Crypto Investment: The Role of Investment Motivations, Investment Confidence, and Risk Perceptions

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Abstract

In an era of increasing interest in cryptocurrency, this research delves into the psychological and behavioral factors influencing cryptocurrency investment and future cryptocurrency investment intentions. Analyzing data from the 2021 National Financial Capability Study and the Investor Survey, the study employs two logistic regression models to investigate the effects of investment motivations, risk perceptions, and investing confidence on cryptocurrency investments in a sample of 1,653 American investors. The findings revealed that motivations and investment confidence positively correlate to the choice to engage in cryptocurrency investments and the propensity for future investments. The risk perception of cryptocurrencies acts as a barrier, discouraging current investment behavior and future investment intentions in this class of assets. The integration of psychological factors into the examination of cryptocurrency investment has two important implications: 1) it enhances the accuracy of investor profiling, and 2) it heightens the awareness of motivational factors, enabling financial advisors and planners to provide personalized guidance that addresses the cognitive and emotional motivations associated with investing in a market as volatile as cryptocurrency.

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Introduction

Blockchain is a decentralized digital ledger that records transactions across multiple computers to ensure security and transparency (Yli-Huumo et al., 2016). The inception of blockchain can be traced back to the introduction of Bitcoin in 2009, which was not only the first successful cryptocurrency but also the first application of blockchain technology (Nakamoto, 2008). Since then, cryptocurrencies have evolved into sophisticated financial instruments that are attracting an increasing number of investors (Fang et al., 2022) and may become a key component of financial markets in the future (Kyriazis, 2019). Particularly, investors can rely on historical information and patterns in the cryptocurrency market to forecast future investment returns due to the relatively inefficient nature of cryptocurrency markets (Kyriazis, 2019). Investors can also employ trading

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strategies that involve lower levels of risk while still generating profits, in contrast to what would be expected in more efficient markets; however, the market is moving toward greater efficiency (Kyriazis, 2019).

According to a study conducted by the Pew Research Center, the majority of Americans have a basic awareness of cryptocurrency. However, their degree of confidence in investing in these innovations remains relatively low (Faverio & Sidoti, 2023). Most investors who have invested in, traded, or used cryptocurrency report initiating these activities within the past five years (Faverio & Sidoti, 2023). Additionally, nearly half of American cryptocurrency investors have indicated that their investments have underperformed relative to their expectations (Faverio & Sidoti, 2023).

Prior research, although limited, has indicated that several factors, including risk tolerance, financial literacy overconfidence, investment experience, socio-demographic characteristics, and public sentiments, have contributed to the actual investment behavior of individuals in cryptocurrency (Almeida & Gonçalves, 2023; Anderson & Lawson, 2023; Faverio & Sidoti, 2023; Kim et al., 2023; Zhao & Zhang, 2021). Nonetheless, there is limited knowledge regarding the factors that shape individuals' behaviors in cryptocurrency investments and intentions on future cryptocurrency investments. To address this gap, this study draws on the self-determination theory (SDT) and the theory of planned behavior (TPB) as guiding frameworks. These theories provide a structured approach to investigating the determinants of cryptocurrency investments by integrating various factors, such as investment motivations, investment confidence, and risk perceptions. By applying these established psychological theories, this research seeks to examine and build upon the existing knowledge of financial behaviors and psychological motivations and extend these insights to the context of cryptocurrency investments. The results indicate that motivations such as pursuing short-term profits, seeking entertainment, and learning about investing significantly increased the likelihood of investing in cryptocurrency and future intentions to invest. Conversely, perceptions of risk associated with cryptocurrency were linked to a decreased likelihood of making such investments and lowered future investment intentions. Gaining comprehension of these variables can yield significant insights into the psychological impact on investment decisions.

Literature Review and Theoretical Background

Investment Motivations

The investment motivations explored in this study encompass a variety of factors, including earning short-term profits, securing long-term gains, engaging in investment for entertainment, excitement, or fun, participating due to peer influence or social activities, investing to support personal values or making a societal impact, and investing to learn more about investing itself. Self-determination theory, a macro theory developed by Deci and Ryan (2012), focuses on intrinsic and extrinsic motivations guiding individuals' behaviors. These motivations, characterized by the psychological needs for autonomy, competence, and relatedness, may potentially influence investors' financial behaviors, including conducting cryptocurrency investments.

According to Deci and Ryan (2012), extrinsic motivation arises when individuals engage in behavior with the intention of obtaining external rewards or avoiding penalties. Investors start investing because of the expectation of earning short-term profits and long-term gains, which are motivated by external financial profits. Determining the price and volatility of cryptocurrencies is challenging and differs from traditional financial products (Kim et al., 2022b). The apparent independence of cryptocurrency market price fluctuations from other asset classes signifies a good opportunity for portfolio diversification (Bouri et al., 2017). Investors with extrinsic motivation may use cryptocurrency as a diversifier in their portfolio, which is also in line with traditional economic rationality. This suggests that individuals make investment decisions on cryptocurrency based on the expected utility or outcomes, aiming to maximize benefits while minimizing risks.

In contrast to extrinsic motivation, intrinsic motivation involves engaging in an activity for its inherent interest and enjoyment, where the activity itself is rewarding. The speculative nature of cryptocurrency markets is distinguished by high volatility levels and potentially highly profitable for diversified portfolios (Bouri et al., 2017). Investors looking for the excitement of high-stakes games, like the wild swings in cryptocurrency values, may be attracted to invest in cryptocurrency. Additionally, intrinsic motivation emphasizes the psychological need for competence, which involves effectively interacting with the environment and exhibiting mastery over tasks (Deci & Ryan, 2012). Investing in cryptocurrencies could also be associated with the intrinsic desire to acquire knowledge and develop expertise in this new financial product, thereby bolstering one's sense of competence. Relatedness encompasses the intrinsic need to establish connections with people and to be part of a community (Deci & Ryan, 2012). Investing motivated by peer influence and connecting with others closely satisfies the psychological need for belonging. Additionally, peers can significantly influence whether a particular behavior is performed in alignment with the subjective norms described in the theory of planned behavior. Recent studies have shown rising evidence that peers could influence investment behaviors (i.e., Bursztyn et al., 2014; Chen & Ma, 2017; Delfino et al., 2016; Ouimet & Tate, 2020). Investors in the cryptocurrency market frequently exhibit irrational behavior by uncritically following the decisions of others without depending on their judgment (Ballis & Drakos, 2020). Using an experimental investigation, Delfino et al. (2016) found that the investment selections of participants demonstrated significant association with the choices of their peers, primarily driven by the influence of social information, which reflects the behavior of a larger group. Taking a more specific angle, Ouimet and Tate (2020) employed Employee Stock Purchase Plans and found that peer networks guide investment behaviors, resulting in improved investment decisions. Bursztyn et al. (2014) showed that both social learning (gaining information from peers) and social utility (desire to align with peers) are driving factors behind investment choices. In addition to disseminating information, prior research has also demonstrated that peers can influence various financial behaviors other than selecting risky assets, such as charitable donation decisions (Lieber & Skimmyhorn, 2018), the adoption of insurance policies (Cai et al., 2015), and retirement savings and enrollment decisions (Beshears et al., 2015; Duflo & Saez, 2003).

