Punjabi, and the local ethnic groups in Sabah and Sarawak. 46.7% of the respondents are bachelor's degree holders, and 75.4% of the respondents have incomes less than RM 4,849. Table 1 summarises the demographic profiles of respondents.

The responses indicated the dominance of E-wallets among the different categories of FinTech payment in Malaysia in terms of adoption. 95.1% of the respondents have tried E-wallets before, while only 46.7% have used Buy Now Pay Later (BNPL), 17% have used digital remittances, and 10.6% have used digital currencies before. The findings showed that other FinTech payments are still in their infancy level compared to E-Wallets.

Table 1 *Descriptive Statistics*

Variables	Descriptions	Frequencies	Percentages (%)
Gender	Male	234	42.9
	Female	310	56.8
	Missing Values	2	0.4
Age	15-25	104	19.0
	26-35	229	41.9
	36-45	130	23.8
	46-55	61	11.2
	56-64	15	2.7
	65 and above	4	0.7
	Missing Values	3	0.5
Ethnicity	Malay	267	48.9
	Chinese	171	31.3
	Indian	36	6.6
	Others	70	12.8

Variables	Descriptions	Frequencies	Percentages (%)
Education	Missing Values	2	0.4
	SPM/O Level	57	10.4
	STPM/A Level	44	8.1
	Diploma	116	21.2
	Bachelor's Degree	255	46.7
	Master's Degree	57	10.4
	PhD's Degree	6	1.1
	Professional Certificate	10	1.8
Employment Status	Missing Values	1	0.2
	Working	451	82.6
	Unemployed	84	15.4
	Retired	7	1.3
Income	Missing Values	4	0.7
	Less than RM 2,500	199	36.4
	RM 2,500 - RM 4,849	213	39.0
	RM 4,850- RM 7,199	82	15.0
	RM 7,199- RM 10,969	24	4.4
	RM10,970 and above	22	4.0
State of Residence	Missing Values	6	1.1
	Perlis	5	0.9
	Kedah	40	7.3
	Penang	26	4.8
	Perak	47	8.6
	KL/Selangor	138	25.3
	Pahang	25	4.6
	Kelantan	28	5.1
	Terengganu	27	4.9
	Melaka	20	3.7
	N. Sembilan	21	3.8
	Johor	68	12.5
	Sabah/Labuan	54	9.9
	Sarawak	47	8.6
Frequency of FinTech payment usage	0-3	126	23.1
	4-7	172	31.5
	8-14	151	27.7
	15-19	56	10.3
	20 and above	38	7.0
	Missing values	3	0.5
Usage of E-Wallet	Yes	519	95.1
	No	23	4.2
	Missing values	4	0.7
Usage of BNPL	Yes	255	46.7
	No	256	46.9
	Missing values	35	6.4
Usage of Digital Foreign Remittance	Yes	93	17.0
	No	416	76.2
	Missing values	37	6.8
Usage of Digital Currencies	Yes	58	10.6
	No	450	82.4
	Missing values	38	7.0

4.2 Evaluation of Measurement Model

The research model developed was tested using a 2-step approach. In the first step, the reliability and validity of the measurement model were examined. Next, the structural model was assessed for hypothesis testing. This 2-step approach was conducted in line with the past researchers' recommendations (J. F. Hair et al., 2019; Ramayah et al., 2018).

The measurement model assessment examined internal consistency, convergent reliability, and discriminant validity. To ensure all items consistently measure the same construct, the composite reliability (CR) value must be above 0.70 (Ramayah et al., 2018). According to Hair et al. (2017) There are no issues with convergent validity if the loading is greater than 0.708 and the average variance extracted (AVE) is higher than 0.50. As shown in Table 2, the CR value and loadings for all variables are above 0.70, and AVE values are higher than 0.50; hence, internal consistency, indicator reliability, and convergent reliability are achieved.

Table 2: Measurement Model

Constructs	Items	Composite Reliability (CR)	Loadings	AVE
Performance Expectancy (PE)	PE1	0.897	0.853	0.686
	PE2		0.864	
	PE3		0.831	
	PE4		0.761	
Effort Expectancy (EE)	EE1	0.918	0.858	0.736
	EE2		0.873	
	EE3		0.866	
	EE4		0.833	
Social Influence (SI)	SI1	0.929	0.842	0.722
	SI2		0.865	
	SI3		0.854	
	SI4		0.847	
	SI5		0.841	
Economic Benefit (EB)	EB1	0.880	0.817	0.648
	EB2		0.821	
	EB3		0.839	
	EB4		0.739	
Social Benefit (SB)	SB1	0.901	0.789	0.695
	SB2		0.819	
	SB3		0.850	
	SB4		0.875	
Privacy Risk (PR)	PR1	0.920	0.850	0.742
	PR2		0.885	
	PR3		0.869	
	PR4		0.841	
Security Risk (SR)	SR1	0.923	0.854	0.706
	SR2		0.742	
	SR3		0.869	
	SR4		0.862	
	SR5		0.867	
Regulatory Support (RS)	RS1	0.908	0.861	0.712
	RS2		0.844	

