

<https://doi.org/10.26565/2786-4995-2026-1-09>  
УДК 657.3:004:658.1

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## **Valuation and accounting of digital assets in the EU: methodological challenges of MiCAR implementation**

**Abstract.** This article examines the impact of the implementation of the Markets in Crypto-Assets Regulation (MiCAR) on the methodological foundations of accounting for digital assets in the Member States of the European Union. Digital assets are characterized by a diversity of legal forms, the absence of an established accounting model, and valuation dependence on volatile market data, which imposes heightened requirements for professional judgment and disclosure.

**Problem statement.** Harmonization of crypto-asset market regulation at the EU level does not ensure automatic unification of accounting approaches. Discrepancies between the legal classification of tokens under MiCAR and the recognition and measurement criteria under International Financial Reporting Standards, as well as differences in national implementation practices, complicate the application of uniform methodologies. This results in heterogeneous interpretations and creates risks for comparability and reliability of disclosures.

**Unresolved aspects of the problem.** The impact of specific elements of national MiCAR implementation on the development of accounting policies, the selection of measurement bases, and the structure of disclosures relating to digital assets remains insufficiently explored.

**Purpose of the article.** The objective is to systematize national practices of MiCAR implementation and to identify their influence on digital asset accounting methodology, as well as to formulate proposals for addressing emerging challenges and enhancing the comparability of financial reporting.

**Presentation of the main material.** An analysis of MiCAR and guidance issued by EU Member States, combined with a review of financial disclosures and a systematization of findings, enabled the integration of regulatory analysis with an empirical comparison of national approaches to MiCAR application through the lens of their impact on digital asset accounting. It is demonstrated that authorization requirements for crypto-asset service providers (CASPs), the structure and content of white papers, and transitional provisions directly affect classification, the selection of measurement bases, and the scope of disclosures in financial statements, thereby explaining differences in accounting practice across EU jurisdictions. A dependence of accounting decisions on the legal qualification of assets has been established, along with strengthened requirements for standardized disclosures and substantiation of valuation assumptions during the transitional period.

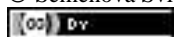
**Conclusions.** National specificities in MiCAR implementation lead to variability in accounting approaches, reducing comparability and affecting the quality of financial reporting. It has been determined that transitional mechanisms, in particular, intensify divergences in accounting approaches across jurisdictions. Although they temporarily facilitate regulatory compliance, they prolong and expand methodological asymmetry in accounting practices. The practical significance of the study lies in developing a foundation for harmonizing accounting policies in line with MiCAR, enhancing the substantiation of assumptions and valuations, and ensuring consistency between information disclosed in white papers and financial statements. The results may be used by accountants, auditors and regulators to improve digital asset accounting practices.

**Keywords:** *digital assets, digitalization, accounting policy, European experience, accounting, valuation, MiCAR, IFRS.*

**JEL classification:** M41, M41, K22, G30

Formulas: –; fig.: –, tabl.: 3, bibl.: 31

**For citation:** Semenova Svitlana. Valuation and accounting of digital assets in the EU: methodological challenges of MiCAR implementation. Financial and Credit Systems: Prospects for Development. №1(20) 2026. P. 118-132. <https://doi.org/10.26565/2786-4995-2026-1-09>



**Introduction.** The European experience in the use of digital assets is unique due to the масштабність of regulatory reforms aimed at unifying the legal framework governing the crypto-asset market within the EU. The adoption of Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on Markets in Crypto-Assets Regulation (MiCA) (ESMA, 2026) established the first comprehensive supranational legal framework at the Union level. It defines the classification of crypto-assets, sets out disclosure requirements, and establishes obligations for crypto-asset service providers. The temporal parameters for the application of specific provisions of MiCA have a direct impact on the development of accounting practices among European companies. The Regulation was published and entered into force in 2023; however, the key regulatory requirements became applicable from December 2024, while certain provisions concerning asset-referenced tokens (ARTs) and e-money tokens (EMTs) entered into effect earlier. This differentiation resulted in the phased implementation of accounting procedures and disclosure practices by entities, which in turn complicated the maintenance of consistency and comparability in financial reporting during the transitional period.

Supervisory institutions, namely the European Securities and Markets Authority (ESMA) (ESMA, 2026), the European Banking Authority (EBA) (EBA, 2019), and the European Insurance and Occupational Pensions Authority (EIOPA) (BaFin, 2023), are responsible for developing technical standards, issuing guidelines, and shaping regulatory expectations that significantly influence the interpretation of accounting requirements, risk assessment, and disclosures related to digital assets. Legislative initiatives in the areas of financial sector digitalization, prudential supervision, and investor protection are gradually transforming into practical requirements for the accounting policies of entities. At the same time, a key issue remains the absence of a specialized International Financial Reporting Standard (IFRS) (IASB, 2025) dedicated to digital assets. Within the existing IFRS framework, crypto-assets are accounted for under general standards, which leads to methodological fragmentation. Practice across jurisdictions demonstrates significant differences in the classification of digital assets as intangible assets, inventories, or financial instruments, as well as in the selection of measurement bases – historical cost or fair value. Furthermore, not all types of digital assets are recognized as accounting objects or adequately disclosed in the notes, resulting in limited comparability of financial reporting indicators and increasing the risk of subjective judgment in valuation and disclosure processes. Regulatory transformations in the field of digital asset circulation, together with the existing methodological limitations of accounting practice, underscore the need for a scholarly reassessment of methodological challenges and of the experience of the European Union, the results of which are of substantial practical relevance for Ukraine in the context of the gradual harmonization of its national accounting system with European approaches.

