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Digital Currencies: Knowledge, Perceptions and Financial Stability Implications among Romanian Central Bankers

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Abstract

The purpose of the study is twofold. On the one hand, we investigate the determinants of knowledge related to central bank digital currencies (CBDCs) among Romanian central bankers. On the other hand, we assess the perceived impact of CBDCs on financial stability. More precisely, we designed a survey-based analysis applied to Romanian central bankers to see, first, to what extent personal characteristics, sources of information, interest in using CBDCs, and the benefits and risks associated with them, influence respondents' perceptions of their own level of CBDC-related knowledge. Second, we investigate to what extent the interest in using CBDCs, their associated benefits and risks, and the trust in the central bank, affect the level of financial stability once a CBDC is fully launched. Our analysis relies on a questionnaire with 256 valid responses. The cross-sectional regression analysis shows that age and education do not exert a significant impact on the perceived level of knowledge about CBDCs. By contrast, respondents in managerial positions, those involved in monetary policy and financial stability divisions, or those working at the NBR's Central Headquarters, reported more in-depth knowledge of CBDCs. In addition, the results show that the interest in using CBDCs, as well as the perceived credibility of the central bank, are associated with a positive impact of CBDCs on financial stability.

Keywords: Central bank, Digital currency, CBDCs, Financial stability

JEL classification: E42, E52, E58, G21

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1. Introduction

Central bank digital currencies (CBDCs) may represent a significant innovation in the evolution of money. Driven by the accelerating digitalization of payments, decreasing reliance on physical cash, and the proliferation of private digital assets, central banks around the world are engaging in research, experimentation, and pilot programs to evaluate the feasibility and implications of issuing digital forms of sovereign money (136 countries, according to the Atlantic Council CBDC Tracker).

In an increasingly digital financial environment dominated by the private sector, the European Central Bank (ECB), together with the Eurozone national central banks, successfully completed

the preparation phase (November 2023–2025) of a digital euro, which is expected to serve more as a complement than a substitute for physical cash. The project is seen as a way to provide a public and trustworthy alternative to private payment solutions, while at the same time safeguarding privacy and strengthening financial stability. The digital euro project has graduated from planning to concrete development, shifting into technical implementation and preparatory pilot planning. Its ultimate launch hinges on EU legislation expected in 2026, with pilot tests from 2027 and potential issuance around 2029.

In turn, the National Bank of Romania (NBR) has established an office dedicated to crypto-assets and digital currencies. Despite operating with limited resources, this unit has carried out a pilot project aimed at strengthening the institution's understanding of the conceptual and technological underpinnings of CBDCs. Designed as a demonstrative exercise, the initiative aimed to enhance the institution's understanding of the underlying technologies.

The current literature on CBDCs is diverse and rapidly evolving, with research increasingly focused on understanding both the practical functionality and the broader implications for the economy and society of introducing into circulation a digital currency issued by a central bank. Existing research sees CBDCs as much more than a technological upgrade to traditional money. They are viewed as complex systems at the intersection of technology, policy, and society, bringing with them a series of trade-offs between innovation, privacy, financial stability, and inclusion.

Several central banks (e.g., the Bank of Canada, the Bank of England) have already implemented survey-based analyses to investigate the extent to which the population is willing to adopt a digital currency and to obtain feedback on the potential uses of such a currency. However, to the best of our knowledge, there are no studies investigating the level of knowledge of central bankers regarding CBDCs and their perception on how CBDCs will influence financial stability. Although the CBDCs impact on financial stability is theoretically debated in the recent literature (see, for example Abad et al., 2025; Magin et al., 2025; Hua et al., 2025), no study analyzed the perception of central bankers regarding the CBDCs – financial stability nexus.

In this context, we designed a survey-based analysis addressed to Romanian central bankers, with the aim of examining, first, the extent to which personal characteristics, sources of information, interest in using CBDCs, and the associated benefits and risks influence respondents' perceptions of their own level of knowledge about CBDCs. Second, we investigate to what extent the interest in using CBDCs, their associated benefits and risks, and the trust in the central bank, affect the level of financial stability once a CBDC is fully launched. In our study, it is important to note that, out of a total of 2,129 employees of the National Bank of Romania (including both the central headquarters and the territorial network), 274 valid responses were obtained, representing a substantial and statistically significant share of the entire staff. Responses that indicated a complete lack of knowledge and information about CBDCs were excluded from the sample. A final sample of 256 responses was retained for the analysis.

We have considered the case of the NBR for two reasons. First, NBR was opened to distribute our questionnaire among its employees, ensuring a reliable response rate. Second, NBR is not part of the Eurosystem, and the way in which the adoption of a CBDCs will be implemented may have certain particularities, the central bank being especially concerned with CBDCs' impact on financial stability. Our analysis provides a rare perspective on how central banking professionals, who are both technically informed and strategically involved in monetary operations, perceive the transition toward CBDCs. The focus on a specific national context – Romania - adds specificity to the findings, while the institutional representativeness of the sample allows for relevant inferences about the preparedness and concerns of public financial institutions regarding CBDC implementation.

Our survey-based analysis is grounded in a questionnaire, distributed to Romanian central bankers in February 2025[1]. The survey analysis is followed by an empirical investigation of the determinants of CBDC knowledge. To this end, we implement a multiple cross-sectional regression analysis, using a step-wise variable selection procedure, focusing on (i) the determinants of CBDCs knowledge and (ii) the perceived impact of CBDCs on financial stability.