Constructs	Items	Composite Reliability (CR)	Loadings	AVE
Openness to Change (OC)	RS3	0.904	0.860	0.701
	RS4		0.809	
	OC1		0.808	
	OC2		0.869	
	OC3		0.881	
Intention (IT)	OC4	0.932	0.788	0.774
	IT1		0.885	
	IT2		0.894	
	IT3		0.839	
	IT4		0.900	

Next, the Heterotrait-Monotrait ratio of correlations (HTMT) was assessed to examine discriminant validity issues. No discriminant validity issue was found since the HTMT is below the 0.90 threshold (see Table 3) recommended by Hair et al. (2017).

Table 3 Discriminant Validity (HTMT)

	EB	EE	IT	OC	PE	PR	RS	SB	SI	SR
EB										
EE	0.521									
IT	0.545	0.644								
OC	0.557	0.470	0.674							
PE	0.536	0.866	0.633	0.496						
PR	0.346	0.238	0.338	0.349	0.284					
RS	0.545	0.494	0.503	0.613	0.470	0.221				
SB	0.752	0.580	0.562	0.544	0.570	0.232	0.543			
SI	0.553	0.614	0.462	0.443	0.592	0.274	0.405	0.588		
SR	0.302	0.184	0.227	0.291	0.208	0.747	0.218	0.239	0.230	

4.3 Structural Model

To test the significance of the path coefficients, a 10,000-re-sample bootstrapping analysis was conducted, and the path coefficients of the structural model were examined. R^2 is 0.521, which signifies that all the independent variables explained 52.1% of the variance of intention (IT). The VIF value for all independent variables is less than 3.3; hence, there is no multicollinearity issue.

Performance expectancy ($\beta=0.137$, $p<0.01$), effort expectancy ($\beta=0.240$, $p<0.01$), social benefit ($\beta=0.098$, $p<0.05$), and openness to change ($\beta=0.335$, $p<0.01$) are positively related to intention, supporting H1, H2, H5, and H9 respectively. Privacy risk ($\beta=0.118$, $p<0.05$) is found to be a significant predictor of intention but in a positive manner. The direction of privacy risk-intention is in contrast with the hypothesis set. However, social influence, economic benefit, security risk, and regulatory support don't significantly influence intention. Thus, H3, H4, H7, and H8 were rejected.

Openness to change ($\beta=0.335$) emerges as the stronger driver of intention to use FinTech payments, followed by effort expectancy ($\beta=0.240$), performance expectancy ($\beta=0.137$), privacy risk ($\beta=0.118$), and social benefit ($\beta=0.098$).

Besides the size effect, f^2 is also tested to measure the strength of the relationship. According to Cohen (1988) An f^2 value greater than 0.35 suggests a large effect, larger than 0.15 a medium effect, and higher than 0.02 a small effect. Performance expectancy, effort expectancy, openness to change, and privacy risk are considered to have small effect sizes, while openness to change is considered to have medium effect sizes. The outcomes of the hypothesis testing are depicted in Table 4.

Table 4 Hypothesis Testing Direct Effects

Hypothesis	Relationship	Std Beta	t-values	p-values	BCI LL	BCI UL	f^2	VIF	Decision (Yes-Supported, No-Not supported)
H1	PE→IT	0.137	2.846	0.002	0.059	0.216	0.016	2.476	Yes
H2	EE→IT	0.240	4.857	0.000	0.160	0.322	0.046	2.591	Yes
H3	SI→IT	-0.024	0.640	0.261	-0.087	0.036	0.001	1.710	No
H4	EB→IT	0.063	1.344	0.089	-0.016	0.137	0.004	1.935	No
H5	SB→IT	0.098	2.211	0.014	0.024	0.170	0.010	2.039	Yes
H6	PR→IT	0.118	1.686	0.046	0.012	0.244	0.015	1.878	Yes
H7	SR→IT	-0.059	0.994	0.160	-0.160	0.034	0.004	1.801	No
H8	RS→IT	0.035	0.872	0.192	-0.031	0.101	0.002	1.613	No
H9	OC→IT	0.335	5.190	0.000	0.233	0.445	0.141	1.663	Yes

Note. 95% confidence interval with 10,000 bootstrapping was used.

