

User Awareness and Perception of Central Bank Digital Currency (CBDC) in India: Implications for Future Payment Systems and Digital Financial Inclusion

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Abstract

The rapid development of Central Bank Digital Currencies (CBDCs) has transformed the debate surrounding the evaluation and transformation of money, payment systems and digital financial inclusion. Although India has established a substantial digital-payment ecosystem and introduced the Digital Rupee, evidence concerning users' awareness, perception and intention to use CBDC at the regional level remains limited. This study examines the levels of CBDC awareness, perception and intention to use among users in five districts of Tamilnadu, India. The study adopted a quantitative research design incorporating descriptive and analytical methods with primary data collected through a structured questionnaire. Of the 250 questionnaires distributed, following data screening, 210 valid responses were retained for subsequent analysis, yielding an 84% usable response rate. CBDC awareness and perception were measured using 20-item five-point scales, the intention to use construct was measured using two items. Descriptive statistics, chi-square tests, independent-samples t-tests, one-way ANOVA, correlation, Factor analysis and regression analysis were employed at the 5% significance level. The findings indicate low overall CBDC awareness ($M = 2.09$, $SD = 0.63$), compared with moderate perception ($M = 2.35$, $SD = 0.68$) and intention to use ($M = 2.54$, $SD = 0.89$). Approximately 63.3% of respondents demonstrated low awareness, while 52.4% reported low perception. The analysis revealed no statistically significant differences in awareness or perception across demographic groups. The measurement scales demonstrated excellent reliability and factorability. Awareness was positively associated with perception ($r = .398$, $p < .001$) and intention ($r = .368$, $p < .001$), while perception showed the strongest relationship with intention ($r = .495$, $p < .001$). Regression results further demonstrated that awareness significantly predicted perception ($\beta = .414$, $p < .001$), while awareness and perception jointly explained 28.0% of the variance in intention to use. The study establishes awareness $\rightarrow$ perception $\rightarrow$ intention as an empirically supported behavioural pathway and highlights the need for user-centred CBDC education, trust-building, privacy assurance and practical engagement strategies to strengthen India's Digital Rupee adoption.

Keywords: Central Bank Digital Currency; CBDC Awareness; CBDC Perception; Digital Rupee; Intention to Use; India

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Introduction

Central Bank Digital Currency (CBDC) has emerged as a transformative innovation in the contemporary monetary and payment systems. Unlike privately issued cryptocurrencies and conventional electronic representations of commercial-bank money, a CBDC represents a digital form of sovereign money issued or backed by a central bank. Its emergence reflects the interaction between technological transformation,

declining reliance on physical cash, changing consumer payment behaviour and central banks' interest in modernising monetary infrastructure. The international literature demonstrates that CBDC has implications extending beyond payment efficiency to monetary policy, banking intermediation, financial stability, privacy, international payments and welfare (Auer et al., 2022; Chen & Siklos, 2022; Dionysopoulos et al., 2024; Williamson, 2022).

The importance of CBDC is therefore simultaneously technological, economic, institutional and behavioural. From a design perspective, central banks must determine the appropriate balance between accessibility, privacy, remuneration, limits, interoperability and financial stability. Agur et al. (2022) emphasise that CBDC design involves trade-offs between different policy objectives, while Kumhof and Noone(2021) argue that appropriate design choices can mitigate potential financial-stability risks. Similarly, Fernández-Villaverde et al. (2021) examine the implications of central-bank-issued digital money for the structure of the banking system. Barrdear and Kumhof (2022) demonstrate that CBDC may also have important macroeconomic implications, while Davoodalhosseini (2022) considers its potential role in monetary policy.

The international development of CBDC has further increased the relevance of consumer-side research. CBDC adoption ultimately depends not only on whether governments and central banks can establish the necessary infrastructure, but also on whether individuals understand the technology, perceive meaningful benefits, trust the issuing institution and are willing to use it. Bijlsma et al. (2023) demonstrate that consumer adoption is associated with individual and payment-related considerations. Gupta et al. (2023) show the relevance of prior experience with the Unified Payments Interface (UPI) to CBDC usage, while Gupta et al. (2023) also highlight the role of perceived risks, benefits and trust. Liu et al. (2022) identify behavioural determinants of individuals' intentions to use CBDC, and Wu et al. (2024) demonstrate the importance of behavioural reasoning in explaining adoption and recommendation intentions.

India offers a particularly significant context for investigating CBDC adoption. The country has developed an extensive digital-payment ecosystem, and consumers increasingly interact with electronic payment platforms. Nevertheless, familiarity with digital payments should not automatically be equated with awareness of CBDC. A user may be highly experienced with digital payments while having limited knowledge of the distinctive characteristics of sovereign digital currency. Gupta et al. (2023) identify the importance of previous UPI experience, while Sandhu et al. (2023) position India's CBDC within the broader architecture of digital public infrastructure. Babu and Abraham (2021) similarly discuss CBDC from an Indian policy and operational perspective.

The existing CBDC literature is extensive but fragmented. One stream concentrate on macroeconomic and monetary implications, including bank intermediation, monetary policy and financial stability (Andolfatto, 2021; Barrdear & Kumhof, 2022; Davoodalhosseini, 2022; Jun & Yeo, 2021; Schilling et al., 2024). A second stream examines CBDC design, implementation and institutional considerations (Agur et al., 2022; Alfar et al., 2023; Genc & Takagi, 2024). A third-stream addresses consumer adoption, trust, privacy, perceived benefits and behavioural intention (Bijlsma et al., 2023; Gupta et al., 2023; Jabbar et al., 2023; Palanisamy et al., 2025; Tronnier & Qiu, 2024). A fourth stream examines specific national experiences, particularly China and India (Cheng, 2022; Li & Huang, 2021; Xu, 2022; Desai, 2025; Nayak & Kumar, 2025).

Although these streams have advanced knowledge substantially, comparatively limited attention has been devoted to the relationship between awareness and perception among prospective CBDC users in the Indian regional context. In particular, there remains a need to distinguish between whether users simply know about CBDC and whether such knowledge translates into favourable evaluations and behavioural intention. This distinction is theoretically important because awareness may represent an initial cognitive condition, whereas perception may be more directly related to intended behaviour.

The present study seeks to address this gap by examining CBDC awareness, perception and intention to use among 210 respondents from five districts of Tamil Nadu. The study specifically examines whether demographic characteristics are significantly associated with awareness and perception, whether awareness differs across demographic groups, whether awareness and perception are significantly related, and whether awareness predicts perception and intention.

The study makes three principal contributions. First, it provides empirical evidence on the relatively underexplored user-awareness dimension of India's CBDC development. Second, it distinguishes awareness from perception and intention, thereby developing a behavioural pathway from cognitive knowledge to evaluation and intended usage. Third, it provides regional evidence from five Tamil Nadu districts that can complement the broader Indian and international CBDC literature.

Literature Review and Research Gap

CBDC: Conceptual and Institutional Foundations

Central Bank Digital Currency (CBDC) emerged as a significant innovation in the evolution of money, payment systems, and central banking. Auer et al. (2022) conceptualise CBDC within the broader transformation of monetary and payment arrangements, highlighting its potential motives, economic consequences, and implementation challenges. Similarly, Dionysopoulos et al. (2024) demonstrate that CBDC research encompasses monetary, financial, technological, regulatory, and societal dimensions. Systematic evidence also confirms the multidisciplinary character of the field, with Hoang et al. (2023) applying text-mining approaches to identify major research themes, while Shah (2024) reviews the global development and methodological evolution of CBDC scholarship. Prodan et al. (2024) further document the increasing academic and policy interest in CBDCs.