Our findings show, first, that age and education do not have a significant impact on the perceived level of knowledge about CBDCs. However, respondents in managerial positions, those activating at the central bank's headquarters, and those operating in monetary policy and financial stability divisions, report having more in-depth knowledge about CBDCs compared with other NBR employees. We also show that the number of information sources and interest in using CBDCs increase perceived level of knowledge about digital currencies. However, the impact of the identified benefits and risks, as well as previous experience with cryptocurrencies, is not significantly influencing the level of knowledge. This result remains unchanged even when interest in using CBDCs is measured indirectly by comparing the perceived benefits and risks.

Second, respondents' personal characteristics (such as age, education, location, or holding a managerial position) do not significantly influence perceptions of CBDCs' impact on financial stability. Rather, we find that central bankers working in financial stability or monetary policy divisions perceive a higher intensity of CBDC-related risks compared with the intensity of benefits. Interest in using CBDCs, as well as central bank credibility, are associated with a positive impact on financial stability.

The remainder of the paper is structured as follows: Section 2 presents the literature review of CBDCs associated benefits and risks; Section 3 describes the questionnaire and the characteristics of the sample; Section 4 sets out the empirical methodology and highlight the results; and the final section concludes.

2. Review of the literature on CBDCs associated benefits and risks

Previous literature investigating the role, effects, and determinants of CBDCs have expanded rapidly in recent years, while financial stability has become one of the most examined dimensions. Although CBDCs hold significant promises for modernizing payment systems (Aurazo et al., 2024), promoting financial inclusion, and strengthening monetary sovereignty (Lane, 2025), their introduction could also expose banking systems and financial stability to new risks if they are not carefully designed and implemented (Magin et al., 2025).

A study by Aurazo et al. (2024) explores the relationship between retail CBDCs and fast payment systems (FPS), highlighting their similarities, differences, and potential complementarities. Although both FPS and retail CBDCs enable instant transactions, they differ fundamentally in terms of the nature of the money being transferred. FPS primarily enhance the efficiency of transferring private money, such as commercial bank deposits, while CBDCs introduce a new, publicly accessible form of central bank money. The decision to implement a CBDC, an FPS, or both, is strongly influenced by the financial structure of each jurisdiction, policy priorities, and the level of development of its payment systems. In addition, CBDCs raise distinct challenges related to financial stability, monetary policy transmission, and operational resilience, underscoring the importance of careful system design and ongoing evaluation.

CBDCs are also seen as a macroeconomic policy instrument. Likewise, Lane (2025) emphasizes the importance of introducing a digital euro to preserve Europe's monetary sovereignty in an

[1] The detailed structure of the questionnaire can be obtained from the authors, upon request.

increasingly digital financial context. The author warns that dependence on private forms of money could undermine monetary sovereignty and the effectiveness of monetary policy. By introducing a digital euro, the ECB seeks to offer a public alternative that supports the integrity and autonomy of the euro area's monetary system. The digital euro is portrayed as a necessary evolution to ensure that the ECB can continue to fulfill its mandate of maintaining price stability and supporting the economy in a rapidly digitalizing world.

At the Euro Digital Conference (2025), Dr. Hachmeister, Director General for the Digital Euro at Deutsche Bundesbank, stressed that the "digital euro is not intended to replace cash, but to complement it" through an electronic instrument issued by the central bank and guaranteed by the same institution, thereby providing stability and trust. It will act as a "digital twin" of cash. The main strategic directions presented were:

• Accessibility and interoperability – the digital euro must be usable by all citizens and economic agents, including in offline mode.

• Security and privacy – compliance with anti-money laundering and know-your-customer (AML/KYC) regulations without compromising data protection.

• Public–private cooperation – involving commercial banks and the fintech sector in the distribution and innovation of the product.

• Standardization and technological integration – interoperability between national systems and European payment infrastructures.

• Geopolitical dimension – strengthening the strategic autonomy of the European Union in the context of global competition over digital currencies.

Dr. Hachmeister emphasized that "the success of the digital euro's implementation depends on public trust, inter-institutional cooperation, and the capacity of the European system to adopt flexible and secure technological solutions". Deutsche Bundesbank promotes a balanced approach that protects financial stability while also encouraging innovation and the digitalization of the European monetary ecosystem.

Table 1 below presents a chronological synthesis of the main stages in the process of designing, preparing, and implementing the digital euro, according to the ECB's planning.

Table 1 - Stages of Development of the Digital Euro

Phase	Period	Main Objective	Key Activities	Status
1. Investigation Phase	July 2021 – October 2023	Assessment of the feasibility and relevance of introducing a digital euro.	Public consultations and impact assessments; legal, economic, and technological analyses; definition of objectives and potential use cases; evaluation of risks and benefits.	Completed
2. Preparation Phase	November 2023 – October 2025	Development of the operational, technical, and legal framework necessary for implementation.	Drafting the digital euro scheme rulebook; testing functionalities (conditional payments, offline payments); creation of an innovation platform and cooperation with market participants; legislative consultations; selection of infrastructure providers.	Completed
3. Implementation / Launch Phase	November 2025 – 2029 (estimated)	Effective introduction of the digital euro within the euro area.	technical readiness for first issuance; pilot projects and real-world testing; gradual rollout in retail and B2B payments; measures to encourage large-scale adoption.	Ongoing

Source: https://www.ecb.europa.eu/euro/digital_euro/html/index.en.html#timeline

During the preparation phase for the digital euro, the ECB published in September 2025 a report on the Digital Euro Innovation Platform (ECB, 2025), an initiative launched in October 2024 to foster collaboration with market participants. The platform brought together around 70 stakeholders from the financial sector, public institutions, and academia to assess the digital euro's potential to promote innovation and financial inclusion. The report identified key use cases, including conditional payments in e-commerce, automation of business-to-business payments, integration of electronic receipts, and accessibility-enhancing features aimed at improving user experience and inclusion.

