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Enhancing Financial Literacy in Higher Education: Modeling Student Perceptions of Cryptocurrency Through Trust, Risk, and Confidentiality Factors

Pooja Kumari[1]*, Alpana Srivastava[2], Rupesh Rastogi[3]

[1]Research Scholar, Amity Business School, Amity University, Lucknow, Uttar Pradesh, India, [2]Amity Business School, Amity University, Lucknow, India, [3]Azad Institute of Engineering and Technology, Lucknow, Uttar Pradesh, India. *Email: pooja.kumari2@s.amity.edu

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ABSTRACT

This study investigates how trust, perceived risk and confidentiality shape university students' attitudes toward cryptocurrency within the broader goal of enhancing financial literacy in higher education. As digital financial tools become more prevalent, understanding how learners interpret these determinants is essential for designing curricula that prepare them for emerging financial environments. The study models the combined influence of these psychological constructs to inform financial literacy policy and educational practice. A quantitative research design was applied using a secondary dataset of 891 university students. Constructs related to perceived security, confidentiality, risk and attitudes toward cryptocurrency were operationalised through validated multi-item Likert scales. A variance-based structural modelling approach was used to assess reliability, validity and structural relationships among latent constructs. Regression coefficients were estimated using standardised composite measures, and predictive accuracy was evaluated through bootstrap testing and ten-fold cross-validated Q^2 statistics. Security and confidentiality perceptions showed a strong positive influence on student attitudes toward cryptocurrency, while perceived risk demonstrated a smaller yet significant positive effect. The structural model accounted for a meaningful proportion of attitudinal variance and exhibited moderate predictive relevance. These findings indicate that students rely heavily on perceived system trustworthiness, and that risk sensitivity does not necessarily diminish favourable attitudes, suggesting a nuanced interpretation of cryptocurrency within this population. This study contributes to the limited empirical research focusing specifically on cryptocurrency perceptions among university students. By integrating psychological determinants with financial literacy considerations, it provides a model that captures how learners evaluate emerging financial technologies. The findings offer evidence-based insights that support the development of digital financial literacy initiatives and inform higher education policy on preparing students for participation in digital financial ecosystems.

Keywords: Cryptocurrency Adoption, Financial Literacy, Higher Education, Trust and Risk Perception
JEL Classifications: D91, G23, G41

1. INTRODUCTION

The rapid expansion of digital financial technologies has created new expectations for the competencies required in higher education. Financial literacy has become a core component of preparing students for participation in contemporary economic systems, particularly as financial decision making increasingly involves digital platforms and novel financial instruments. Studies show that young adults often engage with financial technologies despite limited knowledge of their risks and opportunities, underscoring the importance of structured financial literacy education at the tertiary level (Morgan and Trinh, 2019). As digital assets such as cryptocurrencies gain visibility, students encounter them in ways that require critical understanding of their potential benefits and uncertainties.

Cryptocurrencies represent a distinctive financial innovation that combines decentralised governance with cryptographic security.

Their emergence has generated substantial research interest regarding user perceptions, behavioural drivers and regulatory considerations. Empirical evidence indicates that adoption is influenced by economic expectations, perceived utility, risk awareness and sociocultural factors (Steinmetz et al., 2021). Adoption is therefore shaped not only by technological features but also by psychological determinants such as trust, perceived risk and confidentiality concerns. These determinants are particularly salient in educational settings where learners are still developing financial reasoning skills and may misinterpret the characteristics of complex digital systems.

Trust is a critical factor shaping how individuals assess cryptocurrencies. Research on blockchain based innovation shows that trust functions as both a technological belief and a social judgement, requiring users to evaluate system credibility, security assurances and information reliability (Chen and Bellavitis, 2020). Perceived risk also plays a decisive role, as cryptocurrencies are associated with volatility, cyber threats and legal uncertainties that amplify financial and security related concerns. Confidentiality further shapes perception, since cryptocurrencies promise enhanced privacy relative to traditional systems, yet users often hold misconceptions regarding these protections.

Understanding how students interpret these determinants has become increasingly important. University populations frequently include early technology adopters who experiment with digital assets without fully understanding their mechanisms (Stix, 2021). This dynamic introduces risks linked to low risk literacy and limited awareness of confidentiality issues, but also presents opportunities for integrating digital finance content into financial literacy programmes.