**Literature review.** An analysis of the academic literature indicates that the issue of accounting for digital assets in the European Union is situated at the intersection of digital economy theory, IFRS, and EU regulatory practice. Existing studies primarily focus on the conceptual foundations of governance digitalization and the transformation of economic processes that directly influence accounting approaches to new forms of assets, as noted by Obydiennova T., Vasiliev V. (2023), Krutova A., Nesterenko O., Koliienko O. (2024). The works of Zetzsche D. and Sinnig J. (2024, January 26), Babenko M. et al. (2025) highlight the relationship between the digital policies of financial institutions and market capitalization, thereby emphasizing the importance of the proper recognition of digital assets in financial reporting. At the same time, bibliometric reviews by Lazea G.-I., Bunget O.-C., Lungu C. (2024) demonstrate the fragmentation of scholarly approaches to the accounting treatment of crypto-assets and the absence of an established methodological consensus regarding their recognition and measurement.

Considerable attention in academic publications is devoted to the analysis of IFRS and their suitability for accounting for digital assets. Analytical materials prepared by leading consulting

firms (Muir et al., KPMG, 2024; EY, 2018) emphasize the absence of a specific IFRS standard for crypto-assets and the need to apply analogies with intangible assets or inventories, which gives rise to methodological inconsistencies in measurement and disclosure (Semenova, 2025). Scholarly studies by Dragomir V. (2023), Luo M., Yu S. (2024), Habib N. (2025) critically assess current practice from the perspectives of relevance, faithful representation, and comparability of financial information, highlighting issues related to fair value measurement, market volatility, and legal uncertainty. A distinct research stream comprises works devoted to the disclosure of information on digital assets in financial and non-financial reporting, particularly in the context of value creation (Romashko, 2025) and intellectual capital under the implementation of the European Digital Strategy (Fomina & Semenova, 2025).

A significant body of research addresses the regulatory dimension, primarily in connection with the implementation of the EU MiCA Regulation. Analytical reports and official publications of the European Securities and Markets Authority (ESMA) (ESMA, 2026), the European Banking Authority (EBA) (EBA, 2019), and national regulators, in particular the Federal Financial Supervisory Authority (BaFin) (BaFin, 2023) and the Financial Markets Authority (AMF) (AMF, 2024), establish the regulatory framework for harmonizing approaches to the classification and supervision of crypto-assets. In their research, Woxholth J., Zetzsche D., Buckley R., Arner D. (2023) analyze the impact of MiCA on property rights, market infrastructure, and financial stability, whereas empirical studies by Conlon T., Corbet S., Oxley L. (2024) assess cryptocurrency market reactions to EU regulatory initiatives.

Existing publications confirm that the methodological challenges of accounting for digital assets in the EU stem not only from technical accounting issues but also from a dynamic and multi-level regulatory environment that continues to evolve. Further research should focus on a systematic analysis of the impact of specific aspects of MiCAR implementation on the development of accounting policies in EU Member States, a comparison of national approaches, and the identification of patterns in their influence on accounting decisions concerning digital assets. Particular emphasis should be placed on identifying and addressing key methodological challenges in the areas of classification, measurement, and disclosure, drawing on corporate practice and the national specificities of individual jurisdictions.

**Purpose, objectives and research methods.** Метою статті є характеристика ключових методологічних викликів, пов'язаних з оцінкою і бухгалтерським відображенням цифрових активів у країнах Європейського Союзу, з урахуванням впливу положень Регламенту про ринки криптоактивів (Markets in Crypto-Assets Regulation, MiCAR) і наявної облікової та регуляторної практики, а також формуванням пропозицій для їх подолання.

У дослідженні використано загальнонаукові та спеціальні методи пізнання, зокрема аналіз, синтез, індукція, дедукція, абстрагування й узагальнення, що застосовуються для теоретичного осмислення проблем оцінки та обліку цифрових активів. Метод порівняння використано для зіставлення нормативно-правових актів ЄС та наглядових настанов, системний підхід – для дослідження взаємозв'язку між регуляторними вимогами та обліковою практикою. Контент-аналіз фінансової звітності та приміток підприємств, які здійснюють операції з цифровими активами, дав змогу ідентифікувати усталені облікові практики та характерні підходи до подання відповідної інформації. Для поглиблення інтерпретації результатів і врахування професійних суджень застосовано якісні методи, зокрема аналіз експертних думок фахівців у сфері аудиту, фінансового нагляду та корпоративного управління, а також сценарний аналіз для оцінки впливу регуляторних змін на облікові рішення та обсяг фінансових розкриттів.

**Research results.** The growth of the digital asset market, the expansion of their use, together with cases of bankruptcy involving major projects and protocols within the crypto ecosystem, indicate significant financial and operational risks that require a clear regulatory

response. Increased volatility, the integration of crypto-asset service providers (CASPs), and the use of stablecoins in financial transactions pose threats to investor protection and macroeconomic stability. According to global surveys of financial authorities, in 2022, 57% of respondents assessed the level of consumer risk in the field of digital assets as high or very high, which is twice the corresponding indicator for other fintech segments (Cambridge Centre for Alternative Finance, 2024, p. 13). In countries with economies in transition, these risks are substantially higher, rendering inaction by financial authorities in regulating digital assets unacceptable.

In response to the growing challenges, global financial standard-setting bodies, including the Basel Committee on Banking Supervision (BCBS), the International Organization of Securities Commissions (IOSCO), the International Monetary Fund (IMF), and the Financial Stability Board (FSB), have developed comprehensive recommendations for regulating digital asset activities. In the EU, regulation is implemented through Regulation (EU) 2023/1114 Markets in Crypto-Assets Regulation (MiCAR), which establishes a framework for token classification, disclosure requirements, and the authorization of crypto-asset service providers.