Technical testing conducted in a simulated digital euro environment confirmed the feasibility of these functionalities without transforming the digital euro into programmable money and

highlighted their applicability across multiple sectors. The findings emphasized the importance of early experimentation and close cooperation between the Eurosystem and market participants in developing scalable and interoperable solutions. Overall, the report suggested that the digital euro could act as a catalyst for innovation and financial integration in the euro area by supporting new financial services, strengthening the competitiveness and strategic autonomy of the European payments market, and facilitating public–private collaboration.

Following the completion of the preparation phase launched in November 2023, the ECB advanced the digital euro project to a new stage in November 2025, focusing on technical and operational readiness. This phase aims to establish the infrastructure necessary for a potential issuance, while maintaining flexibility in line with the ongoing EU legislative process. The final decision on issuance remains conditional upon the adoption of the Regulation establishing the digital euro. Assuming legislative approval during 2026, pilot activities and limited initial transactions could begin from mid-2027, with the Eurosystem expected to be fully prepared for a potential first issuance by 2029. The digital euro is envisaged as a public digital means of payment that complements cash, intended to preserve monetary sovereignty, enhance payment system resilience, and promote competition and innovation in the European payments market. Cost estimates and design safeguards, such as holding limits, suggest that the project is structured to contain financial stability risks and limit the burden on financial intermediaries.

However, the digital euro is not the only project of launching CBDCs around the world. Many central banks are exploring this option. Therefore, researchers focused on CBDCs associated benefits and risk. The macroeconomic and distributive effects of introducing CBDCs in different regimes, with an emphasis on holding limits, are explored by Magin et al. (2025). Their results show that CBDCs can increase payment efficiency, reduce transaction costs, and raise household welfare. Imposing holding limits enhances the economy's ability to absorb demand-side shocks and provides a new channel for monetary policy stabilization. However, the distributive effects are significant: higher-income households, with stronger preferences for digital payments, benefit more from CBDC adoption, which may lead to increased inequality. The overall impact depends critically on design choices, particularly the restrictiveness of CBDC holding limits and the degree of household heterogeneity. Careful calibration is essential to balance efficiency, stability, and equity considerations.

Dionysopoulos et al. (2024) critically assess different CBDC models, focusing on availability, infrastructure, access models, and programmability in their study, and explore the implications of CBDCs for the effectiveness of monetary policy, financial stability, and consumer welfare, highlighting trade-offs related to bank disintermediation and systemic risk. Similarly, a study by Pani and Maino (2025) investigates the unintended risk that physical cash may disappear following the introduction of digital currencies and new payment instruments. Using a two-sided "merchant–client" model, the authors analyze how payment system dynamics evolve when new currencies are introduced. The findings suggest that while digital currencies offer potential benefits, they can destabilize existing equilibria - even if not widely adopted - by altering incentives for merchants and consumers. Simulations show that a sufficiently broad introduction of digital currencies may lead to the disappearance of cash, with significant implications for privacy, resilience, and financial inclusion. The model emphasizes that once cash disappears, market mechanisms alone are unlikely to bring it back, highlighting the need for proactive policy measures to preserve cash as a public safeguard within the payments ecosystem.

Despite extensive promotional campaigns and regulatory interventions, the adoption of the digital yuan (e-CNY) in China among individuals has remained modest, as consumers continue to favor existing mobile payment platforms such as Alipay and WeChat Pay. Drawing on data from official reports, commercial banks, and local government sources, Bai et al. (2024) document the scale and

dynamics of e-CNY usage. While active promotion has been effective in increasing transaction volumes, wallet registrations, and merchant participation, persistent consumer inertia remains a significant barrier to widespread adoption.

Pioner empirical works such as Malloy et al. (2022) have used balance sheet simulations to estimate the impact of CBDCs introduction on the banking sector. Their findings suggest that moderate adoption of retail CBDCs would not necessarily destabilize banks, but that mass adoption - particularly if accompanied by attractive remuneration - could significantly erode bank deposit bases. It is important to note that these studies also emphasize that banking systems in jurisdictions with lower trust in deposit insurance or weaker financial sectors may be more vulnerable.

Experimental work conducted by central banks themselves - such as ECB reports on the digital euro (2023, 2024, 2025) and consultation papers by the Bank of England (2023) - reflects a cautious approach. These documents acknowledge that while CBDCs could promote financial stability by ensuring public access to central bank money in an increasingly digital economy, any significant reallocation from deposits to CBDCs must be managed carefully. Proposed instruments include adjusting monetary operations frameworks, strengthening liquidity backstop mechanisms, and offering CBDCs primarily for payments rather than as a store of value. The Bank of England (2023) and the European Central Bank (2024) have explored holding limits and waterfall mechanisms to maintain balance between the new digital money and traditional deposits, thereby limiting incentives to shift large volumes of deposits into CBDCs.

Chen and Filippin (2025) analyze the macroeconomic implications of introducing a central bank digital currency by integrating it into a neo-Keynesian model and examining its relationship with traditional bank deposits. The results show that increased household preference for CBDCs can generate moderate expansionary effects and reduce banks' market power without necessarily creating significant risks of disintermediation and financial instability. Moreover, adapting monetary policy through an optimized interest rate rule associated with the CBDC can yield welfare gains and strengthen the effectiveness of monetary transmission. The conclusions highlight that the success of CBDC implementation depends on its institutional and operational design, as well as on how it is integrated into the existing financial architecture.