Drawing upon established concepts from self-determination theory and extant literature on factors that are closely related to investment decision-making, this study contributes to the body of literature by proposing that:

> H1a: Investment motivations are associated with current investment in cryptocurrency.
>
> H1b: Investment motivations are associated with the intention to invest in cryptocurrency in the future.

Investment Confidence

Self-efficacy refers to an individual's belief in their ability to conduct the behaviors necessary to produce specific performance outcomes (Bandura, 1977). As suggested in the theory of planned behaviors, individuals' beliefs about their ability to control and perform a specific behavior can significantly impact their actions (Bandura, 1986). This study defines investment confidence as a particular kind of self-efficacy related to the belief that one can invest comfortably, which is consistent with the perceived behavior control component of the theory of planned behavior. Investment confidence may serve as a key determinant of an individual's willingness to engage in investing activities and make well-informed choices. Despite the scarcity of studies specifically focused on investment confidence and cryptocurrency investments, literature documents a significant association between the level of financial self-efficacy and investment behaviors, such as personal finance product selections (Farrell et al., 2016) and volatile financial asset ownership (Chatterjee et al., 2011). Financial self-efficacy is positively associated with the level of risk individuals are willing to assume within their investment portfolios (Montford & Goldsmith, 2016), positively influence mutual fund investment (Mishra et al., 2022), and wealth

accumulation across time (Chatterjee et al., 2011). Individuals with higher self-efficacy have a greater propensity for entrepreneurial investment, characterized by being aggressive (Cassar & Friedman, 2009). A higher level of self-efficacy, which could be reflected in heightened investment confidence, might manifest in allocating funds towards high-risk financial instruments, such as stocks, bonds, and mutual funds (Chatterjee et al., 2011), and potentially cryptocurrencies as the trend evolves. However, it is important to recognize the unique aspects of cryptocurrency, such as the volatility and the technological complexity. Therefore, this study evaluates whether the established positive relationship between investment confidence in volatile asset ownership extends to cryptocurrency investment and future investment intentions. The following hypotheses are proposed:

H2a: Investment confidence is positively associated with current investment in cryptocurrency.

H2b: Investment confidence is positively associated with the intention to invest in cryptocurrency in the future.

Risk Perception

Risk perception in the investment domain can be defined as a person's subjective judgment about the potential losses and uncertainty associated with a particular investment (Weber & Milliman, 1997). This subjective perception is not always aligned with the objective probability of risks involved but is intertwined with the psychological, conative, and emotional factors (Slovic, 1987). Risk perception also often incorporates the likelihood of the potential loss and its perceived severity (Kahneman & Tversky, 1979). In this study, the perception of risk associated with cryptocurrencies can be understood as an attitude component of the theory of planned behaviors, which indicates the extent to which individuals evaluate engaging in cryptocurrency investment negatively (Ajzen, 1985).

Risk perception has been recognized as a key determinant in the growing field of cryptocurrency adoption. Previous research has documented a negative relationship between risk perception and the actual adoption of cryptocurrency (Anser et al., 2020; Dabbous et al., 2022; Hasan et al., 2022). For instance, Dabbous et al. (2022) found that perceived risk is negatively associated with the willingness to adopt cryptocurrency. Similarly, Anser et al. (2020) provided supportive evidence that perceived risk negatively correlates with cryptocurrency adoption and moderates the relationship between intentions and actual cryptocurrency adoption among individuals. Additionally, Hasan et al. (2022) found similar results, with perceived risk negatively influencing behavioral intention for cryptocurrency adoption among university students. Although the relationship between risk perception and investment in cryptocurrency has yet to be extensively studied, research does indicate a negative relationship between risk perception and investment decisions more broadly (Byrne, 2005; Nguyen et al., 2019). Nguyen et al. (2019) found that client risk perception negatively correlates with risky-asset allocation decisions.

Similarly, Byrne (2005) found a negative association between risk perception and investment decisions. Efforts have been made to understand the role of risk perception. Yet, the relationship between risk perception and cryptocurrency as an investment and intentions to invest in cryptocurrency in the future remains inadequately explored. Given the existing evidence of a generally negative relationship between risk perception and making risky investments, this study proposes that:

H3a: The risk perception of cryptocurrency is negatively associated with current investment in cryptocurrency.

H3b: The risk perception of cryptocurrency is negatively associated with the intention to invest in cryptocurrency in the future.

Control Variables

Previous studies found that investment knowledge, particularly subjective financial knowledge, is positively associated with holding cryptocurrency as an investment (Zhao & Zhang, 2020). Socio-demographic variables also play a

crucial role in shaping investment behaviors, especially in the context of risky assets. Younger individuals often accept more risk (Jianakoplos & Bernasek, 1998), whereas women generally prefer safer investments (Powell & Ansic, 1997). Additionally, Simms (2014) highlights the differential use of financial advice among female investors, revealing distinct profiles based on varying socio-economic backgrounds and risk perceptions. Cultural and ethnic backgrounds impact risk preferences (Harrison et al., 2002; Gutter et al., 1999), and marital status and children can lead to more conservative choices (Joo & Grable, 2004; Van Rooij et al., 2011). Financial literacy through education and higher household incomes are linked to riskier portfolios (Van Rooij et al., 2011; Yao et al., 2004), and more investment experience often correlates with a greater likelihood of choosing high-risk assets (Corter & Chen, 2006).

