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Factors Influencing Cryptocurrency Adoption Among Citizens of Selangor

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ABSTRACT

Introduction: The rapid growth of financial technology has positioned cryptocurrencies as a promising alternative to traditional financial systems. In Malaysia, particularly in Selangor, however, there is very little adoption of cryptocurrency, as people are fearful of the regulatory concerns, security issues, and public knowledge gap. Given this, it is important to know what motivates the uptake of cryptocurrencies, in order for stakeholders who are looking to promote wider digital financial inclusion to strategize.

Objectives: This study investigates the elements that lead to cryptocurrency adoption among Selangor citizens using the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) model. It considers the performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, habit, perceived risks and cryptocurrency awareness on adoption intentions. In addition, it explores whether cryptocurrency awareness moderates the risk adoption association.

Methods: Quantitative approach was used, where 244 respondents from Selangor were distributed the structured survey. Of these, 213 valid responses were filtered and analyzed using SPSS. Relating variables were assessed by use of statistical techniques such as reliability analysis, normality tests, correlation analysis, multiple regression and moderation analysis.

Results: The results show that performance expectancy, effort expectancy, social influence and habit exert influence on cryptocurrency adoption, and other factors do not exert any influence. The strongest predictor was effort expectancy. Therefore, ease of use is indeed a critical role in the adoption decisions. Interestingly, cryptocurrency awareness was identified not to moderate the association between perceived risk and adoption, indicating that higher awareness does not mitigates the negative effect of perceived risk on adoption.

Conclusions: To sum up, usability, social influence and prior experience drive cryptocurrency adoption in Selangor. This also calls for the need to improve awareness programs on risk concerns and enhancing public confidence. These findings are of great value to policymakers, financial institutions, and cryptocurrency technology developers in their efforts to encourage cryptocurrency adoption in Malaysia.

Keywords: Cryptocurrency, Cryptocurrency Adoption, Unified Theory of Acceptance and Use of Technology Model 2 (UTAUT2), Cryptocurrency awareness, Perceived risk, Selangor Citizens, User acceptance, Technology Adoption

INTRODUCTION

Digital finance has changed all across the world on how financial transactions are being done, with cryptocurrencies among the greatest participant. While different to the traditional financial systems, cryptocurrencies support transactions as peer to peer without the support of intermediaries (Nakamoto, 2008). After this decade, their

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development occurred due to the new technologies in financial operations, the growing demand for payment solutions, the need for transnational financial transactions (Li et al., 2022). In the report published in a year, by Chainalysis (2023), the cryptocurrency adoption has been increased by 880% specifically in the developing countries where cryptocurrencies serve as an inflation hedge and a means of remittances.

The COVID-19 pandemic further accelerated the shift toward digital finance, making cryptocurrencies a preferred method for transactions and investments (Hong & Yoon, 2022). Cryptocurrencies are increasingly challenging conventional banking systems, influencing global monetary policies (Ayeswarya & Varghese, 2021). In Malaysia, the government has begun integrating digital assets into the financial sector, with Bank Negara Malaysia (BNM) issuing five digital banking licenses in 2022 (Bank Negara Malaysia, 2022). Meanwhile, regulations like the Anti-Money Laundering and Counter Financing of Terrorism (AMLA) policy and Know Your Customer (KYC) guidelines aim to secure cryptocurrency transactions (Setiawan et al., 2021). Globally, cryptocurrency regulations are gaining traction, with countries like the U.S. and Hong Kong approving Bitcoin and Ethereum Exchange-Traded Funds (ETFs) (Commissioners, 2021). However, the disruptive nature of cryptocurrencies poses challenges for traditional financial institutions, which have faced declining deposits amid the pandemic (Setiawan et al., 2021). The introduction of digital banking licenses highlights the urgent need for these institutions to adapt to decentralized financial systems (Bank Negara Malaysia, 2022).

In Selangor, Malaysia's most developed state, digital transactions have flourished, but cryptocurrency adoption remains low compared to other financial services like mobile banking and e-wallets (Luno, 2021). A 2021 Luno survey found that only 22% of Malaysians had invested in cryptocurrencies, 62% were aware but had not taken part in them (Surin Murugiah, 2022). That implies there are security worries, a lack of knowing and of course regulatory ambiguity to the administration. To improve the readability of such understanding, policymakers, financial institutions, and technology developers sought to promote a more inclusive digital economy should understand which of these factors affect the adoption of cryptocurrency. This study seeks to explore the main factors of habits affecting the adoption of cryptocurrencies in Selangor by using the UTAUT2 model developed by Venkatesh et al. (2012). It examines how perceptions of usefulness, ease of use, social influence and regulatory policies influence individuals to join or not join the crytocurrencies adoption. Based on the previous studies, it is stated that performance expectancy and societal trends significantly affect attitudes towards the cryptocurrency (Gupta et al., 2024). One last challenge, however, is still the regulatory ambiguity since cryptocurrencies are not yet legally recognized to be legal tender in Malaysia (Carvalho et al., 2022). Additionally, adoption is complicated by cybersecurity concerns, fraud, and concerns of investor protection (Idrees, 2024).