Connected to our research, Gross et al. (2025) examined the implications of retail central bank digital currencies for financial stability by developing a comprehensive framework that identifies six main transmission channels, including effects on banks' balance sheets, profitability, run risk, information flows, and payment system resilience. Reviewing both theoretical and quantitative studies, the authors find that while CBDCs may increase competitive pressures on banks - leading to lower profitability and modest changes in funding structures - the overall impact on financial stability is likely to be limited under scenarios of moderate adoption. Quantitative evidence suggests that increases in bank run risk and solvency pressures remain small, especially when CBDCs are appropriately designed with features such as holding limits or non-remuneration. The study concludes that CBDCs do not inherently threaten financial stability, but stresses that outcomes depend on country-specific characteristics and policy choices, underscoring the importance of careful design and robust prudential frameworks.

Finally, some empirical insights have been drawn from early CBDCs projects such as the Sand Dollar in the Bahamas, the eNaira in Nigeria, and the e-CNY pilot in China (Bay et al., 2024). These case studies show that actual adoption rates have been modest so far, limiting any observable effects on financial stability. Nonetheless, they also underscore the importance of complementary measures - such as building public trust, ensuring wide merchant acceptance, and integrating with existing financial systems - in shaping outcomes.

Besides the benefits and risk associated with CBDCs, the level of knowledge on digital currency represents a key element in ensuring the success of a monetary reform. Likewise, Filippin (2025) shows that the level of financial literacy is a key determinant of household participation in financial markets and of their response to the introduction of new state-issued instruments. Using the launch of retail treasury certificates in Italy as an empirical proxy for a potential CBDC, the study demonstrates that households with a low but existing level of financial knowledge are more willing to adopt such instruments and to reconfigure their portfolios around them. The results suggest that the success of CBDC implementation depends not only on its technical design and associated monetary policies, but also on the extent to which public policies manage to increase the population's level of financial literacy and reduce barriers to accessing new forms of digital assets.

Nardelli, De Sclavis, and Iezzi (2025) highlight that the development of central bank digital currencies requires a careful balance between protecting user privacy and meeting legal requirements for transparency and anti-money laundering compliance, emphasizing the role of advanced cryptographic technologies in designing secure, efficient, and regulation-compliant payment systems.

In conclusion, the literature to date presents a nuanced picture: CBDCs can support financial stability if they are carefully designed to mitigate risks, but poorly designed CBDCs could exacerbate financial vulnerabilities. The current consensus emphasizes a cautious, phased approach to implementation, extensive pilot testing, and the use of access restrictions, holding limits, and non-competitive remuneration structures to balance innovation with the resilience of the financial sector. Ongoing research - particularly empirical evaluation given that more pilot CBDCs are launched globally - will be essential to refine the understanding of these complex dynamics.

None of the previous studies (to our knowledge) have investigated central bankers' knowledge of CBDCs, or their perceptions of CBDC's impact on financial stability. We have filled in this gap by conducting a survey-based analysis.

3. Questionnaire design and descriptive statistics

3.1. Questionnaire design

To assess perceptions and expectations regarding the role, functionalities, and implications of CBDCs for financial stability, we conducted a structured survey targeting central banking professionals in Romania. The questionnaire was distributed in February 2025 and targeted the employees from the central headquarters and the entire territorial network (six regional branches and thirteen agencies) of NBR. The purpose of the survey was to collect empirical data from a well-informed group with direct or indirect exposure to monetary policy, financial stability, and payment system oversight.

The survey analysis involves processing the questionnaire data. The questionnaire contains four sets of questions namely: (i) the respondent's personal characteristics (age, education, managerial role, responsibilities in monetary policy and financial stability), (ii) sources of information and CBDCs functionalities, (iii) interest in using digital currencies, and (iv) the impact of CBDCs on financial stability (transmission channels, risks, benefits, credibility). As a general strategy, in addition to the set of questions that collect information on personal characteristics, we provided respondents with a list of options regarding the potential sources of information, CBDCs functionalities, and benefits and risks for financial stability (derived from the existing literature). Respondents were also allowed to identify functionalities, benefits, and risks by themselves. For variables related to personal characteristics that were not collected using a Likert scale (for example, managerial position, membership in monetary policy and/or financial stability divisions, location),

we used dummy variables. For variables related to functionalities, benefits and risks, transmission channels, and functionalities, we counted the number of selected items and associated respondents' level of knowledge with these counts.

We collected 274 questionnaires, of which 18 were eliminated, given the complete lack of knowledge about CBDCs, as declared by respondents. Therefore, the final sample contains 256 validated questionnaires. The survey was administered using a secure online platform, accessible only to institutional respondents. This ensured both data confidentiality and response quality. Respondents were not asked to disclose personal identifying data, and all responses were anonymized prior to analysis.

In what follows, we present several descriptive statistics derived from the collected answers.

3.2. Descriptive statistics

The first set of questions focused on respondents' demographic and professional characteristics, including age group, education level, current position (operational – non-managerial vs. managerial), and involvement in the fields of monetary policy or financial stability. This allowed us to explore potential links between respondents' profiles and their attitudes toward CBDCs.

For example, in the case of age distribution, the survey results show that most respondents are concentrated in the 45–54 and 35–44 age groups (Figure 1), which together account for over 64% of the sample. More precisely, the 45–54 age category represents the largest individual group, followed closely by those aged 35–44. This demographic composition suggests a base of mature respondents who likely possess significant professional experience and institutional knowledge - particularly relevant given the survey's focus on CBDCs awareness and policy implications. The relatively low representation of younger respondents (e.g., 18–24 or 25–34) may reflect the professional profile of the surveyed institution, where mid- or late-career professionals are more prevalent.