Among EU Member States, Germany stands out for its proactive implementation of the MiCAR, combined with detailed national regulatory support. The adoption of the Law on Supervision of Crypto Markets (the Kryptomärkteaufsichtsgesetz, KMAG) at the end of 2024 ensured the integration of the Regulation's provisions into the national system of financial supervision and established procedures for its application. A central role in regulating crypto-asset circulation is played by the Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht), which operates in close coordination with the Deutsche Bundesbank (BaFin, 2023). This framework is characterized by a clear allocation of supervisory powers, a high degree of legal certainty for market participants, and the consistent implementation of European regulatory standards, particularly with respect to crypto-asset issuance, the preparation of disclosure documents, and investor protection.

The German approach is distinguished by differentiated requirements depending on the status of market participants and their prior supervisory history, which complicates methodological uniformity in accounting (Zetzsche & Sinnig, 2024, January 26). Entities providing crypto-asset services are required to submit white papers and undergo authorization procedures (BaFin, 2023), thereby establishing a direct link between regulatory expectations and accounting policy. The absence of unified approaches to the classification of ARTs (asset-referenced tokens) and EMTs (e-money tokens), as well as differing requirements regarding fair value measurement and disclosure procedures, underscores the urgency of methodological harmonization in digital asset accounting, particularly in the context of cross-border operations within the EU. While the level of regulatory detail and supervisory stringency enhances legal certainty and market transparency, it simultaneously creates methodological challenges for accountants and auditors in ensuring the proper presentation of digital assets in financial statements.

A distinctive feature of the German approach is the differentiated regulatory treatment of market participants depending on their status and the nature of their activities, as well as a comprehensive system of transitional and simplified procedures. The legislator has provided separate mechanisms for entities already subject to financial supervision, new crypto-asset service providers, and companies operating under the previous national regime. At the same time, considerable attention is devoted to the procedural aspects of authorization, supervision, and cross-border "passporting" of services, thereby strengthening the administrative discipline of the market (BaFin, 2023). German practice demonstrates an intention not merely to formally comply with the requirements of the Markets in Crypto-Assets Regulation, but also to establish a stable and predictable environment for the development of the digital asset market within the integrated financial space of the European Union.

In France, regulation of digital asset circulation combines the requirements of MiCAR with national rules applicable to digital asset service providers (CASPs), introduced by the legislative initiative “Plan d’Action pour la Croissance et la Transformation des Entreprises (PACTE)”. National regulators, namely the Financial Markets Authority (AMF) (AMF, 2024) and the Supervisory and Prudential Commission (ACPR), establish authorization procedures, requirements for the preparation of white papers, and disclosure obligations, which directly influence accounting policies and notes to financial statements. For issuers of asset-referenced tokens (ARTs) and e-money tokens (EMTs), a detailed description of legal status, asset safeguarding risks, and liquidity management procedures is mandatory.

In Italy, the Banca d’Italia (Bank of Italy, BI, 2024) and the National Commission for Companies and the Stock Exchange (CONSOB) (CONSOB & Banca d’Italia, 2025, March 6) integrate MiCAR with national accounting rules, emphasizing compatibility with IFRS and requirements for transparency in the notes and audit assurance of digital asset valuations. In Austria, the Finanzmarktaufsicht (FMA) (FMA, 2024, August 7) has defined authorization rules for CASPs, requirements for internal control systems, and transaction data retention, which directly affect accounting methodology. In Belgium, the Financial Services and Markets Authority (FSMA) (FSMA, 2025) has formalized national MiCAR procedures and the list of CASP services, creating temporary divergences in the comparability of financial reporting with other EU jurisdictions. The Spanish National Securities Market Commission (CNMV, 2024) and the Authority for the Financial Markets (AFM) (AFM, 2024), together with the Netherlands Bank (DNB, 2024), emphasize the integration of MiCAR requirements with national risk disclosure standards and authorization procedures, defining accountants’ responsibilities regarding the presentation of liquidity and the fair value measurement of crypto-assets in financial statements. The European Securities and Markets Authority (ESMA) (ESMA, 2025, March 19), with the aim of harmonizing practices, publishes methodological guidelines on the qualification of crypto-assets as financial instruments and templates for white papers, thereby significantly reducing methodological fragmentation in accounting approaches across Member States.

A comparative analysis of official guidelines and decisions of key supervisory authorities in a number of EU Member States related to the implementation of MiCAR made it possible to determine how market access procedures (authorization or notification), white paper formats and requirements, and national transitional mechanisms transform practical approaches to the classification, measurement, and disclosure of digital assets in financial statements, as well as what evidence (audit trail) regulators and auditors expect. Table 1 focuses specifically on operational requirements that have a direct methodological effect on accounting and auditing.

It should be noted that a «white paper», within the meaning of MiCAR, is a mandatory public disclosure document issued by a crypto-asset issuer (a technical document on the crypto-asset), containing a description of the project, the legal nature of the token, associated risks, operational mechanisms, and other material characteristics. Within the MiCAR framework, this document performs a dual function: it serves as an investor protection instrument through standardized risk disclosure and, at the same time, as a primary source of data for assessing the economic substance of the crypto-asset. An analysis of the procedures for its preparation and of national requirements regarding its structure and content makes it possible to establish a direct link between regulatory prescriptions and accounting decisions concerning asset classification, disclosure of professional judgments, and the preparation of explanatory information in the notes to financial statements. Another important term used in MiCAR is audit trail, which represents a detailed chronological sequence of records documenting all transactions, data modifications, and user actions within a system, which is particularly relevant in the IT domain. It ensures transparency by enabling the tracing of the path from the initial transaction to the final outcome, facilitating the detection of errors or abuses and supporting compliance with regulatory requirements.

