The role of stablecoins in the European payments market under MiCA regulation

MICHAŁ POLASIK

corresponding author

Nicolaus Copernicus University in Toruń, Faculty of Economic Sciences and Management, Center of Digital Economy and Finance, ul. Gagarina 13A, 87-100 Toruń, Poland

✉ michal.polasik@umk.pl

ⓘD orcid.org/0000-0002-7790-4839

PAWEŁ WIDAWSKI

University of Warsaw, Faculty of Law and Administration, Department of Administrative, Economic and Banking Law, ul. Krakowskie Przedmieście 26/28, 00-927 Warszawa, Poland

✉ p.widawski@wpia.uw.edu.pl

ⓘD orcid.org/0000-0003-0457-360X

GRZEGORZ KELER

University of Warsaw, Faculty of Management, Department of Business Law, ul. Szturmowa 1/3, 02-678 Warszawa, Poland

✉ gkeler@wz.uw.edu.pl

ⓘD orcid.org/0000-0003-2655-4135

VENKATA MARELLA

University of Duisburg-Essen, Department of Computer Science, Schützenbahn 70, 45127 Essen, Germany

✉ venmarella@gmail.com

ⓘD orcid.org/0000-0002-2824-3368

Abstract

Motivation: MiCA marks a pivotal regulatory shift for the fast-evolving digital asset and payments landscape, warranting a rigorous assessment of its consequences for both stablecoin issuers and users. The existing literature primarily concentrates on the investment attributes of cryptoassets, leaving the payment functionality of cryptocurrencies under-examined. This study addresses these gaps by highlighting the payment role of stablecoins and examining the regulatory impacts on their issuance and use.

Aim: The goal of the work is to determine the role of stablecoins in the European payment services market under the MiCA regulatory regime, considering their economic functions and legal classification.

Results: The study found that the issuance of EMT does not result in the creation of a payment system under EU law. Instead, electronic money tokens under MiCA are classified as funds. There is a substantial similarity between EMT and electronic money under EMD2. At the same time, EMT differs from classical electronic money in that it utilizes a decentralized blockchain infrastructure; therefore, EMTs are both e-money and crypto-assets. A comparison of the regulations governing stablecoins in five jurisdictions – the EU, the US, Japan, Switzerland, and the UK – revealed that, generally, new regulations do not replace earlier ones, but rather extend their logic to a new type of funds and decentralized blockchain technology. Nevertheless, detailed regulations differ significantly in particular aspects. Due to the short duration of the MiCA regulation, the general effects on the innovativeness of the European digital payment services market have not yet been revealed.

Keywords: stablecoin, MiCA, cryptocurrency, digital payment, FinTech

JEL: E42; G23; G28; K22

1. Introduction

Stablecoins constitute one of the key categories of digital assets, aiming to ensure relative price stability compared to traditional cryptocurrencies. The first stablecoin was introduced in 2014, and as for 2025 the market capitalization of stablecoins stands at 310 billion USD (*CoinMarketCap*, 2025). Over the course of one decade, there has been a rapid adoption of stablecoins, primarily due to their lower volatility compared to other cryptocurrencies.

In 2023, the European Parliament and the Council of the European Union formally adopted the introduction of the Markets in Crypto-Assets Regulation (MiCA, 2023), a comprehensive framework designed to provide legal clarity, protect investors, and ensure market integrity in the crypto space (Carata, 2024). On March 3oth, 2024, MiCA rules started to apply to the stablecoins. MiCA categorizes stablecoins as either E-money Tokens (EMTs) or Asset-Referenced Tokens (ARTs) (Alcorta, 2025). EMTs are stablecoins that are backed by a single official fiat currency, such as the euro or the US dollar. MiCA ensures that there is a 1:1 reserve of assets in a segregated ac-

count at a credit institution. ART issuers must maintain a reserve of assets that is sufficient to back the value of the tokens. MICA is a game-changing legal regulation in the rapidly growing digital asset and digital payments markets; therefore, its impact on both issuers and holders of stablecoins must be assessed (Alcorta, 2025).

Literature studies allowed the authors to identify several research gaps. Primarily, most academic articles and research reports have focused on capital issues and the investment role of cryptocurrencies. The payment role of cryptocurrencies, particularly stablecoins, has been insufficiently explored. Furthermore, the rapid pace of the abovementioned legal changes and new broad regulations, such as MiCA in Europe and the GENIUS Act in the US, creates an urgent need for new, up-to-date research on their impact on the stablecoins market.

The goal of the work is to determine the role of stablecoins in the European payment services market under the MiCA regulatory regime, considering their economic functions and legal classification. To achieve this goal, the authors formulated four research questions.

Q1. Does a stablecoin-based system meet the definition of a "payment system"?

The primary function of a payment system is to facilitate the transfer of value between the payer and the payee in accordance with established rules and regulations. Although stablecoins offer less volatility to facilitate the transfer of value, the underlying risk of the pegged assets in stablecoins creates a certain level of volatility for the stablecoins. In such a scenario, it is essential to investigate whether we should consider stablecoins as a payment system within the EU legal framework, which constitutes the first research question.

Q2. Should EMTs be classified as a specific form of electronic money consistent with the EMD2 framework, or rather as a *sui generis* category of digital assets embedded in distributed ledger technology?