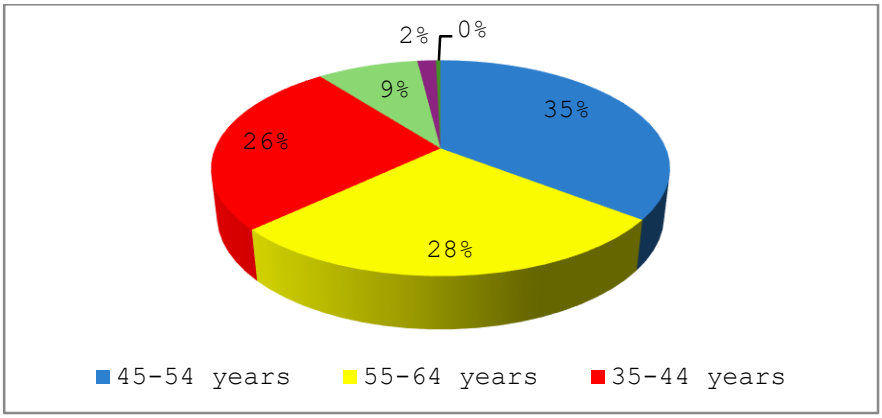

Figure 1 – Sample distribution by age

The second set of questions investigated the information sources used by respondents to learn about CBDCs and their level of familiarity with the concept. Respondents were asked how familiar they are with the CBDCs concept, on a Liker scale from 1 to 5 (Figure 2).

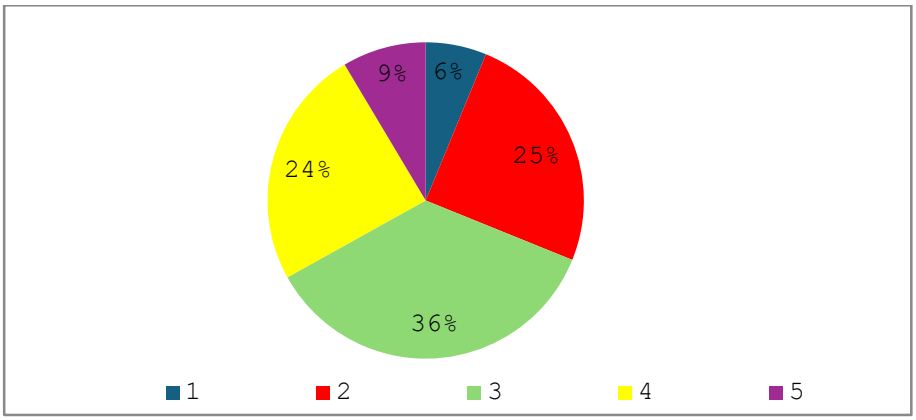

Figure 2 - Knowledge of the CBDCs concept (1 – very low knowledge; 5 – very high knowledge)

The distribution of responses reveals a moderately informed sample. The largest share of respondents (33.6%) rated their familiarity at level 3 on a five-point scale, suggesting a basic but incomplete understanding of the concept. This is followed closely by those at levels 2 and 4 (each accounting for about 22.3%), indicating a relatively balanced mix of lower and higher levels of awareness. A smaller share of respondents placed themselves at level 1 (13.6%), reflecting minimal exposure to the topic, while only 8.3% reported a high level of familiarity (level 5). These findings suggest that, while most respondents possess some knowledge of CBDCs, in-depth or expert-level knowledge is limited. This distribution is particularly relevant given the professional experience of the surveyed central bank staff, indicating the need for ongoing internal communication and targeted education to enhance conceptual clarity regarding CBDCs design, function, and policy implications. Within the same set of questions, the sources of information were investigated. Respondents were offered several predefined options (for example, press, academic publications, central bank communications, or professional events), but they could also add alternative sources. This dual structure allowed for a more complete picture of the information environment.

Inside the same set of questions, we have collected perceptions on how CBDCs will act as a substitute for cash. Most respondents (over 80%) foresee a mixed future in which both CBDCs and cash coexist, with varying degrees of predominance (Figure 3). These findings reflect a cautious and realistic perspective on the future of money. Although there is a general openness to the role of digital currency, the responses suggest a strong public and institutional attachment to cash - likely due to its anonymity, accessibility, and resilience in various scenarios. The data indicates that CBDC implementation will likely coexist with cash; only a small share believes in complete replacement (6%), and a notable minority (13%) doubts that CBDCs will ever take over.

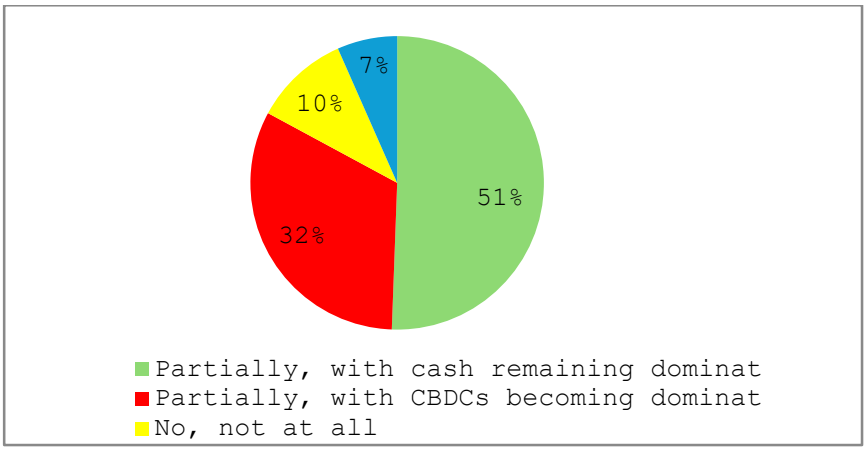

Figure 3 – Perceptions about the extent to which CBDCs could replace cash in the future

The third group of questions assessed users' interest in CBDCs, preferences for specific functionalities, and anticipated use cases. Functionality options included features frequently cited in the literature, such as instant payments, offline capability, anonymity, programmable payments, and cross-border usability. Respondents could choose from a predefined list and suggest additional features they considered relevant. This structure ensured consistency for comparative analysis while allowing new ideas from practice to emerge.

