Exploring Acceptance for Bitcoin and Investment Decisions of Thai Investors in Southern Thailand

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ABSTRACT

Interest in Bitcoin and blockchain technology has increased significantly in recent years, especially among investors who view Bitcoin as an alternative asset. This study aims to test the relationship between technology acceptance factors and investment decisions in Bitcoin of Thai investors focus the southern region of Thailand. This is a quantitative research study conducted through a survey of 400 Bitcoin investors, sampled primarily through online social networks using a closed-ended questionnaire. The study examines five technology acceptance factors: performance expectancy, effort expectancy, perceived risk, social influence, and facilitating conditions that may affect investment decisions in Bitcoin. The study found that the sample group had a high level of acceptance of Bitcoin in all areas and had a significant correlation with investment decisions in Bitcoin overall, which is statistically significant at 0.05. However, when considering the influence of technology acceptance factors that affect investment decisions in Bitcoin, it was found that there were 4 statistically significant factors at the 0.05 level of significance, including performance expectancy, effort expectancy, perceived risk, and facilitating conditions. Among these factors, the performance expectancy had the most effect on investment decisions in Bitcoin among investors in the southern region of Thailand. These study results reflect the confidence of investors in the southern region of Thailand in investing in Bitcoin, and it is an opportunity for both the public and private sectors to collaborate to promote the development of digital currencies systems in Thailand to become the center of the digital asset economy system in the region.

1. INTRODUCTION

The world first became acquainted with cryptocurrency when Bitcoin (BTC) was created in 2008. The concept and working principles of Bitcoin were first published in a white paper titled "Bitcoin: A Peer-to-Peer Electronic Cash System" by an individual using the pseudonym Satoshi Nakamoto. Bitcoin was created through computer code, encrypted, and has no physical form. It was designed to be a digital currency that operates on a peer-to-peer network, without a central authority such as a bank or intermediary. The use of a decentralized system allows every Bitcoin transaction to be traced and verified through a public ledger called the blockchain. As a result, both parties in a transaction can conduct business with each other over the internet from anywhere in the world, with short processing times and low transaction fees, without the need to trust a third party [1].

What makes Bitcoin unique is its properties, which cannot be replicated or duplicated, and its limited supply of 21 million coins. Mining, which is the process of using computer power to solve complex mathematical equations, is how Bitcoins are created. As the number of Bitcoins mined increases, the equations become more difficult to solve, and the number of coins that can be mined is halving every four years. Currently, around 19 million Bitcoins have been mined, and it is estimated that all Bitcoins will be mined by the year 2140 [2]. Bitcoin's properties have motivated some investors to hold and accumulate the currency, anticipating its value to increase in the future due to its limited supply. Some investors consider Bitcoin to be an alternative asset and a store of value [3], leading to trading on digital asset exchanges, which are currently available in many countries. Bitcoin's price is influenced by market demand and supply.

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The increasing interest in Bitcoin from various media outlets and the participation of funds, listed companies, and celebrities investing in Bitcoin, as well as financial institutions playing a role in Bitcoin investment through the presentation of related products and services such as mutual funds with investment proportions in Bitcoin or products like Bitcoin future ETFs [4], has made it easier for both experienced and inexperienced investors to access Bitcoin investment. This has contributed to the increase in the price of Bitcoin, reaching its all-time high of 68,789 USD/BTC in November 2021.

However, Bitcoin price volatility due to market conditions and news events has caused the price of Bitcoin to drop to a low of 15,477 USD/BTC in November 2022, which is an important risk that investors must be aware of. In addition, famous investors are dubious of Bitcoin. For example, Warren Buffet believes that "Bitcoin has no value because it does not produce anything" and Bill Gates has stated that "cryptocurrencies and NFTs are a fad for 100% fools". However, there are still many investors who remain confident in Bitcoin, such as Cathie Wood, CEO of ARK Invest, who believes that Bitcoin's price will be able to rise to a new high of 500,000 USD/BTC and has a long-standing predicted Bitcoin's price could reach $1 million by 2030.