The international development of CBDCs reflects the broader digitalisation of money. Lee et al. (2021) examine CBDC developments from an international perspective, while Cunha et al. (2021) locate CBDCs within the wider digital-money revolution. Laboure et al. (2021) discuss the evolving relationship between cryptocurrencies and CBDCs, suggesting that central-bank money is responding to fundamental changes in digital financial ecosystems. Ozturkcan et al. (2022) similarly demonstrate how CBDC development is embedded in narratives concerning monetary transformation and technological innovation.

The literature also emphasises that CBDC design involves important economic and institutional trade-offs. Agur et al. (2022) demonstrate that design characteristics can determine CBDC attractiveness and economic effects, whereas Kumhof and Noone (2021) emphasise design principles intended to minimise financial-stability risks. Kahn et al. (2022) revisit the rationale for central-bank electronic money, while Cukierman

(2020) considers CBDC from welfare and political-economy perspectives. Thus, CBDC should not be understood solely as a technological innovation; it represents an institutional transformation involving monetary policy, financial intermediation, governance, and public behaviour. In India, Babu and Abraham (2021) discuss CBDC from policy and operational perspectives, while Sandhu et al. (2023) associate the Digital Rupee with India's expanding digital public infrastructure. Collectively, these studies establish the institutional foundation for examining whether citizens possess sufficient awareness to participate effectively in the emerging CBDC ecosystem.

Macro-Financial and Monetary Implications

A substantial body of research investigates the macroeconomic and financial implications of CBDC. Andolfatto (2021) examines potential effects on commercial banking and argues that CBDC consequences depend significantly on design and adoption. Fernández-Villaverde et al. (2021) conceptualise CBDC as an extension of central banking to the broader population, raising important questions regarding the future relationship between central banks and commercial banks. Barrdear and Kumhof (2022) analyse the macroeconomic effects for CBDC, while Davoodalhosseini (2022) considers its implications for monetary policy. Minesso et al. (2022) extend this discussion to open economies, indicating that CBDC may generate international as well as domestic monetary effects.

Financial stability is another major concern. Schilling et al. (2024) investigate interactions between price and banking stability, while Tercero-Lucas (2023) examines financial stability within evolving monetary systems. Jun and Yeo (2021) analyse potential effects on loan supply and bank-failure risk. Son et al. (2023) focus on payment choices and commercial-bank profitability, whereas Beckmann et al. (2024) investigate the potential consequences of bank disintermediation. Azzone and Barucci (2023) further explore the relationship between sight deposits and CBDC.

The literature also considers CBDC as a policy instrument and its broader economic consequences. Williamson (2022) examines the welfare and policy effects of CBDC. Kóczyán et al. (2022) investigate the potential of CBDC as a monetary policy instrument, and Kwon et al. (2022) analyse CBDC in relation to tax evasion and inflation taxation. Oh and Zhang (2022) examine informal economic activity, while Morgan (2022) examines CBDC as potential a defensive response to systematic stablecoins. Although the existing literature offers valuable insights into the macro-financial consequences CBDC, their emphasis remains predominantly institutional and economic rather than behavioural. Consequently, understanding whether ordinary users possess adequate knowledge and favourable perceptions remains an important empirical issue.

CBDC Design, Adoption and International Development

CBDC development differs substantially across countries according to institutional capacity, technological infrastructure, regulatory arrangements, and policy objectives. Cheng (2022), Li and Huang (2021), and Xu (2022) examine China's e-CNY development and demonstrate how institutional and design considerations influence implementation. Li et al. (2023) assess the development compatibility of digital Currency electronic payment between China and belt and road countries, while Kuehnlenz et al. (2023) consider CBDC and international payment systems and their implications for the international monetary order.

The determinants of CBDC issuance and implementation have also attracted increasing attention. Alfar et al. (2023) investigate determinants of CBDC issuance, while Genc and Takagi (2024) synthesise research on CBDC design and implementation. Elsayed and Nasir (2022) and Bhaskar et al. (2022) identify key avenues of future research, confirming that CBDC scholarship remains an evolving field. Recent research further extends this discussion to the context of small open economies (Fan et al., 2025), personal financial planning and CBDC adoption propensity (El Kalak, 2026), and regulatory frameworks (Hess, 2026).

CBDC has increasingly emerged as an important factor in financial market dynamics. Helmi et al. (2023) investigate CBDC news and stock and cryptocurrency markets, while Wang et al. (2022) examine financial-market responses to CBDC-related information. Wang et al. (2023) analyse return spillovers between CBDC attention and cryptocurrency markets, and Mzoughi et al. (2022) examine Bitcoin-market reactions to CBDC launches. Lü et al. (2025) further consider the effects of CBDC uncertainty on international financial markets, while Xiao et al. (2024) examine implications for corporate debt-financing costs. These studies demonstrate the extensive economic consequences associated with CBDC; nevertheless, market responses cannot fully explain the awareness, perception, and behavioural intentions of individual users.

Consumer Adoption, Trust, Privacy and Behavioural Intention

Consumer-level research represents an increasingly important dimension of CBDC scholarship. Bijlsma et al. (2023) investigate factors triggering consumer adoption, while Gupta et al. (2023) demonstrate that perceived benefits and risks can influence trust and willingness to adopt CBDC. Liu et al. (2022) examine individual intention to use CBDC, whereas Wu et al. (2024) apply behavioural reasoning to explain adoption and recommendation intentions. Maryaningsih et al. (2022) further investigate determinants of CBDC adoption, demonstrating the importance of individual-level characteristics. Trust is particularly important because CBDC represents sovereign digital money. Palanisamy et al. (2025) link financial literacy, trust, and behavioural intention, while Keshav and Sinha (2026) examine the relationship between trust and CBDC willingness. Ngo et al. (2023) additionally show that governance and monetary-policy considerations can influence public acceptance.

Privacy constitutes another central behavioural concern. Jabbar et al. (2023) examine individual privacy through a privacy-calculus perspective, while Kaur (2024) systematically reviews privacy issues associated with CBDC. Tronnier et al. (2022) examines users' privacy concerns and trust regarding the digital euro, and Tronnier and Qiu (2024) investigates the effect of privacy concerns on e-CNY adoption. The evidence indicates that adoption is influenced not merely by technological convenience but also by perceived security, privacy, institutional trust, and risk. Recent studies further demonstrate the importance of demographic and technological characteristics. Kaur et al. (2024) investigate CBDC adoption among Generation Z, while Dong et al. (2024) examine CBDC determinants across 85 countries. Desai (2025) investigates consumer switching behaviour and financial antecedents of CBDC intention in India. Nayak and Kumar (2025) examine awareness and satisfaction associated with e-Rupee usage, while Thirumaran and Balasubramanian (2025) identify enabling and inhibiting factors influencing Digital Rupee adoption. Taken together, the literature suggests that CBDC adoption is multidimensional, involving awareness, trust, perceived usefulness, risk, privacy, financial literacy, technological familiarity, and behavioural evaluation.