Within the research done, the method of data collection is in quantitative research and data was collected via 300 respondents in Selangor through the distribution of structured surveys via cryptocurrency forums and digital finance communities. SPSS will be used to analyze the gathered data to establish key adoption trends and demographic influences of the cryptocurrency usage as well as the motivations. The study's results are projected to provide useful information for stakeholders looking to fill knowledge gaps, improve the awareness towards digital financial transactions and support wider cryptocurrency adoption by Malaysia's economy. In the end, this research seeks to yield significant contribution in the discussions on the adoption of financial technology that could, among other things, help Malaysia realize its aspiration to become the leading regionally FinTech hub (Bank Negara Malaysia, 2022).

LITERATURE REVIEW

Cryptocurrency Adoption

Digital currencies are challenging traditional financial systems to such a level, that their very adoption is becoming the hot button issue for discussions about the future of finance. Unlike a conventional bank, cryptocurrencies run on decentralized blockchain technology where the advantages are mushrooming like security, transaction cost and financial freedom (Nakamoto, 2008). Yet, adoption rates are not uniform in the least. Public acceptance towards cryptocurrency significantly influence by several factors, such as accessibility, perceived utility, and changing regulatory environment (Abdullah et al., 2024). However, according to some experts (Setiawan et al., 2021), cryptocurrencies are perceived to possess the potential of being an alternative to traditional banking, nonetheless,

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the same presents challenges as price volatility, security vulnerabilities and regulatory uncertainty that persist (Ayedh et al., 2020). Malaysia adopted the cryptocurrencies slowly but steadily, with younger generation, the tech savvy citizens taking the lead. The growth in digital technologies in people's daily lives, and the attractiveness of cryptocurrencies as a means for cross border payments and improving financial access are by and large fueling this trend. Although this level of progress has been achieved, regulatory uncertainty remains a big challenge. It is a fine line for policymakers to encourage innovation but also deal with the risks of fraud, market volatility (Härdle et al., 2020). For cryptocurrencies to truly go mainstream, critical issues must be resolved such as establishing clear regulations, strengthening security measures, and raising public awareness. Until these hurdles are overcome, the full potential of cryptocurrencies may remain out of reach.

Performance Expectancy

According to Venkatesh et al (2012), performance expectancy is the extent to which an individual believes that the use of a technology will lead to better performance in terms of enhance efficiency and effectiveness. In the cryptocurrency context, it includes benefits like lowering of the transaction time, cost saving and financial accessibility (Shahzad et al., 2024). Research prior to have indicated that those who can see the acumen of cryptocurrencies over regular monetary strategies make more utilization of the currencies (Maniam, 2024). In Malaysia, adoption is driven mostly by performance expectancy when it comes to Malaysians looking for alternative financial solutions outside conventional banking (Setiawan et al., 2021). As digital finance and its associated financial technology continue to develop and evolve, the impact of performance expectancy on cryptocurrency adoptions is expected to rise and have an effect on future digital financial advances and the global financial inclusion plans.

Effort Expectancy

Using a technology is easy, as this makes it probable that it will be adopted, especially with financial innovations such as cryptocurrencies. According to Venkatesh et al (2012), effort expectancy such as the simplicity of learning and using a system is very significant in predicting individuals' readiness to adopt digital currencies (Marikyan & Papagiannnidis, 2023). Research indicates that cryptocurrency adoption rates will rise if cryptocurrency platform is user-easy and intuitive (Gupta et al., 2024). This attests to the technical hardiness of dealing with digital wallets, private keys, and managing blockchain transactions on the digital wallet, that it is not easy to tackle especially if user are not strongly inclined to technology (Shahzad et al., 2024). However, due to such advancements of user interfaces (UI) and mushrooming of mobile friendly applications in Malaysia which helped to reduce these barries, positioning consumers' effort expectancy act as a major driver in accepting cryptocurrency (Hidayatullah et al., 2020).

Social Influence

Adoption of financial technology are often owing to third party social factors like recommendations from peers, media coverage, endorsements from experts. Social influence refers to how other peers influence the opinions and behaviors of individuals. Venkatesh et al. (2012) identified it as one of the critical factors that drive technology adoption, such as cryptocurrency. According to Alomari and Abdullah's (2023) research, the results indicates that whenever cryptocurrencies receive significant attention from various trusted sources, such as financial analysts, key parties, and online communities, people are more likely to explore and adopt them. Young generations in Malaysia are highly reliant on social networks and digital platforms to provide them with information to make financial decisions, which further reemphasized the role of social influence (Almajali et al., 2022). As cryptocurrencies gain broader global recognition, the social validation surrounding their use is likely to play an increasingly important role in mainstream acceptance (Sagheer et al., 2022).