To further ensure the predictive relevance, the PLS-Predict proposed by Shmueli et al.(2019) A holdout sample-based procedure with a 10-fold procedure was run. Shmueli et al.(2019) suggest that if the prediction errors are not highly symmetrically distributed, MAE values of both PLS-SEM and LM should be compared. If all the MAE values for PLS-SEM are lower than LM, then a strong predictive power exists. As illustrated in Table 5, all the MAE values for PLS-SEM are smaller than LM. Hence, the model is considered to have strong predictive power.

Table 5 PLS-Predict

	Q ² predict	PLS-SEM_MAE	LM_MAE
IT1	0.417	0.652	0.655
IT2	0.393	0.682	0.71
IT3	0.324	0.707	0.756
IT4	0.375	0.667	0.682

4.4 Discussion

This study aims to discern the impact of benefits, risks, openness to change, and regulatory support on the intention to use FinTech payments based on the theoretical lens of UTAUT and VAM.

Three of the benefit constructs, i.e. performance expectancy, effort expectancy, and social benefit, have successfully proved their influence on the intention to use FinTech payments. The significant roles played by performance expectancy and effort expectancy on intention are consistent with the findings of past researchers (Karjaluoto et al., 2020; Rahi et al., 2019; Venkatesh et al., 2003, 2012). When deciding to use FinTech payments, customers continue to prioritize a system that offers utilitarian benefits and a user-friendly interface. This study also achieved remarkable progress in the research of benefit-related constructs

as the findings affirm the significance of social benefit on the intention to use FinTech payment. Social benefits have usually been tested from egoistic perspectives, i.e., personal, tangible benefits gained from engaging in social activities such as expanding social networks, establishing new friendships, and social support. This study examined the social benefit from the altruistic perspective as the selfless action that focuses on benefiting others or society. This research output indicates that consumers are willing to use FinTech payment services if these solutions promote society's well-being, such as protecting all from infectious diseases. The emphasis on benefitting others could have a post-Covid-19 impact. This finding aligns with the research outcome of Sayuti & Amin (2021) and Amin (2021), which states that altruism affects the intention to use financial products.

Nonetheless, users don't place much emphasis on the economic benefit that could be reaped from the usage of FinTech payment services, consistent with the conclusion drawn by Hussain et al. (2019), Loh et al. (2021), and Senyo & Osabutey (2020). According to the Consumer Payment Attitude Study 2022 conducted by VISA(2022) Malaysian users go cashless on retail transactions, namely bill payments, supermarkets, taxis, and ride-sharing services. Under such circumstances, it is challenging for users to consider the cumulative financial savings for small transactions as noteworthy (Loh et al., 2021). Meanwhile, PayNet Digital Payments Insight Study 2022 also unveiled that attitudes from different generations also impact the choice of digital payment (PayNet, 2022) Gen Y will be motivated to use digital payment with some perks and rewards, but Gen Z will be motivated by gamification and instant gratification. Substantial incentives such as cashback, discounts, and rebates are the key attractions for Gen X, but not for Boomers. The limited impact of economic benefits on the intention to use FinTech payments could be attributed to inconsistent generational motivation.

This study also adds to the contradictory results obtained by past literature on the social influence-intention relationship. Social influence failed to wield an impact on consumer's intention to use FinTech payments. This finding indicates that other views don't matter much when using FinTech payment. It could be attributed to the financial nature of FinTech payment that the usage intention should be motivated by individual needs rather than others' opinions (Senyo & Osabutey, 2020).

From the risk perspective, only privacy risk is found to be an influencing factor in the intention to use FinTech payments. Interestingly, the finding demonstrates that the users are concerned about the disclosure of their personal information (privacy) on the FinTech payment platforms, yet they are still willing to use FinTech payment services. A study conducted by the Center for Financial Inclusion revealed that though middle to low-income consumers in Indonesia value their data privacy, there is a misalignment in the attitudes and behaviors when using digital finance (Chakraborty, 2022). Privacy is prioritised, but users are ready to share data with others and are not willing to pay more to protect their data. On the other hand, surprisingly, no conclusion can be drawn for security risk as a significant deterrent to the intention to use FinTech payments, similar to the research of Gerlach & Lutz(2019) though Malaysia has been facing countless hacking incidents related to e-banking. This reflects that other benefits outweigh the security risks when it comes to the usage of FinTech payment.