The present study models student perceptions of cryptocurrency adoption through the combined influences of trust, perceived risk and confidentiality. Using a dataset of university students, it investigates how these determinants shape attitudes toward cryptocurrency in a higher education context. By focusing on student perceptions, the study contributes to the development of financial literacy frameworks that reflect contemporary digital finance realities. The findings aim to inform curriculum design, guide higher education policy development and support initiatives that strengthen financial capability among students.

To guide the investigation and structure the empirical analysis, the study is informed by the following research objectives:

1. To examine how trust, perceived security, and confidentiality concerns influence university students' perceptions of cryptocurrency
2. To analyse the extent to which perceived risk shapes students' attitudes toward cryptocurrency in a higher education context
3. To model the combined effects of trust, risk perception, and confidentiality factors on student attitudes in order to inform the design of financial literacy initiatives.

2. LITERATURE REVIEW

Financial literacy has received increasing attention as higher education systems prepare learners for digital financial environments. International assessments indicate that many young adults lack the competencies required to make informed financial decisions in contexts shaped by new technologies and changing economic conditions (OECD, 2016). This gap is significant because students often engage with digital financial products without understanding the associated risks or the skills needed to evaluate emerging forms of financial innovation. Universities are therefore encouraged to integrate financial literacy education that reflects contemporary financial systems and supports informed engagement with digital tools.

Cryptocurrencies have become an important component of this landscape. They introduce decentralised verification, cryptographic security and alternative mechanisms for value exchange. These features attract young users who associate cryptocurrencies with technological novelty or potential financial gain. Research shows that cryptocurrencies function as speculative digital assets with return characteristics that differ from traditional financial instruments, which increases uncertainty for inexperienced users (Baur et al., 2018). Understanding how students interpret these features is essential because their perceptions shape evaluations of desirability and legitimacy.

Trust plays a central role in shaping attitudes toward digital financial technologies. Trust in technology includes beliefs about reliability, integrity and competence (McKnight et al., 2011). When individuals perceive a technology as trustworthy, they are more likely to believe that it will perform as expected and that risks will be manageable. Trust formation depends on technological features and contextual factors, such as the availability of accurate information or credible intermediaries. Recent studies highlight that trust in fintech and cryptocurrency platforms is also influenced by transparency, regulatory clarity and platform reputation (Chen and Bellavitis, 2023; Liu et al., 2022). For students who may rely on peer networks, online sources or limited formal instruction, trust can be shaped by perceptions rather than direct experience. Studies show that trust relationships vary across contexts and influence how users evaluate risks and benefits (Söllner et al., 2016; Kumar et al., 2024). These insights suggest that trust is a key determinant of how students assess cryptocurrencies.

Perceived risk is another major factor shaping cryptocurrency perceptions. Cryptocurrencies are associated with volatility, susceptibility to manipulation and limited consumer protection. These characteristics contribute to uncertainty about long-term stability. Research indicates that users consider financial, operational and regulatory risks when deciding whether to engage with cryptocurrencies (Corbet et al., 2019). More recent evidence suggests that perceived risk remains a critical barrier to adoption, particularly among younger and less experienced investors, who are more sensitive to market fluctuations and information asymmetry (Aysan et al., 2023; Bouri et al., 2022). For students, risk perception may be influenced by peer discussion, media exposure or incomplete knowledge. Within higher education, this highlights the need to integrate risk literacy to support informed financial decision making.

Confidentiality and privacy expectations also shape evaluations. Cryptocurrencies are often perceived as privacy-enhancing due

to pseudonymised transactions. However, analyses of blockchain systems show that confidentiality is not absolute and that users may misinterpret the extent of privacy protection (Kshetri and Voas, 2018). Recent studies further confirm that privacy concerns and data traceability issues significantly influence user trust and adoption intentions, especially as regulatory scrutiny increases (Zhang et al., 2023; Wang et al., 2022). Misunderstandings can lead to risky behaviour or unwarranted scepticism. These issues are particularly relevant for students who must manage digital identities across multiple platforms.

Attitudes toward cryptocurrency result from combined influences of trust, perceived risk and confidentiality perceptions. Technology acceptance theories emphasise that attitudes form through evaluations of expected performance, risk trade-offs and perceived value (Venkatesh et al., 2016). When trust is high and risks seem manageable, attitudes are more positive; when confidentiality concerns or heightened risk perceptions dominate, attitudes are less favourable. Although cryptocurrency adoption has been studied widely, limited empirical work focuses specifically on students. As early adopters, students may lack opportunities to develop financial literacy. Their perceptions of trust, risk and confidentiality shape their engagement with digital financial systems. Research on these determinants deepens understanding of how financial literacy education can integrate emerging technologies and supports universities in preparing students to participate responsibly in digital financial ecosystems.