*Table 1. Characteristics of Supervisory Practices and Methodological Implications of the Application of MiCAR in EU Member States*

| Country     | Competent supervisory authority  | National specificities in the implementation of MiCAR   | White Paper Content and Submission Requirements  |
|-------------|--|---|--|
| Germany     | Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, <b>BaFin</b> ); German Federal Bank (Deutsche Bundesbank, <b>DNB</b> )                   | Full authorisation of crypto-asset service providers ( <b>CASPs</b> ) or notification procedures in accordance with MiCAR provisions (Articles 59–63, 60). National rules further specify information requirements and procedural timelines.      | The white paper is submitted to BaFin. Requirements include a description of the economic substance of the token, investor risks, legal status, liquidity management mechanisms, and technical aspects. Submission format and deadlines are defined in BaFin guidelines.   |
| France      | Financial Markets Authority (Autorité des marchés financiers, <b>AMF</b> ); Supervisory and Prudential Commission (Autorité de contrôle prudentiel et de résolution, <b>ACPR</b> ) | AMF acts as the competent authority for reviewing white papers and supervising public offerings; CASP authorisation procedures are implemented in line with MiCAR, complemented by national-level guidance.                                       | AMF has published a standardised white paper template with clearly defined sections, including the economic description of the project, risk models, asset safeguarding mechanisms, corporate information, and issuance details. Disclosure of these elements in the notes to annual financial statements is expected. |
| Italy       | Bank of Italy (Banca d'Italia, <b>BI</b> ); National Commission for Companies and the Stock Exchange (Commissione Nazionale per le Società e la Borsa, <b>CONSOB</b> )             | Allocation of competences between BI and CONSOB depending on the category of the crypto-asset; authorisation or notification under MiCAR adapted through national decrees, with specified timelines and procedural requirements for applications. | CONSOB provides templates and methodological guidance on the structure of the white paper, specifying information that should be aligned with IFRS requirements.   |
| Austria     | Financial Market Authority (Finanzmarktaufsicht, <b>FMA</b> )  | FMA conducts CASP authorisation in accordance with MiCAR. The procedure includes assessment of organisational structure, internal controls, and IT infrastructure supporting digital asset transactions.  | FMA has published a roadmap for CASP applicants and requirements regarding the content of submitted documents, with particular emphasis on the reliability of transaction records and accounting systems.  |
| Belgium     | Financial Services and Markets Authority ( <b>FSMA</b> ); National Bank of Belgium ( <b>NBB</b> )  | Allocation of powers between FSMA and NBB: authorisation and notification procedures are carried out within the national implementation framework; submission forms and timelines are standardised.   | National procedures require submission of the white paper in a prescribed format, including disclosure of target jurisdictions for issuance and detailed risk disclosures.   |
| Spain       | National Securities Market Commission (Comisión Nacional del Mercado de Valores, <b>CNMV</b> )   | CNMV provides guidance for notification and authorisation procedures, including standardised templates and submission deadlines adapted to the national context.  | CNMV has introduced white paper templates and supports the use of structured reporting formats (iXBRL, ESMA taxonomies) for certain disclosures to enhance data comparability.   |
| Netherlands | Authority for the Financial Markets (de Autoriteit Financiële Markten, <b>AFM</b> ) and the Netherlands Bank (de Nederlandsche Bank, <b>DNB</b> )                                  | AFM and DNB share competences: AFM is responsible for licensing most CASPs, while DNB maintains supervisory registers; MiCAR provisions are applied in phases with defined deadlines.   | AFM and DNB provide practical instructions for applications and white paper submissions. Registered operators are granted additional transition periods for adaptation.  |

Source: prepared by the author on the basis of (AFM, 2024; AMF, 2024; BaFin, 2023; Bank of Italy, 2024; Cambridge Centre for Alternative Finance, 2024; CNMV, 2024; CONSOB, 2025; DNB, 2024; EBA, 2019; ESMA, 2025; ESMA, 2026; FMA, 2024; FSMA, 2025)

Regulatory unification at the EU level is accompanied by significant variability in practical implementation. Differences are observed in the degree of detail of information requirements, the procedural architecture of authorization, the role of supervisory authorities, and the level of formalization of the linkage between regulatory disclosures and financial reporting. These features directly affect the development of accounting policies, in particular the classification of digital assets, the selection of measurement bases, and the scope of required disclosures.

At the same time, the impact of MiCAR is largely realized through transitional implementation mechanisms. The transitional provisions determine the procedure for adapting existing market participants to the new regulatory requirements, the conditions for maintaining or transforming existing authorizations, and the time frames for changes in accounting approaches. Therefore, the subsequent analysis focuses on the transitional application of MiCAR in the EU Member States and its methodological implications for accounting and auditing, which are systematized in Table 2.