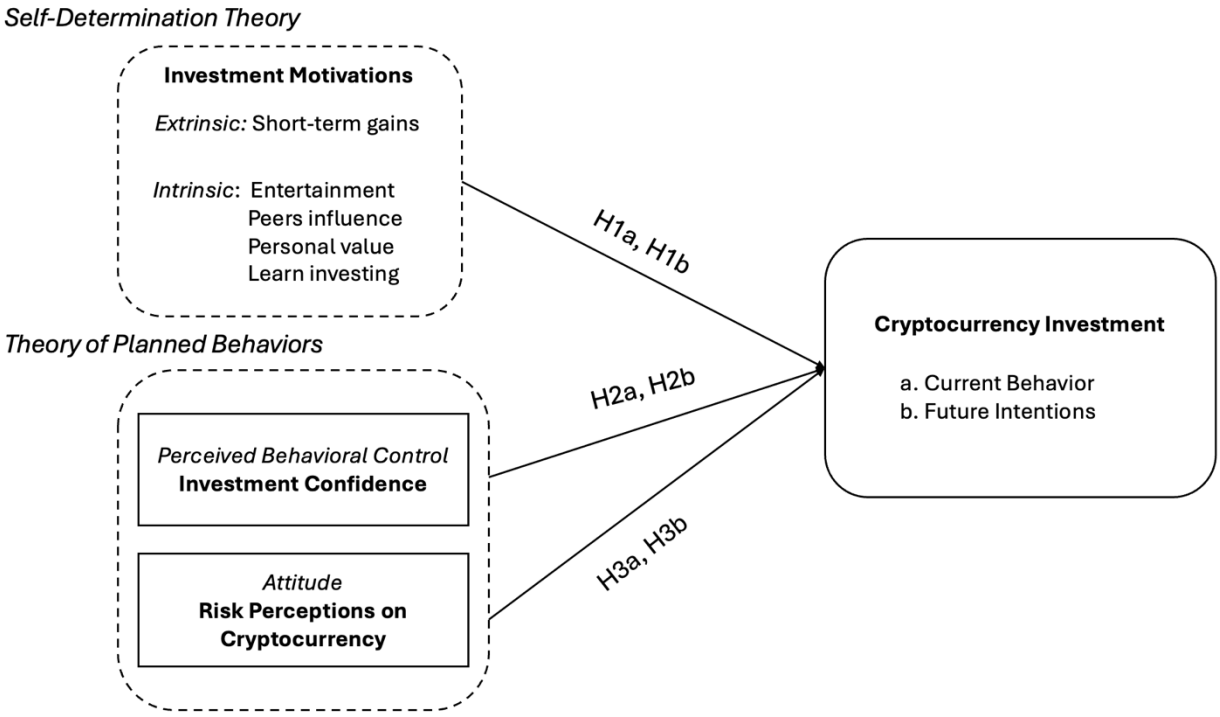
Theoretical Background

Behavioral finance challenges the traditional assumptions of core economic models by acknowledging that individuals are not always rational in their decision-making processes. These traditional assumptions, outlined by Fama (1970) in his discussion on the efficient market hypothesis, often include the notions of rationality, complete information, and market efficiency. These principles suggest that individuals always make decisions that maximize their utility, operating under the premise that all available information is reflected in market prices. However, behavioral finance highlights the importance of incorporating psychological and sociological factors into the decision-making process, thus recognizing the limitations of these traditional assumptions (Bakar & Yi, 2016). Through the lens of self-determination theory, the decision to invest in cryptocurrencies could be driven by intrinsic and extrinsic factors and is an act of self-determination and motivation.

On the other hand, the theory of planned behavior provides a comprehensive psychological framework that is utilized to understand and predict the actions of individuals during the decision-making process (Ajzen, 1985). According to the TPB, an individual's actual behavior and the intention to perform a behavior are influenced by three primary factors: subjective norms, behavioral control, and attitude. The investment motivation resulting from a desire to interact with others and engage in social activity functions as an illustration of subjective norms, which is also connected with the need for relatedness in self-determination theory. Perceived behavioral control concerns an individual's assessment of the ease or difficulty of carrying out a particular behavior in the theory of planned behavior, which can be seen as a form of self-efficacy (Bandura, 1977, 1986). Investment confidence, defined in this study, refers to the perception of one's capability to confidently make investment decisions. A higher degree of confidence in making investment decisions and a greater perceived control over investing behaviors increase the probability that an individual will engage in investments such as cryptocurrency. Attitude, another important component of the TPB, refers to the degree of favorable or unfavorable evaluation of performing the behavior (Ajzen, 1985). When investing in cryptocurrencies, an individual's intention to invest may be significantly influenced by their perception of the risks involved. If they perceive these risks as very high or extreme, their evaluation of the potential benefits of investing in cryptocurrencies may become less favorable. This heightened awareness of the risk involved may lead to a more cautious stance towards making such investments.

Both theories collectively aid in understanding how intrinsic and extrinsic motivations, alongside attitudes toward investing behavior, subjective norms, and perceived behavioral control, might influence investment decisions. The conceptual framework employed in the present study is illustrated in Figure 1. Utilizing this integrated conceptual framework facilitates a comprehensive exploration of financial and non-financial factors that could influence individuals' decisions to invest in cryptocurrencies.

Figure 1. Conceptual Framework



Methodology

Dataset and Sample

This study employs the 2021 National Financial Capability Study (NFCS) State-by-State Survey combined with the 2021 National Financial Capability Study Investor Survey. Funded by the FINRA Investor Education Foundation and conducted by FGS Global, the 2021 National Financial Capability Study (NFCS), modified from the 2018 version, surveyed 27,118 adults aged 18 and above who have validated and updated demographic characteristics across the United States. The Investor Survey comprised 2,824 respondents from the State-by-State Survey who had investments outside of retirement accounts and were either the primary or joint decision-makers in their households. Given that current and future cryptocurrency investments are the main variables we examine in this study, investors who responded "*don't know*" or "*prefer not to say*" in response to questions about current and future cryptocurrency investments, as well as investment motivations, were excluded from the analytical sample, leaving a final sample size of 1,653 investors.