For example, perceptions regarding the need for transaction limits suggest a strong preference for introducing such limits for CBDCs (Figure 4). Most respondents (over 60%) expressed support for implementing such limits, indicating a prudent approach for managing the use of CBDCs and their potential systemic implications. This result reflects commonly expressed concerns in the literature, including the risk of commercial bank disintermediation and the need to maintain financial stability, especially in times of crisis or economic uncertainty.

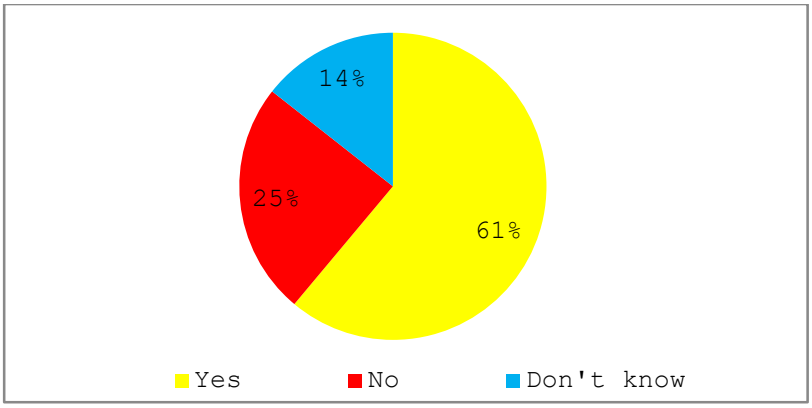

Figure 4 – Perceptions on CBDCs transaction limits

Overall, the results suggest that among central banking professionals there is broad support for a risk-managed CBDC design approach - one that prioritizes stability and careful integration into existing financial frameworks.

Further, the interest in adopting a CBDC in Romania indicates a generally positive or open attitude, tempered by caution (Figure 5). A plurality of respondents (38.2%) stated that they were somewhat interested in using CBDCs, while 31.2% expressed a neutral position. These findings suggest that, although enthusiasm is not overwhelming, there is broad potential for engagement under

appropriate conditions. The relatively low levels of outright disinterest suggest that skepticism exists but is not widespread.

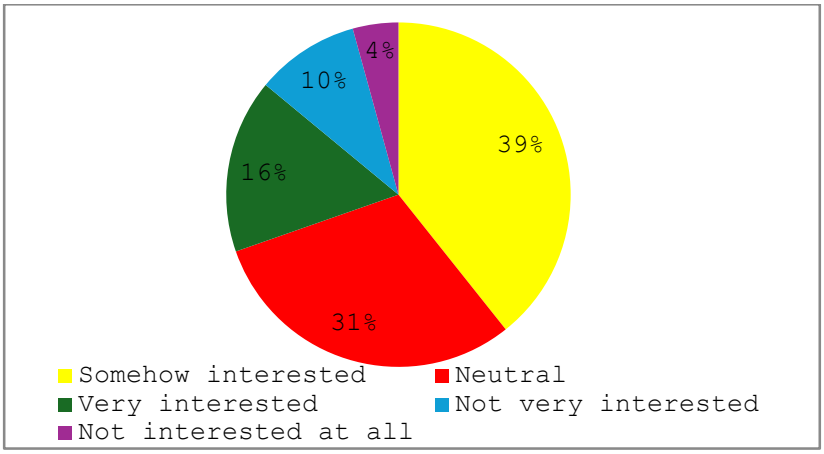

Figure 5 - Interest in using CBDCs

Taken together, the distribution of the sample implies that CBDC adoption could be feasible if implementation is accompanied by effective communication, user-friendly infrastructure, and clarity regarding privacy and functionality. These results reflect a group of informed yet cautious respondents, likely to be aware of both the opportunities and uncertainties associated with the transition to a central bank digital currency.

The last set of questions focused on the perceived benefits and risks of CBDCs regarding financial stability. The questions addressed the intensity of CBDC's impact on financial stability (either positive or negative), its potential transmission channels (for example, bank disintermediation, changes in the structure of deposits, or the effectiveness of monetary policy, etc.), and respondents' level of trust in the central bank as issuing institution. Where appropriate, respondents rated the expected intensity of CBDC's impact on a five-point Likert scale (from 1 to 5). The structure of this set was based on prior literature and central bank reports, with additional open-ended sections for qualitative feedback.

Figure 6 presents the overall or the net impact of benefits and risks of CBDCs for financial stability. The perceived risks are identified with a negative sign, with a intensity ranging from -1 to -5, whereas the perceived benefits for financial stability are marked with a positive sign, with the intensity ranging from 1 to 5. Worth mentioning that benefits and risks do not exclude each other. Consequently, the same respondent can identify both benefits and risks for financial stability. However, the overall impact, computed as a difference between the intensity of benefits and risks, can be either positive, negative, or neutral (0). More precisely, if the intensity of benefits is scaled at 4 points and the risks for financial stability are scaled at -2 points, the overall impact is positive, equal to 2. We notice that, in general, Romanian central bankers perceived more benefits than risks related to CBDCs impact on financial stability. It is worth mentioning that the same respondent can identify both benefits and risks for financial stability. Therefore, using this discrete variable allows us to see not only if perceived benefits dominate the perceived risks (positive value) or vice-versa (negative value), but also the magnitude of net benefits or risks. For example, a value of 4 means that the respondent identified 4 more benefits than risks for financial stability.