Indian Context and Research Gap

India provides an especially relevant setting for CBDC research because the country's extensive digital-payment infrastructure creates favourable conditions for the diffusion of the Digital Rupee. Gupta et al. (2023) highlight the relevance of previous UPI experience to CBDC usage, while Sandhu et al. (2023) situate India's CBDC within the country's digital public infrastructure. Desai (2025) examines consumer switching behaviour and financial antecedents, Nayak and Kumar (2025) investigate e-Rupee awareness and satisfaction, Palanisamy et al. (2025) emphasise financial literacy and trust, and Thirumaran and Balasubramanian (2025) identify adoption enablers and inhibitors. Despite this growing literature, an important empirical gap remains. The existing literature has primally examined CBDC adoption determinants, technological acceptance, trust, privacy, financial literacy, macroeconomic implications, financial stability, or specific national CBDC programmes (Agur et al., 2022; Auer et al., 2022; Bijlsma et al., 2023; Dionysopoulos et al., 2024; Genc & Takagi, 2024; Gupta et al., 2023; Liu et al., 2022; Wu et al., 2024). Comparatively limited scholarly attention has been devoted to the integrated relationship between CBDC awareness, perception, and intention among users in a regional Indian setting.

Accordingly, this present study contributes to filling this research gap by examining whether awareness varies across demographic groups and whether awareness is significantly associated with users' perceptions and intention to use CBDC. The proposed conceptual pathway is: CBDC Awareness → CBDC Perception → Intention to Use CBDC. This framework integrates the informational, attitudinal, and behavioural dimensions identified across the literature and provides an empirical basis for assessing the extent to which awareness may contribute to favourable perceptions and future CBDC-use intentions among Indian users.

Research Methodology

Research Design and Study Area

The study employed a quantitative descriptive, and analytical research design to examine users' awareness and perceptions of Central Bank Digital Currency (CBDC) in India. Descriptive statistics were employed to assess awareness, perception and intention to use CBDC, while inferential techniques examined associations, group differences, relationships and predictive effects. The study covered five districts of Tamil Nadu- Salem, Erode, Namakkal, Tirupur and Coimbatore to ensure representation of respondents with diverse demographic profile and varying levels exposure to digital payments systems. The contextual relevance of user awareness, trust, financial literacy and adoption is consistent with recent CBDC research (Gupta et al., 2023; Nayak & Kumar, 2025; Palanisamy et al., 2025; Thirumaran & Balasubramanian, 2025).

Population and Sampling

The population comprised residents and digital-payment users in the selected districts who represented existing or potential CBDC users. A convenience sampling technique was adopted due to the absence of a comprehensive sampling frame for potential CBDC users and the geographical dispersion of the target population. Although 250 questionnaires were initially planned and distributed, 40 incomplete or unsuitable questionnaires were excluded, resulting in 210 valid observations and an 84.00% usable

response rate. The final sample of 210 respondents constituted the basis for all empirical analyses.

Data Sources and Research Instrument

Primary data were collected using a structured questionnaire comprising four sections. Section A captured demographic and digital-payment demographical characteristics including gender, age, and educational level, occupation, income, district, residence, digital-payment experience, usage frequency and preferred payment method. Section B measured CBDC awareness through 20 items (A1–A20) covering knowledge of CBDC and the Digital Rupee, the Reserve Bank of India's role, sovereign backing, wallets, payment applications, security, functionality, cryptocurrency differences and pilot developments. Items were measured using a five -point Likert scale from 1 = Not at all aware to 5 = Extremely aware. The relevance of awareness to CBDC adoption is supported by research emphasizing individual knowledge, financial literacy and behavioural intention (Bijlsma et al., 2023; Liu et al., 2022; Palanisamy et al., 2025).

Section C contained 20 perception items (P1–P20) addressing convenience, speed, ease of use, efficiency, reliability, security, trust, transparency, fraud protection, usefulness, risks, benefits and overall perception. Responses were measured using a five point Likert scale, ranging from 1=strongly disagree to 5=strongly agree. These dimensions reflect established CBDC adoption concerns involving perceived benefits, risks, trust and privacy (Gupta et al., 2023; Jabbar et al., 2023; Tronnier et al., 2022; Wu et al., 2024). Section D included two items measuring intention to use CBDC for regular payments and willingness to learn more about CBDC.

Measurement and Scoring

Table 1. Measurement and Scoring

Construct	Items	Scale	Possible Score
CBDC Awareness	20	1–5	20–100
CBDC Perception	20	1–5	20–100
Intention to Use	2	1–5	2–10

Source: Author computation

Table 1. shows that measurement and scoring. Mean scores were interpreted as Low (1.00–2.33), Moderate (2.34–3.66), and High (3.67–5.00). These bands were used solely for descriptive interpretation and were not considered validated diagnostic thresholds.

Variables and Analytical Framework

The principal constructs were CBDC awareness, CBDC perception and intention to use, while demographic characteristics and digital-payment experience were treated as background variables. The conceptual framework was specified as: Demographic Characteristics/Digital-Payment Experience → CBDC Awareness → CBDC Perception → Intention to Use CBDC. This framework reflects the multidimensional nature of CBDC adoption involving awareness, trust, perceived usefulness, risk and behavioural intention

(Maryaningsih et al., 2022; Kaur et al., 2024; Desai, 2025).

Data Analysis and Hypotheses

Data were screened, coded and analysed using descriptive and inferential statistical techniques. Descriptive analysis was conducted using frequencies, percentages, means, and standard deviations, while Cronbach's alpha was employed to assess the internal consistency of the measurement items. Chi-square tests examined categorical associations; independent-samples t-tests assessed two-group differences; and one-way ANOVA examined differences across multiple groups. Exploratory factor analysis (EFA) assessed item factorability, while Pearson correlation examined relationships among awareness, perception and intention. Regression analysis evaluated the predictive effects of awareness and perception. Statistical significance was evaluated at $\alpha = .05$.

Ten hypotheses were tested: H1–H2 addressed demographic associations with awareness and perception; H3–H4 examined two-group differences; H5–H6 assessed differences across multiple groups; H7–H8 evaluated factorability; H9 tested the relationship between awareness and perception; and H10 examined whether CBDC awareness significantly influences CBDC perception

Results

Overall Awareness, Perception and Intention

The empirical results indicate a clear distinction between respondents' knowledge of CBDC and their evaluation of it. CBDC awareness recorded a mean of 2.09 (SD = 0.63), indicating a low level, whereas perception recorded a mean of 2.35 (SD = 0.68), indicating a moderate level. Intention to use CBDC was also moderate, with a mean of 2.54 (SD = 0.89). This pattern is important because previous research identifies awareness, perceived benefits, trust, financial literacy and perceived risks as important dimensions of CBDC adoption (Agur et al., 2022; Bijlsma et al., 2023; Gupta et al., 2023; Liu et al., 2022; Maryaningsih et al., 2022; Palanisamy et al., 2025; Wu et al., 2024). Table 2 presents overall awareness, perception and intention.

Table 2 Overall Awareness, Perception and Intention

Construct	Mean	SD	Interpretation
Awareness	2.09	0.63	Low
Perception	2.35	0.68	Moderate
Intention to use	2.54	0.89	Moderate

Source: Author computation

The categorical distribution further demonstrates the predominance of low awareness. 133 respondents (63.3%) were classified as having low awareness, compared with 52 (24.8%) reporting moderate awareness and only 25 (11.9%) reporting high awareness. For perception, 110 respondents (52.4%) were classified as low, 67 (31.9%) as moderate and 33 (15.7%) as high. Thus, although perception was relatively more

favourable than awareness, A majority of the respondents remained in the low-perception category. This finding highlights that consistent with the broader literature showing that CBDC adoption involves a combination of knowledge, trust, perceived usefulness, privacy and risk considerations (Jabbar et al., 2023; Kaur, 2024; Tronnier et al., 2022; Kaur et al., 2024).