Measurement

Cryptocurrency investments and future cryptocurrency investment. This study's two dependent variables on cryptocurrency investment were binary coded based on investors' responses to the question, *"Have you invested in cryptocurrencies, either directly or through a fund that invests in cryptocurrencies?"* Responses were coded as 1 if the respondent confirmed "*yes*" and 0 if the respondent responded "*no.*" The second dependent variable, future cryptocurrency investment, was also binary coded. Investors were asked to indicate whether they are considering investing in cryptocurrencies in the future. Those who responded "*yes*" to the question were considered to have an interest in potential cryptocurrency

investments and were assigned a value of 1. In contrast, those who responded "*no*" were assigned a value of 0. The two cryptocurrency-related questions were asked independently.

Investment Motivations. To measure the various motivations for investment decision-making effectively, we operationalized investment motivations into binary terms based on self-assessed responses to the question: "How well does each of the following describe why you invest?" Respondents were presented with six statements in the original questionnaire: "To make money in the short term," "To make money in the long term," "For entertainment/excitement/fun/playing a game," "My peers are doing it/social activity/connecting with others," "To make a difference in the world/support values I care about/be socially responsible," and "To learn about investing." The investment motivation variables were coded as '1' when respondents selected "describes somewhat" or "describes very well," and as '0' for "does not describe at all." This binary coding method effectively aligns with self-determination theory, helping to identify the presence of specific extrinsic or intrinsic motivations for investment decisions. It is important to note that 99.03% of the sample in this study hold long-term gains as an investment motivation, which suggests that this specific motivation may lack discriminatory power. Consequently, the motivation for long-term gains was excluded from the regression analyses.

Investment Confidence. Investment confidence was measured based on a self-assessment in the survey: "How comfortable are you when it comes to making investment decisions?" with a 10-point Likert-type scale that ranged from 1 = Not at all comfortable to 10 = Extremely comfortable.

Risk Perceptions. Investors were required to provide their thoughts regarding the level of risk associated with cryptocurrency as an investment. A 5-point Likert scale was used with scores of 1 = Not at all risky, 2 = Slightly risky, 3 = Moderately risky, 4 = Very risky, and 5 = Extremely risky.

Control Variables. This study also used socio-demographic characteristics as control variables, including age, gender, ethnicity, marital status, educational attainment, presence of dependent child(ren), household income level, homeownership, and possession of a non-retirement account with a high investment total value exceeding $100,000. Additionally, investors were asked to describe the amount of financial risk they are willing to take when they save or make investments. The variables were reverse coded, with 1 = Not willing to take any financial risks, 2 = Take average financial risks expecting to earn average returns, 3 = Take above average financial risks expecting to earn above average returns, and 4 = Take substantial financial risks expecting to earn substantial returns. Objective financial knowledge was quantified by the number of correct responses to 11 multiple-choice questions on investing, with a range of 0 to 11. Subjective financial knowledge was measured through a self-assessment of overall investment knowledge on a 7-point Likert scale, with 1 = very low and 7 = very high. For details on these financial knowledge questions, please refer to Appendix A.

Analyses

Two logistic regression models were utilized to analyze the outcomes centered on this study: investors' current investments in cryptocurrency and future intentions to invest in cryptocurrency. The independent variables incorporate measures of investment motivations, as informed by self-determination theory, to capture the psychological needs that may influence an individual's investment behavior. Additionally, components from the theory of planned behavior were integrated, with the perceived risk of cryptocurrency representing the attitude component and investment confidence reflecting perceived behavioral control.

$$\text{logit}(p) = \log\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 * Moviation + \beta_2 * Confidence + \beta_3 * Risk\ Precption + \beta_4 * X$$

where,

p is the probability that (1) the investor was invested in cryptocurrency and (2) intended to do so in the future; $\frac{p}{1-p}$ is the odds of the event; X is the matrix of demographic control variables.

Additionally, standardized odds ratios were computed for all independent variables to facilitate comparisons between their effects on current cryptocurrency ownership and future intentions to invest in cryptocurrency.

Results

Descriptive Results

An overview of sample descriptive statistics can be found in Table 1. Almost one out of four respondents reported having invested in cryptocurrencies, either directly or through a fund that invests in cryptocurrencies (22.32%), while three out of ten (30.79%) reported they were considering investing in cryptocurrencies in the future. A notable proportion of the respondents, 68.18% of the sample investors, expressly indicated that making short-term profit was their motivation. Nearly all investments (99.03%) were made with long-term profit in mind. Additionally, 28.61% of the investments were made for entertainment purposes, and 20.39% of the investors invested for the motives of social activity. A notable 40.17% of investors started investing to support personal values or effect social change, and 60.13% invested to learn about investment. The average score for assessing the risk associated with cryptocurrencies as an investment was 4.05, ranging from 1 to 5. The mean score of investment confidence, as measured on a scale of 1 to 10, was 7.05. For investment risk tolerance, 54.51% sought average financial risks with the expectation of earning average returns, and 9.80% desired substantial financial risks with the expectation of earning substantial returns. More than half of the investors included in the sample were male (64.79%). Most of the investors, 83.55%, were Whites. Slightly more than 73% of investors had completed college and received a bachelor's degree or above, whereas nearly a quarter (24.62%) had dependent(s), and over half (66.18%) were married. In terms of age, the proportion of those aged 65 and older was the highest (41.56%), while the proportion of those aged 18 to 24 was the lowest (2.78%). As for wealth, six out of ten (59.77%) respondents have non-retirement investment accounts with a total value of $100,000 or more. In this study's sample of investors, the proportion of households with incomes below $35,000 was 9.98%, while the proportion of households with incomes exceeding $150,000 was 18.39%. The majority (84.21%) were homeowners.

Logistic Regression Results

Tables 2 and 3 present the logistic regression models' main findings on current investment in cryptocurrency and future cryptocurrency investment intentions. All hypotheses proposed in this study were supported.

Full results for current investment in cryptocurrency showed that investors motivated by extrinsic motivations, such as making money in the short term (*Odds* = 1.73, $p < 0.01$), experienced a 73% increase in the odds of investing in cryptocurrency than those not motivated by short-term gains. Investors who are primarily motivated by intrinsic motivations for entertainment (*Odds* = 2.32, $p < 0.001$) or gaining knowledge for investment (*Odds* = 1.71, $p < 0.05$) had a 132% and 71% increase, respectively, in the odds of investing in cryptocurrency compared to their counterparts not motivated by these specific motivations. Among these motivations, entertainment showed the strongest effect on the odds of investing in cryptocurrency, as reflected in the standardized odds ratios. The perceptions of cryptocurrency-specific risks negatively correlated with cryptocurrency investment (*Odds* = .56, $p < 0.001$). Specifically, as the perception of risk increased, the odds of investing in cryptocurrencies decreased by 44%. Investment confidence was positively associated with cryptocurrency investment (*Odds* = 1.21, $p < 0.01$). This means that for a unit increase in investment confidence, the odds of investing in cryptocurrency increase by 21%. Among the key independent variables, investment confidence had the most significant impact on the odds of investing in cryptocurrency, as indicated by the standardized odds ratios.