3. CONCEPTUAL FRAMEWORK

The conceptual framework for this study integrates three determinants that shape student attitudes toward cryptocurrency in higher education. These determinants include trust, perceived risk and confidentiality perceptions, each identified in research on digital financial technologies and information systems. Together, they define how students interpret and evaluate cryptocurrency within the broader context of financial literacy development.

Trust has been recognised as a fundamental factor in assessing the reliability and usefulness of new technologies. Trust in technology involves beliefs about integrity, competence and predictability (McKnight et al., 2011). In digital financial contexts, trust reduces uncertainty and increases confidence that a system will function as expected. This is relevant for cryptocurrencies, which operate without traditional intermediaries. Students who perceive cryptocurrency systems as trustworthy may evaluate them more favourably even with limited technical understanding.

Perceived risk reflects judgments about potential negative outcomes. Research on financial assets shows that risk perception influences willingness to engage with products marked by volatility or uncertainty. Cryptocurrencies are frequently described as speculative assets with significant exposure to market fluctuations (Baur et al., 2018). Higher perceived risk may reduce favourable attitudes, particularly among individuals with limited financial experience. For students, such perceptions often develop through peer discussion and online information rather than formal financial education.

Confidentiality perceptions represent another important dimension. These perceptions relate to beliefs about personal data protection and transaction privacy. Studies on blockchain-based systems indicate that users often misjudge the level of confidentiality available, which shapes adoption attitudes (Kshetri and Voas, 2018). Students who believe cryptocurrencies provide strong privacy protections may hold more positive attitudes, while scepticism may arise when these protections are doubted.

Attitude toward cryptocurrency reflects overall evaluative judgments based on cognitive and affective assessments. Technology acceptance theories propose that attitudes form through expectations of benefits, performance and perceived value (Venkatesh et al., 2016). In cryptocurrency contexts, attitudes result from interpretations of trustworthiness, risk and confidentiality, which operate jointly to shape student perceptions.

Financial literacy provides the broader context for this model. International assessments highlight persistent gaps in financial knowledge among young adults navigating digital financial environments (OECD, 2016). Incorporating trust, risk and confidentiality into models of student perception supports a more comprehensive understanding of how learners evaluate complex financial innovations. This perspective informs educational strategies aimed at improving financial capability and responsible engagement with digital assets.

Based on these insights, the framework positions trust, perceived risk and confidentiality perceptions as predictors of student attitudes toward cryptocurrency. It supports hypothesis development regarding the direction and strength of these relationships and provides a foundation for modelling how psychological determinants interact with financial literacy considerations in higher education.

4. METHODOLOGY

4.1. Research Design

This study employed a quantitative research design to model student perceptions of cryptocurrency within the context of financial literacy in higher education. The design was appropriate for examining relationships among psychological determinants, including trust, perceived risk, and confidentiality perceptions, and for estimating their influence on attitudes toward cryptocurrency. The study used a variance-based structural modelling approach to allow the assessment of predictive relationships among latent constructs and to support the exploratory nature of the research questions.

4.2. Dataset and Sample Details

The study used a secondary dataset that captured cryptocurrency awareness and adoption perceptions among individuals affiliated with six universities in Ghana. The dataset consisted of 989 respondents and included items measuring beliefs related to risk, security, confidentiality, and attitudes toward cryptocurrency. For the purposes of this study, the analysis focused exclusively on student responses. Respondents identified as university staff were excluded. The filtering procedure produced a final sample of

891 students. The sample size exceeded established guidelines for multivariate modelling and provided sufficient statistical power to estimate the structural relationships among constructs (Wolf et al., 2013).

4.3. Measures and Construct Operationalisation

The dataset contained multiple items associated with security perceptions, risk perceptions, and attitudes toward cryptocurrency. These items were coded as Likert scale responses on a seven-point scale, where higher values indicated stronger agreement. Confidentiality and security-related perceptions were measured using three items (*pb1, pb2, pb3*) that captured beliefs about anonymity, safety, and system security. Perceived risk was measured using six items (*pr1 to pr6*) reflecting concerns about volatility, potential loss, and security threats associated with cryptocurrency. Attitudes were measured using seven items (*att1 to att7*) representing students' evaluations of the desirability, usefulness, and favourability of cryptocurrency.