*Table 2. The impact of MiCAR on accounting, disclosure and audit of digital assets in the EU*

| Country | National features of the transitional period and simplified procedures   | Key methodological implications for accounting and auditing   |
|---------|--|---|
| Germany | The Kryptomärkte-aufsichtsgesetz (KMAG) has been adopted, establishing simplified procedures for entities already subject to supervision. Temporary retention of certain authorisations is permitted until the end of the defined transitional period. | 1) Enhanced evidentiary requirements, including the need to retain documentation supporting the legal status of tokens and key valuation assumptions (audit trail). 2) Formalisation of accounting policies through linkage of token classification to legal opinions, affecting the selection of accounting categories (financial instrument, intangible asset or other). 3) Strengthened verification of pricing sources for fair value measurement, with explicit consideration of market liquidity and volatility. 4) Expansion of audit procedures related to custodial record integrity and risk management controls.                                 |
| France  | AMF guidelines provide transitional requirements for existing market participants, including obligations to update disclosures and complete authorisation within agreed timelines.   | 1) Standardisation of AMF disclosures increases the requirement for consistent presentation of valuation assumptions in the notes, matching the level of detail in the white paper. 2) Legal alignment requirements: accounting classification must be justified with reference to the legal qualification of the token (legal opinion and accounting rationale). 3) Increased expectations regarding asset safeguarding controls, including documented custodial processes and verification procedures. 4) Enhanced disclosure of liquidity and operational risks in the notes; auditors expect the existence of stress-testing procedures for valuations. |
| Italy   | National decrees establish transitional rules, including the possibility to reuse previously submitted documentation in new authorisation procedures. Defined timelines apply for aligning internal processes with MiCAR requirements.                 | 1) Strong orientation toward IFRS, with expectations that accounting policies reflect international recognition, classification and measurement concepts. 2) Strengthened role of audit assurance, requiring verification of valuation assumptions against international standards. 3) Documentation of procedures for verification of pricing sources and scenario-based fair value measurement. 4) Requirement for transparent reconciliation between white paper disclosures and information presented in financial statements (consistency of disclosures).   |
| Austria | National guidance establishes requirements for data retention and transaction logs, with additional technical requirements for reporting systems in certain cases.   | 1) Strengthened controls over information systems, including verification of the integrity of trading data and custodial records to support valuation. 2) Internal control requirements influence documentation of valuation methodologies and the preparation of audit evidence. 3) Accounting implications include an increased need to disclose specific operational risks and related provisions or explanatory notes.  |

Table 1. (continued)

|             |   |  |
|-------------|---|--|
| Belgium     | National implementation of MiCAR provides transitional timelines and coordination requirements between FSMA and NBB.  | 1) Coordination between supervisory authorities complicates a unified disclosure approach, requiring submissions that satisfy both regulators. 2) Accounting policies must incorporate procedures for aligning legal classification of tokens with corresponding measurement bases. 3) Auditors are expected to require clear traceability of decisions and documented procedures evidencing coordination with supervisory authorities.  |
| Spain       | The national implementation schedule sets deadlines for transition to new reporting formats and provides for technical preparation of accounting systems.               | 1) Technical requirements for structured disclosures (iXBRL) affect the preparation of notes, necessitating integration of accounting systems with structured data export mechanisms. 2) Increased importance of data quality controls and validation; audit procedures must expand to test the correctness of data structuring and transmission. 3) Methodological challenges include standardised presentation of valuation assumptions in formats compatible with supervisory taxonomies. |
| Netherlands | Phased application of MiCAR, with different deadlines for categories of entities, allows system adaptation but requires parallel accounting before and after licensing. | 1) Requirement to maintain parallel accounting regimes (pre-MiCAR vs post-MiCAR) until licensing, including documentation of changes in accounting policies. 2) Audit trail requirements and version control of accounting and control process changes during the transitional period. 3) Increased need for internal audit involvement and external assurance over transition procedures.   |

Source: prepared by the author on the basis of (AFM, 2024; AMF, 2024; BaFin, 2023; Bank of Italy, 2024; Cambridge Centre for Alternative Finance, 2024; CNMV, 2024; CONSOB, 2025; DNB, 2024; EBA, 2019; ESMA, 2025; ESMA, 2026; FMA, 2024; FSMA, 2025)

It has been established that, at the level of EU Member States, two parallel approaches are applied: (a) implementation of MiCAR through the direct delegation of competences to national authorities (BaFin, AMF, CONSOB, FMA, FSMA, CNMV, AFM), and (b) further specification through national regulatory acts (for example, KMAG in Germany, as well as national decrees in Italy and Belgium), which results in short-term regulatory differentiation. Standardized white paper templates and guidelines issued by the European Securities and Markets Authority (including iXBRL format requirements) reduce informational heterogeneity; however, they increase technical and procedural requirements for the preparation and disclosure of information. This directly affects accounting approaches and policies, particularly the need to document valuation assumptions, apply formalized fair value measurement methodologies, and maintain audit trail documentation. Transitional and simplified procedures (such as the simplified procedure under KMAG for supervised entities) reduce the regulatory burden for certain entities, but simultaneously create unequal conditions for accounting practices and temporary asymmetry in reporting, thereby complicating cross-country comparability.

The identified methodological challenges are systemic in nature and are not limited to technical difficulties in valuation or disclosure. They reflect a deeper gap between the dynamics of regulatory changes within the EU and the development of international accounting methodology, necessitating the establishment of adaptive, transparent, and well-documented approaches to accounting for digital assets (Table 3).

Thus, the methodological challenges of accounting for digital assets in the EU arise from the simultaneous requirement to comply with MiCAR and national legislative acts. Entities face difficulties in the classification of tokens: ARTs and EMTs may be treated as financial instruments, intangible assets, or specific digital instruments with hybrid characteristics, which affects accounting policies and measurement rules. The selection of a measurement basis, in particular the determination of fair value in a highly volatile and low-liquidity environment, remains a key challenge, as it directly affects the accuracy of financial indicators and the adequacy of disclosures.