Table 1. Descriptive statistics (N = 1,653)

Variable	Mean/%	Std. dev.	Min	Max
Cryptocurrency investment				
Current cryptocurrency investment	22.32%			
Future investment intention	30.79%			
Investment motivation				
Short-term gains	68.18%			
Long-term gains	99.03%			
Entertainment	28.61%			
Peers influence	20.39%			
Support values	40.17%			
Learning investing	60.13%			
Crypto risk perceptions	4.05	0.99	1	5
Investment confidence	7.05	2.01	1	10
Objective financial knowledge	5.65	2.54	0	11
Subjective financial knowledge	4.90	1.30	1	7
Investment risk tolerance				
Not willing to take any financial risks	7.74%			
Average financial risks average returns	54.51%			
Above average financial risks above average returns	27.95%			
Substantial financial risks substantial returns	9.80%			
Sociodemographic variables				
Male	64.79%			
Whites	83.55%			
Degree holder	73.50%			
Has dependent(s)	24.62%			
Married	66.18%			
Age category				
age18to24	2.78%			
age25to34	8.23%			
age35to44	13.31%			
age45to54	12.89%			
age55to64	21.23%			
age65+	41.56%			
Wealth factor				
High investment balance (>$100,000)	59.77%			
Income level				
Less than $35,000	9.98%			
$35,000-$49,999	9.20%			
$50,000-$74,999	19.06%			
$75,000-$99,999	19.78%			
$100,000-$149,999	23.59%			
$150,000 and above	18.39%			
Homeownership	84.21%			

Investors willing to take above-average risks (*Odds* = 2.83, $p < 0.05$) and substantial risks (*Odds* = 4.23, $p < 0.01$) were more likely to invest in cryptocurrency. Males (*Odds* = 1.83, $p < 0.05$) and those with financial dependents (*Odds* = 1.61, $p < 0.05$) were more likely to invest in cryptocurrency. Additionally, compared to elder age groups (specifically those aged 65 and

above), investors are generally more likely to invest in cryptocurrency[4]. Compared to those who earned $150,000 and above, investors earning $75,000 to $100,000 were less likely to invest in cryptocurrency (*Odds* = .57, p < 0.05). Age and investment risk tolerance emerged as the most influential factors in current cryptocurrency investing, as indicated by the standardized odds ratios.

Table 2. Logistic Regression on Current Cryptocurrency Investment

Current Cryptocurrency Investment	Std. OR	OR	SE	z	P>z
Investment motivations					
Short-term gains	1.29	1.73	0.35	2.73	**
Entertainment	1.46	2.32	0.41	4.71	***
Peers influence	1.02	1.05	0.23	0.21	
Support values	0.97	0.93	0.17	-0.38	
Learning investing	1.30	1.71	0.36	2.54	*
Crypto risk perceptions	0.56	0.56	0.05	-7.08	***
Investment confidence	1.47	1.21	0.08	2.94	**
Objective financial knowledge	1.14	1.05	0.04	1.38	
Subjective financial knowledge	1.01	1.00	0.09	0.04	
Investment risk tolerance (ref: Not willing to take any)					
Average financial risks average returns	1.47	2.18	1.00	1.69	
Above average financial risks above average returns	1.60	2.83	1.32	2.24	*
Substantial financial risks substantial returns	1.54	4.23	2.08	2.93	**
Sociodemographic variables					
Male	1.33	1.83	0.34	3.21	*
Whites	0.93	0.83	0.17	-0.94	
Degree holder	0.74	0.51	0.09	-3.70	***
Has dependent(s)	1.23	1.60	0.31	2.44	*
Married	0.85	0.71	0.14	-1.74	
Age category (ref: age 65+)					
18-24	1.32	5.38	2.54	3.57	***
25-34	1.80	8.54	2.81	6.53	***
35-44	1.74	5.12	1.52	5.48	***
45-54	1.73	5.15	1.44	5.85	***
55-64	1.44	2.42	0.65	3.31	*
Wealth factor					
High investment balance	0.92	0.84	0.15	-0.95	
Income level (ref: $150,000+)					
Less than $35,000	0.98	0.93	0.32	-0.21	
$35,000-$49,999	1.17	1.71	0.56	1.64	
$50,000-$74,999	0.87	0.70	0.20	-1.25	
$75,000-$99,999	0.80	0.57	0.15	-2.13	*
$100,000-$149,999	0.90	0.79	0.19	-1.00	
Homeownership	0.93	0.82	0.18	-0.90	
Intercept		0.04	0.03	-4.03	***

Note: Chi2(29) = 680.26***. Pseudo R2 = 0.3875. * p < 0.05, ** p < 0.01, *** p < 0.001.

[4] The predicted probability of current cryptocurrency investment peaks at approximately 35.81% in the 25-34 age group and then decreases as age increases, suggesting a nonlinear relationship in the probability of investing in cryptocurrency across age groups. The full results on predicted probability for each age category are available upon request.

Full results for future intentions to invest in cryptocurrency revealed similar patterns for investment motivations. The motivations for short-term profit ambitions (*Odds* = 2.13, $p < 0.001$), entertainment and excitement (*Odds* = 1.97, $p < 0.001$), and learning purpose (*Odds* = 2.18, $p < 0.001$) were each positively and significantly associated with increased odds of considering investing in cryptocurrency in the future. Specifically, these motivations were linked to 113%, 97%, and 118% higher odds of planning to invest in cryptocurrency, respectively. The standardized odds ratio also confirmed that the motivation for learning investment showed the strongest effect on future intentions to invest in cryptocurrency. The more perceived risks associated with cryptocurrency, the lower the odds of future cryptocurrency investment intentions (*Odds* = .34, $p < 0.001$). This indicates that as risk perceptions increase, the odds of planning to invest in cryptocurrency decrease by 66%. Investment confidence (*Odds* = 1.17, $p < 0.05$) and objective financial knowledge (*Odds* = 1.10, $p < 0.01$) were positively associated with 17% and 10% higher odds, respectively, of future cryptocurrency investment intentions. Based on the comparison of the standardized odds ratios, among the key independent variables, risk perceptions were confirmed to have the most significant impact on future cryptocurrency investment.