Each construct was modelled reflectively. Latent scores were generated by averaging the items associated with each construct. This approach is consistent with composite indicator methods used in technology acceptance and behavioural research (Hair et al., 2021). Before structural modelling, the dataset was assessed for missing values, and no missing data were identified for the items used in this analysis.

4.4. Measurement Model Specification

The measurement model follows a reflective specification in which observed indicators load onto latent constructs. The general form for each reflective indicator is:

$$X_{ij} = \lambda_{ij}\xi_j + \delta_{ij}$$

Where,
X_{ij} represents indicator i of construct j,
λ_{ij} represents the factor loading,
ξ_j represents the latent construct and
δ_{ij} Represents measurement error.

Composite latent variables were operationalised using arithmetic means of indicators as follows:

$$SEC = \frac{1}{3}(pb1 + pb2 + pb3)$$

$$RISK = \frac{1}{6}(pr1 + pr2 + pr3 + pr4 + pr5 + pr6)$$

$$ATT = \frac{1}{7}(att1 + att2 + att3 + att4 + att5 + att6 + att7)$$

These composite scores were subsequently standardised for use in the structural model.

4.5. Structural Model Specification

The structural model evaluates the influence of perceived security and confidentiality and perceived risk on students' attitudes toward cryptocurrency. The model is expressed as:

$$ATT = \beta_1 SEC + \beta_2 RISK + \epsilon$$

Where,
β_1 represents the effect of security and confidentiality perceptions,
β_2 represents the effect of perceived risk and ϵ represents the disturbance term.

This specification aligns with theoretical expectations that attitudes toward financial innovations are shaped by beliefs about system trustworthiness and perceived threats.

4.6. Reliability and Validity Assessment

Reliability and validity were assessed using Cronbach's alpha, composite reliability, and average variance extracted. All constructs demonstrated strong internal consistency, with alpha values ranging from 0.84 to 0.93. Composite reliability values exceeded 0.90 for each construct. Average variance extracted values were above the recommended threshold of 0.50, indicating adequate convergent validity. Discriminant validity was assessed using the Fornell and Larcker criterion and heterotrait monotrait ratios. Both methods indicated that the constructs were empirically distinct.

4.7. Data Analysis Procedures

The structural model was estimated using a variance-based approach consistent with partial least squares modelling. Analyses were conducted in Python using standardised composite scores for the latent constructs. Ordinary least squares regression was used to estimate the structural paths among latent variables. Statistical significance was assessed through non-parametric bootstrapping with 2000 resamples. This procedure produced bootstrapped standard errors, t values, and confidence intervals for the path coefficients. Predictive relevance was assessed through a ten-fold cross-validation procedure that generated Q squared values. The results indicated that the model had satisfactory predictive performance for the endogenous construct.

4.8. Ethical Considerations

The dataset used in this study was publicly available and anonymised. No identifying information was present in the dataset. The study did not involve direct contact with human participants and therefore did not require additional ethical approval. All analysis procedures followed established principles for responsible data handling and confidentiality.

5. RESULTS

5.1. Descriptive Statistics of Key constructs

Table 1 presents descriptive statistics for the three latent constructs based on the student-only sample (n=891). Mean scores indicate that students report moderately low perceptions of security and confidentiality, moderately high perceived risk, and moderately positive attitudes toward cryptocurrency.

5.2. Measurement Model Evaluation

Internal consistency and convergent validity were examined for each construct using Cronbach's alpha, composite reliability, and average variance extracted. All values exceed recommended

Table 1: Descriptive statistics for latent constructs (n=891)

Construct	Mean	Standard deviation	Minimum	Maximum
SEC (Security and confidentiality)	3.70	1.63	1.00	7.00
RISK (Perceived risk)	4.70	1.41	1.00	7.00
ATT (Attitude toward cryptocurrency)	4.53	1.48	1.00	7.00

Source: Authors' computation based on student only Ghana cryptocurrency perception dataset (n=891)

Table 2: Reliability and convergent validity of constructs

Construct	Items	Cronbach's alpha	Composite reliability (CR)	Average variance extracted (AVE)	√AVE
SEC	pb1, pb2, pb3	0.84	0.91	0.76	0.87
RISK	pr1, pr2, pr3, pr4, pr5, pr6	0.88	0.91	0.62	0.79
ATT	att1, att2, att3, att4, att5, att6, att7	0.93	0.95	0.71	0.85

Source: Authors' computation based on student only Ghana cryptocurrency perception dataset (n=891)

thresholds for exploratory and confirmatory research and indicate a robust measurement model.