Thailand is undergoing a technical and digital revolution, therefore learning about Bitcoin there is crucial. Regarding investment opportunities, financial stability, and the improvement of the Thai public's awareness of digital currency technology, Bitcoin is a component of this transformation. Additionally, this involves backing and regulating regulations governing Bitcoin and other virtual currencies, which have an impact on the growth and profitability of Thailand's digital economy.

Although awareness of Bitcoin has become a global trend and gained popularity worldwide, nowhere is the enthusiasm higher than in Thailand. The attitudes and investment decisions regarding Bitcoin among Thai investors are therefore intriguing and worth studying, as evident from the reports of the Digital 2022 global overview, which is a report on global digital behavior, states that the proportion of Thai people who own cryptocurrencies compared to internet users is as high as 20.1%, making it the highest in the world, with an average of 10.2% [5]. This is in line with YouGov's research, which reports that 73% of Thais are aware of digital currencies, with 47% of them owning digital assets. Bitcoin and Ethereum are the most popular digital assets in Thailand, but Bitcoin is trending among older age groups, especially Gen X [6]. This study corresponds to the global market share of digital assets, which finds that Bitcoin has an average market share of around 40% of the total market value of all digital assets.

Based on the above data, the researchers are interested in studying and exploring the acceptance, and investment decisions of investors towards Bitcoin, using the theory of technology acceptance to explain it. Furthermore, it is critical to comprehend Bitcoin in this context given that research on the currency in Thailand is frequently restricted to Bangkok or the central region, despite the fact that the southern portion of the country presents itself as a potential hub for the growth of the digital economy. This information encourages investment and guarantees the region's financial stability. Additionally, it improves locals' knowledge of digital currency technology and encourages the creation of laws and regulations that support Bitcoin and other cryptocurrencies, which may have an impact on how the digital economy develops. Consequently, the researcher plans to carry out a study in all 14 of Southern Thailand's provinces. And due to the study of Bitcoin in Thailand often being limited to Bangkok or the central region, therefore, researchers wish to conduct this study in 14 provinces in the southern region of Thailand, with the objective of studying whether technology acceptance factors affect investment decisions in Bitcoin by investors in southern Thailand or not.

2. LITERTURE REVIEW

To more effectively describe and apply consumer acceptance behavior toward technology, Venkatesh et al. [7] combined eight behavioral acceptance theories into the Unified Theory of Acceptance and Use of Technology (UTAUT). Performance expectancy, effort expectancy, social influence, and facilitating conditions were the UTAUT's four key considerations. Gender, age, experience, and voluntariness are the four independent variables included in the hypothesis that influence accepting behavior and technology use.

Perceived dangers and control, according to Slade, Williams, and Dwivedi [8], may increase people's adoption of technology. In order to allay fears, boost confidence, and enhance user happiness, service providers should also offer thorough risk information. According to this study, investors' ability to manage and control their investment risk has a beneficial influence on their decision to make an investment.

According to Reilly [9], investing is the process of employing money that has accrued to take on debt over a period of time in the hopes of outpacing inflation, reducing the risk of currency fluctuations, and earning a larger return than saving. The investment should also be enough to cover the commitment cost for the duration of the transaction.

A study on the behavioral intention to use cryptocurrencies as an electronic payment in Malaysia was undertaken by Farhana and Muthaiyah [10]. They discovered that the performance expectation, effort expectation, social influence, and facilitating conditions had a significant impact on confidence and behavioral intention when the acceptance and use of technology theories were combined to study the intention to use cryptocurrency for electronic payments. However, there are also drawbacks to Malaysian students' confidence in adopting cryptocurrencies for online payments. Thus, use prudence and give this careful thought.

Based on UTAUT and connectives theory, Chang, Walimuni, Kim, and Lim [11] did a study on the adoption of tourism blockchain. They looked at the variables impacting domestic tourists' adoption of blockchain technology on Jeju Island in South Korea before and after showing them YouTube videos of blockchain usage. The study discovered that the system's transparency, which was driven by performance expectancy and effort expectancy, was the cause of confidence in blockchain. The supporting circumstances also had a big impact on how well-liked blockchain technology was. There was a considerable increase in the favorable changes following the experimental test in which research participants were given video clips, demonstrating the potential for employing social media to boost user awareness and interest.