Investors with above-average (*Odds* = 3.09, $p < 0.01$) and substantial investment risk tolerance (*Odds* = 5.86, $p < 0.001$) were more likely to consider cryptocurrencies as future investment options. Investors with financial independence were also more likely to show intentions to invest in cryptocurrency (*Odds* = 1.64, $p < 0.05$). Whites (*Odds* = .56, $p < 0.01$) and college degree holders (*Odds* = .64, $p < 0.05$) were less likely to invest in cryptocurrency in the future. A substantial investment balance (*Odds* = .55, $p < 0.01$) was negatively linked with future investment intentions in cryptocurrency. Additionally, the age group under 65 consistently showed a positive association with the intention to invest in cryptocurrencies in the future[5]. Among all the independent variables, the standardized odds ratios indicated that age and investment risk tolerance had the most significant impact on future cryptocurrency intentions.

[5] Similarly, the predicted probability of future cryptocurrency investment intention peaks at 44.62% in the 25 to 34 age group, indicating the highest likelihood of planning to invest in cryptocurrencies. Beyond this peak, the intention to invest in cryptocurrencies declines progressively with increasing age.

Table 3. Logistic Regression on Future Cryptocurrency Investment Intention

Future investment intention	Std. OR	OR	SE	z	P>z
Investment motivations					
Short-term gains	1.42	2.13	0.41	3.92	***
Entertainment	1.36	1.97	0.36	3.70	***
Peers influence	1.02	1.05	0.24	0.22	
Support values	1.12	1.27	0.23	1.31	
Learning investing	1.47	2.18	0.44	3.92	***
Crypto risk perceptions	0.35	0.34	0.03	-11.63	***
Investment confidence	1.37	1.17	0.08	2.45	*
Objective financial knowledge	1.28	1.10	0.04	2.60	**
Subjective financial knowledge	0.84	0.87	0.09	-1.39	
Investment risk tolerance (ref: Not willing to take any)					
Average financial risks average returns	1.44	2.09	0.86	1.79	
Above average financial risks above average returns	1.66	3.09	1.31	2.66	**
Substantial financial risks substantial returns	1.69	5.86	2.78	3.73	***
Sociodemographic variables					
Male	1.18	1.41	0.26	1.87	
Whites	0.81	0.56	0.12	-2.82	**
Degree holder	0.82	0.64	0.12	-2.33	*
Has dependent(s)	1.24	1.64	0.33	2.47	*
Married	0.97	0.93	0.18	-0.34	
Age category (ref: age 65+)					
18-24	1.30	4.90	2.64	2.95	**
25-34	1.80	8.57	2.85	6.46	***
35-44	1.83	5.95	1.71	6.21	***
45-54	1.70	4.90	1.29	6.02	***
55-64	1.49	2.65	0.63	4.11	***
Wealth factor					
High investment balance	0.75	0.55	0.10	-3.34	**
Income level (ref: $150,000+)					
Less than $35,000	1.01	1.02	0.35	0.07	
$35,000-$49,999	1.10	1.37	0.47	0.92	
$50,000-$74,999	0.90	0.76	0.22	-0.97	
$75,000-$99,999	0.92	0.81	0.22	-0.79	
$100,000-$149,999	0.85	0.69	0.17	-1.50	
Homeownership	0.91	0.78	0.18	-1.06	
Intercept		1.00	0.75	0.01	

Note: Chi2(29) = 989.04***. Pseudo R2 = 0.4845. * p < 0.05, ** p < 0.01, *** p < 0.001.

Table 4 presents a comparison of the impact of variables investigated in this study across cryptocurrency ownership and future investment intentions. A significant relationship was identified between objective financial knowledge and future intentions to invest in cryptocurrency, while no such relationship was found with current cryptocurrency ownership. Male investors were more likely to currently own cryptocurrency, whereas future investment intentions did not differ by gender. Investors with an income of $75,000-$99,999 were less likely to hold cryptocurrency at present, but no significant differences in future investment intentions were observed across income levels compared to the reference group of income greater than $150,000. Conversely, white investors and those with high investment account balances demonstrated a lower likelihood of expressing future interest in

cryptocurrency investment, despite no significant difference in their current ownership status.

Table 4. Comparison of Effects on Cryptocurrency Ownership and Intention Using Standardized Odds Ratios

Variables	Ownership	Intention
Investment motivations		
Short-term gains	1.29**	1.42***
Entertainment	1.46***	1.36***
Peers influence	1.02	1.02
Support values	0.97	1.12
Learning investing	1.30*	1.47***
Crypto risk perceptions	0.56***	0.35***
Investment confidence	1.47**	1.37*
Objective financial knowledge	1.14	1.28**
Subjective financial knowledge	1.01	0.84
Investment risk tolerance (ref: Not willing to take any)		
Average financial risks average returns	1.47	1.44
Above average financial risks above average returns	1.60*	1.66**
Substantial financial risks substantial returns	1.54**	1.69***
Sociodemographic variables		
Male	1.33*	1.18
Whites	0.93	0.81**
Degree holder	0.74***	0.82*
Has dependent(s)	1.23*	1.24*
Married	0.85	0.97
Age category (ref: age 65+)		
18-24	1.32***	1.30**
25-34	1.80***	1.80***
35-44	1.74***	1.83***
45-54	1.73***	1.70***
55-64	1.44*	1.49***
Wealth factor		
High investment balance	0.92	0.75**
Income level (ref: $150,000+)		
Less than $35,000	0.98	1.01
$35,000-$49,999	1.17	1.10
$50,000-$74,999	0.87	0.90
$75,000-$99,999	0.80*	0.92
$100,000-$149,999	0.90	0.85
Homeownership	0.93	0.91

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Discussion

Given that the majority of cryptocurrency investors, traders, and users initiated their activities within the past five years (Faverio & Sidoti, 2023), coupled with a surge in interest in cryptocurrency investments, it is crucial and significantly impactful to explore the potential characteristics of cryptocurrency investors. To the best of our knowledge, there is a gap in the existing literature identifying these characteristics of American cryptocurrency investors. This study seeks to bridge this gap by offering valuable insights, grounded in theoretical foundations, into the factors influencing actual cryptocurrency investment behaviors and future intentions in cryptocurrency

investments. Findings in this study reveal that investment motivations, investment confidence, and perceptions of cryptocurrency risk exhibit a statistically significant association with the decision-making process of cryptocurrency investments, each aligning with the tenets of SDT and TPB.