Demographic Associations with Awareness and Perception

Chi-square analysis revealed no statistically significant association between CBDC awareness and any of the demographic characteristics examined, including gender, age, education, occupation, income and district. The respective χ^2 values were 0.952, 6.528, 10.518, 10.431, 1.553 and 10.721, with all p-values exceeding .05. Therefore, H1 was not supported. The finding suggests that low awareness was broadly distributed across demographic categories rather than being concentrated in a particular group. Similarly, no significant association was identified between demographic characteristics and CBDC perception. Gender ($\chi^2 = 1.873$, $p = .392$), age ($\chi^2 = 13.703$, $p = .090$), education ($\chi^2 = 4.240$, $p = .936$), occupation ($\chi^2 = 9.510$, $p = .797$), income ($\chi^2 = 7.148$, $p = .520$) and district ($\chi^2 = 7.460$, $p = .488$) were all statistically insignificant. Hence, H2 was not supported. Although age produced the comparatively strongest association, its p-value remained above the .05 criterion. This suggests that CBDC perceptions were relatively homogeneous across the demographic groups studied, despite evidence from international research that demographic, generational and behavioural factors can influence digital-money adoption (Dong et al., 2024; Kaur et al., 2024; Ngo et al., 2023).

Gender Differences

The independent-samples t-test indicated that female respondents had a somewhat higher awareness mean ($M = 2.34$, $SD = 0.60$) than male respondents ($M = 2.04$, $SD = 0.64$), however, this difference did not reach statistically significant, $t(208) = -1.412$, $p = .160$. Accordingly, H3 was not supported. For perception, male respondents recorded a mean of 2.37 ($SD = 0.69$) compared with 2.21 ($SD = 0.64$) among females. The difference was again statistically insignificant, $t(208) = 0.732$, $p = .465$, resulting in H4 not being supported. These findings indicate that gender did not substantially differentiate either CBDC awareness or perception in the present sample.

Differences Across Demographic Groups

One-way ANOVA produced no statistically significant differences in CBDC awareness across age ($F = 2.214$, $p = .069$), education ($F = 1.898$, $p = .096$), occupation ($F = 0.986$, $p = .442$), income ($F = 0.302$, $p = .876$), district ($F = 1.589$, $p = .179$) or digital-payment frequency ($F = 0.294$, $p = .882$). Therefore, H5 was not supported. Likewise, perception did not differ significantly across age ($F = 2.401$, $p = .051$), education ($F = 0.282$, $p = .923$), occupation ($F = 0.334$, $p = .938$), income ($F = 0.186$, $p = .945$), district ($F = 0.055$, $p = .994$) or digital-payment frequency ($F = 0.433$, $p = .785$). Although age approached the conventional significance threshold, it remained above .05; consequently, H6 was not supported.

Factorability and Reliability

The awareness scale demonstrated excellent sampling adequacy, with $KMO = .984$, while Bartlett's test was

significant, $\chi^2(190) = 6404.09$, $p < .001$. Cronbach's alpha was 0.989, and the first factor explained 83.45% of variance. Thus, H7 was supported. The perception scale similarly produced KMO = .985 and significant Bartlett's test, $\chi^2(190) = 6311.64$, $p < .001$. Cronbach's alpha was .989, while the first factor explained 83.22% of variance. Therefore, H8 was supported. The exceptionally high reliability values demonstrate a high level of internal consistency, although such high alpha values also warrant attention to potential item redundancy in future scale refinement.

Relationships Among Awareness, Perception and Intention

Pearson correlation revealed a statistically significant positive relationship between awareness and perception ($r = .398$, $p < .001$). The findings also revealed a positive association between awareness and intention to use ($r = .368$, $p < .001$), while perception demonstrated the strongest relationship with intention ($r = .495$, $p < .001$). Consequently, H9 was supported. The results broadly correspond with prior studies emphasizing the role of awareness, perceived benefits, trust and behavioural evaluation in CBDC adoption (Gupta et al., ; Liu et al; 2022; Thirumaran & Balasubramanian, 2025). Regression analysis further revealed that awareness significantly predicted perception ($\beta = .414$, $SE = .066$, $t = 6.261$, $p < .001$). The model was significant, $F(1,208) = 39.20$, $p < .001$, with $R^2 = .159$, indicating that awareness explained 15.9% of the variance in perception. Hence, H10 was supported.

A second regression demonstrated that both awareness ($\beta = .234$, $p = .002$) and perception ($\beta = .459$, $p < .001$) significantly predicted intention to use CBDC. The model was significant, $F(2,207) = 40.25$, $p < .001$, and explained 28.0% of the variance in intention ($R^2 = .280$). Perception showed the stronger predictive coefficient, suggesting that favourable evaluation may be exhibited a stronger association with usage intention than awareness alone. This is consistent with research highlighting perceived usefulness, trust, risk and behavioural intention as important mechanisms of CBDC adoption (Bijlsma et al., 2023; Jabbar et al., 2023; Palanisamy et al., 2025; Wu et al., 2024).

Consolidated Hypothesis-Testing Results

Table 3 Summary of overall Consolidated Hypothesis-Testing Results

Hypothesis	Test	Principal Result	p-value	Decision
H1	Chi-square	Demographic associations with awareness insignificant	> .05	Not supported
H2	Chi-square	Demographic associations with perception insignificant	> .05	Not supported
H3	t-test	Gender awareness difference: $t = -1.412$	.160	Not supported
H4	t-test	Gender perception difference: $t = 0.732$	.465	Not supported
H5	ANOVA	Awareness differences insignificant	> .05	Not supported
H6	ANOVA	Perception differences insignificant	.051–.994	Not supported
H7	KMO/Bartlett	KMO = .984; $\chi^2 = 6404.09$	< .001	Supported
H8	KMO/Bartlett	KMO = .985; $\chi^2 = 6311.64$	< .001	Supported
H9	Pearson correlation	$r = .398$	< .001	Supported
H10	Regression	$\beta = .414$; $R^2 = .159$	< .001	Supported

Source: Author Computation using SPSS and MS Excel

Table 3 presents that summary of overall consolidated hypothesis-testing results. Overall, the evidence indicates that CBDC awareness remains low, whereas perception and intention are moderate. Demographic characteristics were not significantly associated with differentiate awareness or perception, but the measurement scales demonstrated strong reliability and factorability. Most importantly, awareness was positively related to perception and significantly predicted it, while both awareness and perception contributed significantly to intention. These findings reinforce the behavioural importance of strengthening public knowledge, trust and positive evaluation of CBDC in India, particularly within the developing Digital Rupee ecosystem (Babu & Abraham, 2021; Sandhu et al., 2023; Desai, 2025; Nayak & Kumar, 2025).

Discussion

The empirical findings reveal an important distinction between CBDC awareness, perception and intention to use. Respondents demonstrated low awareness ($M = 2.09$), whereas perception ($M = 2.35$) and intention ($M = 2.54$) were moderate. This findings suggest that familiarity with India's expanding digital-payment ecosystem does not necessarily imply adequate knowledge of the distinctive characteristics, institutional backing and applications of sovereign digital currency. This finding is consistent with the broader CBDC literature, which identifies monetary, technological, institutional and behavioural dimensions of CBDC development (Auer et al., 2022; Dionysopoulos et al., 2024; Hoang et al., 2023; Shah, 2024; Prodan et al., 2024).