Facilitating Conditions

Technology is adopted depending upon the supporting infrastructure and resources being available. Facilitating conditions, referring to external conditions including technology support, financial literacy, and regulatory frameworks that help individuals to adopt and use the new technologies (Marikyan & Papagiannnidis, 2023). In the context of cryptocurrency, the willingness of users to interact with the digital currency is significantly aided by the availability of reliable internet, secure digital wallets, and clear regulations (García-Monleón et al., 2023). Depending on Abdallah Saidi et al. (2023), the research has revealed that people are more likely to trust and use cryptocurrencies

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when they perceive adequate institutional and technical support. In Malaysia, facilitating conditions such as the growing availability of cryptocurrency exchanges and evolving government regulations have helped drive adoption, but the uncertainties of regulation still disassuade users (Hasan Miraz et al., 2022)

Hedonic Motivation

In addition to the practical benefits, there are emotional and psychological gratification for a technology adoption. The interaction between how users enjoy or derive pleasured from a technology such as hedonic motivation, has been shown to help individuals better appraise and adopt new systems (Venkatesh et al., 2012). The key drivers of user motivation for trading in cryptocurrency are shaped by several factors such as being excited about trading, the potential to win financially, and being a part of Decentralized Finances (DeFi) (Gupta et al., 2024). Yet, there is evidence pointing to a phenomenon that when people enjoy and get rewarded from using cryptocurrency, they are more inclined to continue using it despite its volatility and risk (Shahzad et al., 2024). In Malaysia, the interest in investment opportunities, the attractiveness of trading platforms' gamified nature, and the buzz that cryptocurrency has created on a social level have resulted in a growing adoption of cryptocurrency among the younger investors (Setiawan et al., 2021).

Price Value

The Help or Hurdle of Adoption of Technology within Financial Context lies in its probable cost and benefit balance. The idea of price value defined as a tradeoff between benefits of technology perceived and per unit cost of achieving these benefits (Gowda & Chakravorty, 2021). Sukumaran et al. (2022) has shown that it impacts on user behaviour. The users have to consider if the benefits, such as decentralization, lower transaction costs, possible financial gains, override the risks and the costs associated with cryptocurrency, including its price volatility, security issues, and transaction costs (Shanmugam et al., 2023). Ayeswarya & Varghese (2021) state that people will be more likely to adopt cryptocurrencies when they perceive them as a less costly option to the traditional banking system. The research illustrates that price value is one of the prime reasons that drives cryptocurrency adoption in Malaysia because users attentively balance the potential financial benefits and opportunities from digital assets against the risks (Setiawan et al., 2021).

Habit

Users' behavioral tendencies are a key factor in determining whether user adopt and continue using a technology. Long term technology use and engagement is also closely linked to the concept of habit, by the manner in which past behaviors and automatic responses continue to influence users' ongoing technology use (Venkatesh et al., 2012). For example, repeated activities such as frequent trading, investing in digital currency, or doing digital transactions, can further bind people to use virtual currencies (Abbasi et al., 2021). The studies highlights that individuals who develop fixed norms regarding cryptocurrency platforms tend to integrate it into their daily financial habit routines (R. & Aithal, 2022). In Malaysia, the habit has thus become a significant adoption cue for cryptocurrency, especially used by the traders and investors, who often work with digital assets (Setiawan et al., 2021). With increasing knowledge and advancements in financial technology, it is expected in a future that the habit formation will play a more significant role in maintaining the use of cryptocurrencies within mainstream finance.

Perceived Risks

There is plenty of uncertainty and security concerns, causing the major barriers to the adoption of new financial technologies. This is because individuals tend to see and approach new systems in a negative view such as potential financial loss and hence less likely to entertain using such systems (Featherman & Pavlou, 2003). Besides, factors such as price volatility, cybersecurity threats and the absence of government safeguards are also major factors that shape adoption decisions in the cryptocurrency market (H. Gupta & Chaudhary, 2022). The studies have even shown that individuals who can deal with higher amount of risk and are good at employ effective risk mnagement strategies are more likely to engage with cryptocurrencies regardless of its uncertainty (Gupta et al., 2024). In Malaysia, worries related to regulatory ambiguity and cybersecurity danger continue to have an impact on the attitude of the public in adopting cryptocurrency, hightlighting the ongoing impact of perceived risks (Kok et al., 2018).