Last but not least, our research confirms that openness to change is the most important determinant of the intention to use FinTech payments. Openness to change is associated with a positive feeling about the change and willingness to change. The findings of the study further affirm the conclusions drawn by Flavián et al.(2022) and Loh et al.(2021) that a positive perception of the advantages of technology motivates customers to embrace innovation more readily. On the other hand, regulatory support failed to exert a significant influence on the intention to use FinTech payments in contrast with Charag et al. (2019), Ezech & Nkamnebe (2020), Verma et al.(2020) and Wang et al. (2019). Notwithstanding that, this research outcome confirms the

role of regulatory support as a double-edged sword. Regulators play a crucial role in providing payment infrastructures, but people are avoiding excessive regulations as a heavy-handed approach could inhibit the development of innovative financial solutions.

5. Conclusion

Digitalization is an inevitable wave in the financial industry. Hence, understanding factors influencing consumers' usage of FinTech services is critical since consumers' demand will ensure the industry's sustainability. This study's findings help shed light on the determinants of FinTech adoption.

For the first contribution, this study validates the relevance of UTAUT and VAM in examining the intention to use FinTech payments. 2 out of 3 constructs from UTAUT, i.e., performance expectancy and effort expectancy, play a significant role in the intention. The trade-off between benefits and risks (proposition of VAM) is also confirmed in this study as a social benefit, together with performance expectancy, effort expectancy, and privacy risk, significantly influence the intention to use FinTech payments. Utilitarian and social benefits and privacy risks drive consumers' propensity to use FinTech payments. However, further testing is needed on the applicability of social influence, economic benefit, and security risk on intention to use FinTech payments.

For the second contribution, the additional constructs for benefit, social benefit, individual characteristics, and openness to change present significant results. However, the influence of regulators is immaterial in this study.

5.1 Theoretical Implications

This study provides three theoretical implications for future researchers. Firstly, this study provides a better framework to understand the intention to use FinTech payments that captures both the benefits and risks constructs together with the individual factor, i.e., openness to change, unlike prevailing technology acceptance theories that focus more on the benefits only. Benefits and risks are crucial determinants in financial-related aspects since monetary resources are involved. On the benefit construct, this study unearths the altruistic social benefits emphasized by the consumers, which can be further tested in different contexts across different cultures. Besides, our research model also takes a holistic approach by considering three distinct perspectives: system properties, individual characteristics, and external environment.

Second, this study shows that openness to change produces a crucial impact on the intention to use FinTech payments. Openness to change has expanded its influence on individual settings from organizational settings. Hence, this laid a foundation for future researchers to consider openness to change in examining users' intention to use a new innovative service or technology.

Third, this study once again endorses the significance of two constructions from UTAUT, performance expectancy and effort expectancy. This reflects the relevance of the UTAUT in the field of FinTech payments, where it is less employed than the Technology Acceptance Model.

5.2 Practical Implications

The outcomes of this research yielded several important implications for industry practitioners such as regulators, FinTech players, and banks.

First, FinTech players or banks that develop digital payments should ensure useful functions are embedded in the system while not forgetting about a user-friendly interface. This study's outcomes also suggest that UI/UX design should be prioritised by FinTech players and banks, given that effort expectancy is the second most compelling determinant of adoption intention.

Secondly, FinTech developers should also put equal emphasis on privacy protection to ensure that the data and accounts are in safe hands. Privacy by Design (PbD) should be integrated during the application development process. The concept of PbD rests on the idea that privacy should shape the fundamental system design rather than being added as an additional module later. The firms should establish a proper security and privacy framework to ensure that security and privacy governance permeates the whole organisation. Security and privacy insurance should be bought to instill confidence in the consumers. Acceptance by the insurance companies indicates that the firms have reliable and satisfactory practices to prevent data breaches.

FinTech players and banks should also employ environmental, social, and governance (ESG) approaches in managing and marketing the new digital payment systems, as social benefits are one-factor influencing adoption intention. The company should create awareness in the marketing campaign that the use of the new digital payment contributes to social welfare. For instance, Worldcoo, a Spanish firm, has launched a new fundraising system that allows users to round up the payment using a card and donate the round-up balance to entities needed.

Lastly, FinTech firms should adopt big data analytical techniques to analyze potential customers' profiles to ensure that their marketing campaigns target the group with a greater inclination to change and adopt innovative payment systems. Normal market research, such as consumer surveys, can also be conducted to better understand consumers' preferences.

5.3 Limitations and Future Research

Despite its contributions, this study shows several limitations. First, it is based on samples collected from Malaysia. The findings need to be interpreted cautiously, especially in different cultural settings. Different cultures may exhibit different behaviors and preferences. Hence, further research should be replicated in other countries.