The low awareness level has important implications for CBDC diffusion. Agur et al. (2022) demonstrate that CBDC design involves trade-offs affecting attractiveness and economic outcomes, while Kumhof and Noone (2021) emphasise the importance of appropriate design for financial stability. Genc and Takagi (2024) similarly identify design and implementation as major themes in CBDC research. From the present user-level perspective, however, the challenge may begin even before design preferences are evaluated: users must first understand what CBDC is, how it differs from existing digital-payment instruments and what benefits it provides. This complements international studies by Lee et al. (2021), Cunha et al. (2021), Laboure et al. (2021) and Ozturkcan et al. (2022), which position CBDC within the broader transformation of money and payment systems.

The moderate perception score, despite low awareness, is particularly noteworthy. Respondents appear capable of developing moderately favourable evaluations even when their substantive knowledge remains limited. Such a pattern is compatible with consumer-adoption research showing that CBDC evaluations are shaped by perceived benefits, risks, trust and usefulness (Bijlsma et al., 2023; Gupta et al., 2023; Liu et al., 2022; Maryaningsih et al., 2022). Ngo et al. (2023) further demonstrate the relevance of governance and monetary-policy considerations to public acceptance. Thus, favourable perception should not automatically be interpreted as comprehensive understanding or readiness for adoption.

The absence of significant demographic associations provides another important finding. Gender, age, education, occupation, income and district were not significantly associated with either awareness or perception. Similarly, the t-test results showed no significant gender differences, while ANOVA revealed no significant differences across age, education, occupation, income, district or digital-payment frequency. These findings suggest that low CBDC awareness is broadly distributed across the sample rather than

concentrated within a particular demographic category. The result supports the multidimensional character of CBDC adoption identified by Dong et al. (2024), who examine determinants across 85 countries, and by Gene and Takagi (2024), who synthesise diverse CBDC implementation considerations.

Although age did not reach statistical significance, the perception ANOVA approached the conventional threshold ($p = .051$). This marginal result suggests that age-related differences may warrant further investigation using larger and more representative samples. Such investigation would be consistent with Kaur et al. (2024), who specifically examine CBDC adoption among Generation Z. Likewise, differences associated with digital-payment experience could become more visible in larger samples or across regions with substantially different levels of digital-payment penetration.

The psychometric findings provide strong support for the measurement instruments. The awareness and perception scales produced Cronbach's alpha coefficients of .989, while KMO statistics were .984 and .985, respectively, and Bartlett's tests were statistically significant. These results indicate excellent internal consistency and strong factorability. They are consistent with the increasing methodological sophistication of CBDC research identified by Hoang et al. (2023), Shah (2024) and Elsayed and Nasir (2022). Nevertheless, the exceptionally high alpha values may also indicate substantial item similarity. Future research could therefore employ confirmatory factor analysis and item-reduction procedures to determine whether a more parsimonious measurement structure can preserve explanatory content while reducing redundancy.

The correlation analysis provides the central behavioural insight. Awareness was positively associated with perception ($r = .398$, $p < .001$), awareness was positively related to intention ($r = .368$, $p < .001$), and perception demonstrated the strongest relationship with intention ($r = .495$, $p < .001$). This pattern supports the proposed conceptual sequence CBDC Awareness $\rightarrow$ CBDC Perception $\rightarrow$ Intention to Use. The findings complement Liu et al. (2022) and Wu et al. (2024), who emphasise individual behavioural and reasoning mechanisms in CBDC adoption. They also correspond with Palanisamy et al. (2025) and Keshav and Sinha (2026), who highlight financial literacy, trust and willingness to adopt.

Regression analysis provides further evidence. Awareness significantly predicted perception ($\beta = .414$, $p < .001$), explaining 15.9% of its variance. Thus, greater knowledge is associated with more favourable evaluation, although awareness alone does not explain most differences in perception. Other factors identified in previous studies—including trust, privacy, perceived benefits, perceived risks and financial literacy—may contribute substantially to user evaluation (Gupta et al., 2023; Jabbar et al., 2023; Kaur, 2024; Tronnier et al., 2022; Palanisamy et al., 2025).

The second regression model showed that both awareness and perception significantly predicted intention to use CBDC, jointly explaining 28.0% of its variance. Perception had the stronger coefficient, suggesting that informed and favourable evaluation may be more closely connected with behavioural intention than awareness alone. This interpretation is supported by research on trust, privacy and perceived risk (Jabbar et al., 2023; Tronnier et al., 2022; Tronnier & Qiu, 2024), consumer switching behaviour (Desai, 2025), and Digital Rupee enablers and inhibitors (Thirumaran & Balasubramanian, 2025).

Finally, the Indian context is particularly significant. India's established digital-payment infrastructure

provides an important foundation for CBDC diffusion (Sandhu et al., 2023), while UPI experience may influence CBDC usage (Gupta et al., 2023). However, the present findings demonstrate that digital-payment familiarity should not be equated with CBDC readiness. Consistent with the wider Indian CBDC literature (Babu & Abraham, 2021; Nayak & Kumar, 2025; Desai, 2025), effective adoption requires not only awareness campaigns but also clear communication concerning CBDC functionality, security, trust, privacy, benefits and practical value. Thus, the study's principal contribution is to demonstrate empirically that improving CBDC adoption requires a progression from basic awareness to informed perception and ultimately behavioural intention, rather than assuming that existing digital-payment usage will automatically generate CBDC acceptance.

Theoretical implications

This study contributes to CBDC adoption research by proposing and empirically supporting a sequential behavioural framework: CBDC Awareness → CBDC Perception → Intention to Use. The significant awareness–perception relationship and the positive association between perception and intention provide micro-level evidence complementing predominantly macroeconomic research on monetary policy, banking, financial stability and welfare (Andolfatto, 2021; Barrdear & Kumhof, 2022; Fernández-Villaverde et al 2021; Schilling et al., 2024; Williamson, 2022). The findings further suggest that awareness alone may be insufficient; perception has a stronger relationship with intention, highlighting the importance of usefulness, trust, security and perceived benefits in adoption (Agur et al., 2022; Gupta et al., 2023; Liu et al., 2022; Wu et al., 2024). The study also extends CBDC scholarship by providing regional evidence from Tamil Nadu, complementing international and cross-country investigations (Dong et al 2024; Genc & Takagi, 2024; Hoang et al., 2023). Thus, CBDC adoption should be understood not only as a technological or institutional process but also as a progressive cognitive and behavioural process.