The results imply a positive association between investment motivations and cryptocurrency investment. Investing in cryptocurrencies or intending to do so could be interpreted as an activity driven by these investment motivations. Three types of motivations were positively and significantly correlated with both current cryptocurrency investment and future intentions to invest in cryptocurrency. Specifically, as self-determination theory suggests, the desire for short-term financial gain is an illustration of extrinsic motivations in this study, which stem from external rewards and consequences (Deci & Ryan, 2012). On the other hand, individuals who invest for excitement and entertainment or to gain knowledge about investing exemplify intrinsic motivations fueled by the personal enjoyment derived from the investment process itself. The inherent volatility of cryptocurrencies may appeal to investors driven by a desire for excitement, as it enables them to participate in cryptocurrency investments that simultaneously serve as a means of entertainment and investment (Bouri et al., 2017). Specifically, the motivation of entertainment exerted the strongest effect on current cryptocurrency investment, as evidenced by the highest standardized odds ratios among various motivational factors. The desire for enjoyment also correlates significantly with the decision-making process regarding future investment choices, highlighting that the unpredictable nature of cryptocurrency prices could offer a thrilling experience to these investors. Additionally, investors who engage in investment activities to gain knowledge may perceive cryptocurrency investment as an appropriate strategy within the dynamic cryptocurrency market. Through active engagement in cryptocurrency investment, these investors have the potential to acquire practical experience and strengthen their perceived capability, thereby satisfying the psychological need for competencies. More importantly, the desire to learn about investing emerged as the most significant motivator, strongly aligning with intrinsic motivation as suggested by SDT, having the most substantial impact on future intentions to invest in cryptocurrency, demonstrated by the highest standardized odds ratios.

Investment confidence is another key variable that could serve as the perceived behavioral control component in the theory of planned behavior. The findings confirmed the strong associations between individuals' confidence in investing and their behaviors and future intentions to invest in cryptocurrencies. According to the existing body of literature on self-efficacy, individuals' confidence level in their capability to engage in certain financial behaviors can substantially influence their subsequent actions (Bandura, 1977, 1986). Previous research has established the association between confidence and a propensity for riskier asset allocation, such as stock, bond, and mutual funds (Chatterjee et al., 2011; Mishra et al., 2022). The present study's findings of positive and statistically significant associations between investment confidence and cryptocurrency investment or the intention to invest in the future represent a significant extension of the investment options. The results offer significant evidence that investment confidence plays a crucial role in influencing current investment ownership decisions, particularly with volatile assets such as cryptocurrencies, which demonstrate the most pronounced effect among the key variables analyzed. When making financial decisions, those with high investment confidence may be aware of the price volatility yet remain optimistic about their investment abilities. They may also possess better risk management skills and have the option to diversify their investment portfolios by including cryptocurrencies. More importantly, not only did the likelihood of current cryptocurrency investments increase, but so did the intention to invest in cryptocurrencies in the future because of increased investment confidence. This might be due to the heightened level of aggressiveness in investing (Cassar & Friedman, 2009) exhibited by investors who are confident and comfortable with their investment decisions. Individuals with greater investment confidence may investigate

volatile and trendy investment options, such as cryptocurrencies, expecting to gain beneficial experiences in the future.

The theory of planned behavior underscores the significant influence of attitudes toward engaging in a specific behavior. The process of making investment decisions involves weighing the tradeoff between risk and projected returns. Consistent with findings reported in the existing literature, there is a negative relationship between the perceived risk and the allocation of funds by investors toward certain assets (Aini & Lutfi, 2019). As the perceived level of risk associated with cryptocurrencies appears to be higher, the likelihood of individuals investing in these assets decreases accordingly. It is important to note that the general investment risk tolerance was positively associated with cryptocurrency investment. This inconsistency suggests that even though the large potential profits of cryptocurrency attract investors, the risk assessment might discourage them from making such investing decisions if the risk involved with cryptocurrency investment is excessive. As indicated by the strong negative association between risk perceptions of cryptocurrencies and future investment intentions, the perceptions of the riskiness of cryptocurrencies could serve as a barrier to future investment possibilities in cryptocurrencies.

Although men demonstrated a higher propensity to invest in cryptocurrencies, this did not translate into significant differences in their future investment intentions. Individuals with college degrees were less likely to invest in cryptocurrencies, whereas those with financial dependents were more inclined to invest and demonstrated consistent intentions to do so in the future. Younger cohorts, especially those aged 25 to 34, were more likely to invest in cryptocurrencies than elder cohorts (those aged 65 and above). This may be due to the fact that older cohorts adopt technologically driven products more slowly (Zhang & Fan, 2023). Due to their unfamiliarity with cryptocurrencies as new investment vehicles, older generations may be reluctant to engage in cryptocurrencies. Interestingly, individuals with high investment value are not more likely to explore cryptocurrencies as an appealing option to their portfolio in the future. The volatility and unregulated nature of the cryptocurrency market may discourage individuals with large investment account balances from investing in cryptocurrencies.

The current study has several limitations. First, the analysis performed in this study focused on a particular investor subgroup, thereby restricting the generalizability of this result to the broader population. The investigations also used a cross-sectional dataset, hence precluding the ability to establish causal relationships in the empirical findings. Future research utilizing longitudinal data is necessary to validate the observed association in this study. Second, the key variables investigated in the current study were measured using a single self-assessment question. For future research, it might be beneficial to incorporate multiple questions to provide a more comprehensive evaluation of investment motivations, investment confidence, and risk perception of cryptocurrencies. Third, although the sample consists of 1,653 American investors from a nationally conducted survey, its diversity may be partially reflected in the global investing population, particularly considering the heterogeneous demographics participating in cryptocurrency investments. Further research could continue this line of research by integrating qualitative methods to understand psychological investment motivations and cryptocurrency investments better.