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Cryptocurrency Awareness

Adoption of new technologies, especially in the financial sector is dependent upon knowledge and awareness. Previous studies suggest that the willingness of an individual to interact with cryptocurrencies is quite dependent on how familiar the individual is with digital currencies, including its functionality, potential risks and benefits (Shahzad et al., 2024). According to studies, increasing the level of awareness makes users more confident in using digital assets as they have the knowledge to use, trade and maintain its digital assets (Sagheer et al., 2022). Conversely, a shortage of awareness or exposure to disinformation can be a cause of foster hesitation and disbelief, resulting in constraints to broader adoption of the technology (Kumari et al., 2023). The awareness of cryptocurrencies is spreading in Malaysia, especially among the younger generation, but still, the gaps of knowledge exist for example in security risks, investing strategies and regulatory framework (Gupta et al., 2024). It could be helpful by improving awareness thru targeted financial education and public initiatives.

MATERIAL AND METHODOLOGY

This study looks into the factors affecting cryptocurrency adoption among the citizens in Selangor, particularly on perceptions of the users, concerns on the regulatory aspect and the level of technological awareness. A structured survey was distributed to 244 participants through online financial forums, cryptocurrency user groups and social media platforms. A total of 213 valid questionnaires were collected and analyzed with SPSS to perform descriptive statistic, reliability tests, correlation, and multiple regression analysis. These methods are employed to examine the relationships between dependent variable such as cryptocurrency adoption intention and independent variables, including perceived usefulness, ease of use, and regulatory factors in order to identify the key drivers and barriers influencing cryptocurrency adoption in Selangor. (Figure 1)