Policy and Managerial Implications

The findings provide valuable insights for policymakers, banks, payment providers and other CBDC stakeholders. First, the low awareness level indicates a need for broad, systematic and accessible CBDC education, particularly explaining the Digital Rupee, its sovereign nature, applications and differences from conventional digital payments and cryptocurrencies (Babu & Abraham, 2021; Cunha et al., 2021; Sandhu et al., 2023). Second, communication should emphasise practical demonstrations rather than technical explanations alone. Third, trust, privacy and security should be central to public communication because these factors influence CBDC acceptance (Jabbar et al., 2023; Kaur, 2024; Tronnier et al., 2022; Tronnier & Qiu, 2024). Fourth, given that perception exhibited a stronger association with usage intention than awareness, policymakers should create opportunities for users to directly experience the practical benefits of CBDCs (Bijlsma et al., 2023; Gupta et al., 2023). Fifth, the absence of significant demographic differences supports broad-based awareness programmes rather than narrowly targeted campaigns. India's established digital-payment ecosystem and UPI experience can provide an important foundation (Gupta et al., 2023; Sandhu et al 2023). Finally, CBDC expansion should remain consistent with safeguards concerning banking intermediation, liquidity and financial stability (Andolfatto, 2021; Jun & Yeo, 2021; Kumhof & Noone, 2021; Schilling et al., 2024; Son et al., 2023).

limitations and future Research

The findings should be interpreted within several methodological limitations. First, convenience sampling limits the generalisability of the 210 observations to Tamil Nadu and India. Future research should employ probability-based sampling. Second, the study covers only five districts, limiting geographical representativeness. Comparative research across states, metropolitan and rural regions could provide broader evidence. Third, the cross-sectional design establishes statistical relationships rather than definitive causality; longitudinal research could examine changing awareness as CBDC diffusion develops. Fourth, self-reported awareness may differ from objective CBDC knowledge. Future studies should combine self-reported measures with knowledge tests. Fifth, the exceptionally high reliability coefficients suggest possible item redundancy and warrant confirmatory factor analysis and scale refinement. Sixth, future models should incorporate trust, privacy, perceived risk, perceived benefits, financial literacy, technological familiarity and institutional confidence (Gupta et al., 2023; Jabbar et al., 2023; Palanisamy et al., 2025; Keshav & Sinha, 2026). Finally, the two-item intention measure should be expanded using validated multidimensional scales. Structural equation modelling and comparative studies of Digital Rupee users and non-users could provide stronger evidence (Liu et al., 2022; Wu et al., 2024).

Conclusion

This study examined CBDC awareness, perception and intention to use among 210 respondents from five districts of Tamil Nadu. The findings demonstrate a clear distinction between knowledge and evaluation: overall awareness was low ($M = 2.09$), whereas perception ($M = 2.35$) and intention to use ($M = 2.54$) were moderate. Importantly, 63.3% of respondents exhibited low awareness and 52.4% exhibited low perception, indicating that India's advanced digital-payment environment does not directly translate into CBDC readiness. The inferential analysis indicates that gender, age, education, occupation, income, district and digital-payment frequency did not significantly differentiate awareness or perception. Thus, the awareness challenge appears relatively widespread within the study sample rather than being concentrated in a particular demographic group. The measurement assessment revealed strong reliability and sampling adequacy, with excellent KMO values, significant Bartlett's, tests of sphericity, and high internal consistency for booth constructs.

The principal empirical contribution concerns the relationship among awareness, perception and intention. Awareness demonstrated a statistically significant relationship with perception ($r = .398$, $p < .001$), while awareness and perception were significantly related to intention ($r = .368$ and $.495$, respectively; $p < .001$). The regression analysis further revealed that awareness significantly predicted perception ($\beta = .414$, $p < .001$; $R^2 = .159$), while awareness and perception jointly predicted intention ($R^2 = .280$), with perception demonstrating the stronger coefficient. These findings provide empirical support for the proposed pathway: CBDC Awareness $\rightarrow$ CBDC Perception $\rightarrow$ Intention to Use. The results complement research emphasising consumer adoption, trust, perceived benefits, privacy and behavioural intention (Bijlsma et al., 2023; Gupta et al., 2023; Jabbar et al., 2023; Palanisamy et al., 2025; Thirumaran & Balasubramanian, 2025). They also complement macroeconomic research concerning monetary policy, banking and financial stability (Andolfatto, 2021; Barrdear & Kumhof, 2022; Fernández-Villaverde et al., 2021; Schilling et al., 2024).

Overall, the study demonstrates that CBDC adoption is not merely a technological or infrastructural challenge. It is also a knowledge, perception and behavioural challenge. For India, effective CBDC

diffusion therefore requires broad public education, practical demonstrations, transparent communication, privacy and security assurance, trust-building and user-oriented design. The study contributes regional empirical evidence by connecting the institutional significance of sovereign digital money with the micro-level behavioural conditions necessary for its wider acceptance and use.

References

- Agur, I., Ari, A., & Dell'Ariccia, G. (2022). Designing central bank digital currencies. *Journal of Monetary Economics*, 125, 62–79. <https://doi.org/10.1016/j.jmoneco.2021.05.002>
- Alfar, J. K., Kumpamool, C., Nguyen, D. T. K., & Ahmed, R. (2023). The determinants of issuing central bank digital currencies. *Research in International Business and Finance*, 64, 101884. <https://doi.org/10.1016/j.ribaf.2023.101884>
- Alonso-Robisco, A., & Carbó, J. M. (2023). Analysis of CBDC narrative by central banks using large language models. *Finance Research Letters*, 58, 104643. <https://doi.org/10.1016/j.frl.2023.104643>
- Alora, A., Sahoo, P., & Sasidharan, A. (2024). Central bank digital currency adoption challenges: The case of an emerging nation. *Finance Research Letters*, 59, 104756. <https://doi.org/10.1016/j.frl.2023.104756>
- Andolfatto, D. (2021). Assessing the impact of central bank digital currency on private banks. *The Economic Journal*, 131(634), 525–540. <https://doi.org/10.1093/ej/ueaa073>
- Auer, R., Frost, J., Gambacorta, L., Monnet, C., Rice, T., & Shin, H. S. (2022). Central bank digital currencies: Motives, economic implications, and the research frontier. *Annual Review of Economics*, 14, 697–721. <https://doi.org/10.1146/annurev-economics-051420-020324>
- Azzone, M., & Barucci, E. (2023). Evaluation of sight deposits and central bank digital currency. *Journal of International Financial Markets, Institutions and Money*, 88, 101841. <https://doi.org/10.1016/j.intfin.2023.101841>
- Babu, S., & Abraham, K. M. (2021). Central bank digital currencies: Policy and operational perspectives for India. *CSI Transactions on ICT*, 9(2), 85–94. <https://doi.org/10.1007/s40012-021-00327-6>
- Barrdear, J., & Kumhof, M. (2022). The macroeconomics of central bank digital currencies. *Journal of Economic Dynamics and Control*, 142, 104148. <https://doi.org/10.1016/j.jedc.2021.104148>
- Beckmann, L., Debener, J., Hark, P. F., & Pfingsten, A. (2024). CBDC and the shadow of bank disintermediation: US stock market insights on threats and remedies. *Finance Research Letters*, 67, 105868. <https://doi.org/10.1016/j.frl.2024.105868>
- Bhaskar, R., Hunjra, A. I., Bansal, S., & Pandey, D. K. (2022). Central bank digital currencies: Agendas for future research. *Research in International Business and Finance*, 62, 101737. <https://doi.org/10.1016/j.ribaf.2022.101737>
- Bibi, S., & Canelli, R. (2023). The interpretation of CBDC within an endogenous money framework. *Research in International Business and Finance*, 65, 101970. <https://doi.org/10.1016/j.ribaf.2023.101970>
- Bijlsma, M., van der Cruysen, C., Jonker, N., & Reijerink, J. (2023). What triggers consumer adoption of central bank digital currency? *Journal of Financial Services Research*, 64, 1–40. <https://doi.org/10.1007/s10693-023-00420-8>
- Chen, H., & Siklos, P. L. (2022). Central bank digital currency: A review and some macro-financial implications. *Journal of Financial Stability*, 60, 100985. <https://doi.org/10.1016/j.jfs.2022.100985>
- Cheng, P. (2022). Decoding the rise of central bank digital currency in China: Designs, problems, and prospects. *Journal of Banking Regulation*, 24(2), 156–170. <https://doi.org/10.1057/s41261-022-00193-5>