Table 3. Methodological challenges in the valuation and accounting of digital assets in the EU under the implementation of Regulation (EU) 2023/1114 (MiCAR)

| No. | Key Methodological Challenges   | Description  | Approaches to Addressing Them   |
|-----|---|--|---|
| 1   | Divergence between legal and accounting classification of tokens                  | The legal categories of tokens defined by MiCAR (in particular Asset-Referenced Tokens and E-Money Tokens) have no direct equivalents under IFRS, requiring entities to align legal form with the economic substance of assets. This increases the role of professional judgment and leads to heterogeneity in financial reporting across jurisdictions. | Development of accounting approaches based on analysis of the economic substance of tokens, with systematic documentation of classification rationale and disclosure of applied judgments in the notes to the financial statements. |
| 2   | Determination of fair value under conditions of volatility and limited liquidity  | For a significant number of tokens, active markets do not exist, limiting the application of standard market-based valuation approaches. Volatility and differing national requirements for price verification complicate the harmonization of valuation methodologies.  | Application of multi-level valuation approaches adjusted for liquidity and risk. Enhanced disclosure of assumptions and sensitivity analyses in financial statements.   |
| 3   | Lack of high-quality and representative market data                               | The absence of complete information on issuance volumes, secondary trading, and investor behavior reduces the reliability of valuation inputs and complicates audit verification.  | Use of conservative assumptions, combination of multiple information sources, and clear delineation of the reliability boundaries of valuation data in the notes.   |
| 4   | Fragmentation of national MiCAR implementation                                    | Despite the Regulation's direct applicability, national laws and guidance differ in their level of detail, resulting in varying disclosure practices and procedural controls, thereby reducing cross-country comparability of financial statements.  | Reliance on supranational clarifications issued by the European Supervisory Authorities, combined with explanation of national specificities in reporting.  |
| 5   | Transitional periods and asymmetry of time deadlines                              | Temporary and simplified regimes for certain categories of entities lead to the parallel application of different accounting approaches within the same reporting period.  | Clear distinction between transitional and permanent accounting approaches and transparent explanation of their impact on financial indicators.   |
| 6   | Consistency between technical documentation (white paper) and financial reporting | A white paper combines informational and marketing functions, which does not automatically ensure consistency between stated assumptions and accounting estimates in financial statements.   | Integration of white paper information into the system of financial indicators disclosed in reporting, with verification of the logical consistency of assumptions and estimates.   |
| 7   | Administrative burden of authorization procedures                                 | Authorization and notification procedures require extensive documentation that must be aligned with accounting policies and internal control systems.  | Formalization of accounting policies as an element of regulatory compliance and their integration into the corporate governance framework.  |
| 8   | Allocation of supervisory powers  | Models involving multiple supervisory authorities complicate the alignment of data submission and disclosure requirements.   | Centralization of the preparation of reporting and regulatory information, and standardization of explanatory disclosures.  |
| 9   | Technical requirements for structured disclosures                                 | The introduction of machine-readable formats transforms approaches to preparing notes and increases data quality requirements.   | Adaptation of accounting information systems and strengthening of internal controls over digital asset data.  |
| 10  | Enhanced requirements for evidentiary support and traceability                    | Regulatory and audit expectations regarding substantiation of digital asset valuations significantly exceed traditional practices.   | Development of a comprehensive documentary support system for valuations and transactions as an integral component of accounting methodology.   |
| 11  | Accounting for hybrid and tokenized rights  | The combination of financial and non-financial features within a single token complicates the application of standard recognition criteria.  | Application of component analysis and detailed disclosure of the rationale underlying accounting decisions for digital assets.  |
| 12  | Regulatory uncertainty and dynamic evolution of norms                             | Frequent updates of guidance complicate the stability of accounting policies and long-term planning. Divergent national approaches reduce the quality of disclosures.  | Development of adaptive accounting policies. Harmonization of disclosures at the EU level and explanation of national differences in financial reporting.   |

Source: prepared by the author on the basis of (AFM, 2024; AMF, 2024; BaFin, 2023; Bank of Italy, 2024; Cambridge Centre for Alternative Finance, 2024; CNMV, 2024; CONSOB, 2025; DNB, 2024; EBA, 2019; ESMA, 2025; ESMA, 2026; FMA, 2024; FSMA, 2025; IASB, 2025; Muir et al., 2024; Semenova, 2025; Zetzsche & Sinnig, 2024)

Additional complexity stems from procedural requirements related to the preparation and submission of white papers, mandatory investor disclosures, and interaction with regulators (Bundesanstalt für Finanzdienstleistungsaufsicht, BaFin; Deutsche Bundesbank, DBB), which requires accountants and auditors to integrate regulatory standards into internal accounting processes. This complexity necessitates the development of unified methodological approaches to digital asset accounting capable of ensuring comparability of financial statements and compliance with European regulatory requirements.

As a result of the study, a systematic comparison of national approaches to the application of MiCAR has been conducted, with a focus on how authorization requirements for crypto-asset service providers (CASPs), the content of the white paper, and transitional provisions influence the development of accounting policies for digital assets. Unlike studies that consider MiCAR primarily as a regulatory instrument, this research demonstrates its practical significance for accounting, particularly with regard to token classification, the choice of measurement bases, and the structure of disclosures in financial statements, thereby explaining the reasons for differences in accounting practices within the EU.

The conducted study is not limited to a description of the provisions of MiCAR; rather, it demonstrates the specific features of their application in national jurisdictions, their impact on accounting judgments and policies, auditing practice, and the identification of methodological issues and ways to address them. The combination of regulatory analysis with empirical systematization (through tabular presentation) made it possible to identify consistent patterns: the dependence of accounting classification on legal conclusions, the growing role of standardized disclosures, and the strengthening of evidential requirements for valuation during the transitional period. Such an integration of legal and accounting dimensions within a unified analytical framework has not previously been systematically presented in the academic literature.

The results obtained establish a methodological foundation for:

- aligning accounting policies with national specificities of MiCAR implementation;
- improving the quality of documentation of valuation and pricing assumptions;
- developing a consistent approach to disclosures between white papers and financial statements;
- adapting audit procedures to new regulatory requirements.