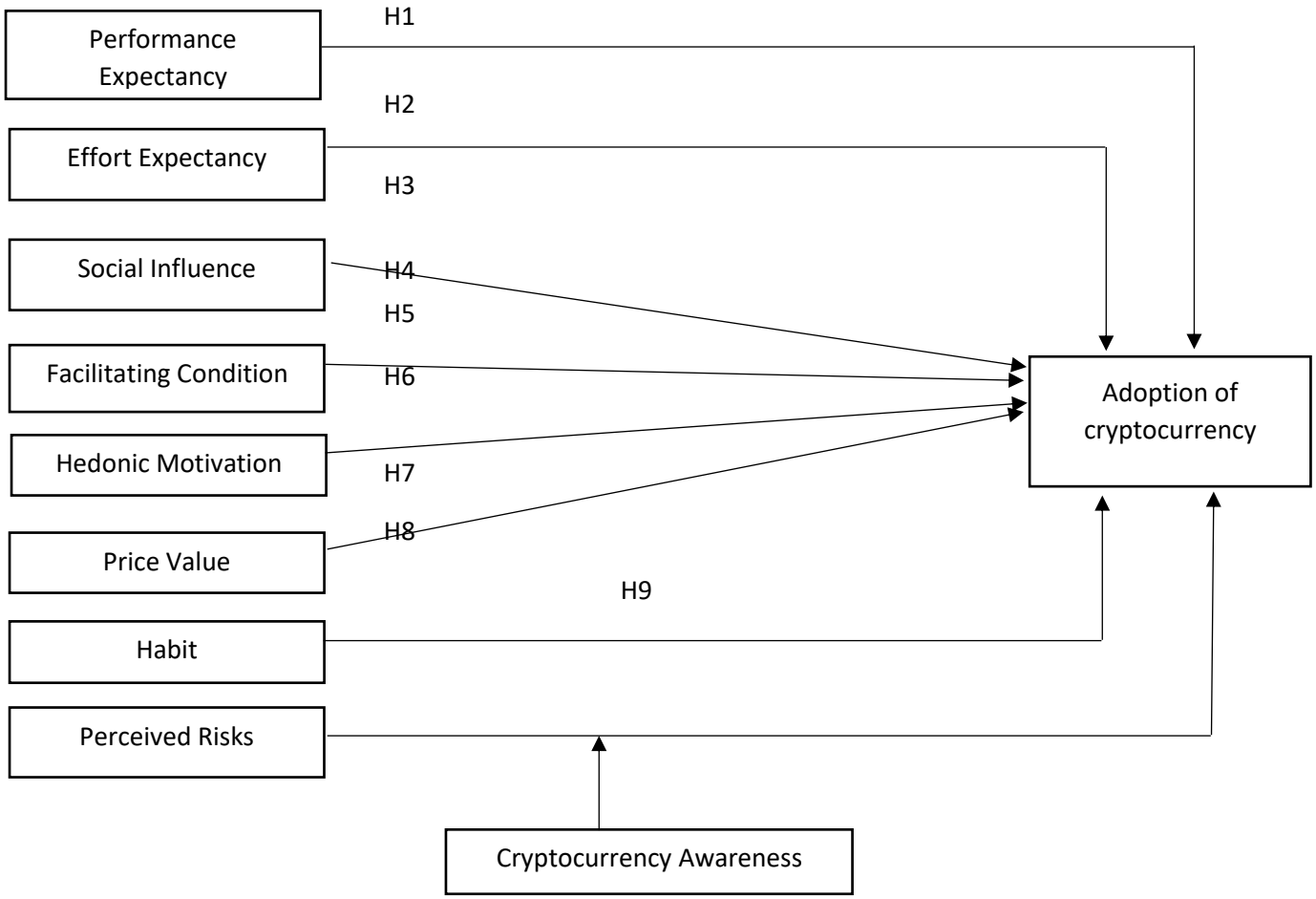

Figure 1: Conceptual Framework

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RESULT AND DISCUSSION

Reliability and Normality Test

This study employed SPSS to assesses the internal consistency and reliability of the measurement scales using Cronbach's alpha. The results reveal all constructs demonstrated Cronbach's Alpha values well above the conventional threshold of 0.70, indicating high internal consistency reliability. Perceived Risks achieving the highest reliability (α = 0.945), followed by Cryptocurrency Adoption (α = 0.935) and Performance Expectancy (α = 0.934). Similarly, Cryptocurrency Awareness (α = 0.928), Effort Expectancy (α = 0.911), and Habit (α = 0.911) showed strong internal consistency, confirming the reliability of these constructs. Price Value (α = 0.909), Facilitating Conditions (α = 0.897), and Social Influence (α = 0.877) also exhibited high reliability, while Hedonic Motivation recorded the lowest coefficient (α = 0.820), still exceeding the acceptable threshold of 0.70. The mean inter-item correlations ranged between 0.607 and 0.734, indicating strong relationships among items within each construct. These findings confirm that the measurement instruments used in this study are highly reliable and suitable for measuring the intended constructs in the context of cryptocurrency adoption among Selangor citizens.

Moving on, it is necessary to validate the suitability of parametric analyses, thus normality was examined using the Kolmogorov-Smirnov and Shapiro-Wilk tests. Table 1 reports both Kolmogorov-Smirnov and Shapiro-Wilk tests indicated significant deviations ($p < 0.001$). However, given the large sample size ($n > 200$), these tests tend to be overly sensitive. Therefore, to measure the practical significance of such deviations, additional quantities like skewness and kurtosis were examined. Most variables exhibited negative skewness, with Price Value (-1.025), Cryptocurrency Awareness (-0.946), and Effort Expectancy (-0.936) showing the strongest leftward skew, while Habit had the lowest (-0.377). Kurtosis values ranged from -0.319 to 0.818, all within the acceptable value of ±7 threshold, indicating no severe deviations. Despite the Shapiro-Wilk test confirming non-normality, test statistics (0.920–0.972) suggest only minor departures. As all skewness values fall within ±2 and kurtosis within ±7, the data remains suitable for subsequent statistical procedures that assume normal distribution (Blanca et al., 2012). These findings align with the central limit theorem, which suggests that in large samples ($n > 30$), deviations from normality have minimal impact on statistical analyses. Therefore, the data can be confidently used for further parametric statistical tests in this study.

	Kolmogorov-Smirnov[a]			Shapiro-Wilk				
	Statistic	df	Sig.	Statistic	df	Sig.	Skewness	Kurtosis
Cryptocurrency Adoption	.115	213	<.001	.951	213	<.001	-0.784	0.399
Performance Expectancy	.134	213	<.001	.939	213	<.001	-0.875	0.418
Effort Expectancy	.152	213	<.001	.929	213	<.001	-0.936	0.555
Social Influence	.154	213	<.001	.951	213	<.001	-0.683	0.124
Facilitating Conditions	.144	213	<.001	.942	213	<.001	-0.791	0.266
Hedonic Motivation	.136	213	<.001	.953	213	<.001	-0.652	0.211
Price Value	.133	213	<.001	.920	213	<.001	-1.025	0.818
Habit	.086	213	<.001	.972	213	<.001	-0.377	-0.184
Perceived Risks	.117	213	<.001	.948	213	<.001	-0.651	-0.319
Cryptocurrency Awareness	.155	213	<.001	.925	213	<.001	-0.946	0.453

a. Lilliefors Significance Correction

Table 1 Normality Test

Correlation Analysis

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Spearman's correlation analysis was conducted to examine the relationships between cryptocurrency adoption and its potential determinants among Selangor citizens. Table 2 presents the correlation coefficients between the nine independent variables and cryptocurrency adoption. The results reveal strong positive correlations between adoption and most independent variables, with coefficients ranging from 0.741 to 0.883 ($p < 0.001$). Effort Expectancy exhibited the strongest correlation with adoption ($r = 0.883$, $p < 0.001$), suggesting that ease of understanding and use significantly influence adoption decisions. Performance Expectancy ($r = 0.867$, $p < 0.001$) and Facilitating Conditions ($r = 0.868$, $p < 0.001$) also demonstrated strong correlations, emphasizing that perceived usefulness and availability of resources are crucial in shaping adoption behaviour. Social Influence ($r = 0.844$, $p < 0.001$) further highlights the role of peer influence and community trends in adoption decisions.