- Cotugno, M., Manta, F., Perdichizzi, S., & Stefanelli, V. (2024). Ready for a digital Euro? Insights from a research agenda. *Research in International Business and Finance*, 67, 102117. <https://doi.org/10.1016/j.ribaf.2023.102117>
- Cukierman, A. (2020). Reflections on welfare and political economy aspects of a central bank digital currency. *The Manchester School*, 88(S1), 114–125. <https://doi.org/10.1111/manc.12333>
- Cunha, P. R., Melo, P., & Sebastião, H. (2021). From Bitcoin to central bank digital currencies: Making sense of the digital money revolution. *Future Internet*, 13(7), 165. <https://doi.org/10.3390/fi13070165>
- Davoodalhosseini, S. M. (2022). Central bank digital currency and monetary policy. *Journal of Economic Dynamics and Control*, 142, 104150. <https://doi.org/10.1016/j.jedc.2021.104150>
- Desai, R. (2025). Analysing consumer switching behaviour and financial antecedents to determine the intention to use central bank digital currency: Evidence from the Indian economy. *Asia Pacific Journal of Marketing and Logistics*, 37(7), 2048–2074. <https://doi.org/10.1108/APJML-05-2024-0669>
- Dionysopoulos, L., Marra, M., & Urquhart, A. (2024). Central bank digital currencies: A critical review. *International Review of Financial Analysis*, 91, 103031. <https://doi.org/10.1016/j.irfa.2023.103031>
- Dixit, V., Shailesh, A., Mishra, S., & Verma, R. (2025). Adoption of central bank digital currency in India: A structural model using ISM. *NMIMS Management Review*, 33(4), 276–288. <https://doi.org/10.1177/09711023251370836>
- Dong, Z., Umar, M., Yousaf, U. B., & Muhammad, S. (2024). Determinants of central bank digital currency adoption—A study of 85 countries. *Journal of Economic Policy Reform*, 27(3), 316–330. <https://doi.org/10.1080/17487870.2023.2275036>
- El Kalak, I. (2026). Personal financial planning and the propensity of central bank digital currency adoption. *International Journal of Bank Marketing*, 44(2), 149–172. <https://doi.org/10.1108/IJBM-01-2025-0019>
- Elsayed, A. H., & Nasir, M. A. (2022). Central bank digital currencies: An agenda for future research. *Research in International Business and Finance*, 62, 101736. <https://doi.org/10.1016/j.ribaf.2022.101736>
- Fan, R., Walker, T. B., & Wright, A. (2025). Central bank digital currency in small open economies. *Latin American Journal of Central Banking*, 6(2), 100151. <https://doi.org/10.1016/j.latcb.2024.100151>
- Fernández-Villaverde, J., Sanches, D., Schilling, L., & Uhlig, H. (2021). Central bank digital currency: Central banking for all? *Review of Economic Dynamics*, 41, 225–242. <https://doi.org/10.1016/j.red.2020.12.004>
- Genc, H. O., & Takagi, S. (2024). A literature review on the design and implementation of central bank digital currencies. *International Journal of Economic Policy Studies*, 18, 197–225. <https://doi.org/10.1007/s42495-023-00125-9>
- Gupta, M., Taneja, S., Sharma, V., Singh, A., Rupeika-Apoga, R., & Jangir, K. (2023). Does previous experience with the Unified Payments Interface (UPI) affect the usage of central bank digital currency (CBDC)? *Journal of Risk and Financial Management*, 16(6), 286. <https://doi.org/10.3390/jrfm16060286>
- Gupta, S., Pandey, D. K., El Ammari, A., & Sahu, G. P. (2023). Do perceived risks and benefits impact trust and willingness to adopt CBDCs? *Research in International Business and Finance*, 66, 101993. <https://doi.org/10.1016/j.ribaf.2023.101993>
- Helmi, M. H., Çatık, A. N., & Akdeniz, C. (2023). The impact of central bank digital currency news on the stock and cryptocurrency markets: Evidence from the TVP-VAR model. *Research in International Business and Finance*, 65, 101968. <https://doi.org/10.1016/j.ribaf.2023.101968>
- Hess, S. (2026). Regulating central bank digital currencies: Towards a conceptual framework. *Journal of Banking Regulation*, 27, 36. <https://doi.org/10.1057/s41261-026-00337-x>

- Hoang, Y. H., Ngo, V. M., & Vu, N. B. (2023). Central bank digital currency: A systematic literature review using text mining approach. *Research in International Business and Finance*, 64, 101889. <https://doi.org/10.1016/j.ribaf.2023.101889>
- Jabbar, A., Geebren, A., Hussain, Z., Dani, S., & Ul-Durar, S. (2023). Investigating individual privacy within CBDC: A privacy calculus perspective. *Research in International Business and Finance*, 64, 101826. <https://doi.org/10.1016/j.ribaf.2022.101826>
- Jun, J., & Yeo, E. (2021). Central bank digital currency, loan supply, and bank failure risk: A microeconomic approach. *Financial Innovation*, 7, Article 1–22. <https://doi.org/10.1186/s40854-021-00239-2>
- Kahn, C. M., Rivadeneyra, F., & Wong, T.-N. (2022). Should the central bank issue e-money? *Journal of Financial Intermediation*, 51, 100993. <https://doi.org/10.1016/j.jfi.2022.100993>
- Kaur, G. (2024). Privacy implications of central bank digital currencies (CBDCs): A systematic review of literature. *Journal of Internet Commerce*, 23, 87–123. <https://doi.org/10.1080/07366981.2024.2376794>
- Kaur, H., Kaur, R., Mago, M., Singh, M., & Mehta, K. (2024). Exploring factors affecting central bank digital currency adoption: A perspective from Generation Z. *Vision*, 28. <https://doi.org/10.1177/09726225241286932>
- Keshav, A., & Sinha, A. R. (2026). Analysing the users' willingness to adopt central bank digital currency: Modelling the interplay of trust and likelihood of adoption. *Vision*. <https://doi.org/10.1177/09722629261454744>
- Kóczyán, B., Kollarik, A., Kiss, L., & Simon, P. (2022). Central bank digital currency: A new instrument of monetary policy. *Public Finance Quarterly*, 67(4), 522–537. https://doi.org/10.35551/PFQ_2022_4_3
- Kuehnlenz, S., Orsi, B., & Kaltenbrunner, A. (2023). Central bank digital currencies and the international payment system: The demise of the US dollar? *Research in International Business and Finance*, 64, 101834. <https://doi.org/10.1016/j.ribaf.2022.101834>
- Kumhof, M., & Noone, C. (2021). Central bank digital currencies—Design principles for financial stability. *Economic Analysis and Policy*, 71, 553–572. <https://doi.org/10.1016/j.eap.2021.06.012>
- Kwon, O., Lee, S., & Park, J. (2022). Central bank digital currency, tax evasion, and inflation tax. *Economic Inquiry*. <https://doi.org/10.1111/ecin.13091>
- Laboure, M., Müller, M. H.-P., Heinz, G., Singh, S., & Köhling, S. (2021). Cryptocurrencies and CBDC: The route ahead. *Global Policy*, 12(5), 708–716. <https://doi.org/10.1111/1758-5899.13017>
- Lee, D. K. C., Yan, L., & Wang, Y. (2021). A global perspective on central bank digital currency. *China Economic Journal*, 14(1), 52–66. <https://doi.org/10.1080/17538963.2020.1870279>
- Li, F., Yang, T., Du, M., & Huang, M. (2023). The development fit index of digital currency electronic payment between China and the One Belt and Road countries. *Research in International Business and Finance*, 64, 101838. <https://doi.org/10.1016/j.ribaf.2022.101838>
- Li, S., & Huang, Y. (2021). The genesis, design and implications of China's central bank digital currency. *China Economic Journal*, 14(1), 67–77. <https://doi.org/10.1080/17538963.2020.1870273>
- Liu, X., Wang, Q., Wu, G., & Zhang, C. (2022). Determinants of individuals' intentions to use central bank digital currency: Evidence from China. *Technology Analysis & Strategic Management*. <https://doi.org/10.1080/09537325.2022.2131517>
- Lü, Z., Ozcelebi, O., & Yoon, S.-M. (2025). Impact of central bank digital currency uncertainty on international financial markets. *Research in International Business and Finance*, 73, 102627. <https://doi.org/10.1016/j.ribaf.2024.102627>
- Maryaningsih, N., Nazara, S., Kacaribu, F. N., & Juhro, S. M. (2022). Central bank digital currency: What factors determine its