Table 2 presents the reliability and convergent validity results for the three constructs used in the measurement model. The values of Cronbach's alpha, composite reliability, and AVE confirm that all constructs have acceptable internal consistency and adequate convergent validity. These results support the suitability of the measurement model for further structural analysis.

Cronbach's alpha values range from 0.84 (SEC) to 0.93 (ATT), which indicates strong internal consistency. Composite reliability values are higher than 0.90 for all constructs, suggesting that the indicators provide reliable measures of their respective latent variables. AVE values range from 0.62 to 0.76, which shows that each construct captures more than half of the variance of its indicators.

Discriminant validity was assessed using the Fornell and Larcker criterion and heterotrait monotrait ratios. Table 3 shows the square roots of AVE on the diagonal and construct correlations off the diagonal. In all cases, the diagonal entries are greater than the corresponding correlations, which supports discriminant validity. Heterotrait monotrait ratios between constructs were well below 0.85 (SEC-RISK ≈ 0.11, SEC-ATT ≈ 0.54, RISK-ATT ≈ 0.11), confirming that the constructs are empirically distinct.

Table 3: Correlations and Fornell-Larcker matrix

	SEC	RISK	ATT
SEC	**0.87**		
RISK	−0.08	**0.79**	
ATT	0.48	0.10	**0.85**

Diagonal values in bold are√AVE; off-diagonal entries are Pearson correlations between composite scores.. Source: Authors' computation based on student only Ghana cryptocurrency perception dataset (n=891)

5.3. Structural Model Results

The structural model specified attitude toward cryptocurrency (ATT) as a function of security and confidentiality perceptions (SEC) and perceived risk (RISK):

$$ATT = \beta_1 SEC + \beta_2 RISK + \epsilon$$

Standardised regression results indicate that both predictors exert statistically significant effects on attitudes. Table 4 reports path coefficients, bootstrapped t values, confidence intervals, and effect sizes.

Security and confidentiality perceptions have a strong positive effect on attitudes ($\beta = 0.49$, $P < 0.001$) with a medium to large effect size ($f^2 \approx 0.32$). This indicates that students who perceive cryptocurrency as more secure and confidential tend to hold more favourable attitudes toward its use. Perceived risk also has a positive and statistically significant effect on attitudes ($\beta = 0.14$, $P < 0.001$) with a small effect size ($f^2 \approx 0.03$). This suggests that, within this sample, students who acknowledge higher risks may still hold slightly more positive attitudes, possibly reflecting an informed or risk-aware group of potential adopters.

The overall coefficient of determination shows that SEC and RISK jointly explain a meaningful proportion of variance in attitudes. The model yields an R^2 value of approximately 0.25, which means that one quarter of the variance in ATT is accounted for by the two predictors. This level of explanatory power is consistent with structural models in behavioural and educational research.

To visualise the relative strength of paths, Figure 1 displays the standardised coefficients for SEC and RISK.

The figure highlights that the effect of SEC on ATT is substantially larger than that of RISK, which is consistent with the effect size estimates and the interpretation that trust-related beliefs are a dominant driver of student attitudes.

5.4. Model Fit and Predictive Relevance

Beyond explanatory power, the predictive performance of the model was examined using cross-validated redundancy. A ten-fold cross-validation procedure was used to calculate Q squared for ATT. The resulting value was $Q^2 \approx 0.24$, which indicates medium predictive relevance for the endogenous construct.