Research was done by Subburayan et al. [12] on "The Mediating Effect of Investors Awareness and Perceived Risk in Relationship between Facilitating Factors of Crypto-currency Investments and Investment Decision Market Growth using Structural Equation Model Algorithm." The study focused on the mediating effects of investors' awareness and perceived risk to examine the relationship between investment decisions with respect to facilitating factors of cryptocurrency investment decisions and the relationship between investment decision and market growth rate. The research discovered that investors' awareness and perceived risk had opposite effects on the relationship between market expansion and enabling variables. The research also discovered that the mediating effects of investors' perception of risk and awareness were more significant for investors with higher financial knowledge. The study suggests that policymakers and regulatory agencies should focus on increasing investors' awareness and perception of risk in cryptocurrency investments to promote market growth.

A mixed-methods research of investing incentives was undertaken on Bitcoin investment by Mattke, Maier, Reis, and Weitzel [13]. The study looked into seven aspects of investing incentives, including expected profit, ease of acquiring Bitcoin, belief in the Bitcoin ideology, investment knowledge, associated dangers, fear of missing out, and regret over not taking part. Both qualitative and quantitative methodologies, such as fuzzy-set qualitative comparative analysis (fsQCA), were used in the study. According to the study's findings, predicted profit is not always a need for Bitcoin investment. Some investors buy Bitcoin merely to support the concept behind it. This is different from conventional investment methods.

According to a survey by Strix [14] on crypto-asset ownership and purchasing intentions, 1.6% of Austrians currently possess digital assets, while another 5% have the capacity to do so. In comparison to the nonowner group, the sample group with digital assets exhibited higher levels of financial literacy and risk tolerance. The decision to invest in digital assets was not significantly influenced by mistrust of conventional banking institutions or currencies. The anticipation of profit and faith in the benefits of digital payment systems have a significant impact on people's intentions to use or own digital assets. The desire to possess digital assets was negatively impacted by the notion of shifting pricing and the threat of online thieves.

Applying the Technology Acceptance Model (TAM) and Theory of Reasoned Behavior (TRB) to Bitcoin users and non-users, Jankeeparsad and Tewari [15] looked at how end users in South Africa were embracing Bitcoin. According to the study's findings, perceived utility and availability to enabling conditions were the most significant elements impacting user adoption of Bitcoin in South Africa, whereas lack of trust and social influence were the most significant reasons for non-users. The study also found that consumers who were younger and had higher levels of education were more likely than other demographics to accept Bitcoin. However, the public's lack of knowledge and comprehension of Bitcoin, as well as the regulatory environment, remain barriers to the use of Bitcoin as an alternative payment mechanism in South Africa still faces obstacles from the lack of awareness and understanding of Bitcoin among the public, as well as the lack of basic infrastructure to support Bitcoin transactions, including unclear government regulations.

Using the Technology Acceptance Model (TAM), Folkinshteyn and Lennon [16] examined the adoption of Bitcoin with an emphasis on perceived advantages, perceived usability, perceived reliability, subjective norms, and perceived danger. According to the findings, subjective norms and perceived risk had a minor impact on predicting Bitcoin acceptance, whereas perceived advantages and trustworthiness had a greater effect. Figure 1 depicts the research framework that the researcher developed based on the literature review indicated above.

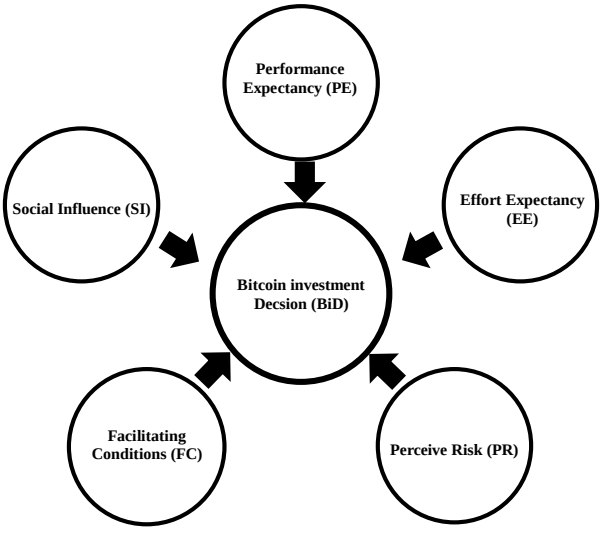

Fig. 1. Research framework.