Implication

The findings in this research demonstrate the significant roles of investment motivations, investment confidence, and cryptocurrency risk perceptions in determining investments and future investment intentions. This investigation holds substantial implications for policymakers, financial advisors, and planners.

The evidence in this paper intends to highlight that investment motivations for making short-term gains, entertainment, and learning purposes play significant roles in cryptocurrency investment decisions. Individuals who invest because of these motivations are more likely to consider investing in cryptocurrencies in the future. Financial advisors and planners are important in assisting clients interested in the

volatile and speculative cryptocurrency market. Financial advisors should be aware of the psychological influences on decision-making and communicate clearly with their clients by properly defining the risk-return profile of cryptocurrency investments. It is crucial to ensure clients understand how these investments fit their overall financial goals. Open discussions about investment motivations could lead to a deeper understanding of the client's needs and aspirations, enabling advisors to serve them more effectively. Given that the motivation to learn investing increases the likelihood of investing in cryptocurrency, financial advisors and planners should provide clients with opportunities to satisfy these psychological needs and enhance investment competency. Financial advisors should simplify information on financial instruments to facilitate learning. Additionally, when working with clients, financial advisors should also emphasize to their clients the significance of independent research and critical thinking. This approach helps mitigate the potential risks of making investment decisions that are solely motivated by the entertainment and thrill associated with cryptocurrency investments, promoting making informed investment choices.

Given the importance of investor confidence in cryptocurrency investments, policymakers need to reinforce the market regulation and establish consumer protections to protect investors. With the rise in the popularity of cryptocurrencies, financial counselors and advisors must maintain updated knowledge of both conventional investments and the cryptocurrency market to offer appropriate recommendations. Additionally, financial planners and advisors should educate highly confident clients about the opportunities and risks of investing in cryptocurrencies to ensure they are well-informed and do not underestimate the associated risks.

The risk perception of cryptocurrency is another major determinant of investment behavior in the cryptocurrency market. Due to the fact that risk perceptions depend on individual psychological judgment, policymakers can implement clear and comprehensive disclosure requirements for cryptocurrency platforms to aid investors in forming their opinions on cryptocurrencies. Any policies that can help mitigate a sudden loss of investing in a particular cryptocurrency could be attractive to investors. Financial advisors should tailor their recommendations and product offerings on financial products to the risk perceptions of their clients. Specifically, they should inform prospective cryptocurrency investors of accurate information about cryptocurrency to mitigate misunderstanding. By improving risk understanding, advisors can guide investors toward strategies that better align with their financial goals. Future research might also look at the detailed aspects of cryptocurrency that people find very or extremely risky. Understanding the reasons for these concerns could aid in understanding why investors feel resistant to investing in cryptocurrency.

Conclusion

Cryptocurrencies have emerged as a new asset class in the contemporary landscape of investments. Behavioral finance emphasizes the integration of psychological insights into financial practices, which could be applicable to cryptocurrency investments. Given the novelty and associated risks of cryptocurrency, the factors influencing an investor's decision to invest in cryptocurrency still need investigation.

This study validates the feasibility of the self-determination theory and theory of planned behavior as the theoretical foundation for analyzing the decision-making behaviors of investing in cryptocurrency. The results highlight that investment motivations as psychological factors (i.e., pursuing short-term profits, investing motivated by entertainment and gaming, and learning about investing) are strongly and positively associated with cryptocurrency investments and future intentions to invest in cryptocurrency. Investment confidence is positively related to cryptocurrency investments and intentions. On the contrary, as the perceived risk level linked to cryptocurrency increases, investors are less likely to invest in these assets.

The results of this study enhance our understanding of the profiles of cryptocurrency investors and offer significant implications for the field. Financial practitioners need to raise their awareness regarding the diverse motivations of their clients in order to deliver tailored guidance efficiently. Financial practitioners must

gain insight into clients' psychological investment motivations, particularly those demonstrating heightened interest in volatile investments like cryptocurrency. This understanding will assist financial advisors and planners develop individualized recommendations that meet clients' overall financial goals and psychological needs. Additionally, advisors can assist clients in enhancing their investment confidence while openly and comprehensibly communicating the potential risks linked to cryptocurrency, thereby empowering clients to make well-informed decisions on cryptocurrency investments.

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Appendix A

Objective Financial Knowledge

1. If you buy a company's stock…
   - You own a part of the company
   - You have lent money to the company
   - You are liable for the company's debts
   - The company will return your original investment to you with interest

2. If you buy a company's bond…
   - You own a part of the company
   - You have lent money to the company
   - You are liable for the company's debts
   - You can vote on shareholder resolutions

3. If a company files for bankruptcy, which of the following securities is most at risk of becoming virtually worthless?
   - The company's preferred stock
   - The company's common stock
   - The company's bonds

4. In general, investments that are riskier tend to provide higher returns over time than investments with less risk.
   - True
   - False

5. The past performance of an investment is a good indicator of future results.
   - True
   - False

6. Over the last 20 years in the US, the best average returns have been generated by:
   - Stocks
   - Bonds
   - CDs
   - Money market accounts
   - Precious metals

7. What is the main advantage that index funds have when compared to actively managed funds?
   - Index funds are generally less risky in the short term
   - Index funds generally have lower fees and expenses
   - Index funds are generally less likely to decline in value

8. Which of the following best explains why many municipal bonds pay lower yields than other government bonds?
   - Municipal bonds are lower risk
   - There is a greater demand for municipal bonds
   - Municipal bonds can be tax-free

9. You invest $500 to buy $1,000 worth of stock on margin. The value of the stock drops by 50%. You sell it. Approximately how much of your original $500 investment are you left with in the end?

$500
$250
$0

10. Which is the best definition of "selling short"?
Selling shares of a stock shortly after buying it
Selling shares of a stock before it has reached its peak
Selling shares of a stock at a loss
Selling borrowed shares of a stock

11. If you own a call option with a strike price of $50 on a security that is priced at $40, and the option is expiring today, which of the following is closest to the value of that option?
$10
$0
-$10.00

Subjective Financial Knowledge
On a scale from 1 to 7, where 1 means very low and 7 means very high, how would you assess your overall knowledge about investing?

Very low 1	2	3	4	5	6	Very high 7
1	2	3	4	5	6	7