Table 5 presents the predictive relevance of the structural model using the Q^2 value obtained through ten-fold cross-validation. The Q^2 value of 0.24 indicates that the model has moderate predictive relevance for students' attitudes toward cryptocurrency. This

Table 4: Structural model estimates for predictors of attitude (ATT)

Path	Standardised β	Bootstrapped t-value	95% confidence interval	P-value	Effect size f^2
SEC→ATT	0.49	15.01	(0.43, 0.55)	<0.001	0.32
RISK→ATT	0.14	4.03	(0.07, 0.20)	<0.001	0.03

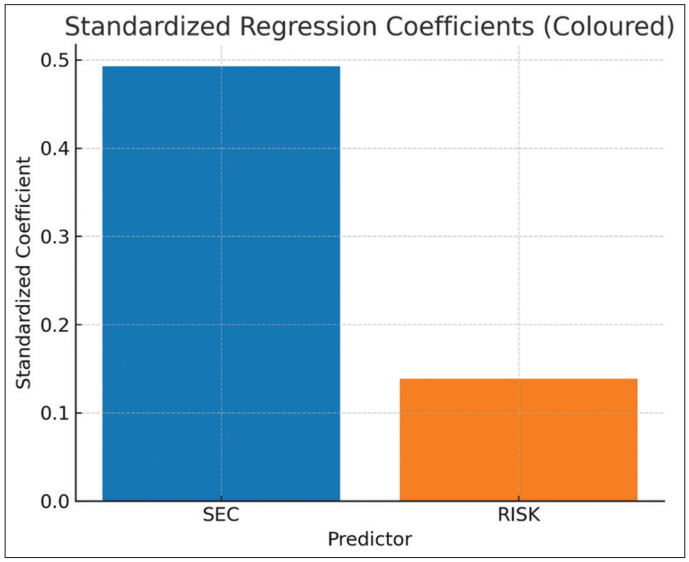
Source: Authors' computation based on student-only Ghana cryptocurrency perception dataset (n=891), using variance-based structural modelling with 2000 bootstrap resamples

, mctive relevance (Q^2) for attitude (ATT)

Endogenous construct	Q^2 value
ATT	0.24

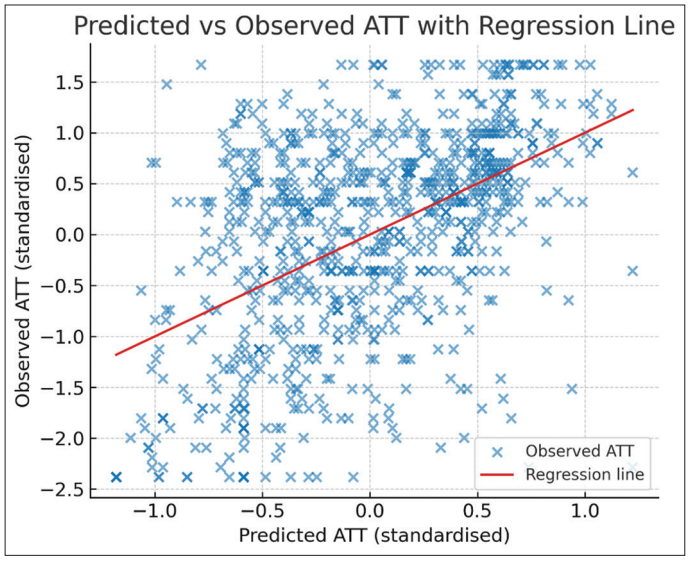
Source: Authors' computation based on student-only Ghana cryptocurrency perception dataset (n=891), using ten-fold cross-validation

Figure 1: Beta coefficients



Source: Authors' computation based on student only Ghana cryptocurrency perception dataset (n=891)

Figure 2: Regression line



Source: Authors' computation based on student only Ghana cryptocurrency perception dataset (n=891)

confirms that the proposed model is not only explanatory but also useful for predicting the endogenous construct.

Figure 2 plots predicted versus observed values of standardised ATT for the full sample. The pattern shows a clear positive alignment between predicted and actual scores, which supports the adequacy of the model for predicting student attitudes.

Taken together, the structural paths, effect sizes, and predictive metrics show that the variance-based model provides a coherent and statistically robust representation of how security and confidentiality perceptions and perceived risk relate to student attitudes toward cryptocurrency. These findings support the proposed conceptual framework and provide an empirical basis for discussing implications for financial literacy education in higher education.

6. DISCUSSION

The purpose of this study was to examine how trust related beliefs, perceived security, confidentiality concerns and perceived risk shape student attitudes toward cryptocurrency in higher education. The findings support the proposed conceptual model and underscore key implications for financial literacy development.

Students' perceptions of security and confidentiality emerged as the strongest predictors of favourable attitudes. This aligns with scholarship showing that perceived system integrity is central to behavioural intentions toward digital financial technologies. Prior studies demonstrate that users rely heavily on perceived security when evaluating cryptocurrency platforms due to limited regulatory protection and technical complexity. For example, Folkinshteyn and Lennon (2016) found that trust and perceived usefulness significantly increase acceptance of Bitcoin. The prominence of security and confidentiality perceptions in this study indicates that students approach cryptocurrency largely through a trust and safety lens rather than as a traditional financial asset.