Based on the research framework above, the researcher has formulated the following hypotheses:

H1: Performance expectancy factor affects Bitcoin investment decisions.

H2: Effort expectancy factor affects Bitcoin investment decisions.

H3: Perceived risk factor affects Bitcoin investment decisions.

H4: Social Influence factor affects Bitcoin investment decisions.

H5: Facilitating conditions factor affects Bitcoin investment decisions.

3. RESEARCH METHODOLOGY

Population and Sampling: The researchers defined the population as investors who live in the southern region of Thailand and have experience investing in Bitcoin or financial products related to Bitcoin such as mutual funds or ETFs. Calculated the sample size using Cochran's formula [17] with a confidence level of 95% and a margin of error of ±5%, resulting in a sample size of 384.16. Added a reserve of 16, bringing the total sample size to 400 people. Used accidental sampling method, using online social media such as Facebook, LINE, Instagram, and email to randomly select the sample. The data was collected between December 15, 2022, and February 20, 2023.

Research tools: This study is quantitative research using a survey questionnaire as a data collection tool. The questionnaire measured the respondents' opinions on a 5-point Likert scale [18]. The quality assessment of the research tools in this study involved conducting a content validity test with the Item Objective Congruence (IOC) index calculated to determine the alignment between the questions and the content The questionnaire was assessed by experts prior to data collection, and only questions with an index of congruence greater than 0.5 were chosen by the researchers to ensure their validity.

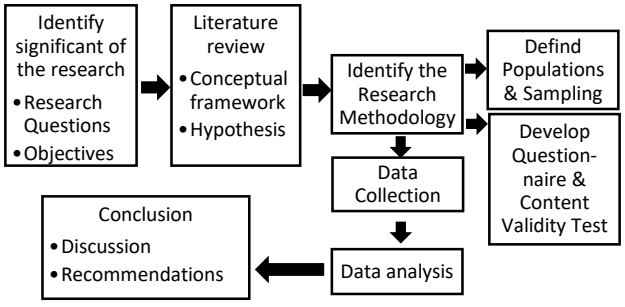

Fig. 2. The research process.

Data Analysis: The researcher performed data analysis using Descriptive Statistics, which included the Mean and Standard Deviation, as well as Inferential Statistics, such as Pearson's Correlation coefficient (r), to describe the correlation between independent and dependent variables. Additionally, Multiple Regression Analysis was conducted to identify the influence of independent variables on the dependent variable.

Based on the research design, the steps of the study can be summarized as shown in Figure 2.

4. RESEARCH FINDINGS

The data analysis revealed the demographic characteristics of the 400 survey respondents. Most of the sample group were males, comprising of 222 individuals or 55.5%. Additionally, 203 respondents (50.75%) were aged between 40 to 50 years old, 274 (68.5%) had completed a bachelor's degree or equivalent, 197 (49.25%) had a monthly income between 30,001 to 45,000 baht, and 384 (96%) had experience investing in the Stock market of Thailand.

The sample group had a high level of acceptance technology factors in Bitcoin, both in overall and for each individual factor, as shown in Table 1.

Table 1. Mean, S.D., and level of acceptance of technology factors in Bitcoin

Technology acceptance factors	Level of Acceptance		
	Mean	S.D.	Level
Performance Expectancy	4.15	0.514	High
Effort Expectancy	4.15	0.426	High
Perceived risk	3.63	0.550	High
Social Influence	4.03	0.546	High
Facilitating Conditions	3.87	0.412	High
Overall	3.96	0.366	High

The results of the correlation test between the technology acceptance factors and Bitcoin investment decisions of investors in the southern region of Thailand showed a high level of correlation in the same direction. When considering each factor, it was found that the Performance Expectancy, Effort Expectancy, Perceived risk, and social influence had a moderate level of correlation in the same direction. Then, the facilitating conditions had a low level of correlation in the same direction, as shown in Table 2.