Additionally, the analysis revealed significant correlations between adoption and behavioural factors. Habit ($r = 0.826$, $p < 0.001$) and Price Value ($r = 0.821$, $p < 0.001$) showed strong associations, indicating that frequent cryptocurrency uses, and perceived financial benefits contribute to higher adoption rates. Hedonic Motivation displayed a slightly weaker correlation with adoption ($r = 0.801$, $p < 0.001$), implying that enjoyment also plays a role in adoption decisions. Interestingly, Perceived Risks had the lowest correlation ($r = 0.741$, $p < 0.001$) but remained positively significant, suggesting that greater risk awareness may not deter adoption but instead indicate a more informed decision-making process. Cryptocurrency Awareness ($r = 0.820$, $p < 0.001$) also showed a strong correlation with adoption, reinforcing the importance of knowledge in influencing adoption likelihood.

The correlation matrix further revealed significant interconnections between independent variables. Strong correlations exist between Performance Expectancy and Effort Expectancy ($r = 0.866$, $p < 0.001$) and between Facilitating Conditions and Effort Expectancy ($r = 0.872$, $p < 0.001$). These relationships suggest that various aspects of cryptocurrency adoption are closely interrelated, forming a complex network of influencing factors. The consistently strong positive correlations indicate that cryptocurrency adoption is driven by multiple interconnected factors rather than isolated variables. This highlights the need for a comprehensive approach when developing strategies to promote adoption, as improving one aspect may enhance overall adoption intentions. These findings offer valuable insights for stakeholders looking to enhance cryptocurrency adoption by addressing the key determinants collectively rather than in isolation.

	CA	**PE**	**EE**	**SI**	**FC**	**HM**	**PV**	**HB**	**PR**	**CAR**
Cryptocurrency Adoption **(CA)**	1.000									
Performance Expectancy **(PE)**	.867**	1.000								
Effort Expectancy **(EE)**	.883**	.866**	1.000							
Social Influence **(SI)**	.844**	.854**	.815**	1.000						
Facilitating Conditions **(FC)**	.868**	.855**	.872**	.840**	1.000					
Hedonic Motivation **(HM)**	.801**	.772**	.799**	.768**	.828**	1.000				
Price Value **(PV)**	.821**	.821**	.841**	.792**	.843**	.822**	1.000			
Habit **(HB)**	.826**	.768**	.748**	.800**	.802**	.754**	.744**	1.000		
Perceived Risks **(PR)**	.741**	.722**	.737**	.692**	.721**	.742**	.760**	.687**	1.000	
Cryptocurrency Awareness **(CAR)**	.820**	.817**	.849**	.801**	.876**	.804**	.828**	.772**	.762**	1.000

**. Correlation is significant at the 0.01 level (2-tailed).

Table 2 Correlation Analysis

Mutiple Regression Analysis

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Multiple regression analysis was used to examine how independent variables collectively and individually influence cryptocurrency adoption among Selangor citizens. This comprehensive analysis determines the model's predictive power and identifies the most significant factors affecting adoption. According to table 3, it shows that the regression model reveals very high predictive power As the R value of 0.952, revealing that there is very strong relationship between predictor variables and cryptocurrency adoption. Results indicate significant positive associations and an R^2 value of 0.907 for the model with the adoption intentions, accounting for 90.7% of the variance in adopting intentions. The adjusted R^2 value of 0.902 indicates that the model explains 90.2% of variance in cryptocurrency adoption, suggesting excellent explanatory capability. The standard error of estimate (0.27385) shows high prediction precision, indicating reliable model performance.