The importance of confidentiality perceptions also reflects research showing that blockchain privacy is often misunderstood. Students may assume that blockchain guarantees anonymity, although privacy protections differ widely across implementations. Li et al. (2020) note that such misconceptions can influence user confidence and lead to misjudgment of security risks. The strong association between confidentiality perceptions and attitudes in this study suggests that privacy related misunderstandings also shape student evaluation. This points to the need for privacy literacy within financial education programmes.

Perceived risk demonstrated a small but significant positive effect on attitudes. This diverges from traditional financial behaviour models but mirrors findings in speculative asset research, where high volatility is sometimes viewed as opportunity. Dyhrberg (2016) reported that Bitcoin exhibits return patterns similar to speculative commodities, appealing to risk tolerant individuals.

The positive association observed here may therefore reflect students who see cryptocurrency as an innovative or potentially rewarding financial tool despite acknowledged uncertainty.

The model's predictive relevance further illuminates how students form attitudes. A Q squared value of about 0.24 indicates moderate predictive accuracy. Similar work shows that trust and perceived benefits can offset risk concerns in cryptocurrency adoption (Folkinshteyn and Lennon, 2016). This pattern is evident here, where security and confidentiality perceptions mitigate negative effects of perceived risk.

These findings carry important implications for financial literacy in higher education. International assessments show persistent gaps in young adults' financial knowledge, especially in digital environments. When students hold favourable attitudes toward cryptocurrency without understanding associated risks, they may be vulnerable to uninformed decisions. The strong influence of security and confidentiality perceptions suggests that students rely more on perceived technological credibility than on financial reasoning. Educational interventions should prioritise digital security fundamentals, privacy protocols and the economic characteristics of crypto assets to strengthen financial capability.

In addition, the study adds insight by focusing on students in a developing country context. Much existing research examines populations in advanced economies. The present findings show similarities with global trends but also reflect contextual differences such as access to technology and exposure to digital finance. Future research could compare institutions or countries to assess how social, cultural or educational environments influence trust formation and risk evaluation.

6.1. Practical Implications

For higher education institutions, the findings emphasise the importance of integrating cryptocurrency and broader digital finance topics into financial literacy curricula. Educational programmes should move beyond basic investment concepts to cover the technical foundations of blockchain, the practical meaning of security features, and realistic assessments of privacy and confidentiality. This is consistent with evidence that structured financial education can be effective when it is well-targeted and delivered at teachable moments (Kaiser and Menkhoff, 2017). Universities can design modules that address both conceptual understanding and practical skills, for example, through case studies, demonstrations of transaction processes, or guided analysis of real-world crypto-related events.

Academic staff and support units may also consider offering workshops or co-curricular activities on digital financial behaviour. These could include sessions on risk assessment, how to evaluate information sources about cryptocurrency, and how to recognise misleading claims about security or anonymity.

7. CONCLUSION

This study examined how perceived security and confidentiality, together with perceived risk, shape university students' attitudes toward cryptocurrency in a higher education context. The empirical results show that students' attitudes are driven primarily by beliefs about the safety and confidentiality of cryptocurrency systems, while perceived risk plays a smaller but still significant role. These findings suggest that students' evaluations of cryptocurrency are grounded less in detailed financial analysis and more in perceptions of technological trust and protection. The strong effect of security and confidentiality perceptions is consistent with earlier work that highlights the importance of trust and perceived protection in the adoption of financial innovations. Evidence from meta-analyses indicates that financial education can improve financial knowledge and, to some extent, downstream behaviours, but the size of these effects depends on the context and the characteristics of participants (Kaiser and Menkhoff, 2017).

The present findings suggest that for cryptocurrency, education efforts need not only to convey basic financial concepts but also to enhance students' understanding of how security and confidentiality operate in decentralised systems. In parallel, research on cryptocurrency markets shows that social and informational environments can sustain interest in Bitcoin and related assets, even under substantial uncertainty (Mai et al., 2018). The positive association observed here between perceived risk and favourable attitudes may reflect similar dynamics, where risk-aware students still view cryptocurrency as an attractive or innovative domain.

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