The results of testing the influence of independent variables on the dependent variable found that technology acceptance factors that affect investment decisions in Bitcoin by investors in the southern region of Thailand with statistically significant findings at the 0.05 level are: Performance Expectancy (Sig. = 0.000*), Effort Expectancy (Sig. = 0.004*), Perceived Risk (Sig. = 0.000*), and Facilitating Conditions (Sig. = 0.026*). However, there was no significant on Social Influence (Sig. = 0.069), as shown in Table 3.

Table 2. Pearson's correlation coefficient (r)

Technology acceptance factors	Pearson's correlation coefficient (r)	Bitcoin investment decision
Performance Expectancy	.590**	moderate level
Effort Expectancy	.465**	moderate level
Perceived risk	.511**	moderate level
Social Influence	.456**	moderate level
Facilitating Conditions	.374**	Low level
Overall	.649**	High level

**statistic significant at 0.05.

Table 3. Multiple regression analysis

Factors	Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.
	B	S.E.	ß (Beta)		
Constant	1.029	0.183		5.619	0.000
Performance Expectancy (X_1)	0.275	0.041	0.338	6.724	0.000**
Effort Expectancy (X_2)	0.128	0.045	0.131	2.862	0.004**
Perceived Risk (X_3)	0.174	0.035	0.229	5.037	0.000**
Social Influence (X_4)	0.067	0.037	0.087	1.821	0.069
Facilitating Conditions (X_5)	0.095	0.043	0.093	2.230	0.026**
R^2	0.457				
SEst	0.308				
F	68.086				

**statistic significant at 0.05.

The results of the analysis of factors affecting the decision to invest in Bitcoin among investors in the southern region of Thailand. When considering the weight of the impact of independent variables on Bitcoin investment decision, it was found that the Performance Expectancy had the greatest impact (ß=0.338, t=6.724), followed by the Perceived Risk (ß=0.229, t=5.037), Effort Expectancy (ß =0.131, t=2.862), Facilitating Conditions (ß=0.093, t=2.230), and Social influence (ß=0.087, t=1.821), respectively.

In addition, the factor of technology acceptance can also explain about 45.7% (R^2 = 0.457) of the variance in the Bitcoin investment decision among investors in the southern region of Thailand, with a margin of error of ±0.31. The remaining 54.30% is due to other variables that were not considered in the analysis.

From the analysis of the technology acceptance factors that affects Bitcoin investment, it is possible to create equations in the form of raw scores and standardized scores as follows:

Raw score equation:

$$\hat{Y} = 1.029 + 0.275X_1 + 0.174X_3 + 0.128X_2 + 0.095X_5$$

When $\hat{Y}$ represents the value in the equation in raw score form.

Standardized score equation:

$$Z = 0.338X_1 + 0.229X_3 + 0.131X_2 + 0.093X_5$$

When Z represents the value in the equation in standardized score form.

From the predicted equation, there are 4 factors that positively affect Bitcoin investment decision, namely Performance Expectancy, Effort Expectancy, Perceived Risk, and Facilitating Conditions, with the factor of Performance Expectancy having the greatest impact on Bitcoin investment decision.

5. DISCUSSION AND CONCLUSION

When analyzing the research results to test the hypothesis of the study, the findings can be summarized in Table 4.