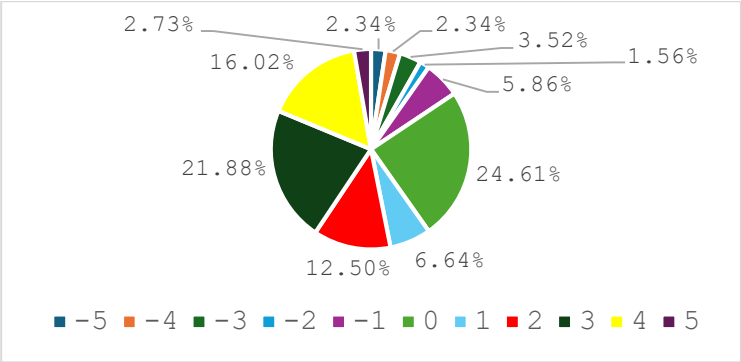

Figure 6 – Perceived overall impact of CBDCs on financial stability

4. Methodology and results of the empirical analysis

4.1. Methodology

After identifying the patterns across respondent groups, we first examined the relationship between demographic characteristics (e.g., age, education, position), levels of familiarity, the interest in using CBDCs and concern regarding CBDCs on the one side, the CBDCs perceived knowledge on the other side. In the second step we investigated the perception regarding the CBDCs impact on financial stability. The two types of empirical analyses were conducted using a stepwise multiple regression approach and the ordinary least squares method.

The first analysis is dedicated to investigating the determinants of the level of knowledge about CBDCs (cbdc_knowledge). In this regard, in the first stage we analyzed the impact of respondents' personal characteristics on the perceived degree of CBDC knowledge. In the next stage, the multiple regression model is extended by including a set of variables referring to information sources, involvement in crypto-asset transactions, identified functionalities, and interest in using CBDCs. Finally, an alternative analysis is conducted focusing on interest in using CBDCs. Similarly, a dummy variable is constructed that takes the value 1 if the number of perceived benefits exceeds the number of risks associated with CBDCs, and 0 otherwise.

Thus, for the first analysis, the following general equations were tested:

$$\text{cbdc_knowledge}_i = c + \text{personal_characteristics}_i + \varepsilon_i \quad (1)$$

where: cbdc_knowledge_i represents the perceived level of knowledge regarding CBDC, ranging from 1 (low level of knowledge) to 5 (high level of knowledge); $\text{personal_characteristics}_i$ include age, education, management (dummy variable equal to 1 for management positions and 0 for executive positions), location (dummy variable equal to 1 for employees at the NBR headquarters and 0 otherwise), and division (dummy variable equal to 1 for employees working in financial stability, monetary policy, or CBDCs-related departments and 0 otherwise).

$$\text{cbdc_knowledge}_i = c + \text{personal_characteristics}_i + \text{information}_i + \text{interest}_i + \varepsilon_i \quad (2)$$

where: information_i is associated with the number of information sources on CBDCs, while interest_i indicates the level of interest in using CBDCs (ranging from 1 – not at all interested to 5 – very interested)

$$\text{cbdc_knowledge}_i = c + \text{personal_characteristics}_i + \text{information}_i + \text{interest}_i + \text{crypto}_i + \text{benefits/risks}_i + \varepsilon_i \quad (3)$$

where: crypto_i is a dummy variable that takes value 1 if the respondent uses or owns cryptocurrencies and 0 otherwise; benefit/risks_i represents a dummy variable taking the value 1 when the number of perceived benefits exceeds the number of identified risks, and 0 otherwise.

For the second analysis, focused on the impact of CBDCs on financial stability, the following general equations were tested:

$$\text{ofsi}_i = c + \text{personal_characteristics}_i + \varepsilon_i \quad (4)$$

where: the dependent variable ofsi_i represents the overall impact on financial stability, calculated as the difference between the perceived intensity of benefits for financial stability (ranging from 1 – low benefits to 5 – high benefits) and the perceived intensity of risks (ranging from 1 – low risks to 5 – high risks).

$$\text{ofsi}_i = c + \text{personal_characteristics}_i + \text{interest}_i + \varepsilon_i \quad (5)$$

$$\text{cbdc_knowledge}_i = c + \text{personal_characteristics}_i + \text{interest}_i + \text{benefits/risks}_i + \text{channels}_i + \varepsilon_i \quad (6)$$

where: the newly added variables include a dummy variable (benefits/risks_i), taking the value 1 if the number of perceived benefits exceeds the number of identified risks and 0 otherwise, as well as the number of transmission channels identified from CBDCs to financial stability (the perception of the complexity and breadth of CBDC's impact on financial stability).

Finally, the next equation includes the trust respondents have in the central bank:

$$\text{cbdc_knowledge}_i = c + \text{personal_characteristics}_i + \text{interest}_i + \text{benefits/risks}_i + \text{channels}_i + \text{trust}_i + \varepsilon_i \quad (7)$$

where: the new variable trust_i measures the level of trust in the central bank in the event of CBDCs issuance, from 1 (no trust) to 5 (very high level of trust).