- adoption? *Buletin Ekonomi Moneter dan Perbankan*, 25(1), 1–24. <https://doi.org/10.21098/bemp.v25i1.1979>
- Minesso, M. F., Mehl, A., & Stracca, L. (2022). Central bank digital currency in an open economy. *Journal of Monetary Economics*, 127, 54–68. <https://doi.org/10.1016/j.jmoneco.2022.02.001>
- Morgan, J. (2022). Systemic stablecoin and the defensive case for central bank digital currency: A critique of the Bank of England's framing. *Research in International Business and Finance*, 62, 101716. <https://doi.org/10.1016/j.ribaf.2022.101716>
- Mzoughi, H., Benkraiem, R., & Guesmi, K. (2022). The bitcoin market reaction to the launch of central bank digital currencies. *Research in International Business and Finance*, 63, 101800. <https://doi.org/10.1016/j.ribaf.2022.101800>
- Nayak, D. V., & Kumar, A. A. (2025). Central bank digital currency e-rupee (₹) usage patterns: The interplay of awareness and satisfaction in India. *Indian Journal of Finance*, 19(2), 62–74. <https://doi.org/10.17010/ijf/2025/v19i2/174771>
- Ngo, V. M., Nguyen, P. V., Nguyen, H. H., Tram, H. X. T., & Hoang, L. C. (2023). Governance and monetary policy impacts on public acceptance of CBDC adoption. *Research in International Business and Finance*, 64, 101865. <https://doi.org/10.1016/j.ribaf.2022.101865>
- Oh, E. Y., & Zhang, S. (2022). Informal economy and central bank digital currency. *Economic Inquiry*. <https://doi.org/10.1111/ecin.13105>
- Ozturkcan, S., Senel, K., & Ozdinc, M. (2022). Framing the central bank digital currency (CBDC) revolution. *Technology Analysis & Strategic Management*, 34(5), 462–479. <https://doi.org/10.1080/09537325.2022.2099261>
- Palanisamy, M., Paul Vincent, M. T., & Hossain, M. B. (2025). Financial literacy and behavioral intention to use central banks' digital currency: Moderating role of trust. *Journal of Risk and Financial Management*, 18(3), 165. <https://doi.org/10.3390/jrfm18030165>
- Prodan, S., Konhäusner, P., Dabija, D.-C., Lazaroiu, G., & Marincean, L. (2024). The rise in popularity of central bank digital currencies: A systematic review. *Heliyon*, 10(9), e30561. <https://doi.org/10.1016/j.heliyon.2024.e30561>
- Sandhu, K., Dayanandan, A., & Kuntluru, S. (2023). India's CBDC for digital public infrastructure. *Economics Letters*, 231, 111302. <https://doi.org/10.1016/j.econlet.2023.111302>
- Schilling, L., Fernández-Villaverde, J., & Uhlig, H. (2024). Central bank digital currency: When price and bank stability collide. *Journal of Monetary Economics*. <https://doi.org/10.1016/j.jmoneco.2024.03.001>
- Sethaput, V., & Innet, S. (2023). Blockchain application for central bank digital currencies (CBDC). *Cluster Computing*, 26, 2183–2197. <https://doi.org/10.1007/s10586-022-03962-z>
- Shah, F. (2024). Central bank digital currencies: A comprehensive systematic literature review on worldwide research emergence and methods used. *American Journal of Business*, 39(3), 137–157. <https://doi.org/10.1108/AJB-12-2023-0210>
- Son, J., Ryu, D., & Webb, R. I. (2023). Central bank digital currency: Payment choices and commercial bank profitability. *International Review of Financial Analysis*, 90, 102874. <https://doi.org/10.1016/j.irfa.2023.102874>
- Tercero-Lucas, D. (2023). Central bank digital currencies and financial stability in a modern monetary system. *Journal of Financial Stability*, 69, 101188. <https://doi.org/10.1016/j.jfs.2023.101188>
- Thirumaran, P., & Balasubramanian, S. A. (2025). Understanding enablers and inhibitors of digital rupee: A dual-factor theory perspective. *Digital Policy, Regulation and Governance*, 27(5), 507–522. <https://doi.org/10.1108/DPRG-04-2024-0069>
- Tronnier, F., Harborth, D., & Hamm, P. (2022). Investigating privacy concerns and trust in the digital euro in Germany. *Electronic Commerce Research and Applications*, 53, 101158. <https://doi.org/10.1016/j.elerap.2022.101158>

Tronnier, F., & Qiu, W. (2024). How do privacy concerns impact actual adoption of central bank digital currency? An investigation using the e-CNY in China. *Quantitative Finance and Economics*, 8(1), 126–152. <https://doi.org/10.3934/QFE.2024006>

Wang, Y., Lucey, B. M., Vigne, S. A., & Yarovaya, L. (2022). The effects of central bank digital currencies news on financial markets. *Technological Forecasting and Social Change*, 180, 121715. <https://doi.org/10.1016/j.techfore.2022.121715>

Wang, Y., Wei, Y., Lucey, B. M., & Su, Y. (2023). Return spillover analysis across central bank digital currency attention and cryptocurrency markets. *Research in International Business and Finance*, 64, 101896. <https://doi.org/10.1016/j.ribaf.2023.101896>

Williamson, S. (2022). Central bank digital currency: Welfare and policy implications. *Journal of Political Economy*, 130(11), 2829–2860. <https://doi.org/10.1086/720457>

Wu, J., Liu, X., & Zhang, C. (2024). Unveiling the influencing mechanism underlying users' adoption and recommend intentions of central bank digital currency: A behavioral reasoning theory perspective. *Journal of Retailing and Consumer Services*, 81, 104050. <https://doi.org/10.1016/j.jretconser.2024.104050>

Xiao, Z., Niu, Y., Xiang, L., & Cui, Y. (2024). Central bank digital currency and corporate debt financing costs: Empirical evidence from China. *Finance Research Letters*, 69, 106195. <https://doi.org/10.1016/j.frl.2024.106195>

Xu, J. (2022). Developments and implications of central bank digital currency: The case of China e-CNY. *Asian Economic Policy Review*, 17(2), 235–250. <https://doi.org/10.1111/aepr.12396>