The research materials may be used by professional accountants, auditors, regulators, and developers of methodological guidance. The proposed measures are aimed at reducing methodological uncertainty, enhancing the comparability of financial reporting, and facilitating the coherent adaptation of accounting policies during the transition to full MiCAR implementation. They may also serve as a basis for targeted guidance from regulators and standard-setting bodies.

The study contributes to addressing the fragmentation of digital asset accounting practices in the EU under conditions of formal regulatory harmonization. Despite the unification of the MiCAR regulatory framework, national implementation specificities and transitional mechanisms create a risk of divergent interpretations in classification, measurement, and disclosure. The synthesis undertaken makes it possible to identify the sources of such heterogeneity and provides a foundation for its further methodological alignment, thereby enhancing the comparability and reliability of financial reporting related to digital assets.

**Discussion.** The results of the study made it possible to systematically delineate the methodological challenges of valuation and accounting for digital assets in the EU across several dimensions: classification and legal nature of assets; quality and sources of valuation data; implementation of regulatory requirements (authorization, white paper, transitional regimes); and technological and evidentiary aspects (structured formats, audit trail). The findings should be considered in the context of contemporary research on the regulation and accounting of digital assets. Comparative analysis confirms the conclusions of Conlon et al. (2024) regarding the impact of MiCA on the market environment, while extending them through an accounting perspective: national specificities in the application of the Regulation directly influence the selection of

accounting approaches and the content of disclosures. Thus, regulatory harmonization at the EU level does not fully eliminate heterogeneity in financial reporting practices.

The issue of digital asset classification analyzed by Dragomir (2023), Luo and Yu (2024), and Muir, Tricarichi, and Ahuja (2024) is corroborated by the findings of this study: the legal qualification of tokens under the Markets in Crypto-Assets Regulation does not always align with the recognition criteria for assets and liabilities under International Financial Reporting Standards. The divergence between legal form and economic substance complicates the determination of an appropriate accounting model and creates the risk of inconsistent interpretation of similar transactions across Member States. In this respect, the conclusions correspond to the position of Woxholth, Zetzsche, Buckley, and Arner (2023) regarding the multiplicity of legal claims associated with crypto-assets.

Valuation and sources of market data remain among the most debated issues. In particular, Habib (2025), Lazea, Bunget, and Lungu (2024) highlight quotation volatility and the complexity of applying the fair value model. Comparative analysis of national practices indicates that differences in the selection of trading venues, price aggregation methods, and disclosure of assumptions reduce the comparability of financial reporting, even under formally unified regulatory requirements. The introduction of structured reporting formats and strengthened documentation requirements is consistent with the findings of Semenova (2024) and Krutova et al. (2024) concerning the digitalization of accounting processes. At the same time, increased formalization does not guarantee an automatic improvement in the quality of financial information, since in the absence of clear methodological guidance for the classification and valuation of digital assets, the risk increases of formal compliance without adequately reflecting the economic substance of transactions.

Technological requirements for the transition to iXBRL and the establishment of an audit trail are viewed not only as operational challenges but also as factors driving methodological transformation in accounting. Structured formats alter internal control requirements and render primary data subject to regulatory monitoring. In the short term, an increase in operational workload is inevitable, while in the medium term, improvements in comparability of information and rapid validation of disclosures are expected.

The limitations of this study are determined by the dynamic nature of the regulatory environment and the varying depth of published national guidance. In addition, the predominance of qualitative analysis restricts the ability to quantitatively measure the impact of individual factors on financial reporting metrics. These limitations define directions for further research, including empirical testing of the relationship between regulatory procedures and accounting decisions, the development of unified tools for token classification within the IFRS framework, and the assessment of the economic feasibility of implementing structured formats for different groups of market participants.

The French experience acquires practical significance in this context, where the transition to a more stringent authorization regime for digital asset service providers is accompanied by enhanced internal control and disclosure standards. French practice confirms that the effectiveness of regulatory tightening largely depends on the availability of methodological guidance on the classification, valuation, and accounting treatment of digital assets, which aligns with the key conclusions of this study.

**Conclusions.** The implementation of MiCAR has become a key factor in the institutional convergence of digital asset regulation within the EU, however, it has not eliminated methodological heterogeneity in approaches to their valuation and accounting. An analysis of national practices in Germany, France, Italy, Austria, Belgium, Spain, and the Netherlands demonstrates that, despite the formal harmonization of regulatory requirements, the practical implementation of MiCAR provisions occurs through different administrative models, varying degrees of guidance detail, and transitional mechanisms. These differences directly influence the development of corporate accounting policies. It has been established that the principal methodological challenges in accounting for digital assets remain issues of classification, the

selection of measurement bases, and the consistency of disclosures. The legal qualification of tokens under MiCAR does not always correlate unequivocally with IFRS categories, compelling entities to exercise professional judgment and develop integrated accounting solutions. In conditions of high volatility and uneven liquidity in crypto markets, the determination of fair value requires enhanced procedures for verifying pricing sources and documenting assumptions, which significantly increases the burden on accounting and auditing functions.

A comparative analysis of national practices indicates that countries with more developed supervisory frameworks for digital assets (notably Germany and France) set higher expectations regarding the quality of accounting documentation, consistency between white papers and financial statements, and the existence of a comprehensive audit trail. At the same time, jurisdictions applying phased or dual supervisory models (Belgium and the Netherlands) create additional methodological risks associated with regulatory fragmentation and the need to maintain parallel accounting procedures during the transitional period. Technical initiatives introduced by certain regulators, including the use of structured disclosure formats, are gradually transforming approaches to the preparation of notes and reinforcing the importance of data quality control.