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.952[a]	.907	.902	.27385	.907	218.912	9	203	<.001

a. Predictors: (Constant), Perceived Risks, Habit, Hedonic Motivation, Social Influence, Effort Expectancy, Price Value, Performance Expectancy, Facilitating Conditions

b. Dependent Variable: Cryptocurrency Adoption

Table 3 Multiple Regression Model Summary

Besides, ANOVA results (Table 4) confirm strong statistical significance ($F = 218.912$, $p < 0.001$). The substantial F-value and extremely low p-value demonstrate that independent variables collectively predict cryptocurrency adoption effectively. The sum of squares values (Regression = 147.755, Residual = 15.224) further support the model's robust explanatory power.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	147.755	9	16.417	218.912	<.001[b]
	Residual	15.224	203	.075		
	Total	162.978	212			

a. Dependent Variable: Cryptocurrency Adoption

b. Predictors: (Constant), Perceived Risks, Habit, Hedonic Motivation, Social Influence, Effort Expectancy, Price Value, Performance Expectancy, Facilitating Conditions

Table 4 ANOVA Results for Multiple Regression Analysis

Coefficient analysis (Table 5) reveals varying individual contributions. Effort Expectancy emerged as the strongest predictor ($\beta = 0.320$, $t = 5.033$, $p < 0.001$), showing that ease of use significantly influences adoption. Performance Expectancy followed ($\beta = 0.208$, $t = 3.305$, $p = 0.001$), indicating strong impact of perceived usefulness. Habit showed significant positive influence ($\beta = 0.186$, $t = 4.278$, $p < 0.001$), while Social Influence demonstrated moderate impact ($\beta = 0.118$, $t = 2.193$, $p = 0.029$).

Several variables showed non-significant effects: Facilitating Conditions ($\beta = 0.096$, $t = 1.450$, $p = 0.149$), Hedonic Motivation ($\beta = 0.037$, $t = 0.738$, $p = 0.461$), Price Value ($\beta = 0.045$, $t = 0.740$, $p = 0.460$), Perceived Risks ($\beta = 0.040$, $t = 1.152$, $p = 0.251$), and Cryptocurrency Awareness ($\beta = -0.054$, $t = -0.924$, $p = 0.356$). These results suggest these factors play less crucial roles in adoption decisions than theorized.

There is some of concern with collinearity statistics; VIF values range from 3.085 to 10.252. The individual variables show acceptable multicollinearity levels (VIFs < 10 except for Facilitating Conditions with VIF = 10.252) indicating some correlation with each other. More importantly, the overall performance of the model is very strong and the theoretical cases on which the model is based are clear, thus the collinearity levels do not adversely affect the validity of the findings.

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Further, these results show that, contrary to conventional belief, ease of use, perceived benefits, habitual use, and social factors are indeed strong drivers of crypto adoption whereas other presumed drivers such as speculative desire, reputation, and speculation are comparatively less crucial. Finally, the findings suggest key directions of influence that stakeholders should focus on, when aiming to encourage the adoption of cryptocurrency.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.031	.084		.364	.716		
	Performance Expectancy	.208	.063	.209	3.305	.001	.116	8.657
	Effort Expectancy	.320	.064	.328	5.033	<.001	.108	9.237
	Social Influence	.118	.054	.117	2.193	.029	.162	6.175
	Facilitating Conditions	.096	.066	.100	1.450	.149	.098	10.252
	Hedonic Motivation	.037	.050	.037	.738	.461	.182	5.480
	Price Value	.045	.060	.046	.740	.460	.120	8.342
	Habit	.186	.043	.189	4.278	<.001	.235	4.254
	Perceived Risks	.040	.035	.043	1.152	.251	.324	3.085
	Cryptocurrency Awareness	-.054	.058	-.054	-.924	.356	.133	7.493

a. Dependent Variable: Cryptocurrency Adoption

Table 5 Coefficients of Multiple Regression Analysis

Moderation Analysis

The moderation analysis examined the role of Cryptocurrency Awareness in moderating the relationship between Perceived Risks and Cryptocurrency Adoption among Selangor citizens, which tests whether knowledge and understanding of cryptocurrencies modifies the impact of risk perceptions on the adoption decision.

The results in Table 6 revealed a non-significant moderation effect. The direct path from Perceived Risks to Cryptocurrency Adoption showed a positive relationship ($\beta = 0.2042$, $P < 0.001$) indicating that higher perceived risks initially led to higher adoption intentions, counter to established theory predicting a negative relationship between risk perceptions and adoption intentions. However, the interaction effect between perceived risks and cryptocurrency awareness ($\beta = -0.0125$) with a 95% confidence interval [-0.064, 0.039] suggests that cryptocurrency awareness has no influence on the hypothesized moderating functions of perceived risks and cryptocurrency adoption among the Selangor citizens.