Next, this study is conducted using a cross-sectional approach, so the longitudinal changes in behavioral intention could not be identified in this research. Future research should assess the intention before and after adoption to check if the decision criteria remained consistent. The influence of some factors might deteriorate with the usage of products. For instance, Venkatesh et al.(2003) assert that the effect of effort expectancy dwindles with product usage as users start to get used to the system. Hence, this warrants longitudinal research.

Then, the intention to use FinTech payments should be analyzed with a broader framework by including more types of benefits, namely convenience and risks such as financial and legal risks. To gain a deeper understanding of the intention to use FinTech payments at the individual level across different countries, future researchers should incorporate the role of national characteristics and cultural influences in their studies.

Contribution by Author:

*Conceptualization -Ng, H.C.; Methodology - -Ng, H.C.; Writing – -Ng, H.C.,
Writing – Review & Editing- Muzafar, S.H.; Supervision – Muzafar, S.H.; Resul,S.*

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Appendix

Constructs	Items	Adopted and adapted from
Performance Expectancy	1. I find FinTech payment useful in managing my daily financial needs.	Patil et al. (2020), Venkatesh et al. (2012)
	2. Using FinTech payment helps me to	

Constructs	Items	Adopted and adapted from
	- accomplish my financial needs more quickly. 3. Using FinTech payment makes it easier for me to perform financial transactions. 4. Using FinTech payment increases my overall financial performance.	
Effort Expectancy	1. I find FinTech payment easy to use. 2. My interaction with FinTech payment is clear and understandable. 3. I find FinTech payment flexible to interact with. 4. I find it easy to get FinTech payment to do what I want it to do.	Patil et al. (2020) , Venkatesh et al. (2012)
Social Influence	1. People who are important to me think that I should use FinTech payment. 2. People who influence my behavior think that I should use FinTech payment. 3. People whose opinions that I value prefer that I use FinTech payment. 4. If many of my acquaintances keep using FinTech, then I would be more willing to use FinTech payment. 5. It is wise to adopt the choice of other users when deciding whether to use FinTech payment.	Handarkho & Harjoseputro (2020), Venkatesh et al. (2012)
Economic Benefit	1. Using Fintech is cheaper than using traditional financial payment. 2. I can save money when I use Fintech payment. 3. I can use various financial services with a low cost when I use Fintech payment. 4. I do (might) expect financial gains from the usage of FinTech payment.	Gerlach & Lutz (2019), Ryu (2018)
Social Benefit	1. I benefit others when I use FinTech payment. 2. When I use FinTech payment, all people are protected from infectious diseases. 3. Using FinTech payment has many advantages for society. 4. Using FinTech payment ensures the well-being of society.	Li et al. (2021)
Perceived Privacy Risk	1. Privacy could be exposed or accessed when I use FinTech payment. 2. It would be risky to disclose my personal information on FinTech payment platforms. 3. There would be a high potential for loss associated with disclosing my personal information on FinTech payment platforms. 4. There would be too much uncertainty associated with giving my personal information to FinTech payment platforms.	Y. li Liu et al. (2021)
Perceived Security Risk	1. I worry about the abuse of my financial information (e.g.transaction and private	Ryu (2018), Johnson et al. (2018)

Constructs	Items	Adopted and adapted from
	information) when I use Fintech payment. 2. My financial information is not secure when I use Fintech payment. 3. I worry that someone can hack and access my financial information when I use Fintech payment. 4. I worry that the FinTech payment providers do not have security measures to protect my financial information. 5. I worry that the FinTech payment providers are incapable to ensure the security of my financial information.	
Regulatory Support	1. I believe the government supports and improves the use of FinTech payment. 2. I believe the government has introduced favorable legislation and regulations for FinTech payment. 3. I believe the government is active in setting up all kinds of infrastructure such as the infrastructure telecom network and providing financial incentives which has a positive role in promoting FinTech payment. 4. I believe government regulations and monitoring can reduce the risks of using FinTech payment.	Albayati et al. (2020), Hu et al.(2019)
Openness change	to 1. I always look for new methods to do payment. 2. I am open to experimenting with new FinTech payment. 3. I am ready for new experiences in FinTech payment. 4. I am a risk-taker and like to experience new things.	Pillai & Sivathanu (2018), Pillai & Sivathanu (2020)
Intention	1. I am likely to use FinTech payment in the near future. 2. Given the opportunity, I will use FinTech payment immediately. 3. I will think about using FinTech payment. 4. I plan to use FinTech payment for my future purchases.	Zhao et al. (2019), Flavian et al. (2020)