4.2. Results of the empirical analysis

The first set of empirical results is summarized in Table 2, which presents the estimates obtained from applying the multiple regression models. Eq. (1) investigates the impact of personal characteristics only on the perceived level of knowledge about CBDCs. The results show that those in managerial positions, those working at central bank headquarters, and those operating in monetary policy and financial stability divisions report having more knowledge about CBDCs compared with other NBR employees. At the same time, diversification of information sources and interest in using CBDCs positively and significantly affect knowledge about CBDCs (please refer to eq. 2). Finally, the previous experience on crypto-transactions has a positive impact on CBDCs related knowledge. At the same time, the fact that respondents identify more benefits than risks generated using CBDCs, has no significant impact on their perceived level of knowledge (eq. 3).

Table 2 - Determinants of the Perceived Level of CBDC knowledge among Romanian central bankers

cbdc_knowledge	eq. (1)	eq. (2)	eq. (3)
c	2.159***	0.654	0.713
age	0.041	0.063	0.061
education	0.250***	0.121	0.123
management	0.501***	0.392**	0.413**
location	0.394***	0.338***	0.338***
division	0.622***	0.389*	0.377*
information		0.276***	0.269***
interest		0.262***	0.232***
crypto			0.151***
benefits/risks			0.070
R^2	0.14	0.29	0.29

Note: ***, **, * indicate significance at the 99%, 95% and 90% levels.

The second set of empirical results is summarized in Table 3, where the main estimated relationships and the coefficients' significance are detailed. We first observe that the initial set of personal characteristics does not influence the perceived impact of CBDCs on financial stability, except age and division. Increased age is associated with more perceived risks than benefits, as expected. Curiously, those involved in monetary policy, financial stability and CBDCs divisions perceived a smaller overall positive impact on financial stability, compared to the other category of respondents (eq. 4).

The interest in using digital currency enhances the overall positive impact on financial stability (eq. 4). In addition, if the perceived risks exceed the benefits in number, the overall impact is negative (eq. 5). Similarly, identifying a larger number of transmission channels through which CBDCs affect stability is associated with a strongly negative impact. This result is in line with that reported in the case of central bankers active in the monetary policy, financial stability and CBDCs division, who perceived higher risks for financial stability than other central bankers. Finally, trust in the central bank has a positive and significant impact on the overall perceived impact on financial stability. That is, when the trust in central bank increased, the respondents perceived more intense benefits than risk generated by CBDCs on financial stability.

Table 3 - Impact of CBDCs on Financial Stability

ofsi	eq. (4)	eq. (5)	eq. (6)	eq. (7)
c	3.080***	-1.104	-0.526	-2.046*
age	-0.392**	-0.116	-0.168	-0.187
education	-0.002	-0.098	0.000	0.045
management	0.568	0.150	0.128	0.297
location	-0.362	-0.284	-0.101	-0.123
division	-1.265**	-1.370***	-1.249**	-1.266***
interest		0.966***	0.821***	0.561***
benefits/risks			0.914***	0.785***
channels			-0.261***	-0.268***
trust				0.626***
R^2	0.04	0.21	0.26	0.32

Note: ***, **, * indicate significance at the 99%, 95% and 90% levels.

5. Research conclusions

The purpose of this paper was to assess the factors influencing the level of CBDCs related knowledge as perceived by the Romanian central bankers, and to investigate the perception related to CBDCs impact on financial stability. To this end, we have developed a survey-based analysis applied to Romanian central bankers, obtaining 274 responses, out of which 256 were validated.

The empirical results highlight a series of relevant conclusions regarding Romanian central bankers' knowledge about CBDCs and their perceptions of the implications for financial stability. First, the results show that the level of CBDCs knowledge is significantly influenced by factors such as the position held within the institution, workplace location, and activity in departments with responsibilities in monetary policy, financial stability, or CBDCs. Age and education do not have a significant impact on the perceived level of knowledge about CBDCs. In addition, access to diverse information sources and interest in using the digital currency contribute positively to increasing the degree of familiarity, as well as the previous experience in crypto-asset transactions. By contrast, the potential risks and benefits ratio do not have a significant impact, suggesting that knowledge levels are driven more by structural and institutional factors than by individual behavior.

Regarding the perception of CBDC's impact on financial stability, the results indicate a complex and multidimensional influence. It appears that respondents' personal characteristics (education, location, or managerial position) do not explain the perceived impact of CBDCs on financial stability. Rather, we find that central bankers working in financial stability or monetary policy departments perceive a higher intensity of CBDCs-related risks compared with benefits. Interest in using CBDCs and the perception that benefits outweigh risks contribute significantly to a positive assessment of CBDC's role in the financial system. However, the variable related to "transmission channels" has a negative effect, suggesting that greater awareness of the mechanisms through which CBDCs can affect financial stability is associated with a more cautious perception of net benefits. These findings are in line with those showing that central bankers involved in monetary policy and financial stability division perceived the CBDCs associated risks at a higher level. In addition, the level of trust in the central bank plays a decisive role in shaping a favorable perception, confirming that institutional legitimacy is essential for the acceptance and integration of such an innovation.

Overall, the study shows that the success of CBDC introduction depends not only on its technical design, but also on the institutional context, the level of knowledge, and the way benefits and risks are communicated and understood. While the study offers valuable insights, it is not without limitations. The sample consists of professionals affiliated with the central bank, which may narrow the range of perspectives and introduce an institutional bias. Moreover, as the data are based on self-reported responses, they are subject to individual interpretation and potential response errors. These factors should be considered when generalizing the findings. Also, collecting the perception of commercial bankers about CBDCs and comparing them with those of central bankers, will bring value added to our research. Consequently, extending the survey to Romanian commercial bankers will considerably develop our investigation and will enhance the knowledge about the digital currency impact on financial stability.

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