In the full regression model including all nine predictors (Table 5), neither Perceived Risks nor Cryptocurrency Awareness showed a statistically significant direct effect on adoption. However, when examined in isolation within the moderation model (Table 6), both variables exhibited significant direct effects, although the interaction effect between them was not significant. This suggests that their influence may be overshadowed by other stronger predictors in the comprehensive model. These results suggest that perceived risks and cryptocurrency awareness independently influence adoption, but do not interact in the expected way. This contrasts with studies that have found moderating effects of knowledge and awareness in other adoption contexts (El Chaarani et al., 2024). One possible explanation for this result is that the participants in this study already exhibited relatively high levels of awareness about cryptocurrency, leaving less room for awareness to alter their perceptions of risk. Moreover, as Cryptocurrency Awareness and Perceived Risks are both significant predictors of adoption independently, it may be that other factors,

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such as trust or familiarity with the technology, could be more influential in explaining adoption behavior (Hussain et al., 2023).

Although the interaction effect between perceived risks and cryptocurrency awareness was not statistically significant, it remains theoretically plausible that awareness could play a role in how individuals interpret and respond to risk. According to Venkatesh and Davis (2000), individuals with greater awareness may be more inclined to adopt new technology than others because they have more awareness and knowledge which could develop a better understanding of the risks of scams, of hacking and volatility. It is likely that some users, particularly seniors, are influenced by social influences, peer discussions and regulatory frameworks that help instil trust (Chong et al., 2010). Thus, promoting knowledge sharing platforms and addressing gaps in information could further build confidence and encourage adoption. Further research should examine additional moderators to provide a more nuanced understanding of cryptocurrency adoption.

Variable	B	SE	t	p	VIF	95% CI
Constant	3.5713	0.035	100.798	0.000		[3.501, 3.641]
Perceived Risks (PR)	0.2042	0.048	4.265	0.000	2.714	[0.110, 0.299]
Cryptocurrencies Awareness (CRA)	0.5881	0.055	10.630	0.000	2.714	[0.479, 0.697]
PR × CRA (Interaction)	-0.0125	0.026	-0.477	0.634		[-0.064, 0.039]

Note. $N = 213$. $R^2 = .776$, $F(3, 209) = 242.01$, $p < .001$. CI = confidence interval. $p < .05$.

Table 6 Moderation Analysis of Cryptocurrencies Awareness on the Relationship Between Perceived Risks and Cryptocurrency Adoption

CONCLUSIONS

This study identified various factors that played an important role in the adoption of cryptocurrencies among Selangor citizens. This study finds that Performance Expectancy, Effort Expectancy, Social Influence, and Habit will influence its cryptocurrency adoption by Selangor citizens. Of these, Effort Expectancy produced the strongest predictor, indicating individuals are more inclined to adopt cryptocurrency when they believe it to be user friendly and also easy to use. Another significant factor that predicts adoption of cryptocurrency is Performance Expectancy which indicates that people will adopt cryptocurrency if they expect to benefit from using it in the form of faster transactions and lower costs. Furthermore, Social Influence was positively and significantly associated, reinforcing the fact that peer recommendations and being accepted by society affect user behavior. Another strong predictor is habit, this showed that the more experience the user has with cryptocurrency, the more likely they will use it. This, therefore, brings out the fact that the key drivers of adoption are familiarity, perceived usefulness and ease of use. These suggest that a person is likely to adopt cryptocurrency if he perceives it as useful, easy to use, or endorsed/encouraged by peers and social groups (Hai et al., 2023).

One of the key areas of investigation was the role of Cryptocurrency Awareness as a potential moderator between perceived risks and adoption. However, the results indicated that awareness did not significantly reduce the impact of perceived risks on adoption, suggesting that even users with higher awareness levels do not interpret risk differently in a way that influences adoption. This finding contrasts with prior assumptions that greater awareness would mitigate risk concerns and facilitate adoption (Nadeem et al., 2022).

Besides, this finding challenges the traditional assumption that risk perception alone is a significant barrier to adoption. The study found that risk concerns, such as privacy issues and financial risks, did not significantly impact adoption behaviour. Meanwhile, Facilitating Conditions, Hedonic Motivation, Price Value and Perceived Risks were all found not to be significant predictors, indicating that external support systems, entertainment value, cost benefits, and risk perceptions do not strongly influence adoption in this context. In contrast, while awareness did not moderate the effect of perceived risks, it still plays a critical independent role in encouraging adoption. Results have shown that public education and ease of use are among the most important direct predictors of cryptocurrency adoption.

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Therefore, cryptocurrency service providers, together with policymakers, ought to focus on these aspects if they wish to see wider acceptance of cryptocurrency in Malaysia.

The findings of this study hold significant practical implications for policymakers, financial institutions, and cryptocurrency businesses in Selangor. By addressing usability challenges, promoting social influence strategies, enhancing trust through education, and fostering collaboration between government, industry, and academia, cryptocurrency adoption in Selangor can be significantly improved. Establishing a well-structured digital finance ecosystem, combined with regulatory clarity and public awareness, will pave the way for broader acceptance and integration of cryptocurrencies into Malaysia's evolving financial landscape.

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