Table 4. Summary of research hypothesis test results

Hypothesis	Effects	Beta	*t*	Sig	Hypothesis test result
H1	PE --> BiD	0.338	6.724	0.000**	Accepted
H2	EE --> BiD	0.131	2.862	0.004**	Accepted
H3	PR --> BiD	0.229	5.037	0.000**	Accepted
H4	SI --> BiD	0.087	1.821	0.069	Rejected
H5	FC --> BiD	0.093	2.230	0.026**	Accepted

**statistic significant at 0.05.

The research found that the influence of technology acceptance factors such as Performance Expectancy, Effort Expectancy, Perceived Risk, and Facilitating Conditions had a significant impact on Bitcoin investment decisions in by investors in the southern region of Thailand, at a significance level of 0.05. On the other hand, social influence factors were not significant. Therefore, hypotheses H1, H2, H3, and H5 were accepted while hypothesis H4 was rejected.

The Performance Expectancy, Effort Expectancy, Perceived Risk, and Facilitating Conditions factors were consistent with the Unified Theory of Acceptance and Use of Technology (UTAUT) proposed by Venkatesh et al. [7] which explains and predicts the behavior of accepting

information technology. The Perceived risk factor was in line with the ideas of Slade, Williams, and Dwivedi [8] that describe perceived risk as a relevant factor in expanding the scope of the UTAUT theory. As for Social Influence factors, they may be the result of higher self-confidence since the majority of the sample group had experience in investing in the stock market and were in the middle-aged range. Therefore, Social Influence factors were not significant.

From the Bitcoin investment decision prediction equation, $Z = 0.338X_1 + 0.229X_3 + 0.131X_2 + 0.093X_5$, where X variables are factors of technology acceptance in each aspect as mentioned above, it can be found that investors prioritize the Performance Expectancy factor the most. If the Performance Expectancy increases by 1 unit, it can increase the Bitcoin investment decision by 0.338 units. The Performance Expectancy have an impact on investment decisions in Bitcoin because most investors see that Bitcoin helps increase efficiency in peer-to-peer financial transactions in digital systems, and the Bitcoin blockchain network is accurate and transparent. This is consistent with the research of Chang, M. et al. [11], who found that tourists in Jeju Island, South Korea, have confidence in blockchain technology due to the transparency of the system, as well as studies in three other countries, Malaysia [10], South Africa [15], and the United States [16], which found that the most important factor affecting users' acceptance of Bitcoin is perceived benefits.

The factor of Perceived Risk has a significant impact on Bitcoin investment decision, ranking second in this study. An increase of one unit in Perceived Risk can increase Bitcoin investment decisions by 0.229 units. This is because investors recognize and accept the risks associated with Bitcoin price volatility and are confident in their ability to manage these risks themselves. However, this finding is inconsistent with the study by Subburayan et al. [12], which found that risk perception is a moderating variable that negatively affects the relationship between facilitating factors and the growth of cryptocurrency investment decisions in India. This may be due to investors or those interested in investing still seeing the overall cryptocurrency market as too risky and having uncontrollable risks from various factors [19,20].

6. RECOMMENDATIONS

This study reflects the confidence in Bitcoin investment among investors in the southern region of Thailand. It is an opportunity for both the government and the private sector to promote the development of digital assets systems in Thailand and make it a hub for digital economy in the region. Relevant agencies can use the data obtained to provide knowledge of Bitcoin investment, as well as design measures to regulate Bitcoin investment appropriately for both investors and the public. Meanwhile, developers, service providers, and businesses related to digital assets can use the study's findings to plan marketing strategies, product design, and services that meet the investment needs of each customer group.

However, the issue that needs to be considered in the study of Bitcoin investment is that the market situation of Bitcoin may affect data collection and investment decisions of investors. The study suggests that Bitcoin has become an increasingly popular investment and payment option, with a growing number of individuals and businesses adopting the technology. However, the price of Bitcoin is subject to market conditions, macroeconomic factors, and political issues, leading to fluctuations in value.

It is suggested that future research broaden the study's sample population to include people from different sections of Thailand, such as the nation's northern and northeastern regions. This would give a more comprehensive picture of views and insights on the subject. Additionally, it is advised to broaden the research to include people who haven't yet invested in or utilized Bitcoin, developers involved in blockchain technology, and consumers related to Bitcoin. Additionally, it is recommended to broaden the scope of the acceptance factors to cover a wider range of issues based on other theories that have not been addressed in this study.

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