The synthesis of the findings supports the conclusion that the harmonization of digital asset regulation within the EU requires further methodological development specifically at the level of accounting and auditing. The absence of a specialized international accounting standard for most categories of crypto-assets preserves the risk of divergent interpretations and limits the comparability of financial reporting, even under a unified regulatory framework. In this context, strengthening coordination between European supervisory authorities and standard-setting bodies appears appropriate in order to develop consistent methodological guidance that would provide greater clarity in matters of classification, measurement, and disclosure of digital assets, and thereby contribute to enhanced transparency and resilience of the European Union's financial system.

The scientific novelty of the study lies in a comprehensive comparison of national approaches to the application of MiCAR from the perspective of their impact on the formation of accounting policies for digital assets. It has been demonstrated that requirements concerning the authorization of CASPs, the content of white papers, and transitional regimes directly determine token classification, the choice of measurement bases, and the structure of disclosures, thereby explaining the variability of accounting practices within the EU. The integration of regulatory analysis with empirical systematization made it possible to identify patterns in the dependence of accounting decisions on the legal qualification of assets and the strengthening of evidential requirements for valuations during the transitional period. The practical significance of the results consists in establishing a methodological foundation for aligning accounting policies with national specificities of MiCAR implementation and enhancing the comparability of financial reporting. The conclusions obtained may be used in the development of professional recommendations and regulatory guidance on digital asset accounting.

Prospects for further research should focus on the empirical analysis of classification and measurement practices for digital assets following the full application of MiCAR, particularly with regard to the consistency between the legal qualification of tokens and their recognition under IFRS. Improvement is also required in methodologies for determining fair value under conditions of limited liquidity, including the substantiation of pricing sources, the application of valuation models, and the disclosure of key assumptions in the notes to financial statements.

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Received: 29.10.2025

Accepted: 02.03.2026

Received after review: 04.02.2025

Published: 31.03.2026

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**Оцінка та облік цифрових активів в ЄС: методологічні виклики імплементації MiCAR**

**Анотація.** Статтю присвячено дослідженню впливу імплементації Регламенту MiCAR (Markets in Crypto-Assets Regulation) на методологічні засади обліку цифрових активів у державах-членах Європейського Союзу. Цифрові активи характеризуються різноманітністю правових форм, відсутністю усталеної облікової моделі та залежністю оцінки від мінливих ринкових даних, що зумовлює підвищені вимоги до професійного судження і розкриття інформації.

**Постановка проблеми.** Гармонізація регулювання ринку криптоактивів на рівні ЄС не забезпечує автоматичної уніфікації облікових підходів. Розбіжності між юридичною класифікацією токенів згідно MiCAR і критеріями визнання та оцінки за МСФЗ, відмінності у національних імплементаціях ускладнюють застосування уніфікованих методик, спричиняючи неоднорідність трактувань, ризики для порівнянності і достовірності розкриттів.

**Нерозв'язані аспекти.** Недостатньо дослідженим залишається вплив конкретних елементів національної імплементації MiCAR на формування облікових політик, вибір бази оцінювання та структуру розкриття інформації про цифрові активи.

**Мета статті.** Метою є систематизація національних практик імплементації MiCAR та виявлення їхнього впливу на методологію обліку цифрових активів, формування пропозицій щодо подолання викликів і підвищення порівнянності фінансової звітності.

**Основний матеріал.** Дослідження MiCAR і настанов держав-членів ЄС, узагальнення фінансових розкриттів та систематизація результатів дозволили комплексно поєднати нормативний аналіз з емпіричним порівнянням національних підходів до застосування MiCAR крізь призму їх впливу на облік цифрових активів. Доведено, що вимоги до авторизації постачальників криптопослуг (crypto-asset service providers, CASPs), структури документів (white paper) та перехідних положень безпосередньо впливають на класифікацію, вибір бази оцінки та обсяг розкриття інформації про цифрові активи у фінансовій звітності, що пояснює відмінності облікової практики між державами ЄС. Встановлено залежність облікових рішень від юридичної кваліфікації активів і посилення вимог до стандартизованих розкриттів та підтвердження обґрунтованості оцінок у перехідний період.

**Висновки.** Національні особливості імплементації MiCAR зумовлюють варіативність облікових підходів, що знижує порівнянність і впливає на якість фінансової звітності. Встановлено, що саме механізми перехідного періоду посилюють розбіжності в облікових підходах між юрисдикціями. Вони хоч і тимчасово полегшують відповідність регулюванню, проте подовжують та розширюють асиметрію в методології обліку. Практичне значення дослідження полягає у розробленні основи для гармонізації облікових політик відповідно до MiCAR, підвищення обґрунтованості припущень і оцінок, забезпечення узгодженості інформації між документами (white paper) і фінансовою звітністю. Результати можуть бути використані бухгалтерами, аудиторами та регуляторами для удосконалення практики обліку цифрових активів.

**Ключові слова:** цифрові активи, діджиталізація, облікова політика, європейський досвід, облік, оцінювання, MiCAR, МСФЗ.

**JEL classification:** M41, M41, K22, G30.

Формули: –; рис.: –; табл.: 3; бібл.: 31.

**Для цитування:** Semenova Svitlana. Valuation and accounting of digital assets in the EU: methodological challenges of MiCAR implementation. *Фінансово-кредитні системи: перспективи розвитку*. №1(20) 2026. С. 118-132. <https://doi.org/10.26565/2786-4995-2026-1-09>

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Стаття надійшла до редакції 29.10.2025

Статтю рекомендовано до друку 02.03.2026

Стаття надійшла після рецензування 04.02.2026

Статтю опубліковано 31.03.2026