Secondly, it is important to understand the relationship between the "electronic money" and "e-money token" from a legal perspective (MiCA). Electronic Money is the digital representation of physical money that can be used for online transactions and payments. While E-Money Tokens are a new classification of stablecoins under the MiCA regulation, representing stablecoins pegged to a single fiat currency. The second research question will help to understand the relationship between these two forms of value from a legal perspective.

Q3 How does the EU regulatory model for EMTs under MiCA compare with stablecoin frameworks in the United States, Japan, Switzerland, and the United Kingdom in terms of scope, stringency, and consumer protection?

Thirdly, the comparative dimension is crucial for contextualizing the EU's approach (Polasik et al., 2021). Stablecoin regulation is not uniform world-

wide, and jurisdictions such as the United States, Japan, Switzerland, and the United Kingdom have already developed or are in the process of developing distinct frameworks. Analyzing the similarities and divergences between MiCA and these international models will highlight the relative strictness, comprehensiveness, and consumer-protection orientation of the EU regime. This constitutes the third research question.

Q4. What general effects could MiCA regulation have on the innovativeness of the European digital payment services market?

While the MiCA Framework promises legal clarity, financial stability, and protection for users, it remains unclear whether the MiCA Framework will improve or hinder the innovativeness of the European payment services market. As the research question no. 4, the authors will explore the effects of MiCA regulation on the European digital payment services market.

2. Literature review

2.1. Stablecoins as a Key Category of Digital Assets

Stablecoins are cryptocurrencies that are backed by fiat currencies, other cryptocurrencies, or commodities, creating stability in their value and making them suitable for payments and transfers. Stablecoins backed by a national currency are used to trade in non-stable cryptoassets more efficiently than using national currencies (Lyons & Viswanath-Natraj, 2023). The core idea of stablecoins is to trade at par with the underlying asset (Fiedler & Ante, 2023).

The concept of a stablecoin refers to digital tokens designed to maintain a stable value through mechanisms linked to external reference assets, such as fiat currencies, commodities, other cryptocurrencies, or algorithmic formulas. As emphasized by Kołodziejczyk and Jarno (2020), stablecoins serve as a "conceptual umbrella" encompassing various forms of value-stable cryptocurrencies, unified by their objective of preserving value over time.

Within the academic literature, several fundamental types of stablecoins can be distinguished. Arner et al. (2020), Castrén et al. (2022), B. Cheng (2024) discuss types of stablecoins that the authors used to develop their own proposal, classifying them according to their method of value stabilization into four main categories:

1. **Asset-backed stablecoins** – These are secured by physical reserves of financial assets tied to a single fiat currency, such as the US dollar (USD), government bonds, treasury bills, certificates of deposit, or commercial paper (Fiedler & Ante, 2023). Examples include USDT (Tether), USDC (USD Coin), and BUSD (Binance USD). The primary advantage of this model lies in its simplicity and the intuitive nature of the stabilization mechanism. However, its effectiveness depends heav-

ily on the transparency and credibility of reserve audits (B. Cheng, 2024). MiCA further classifies these asset-backed stablecoins into two categories (see section 4.1).

2. **Commodity-backed stablecoins** – These tokens are backed by tangible commodities, such as precious metals (e.g., gold) or other physical assets. PAX Gold, Tether Gold, and Kinesis Gold are examples of commodity-backed stablecoins (J. Cheng & Torregrossa, 2022).

3. **Crypto-collateralized stablecoins** – The value of these stablecoins is underpinned by reserves held in other cryptocurrencies (e.g., ETH or BTC), which are stored in smart contracts. A notable example is DAI, issued by MakerDAO. Due to the volatility of the underlying collateral, such stablecoins require overcollateralization and incorporate automated liquidation mechanisms to respond to declines in collateral value (Caudevilla et al., 2022).

4. **Algorithmic stablecoins** – These tokens do not rely on reserves of any kind. Instead, they maintain price stability through algorithmic supply-and-demand management, which automatically adjusts the token supply to sustain parity with the reference value (Clements, 2021). The most well-known example is the failed TerraUSD (UST) project, which lost its peg to the USD in May 2022, leading to the collapse of multiple affiliated institutions (B. Cheng, 2024). According to the (Caudevilla et al., 2022), algorithmic stablecoins are particularly vulnerable to what is known as the "run risk" due to their lack of real, tangible backing. However, the algorithmic sUSD stablecoin based on the Synthetix platform, despite its high volatility for a stablecoin, has been successfully operating since mid-2018, recovering value even in cases of short-term depegs (*Coingecko*, 2025).

A different classification approach is proposed by Hafner et al. (2024), which divides stablecoins into two dimensions: the origin of the collateral (exogenous or endogenous) and the method of collateral management (centralized or decentralized), as presented in Table 1. Stablecoins with exogenous collateral are backed by assets external to the blockchain system, such as fiat currencies (e.g., USD), while endogenous collateral relies on native tokens within the issuer's ecosystem. Centralized collateral management refers to control exercised by a single entity (e.g., a company issuing the token). In contrast, decentralized management is conducted via autonomous protocols or decentralized autonomous organizations (e.g., DAOs). In this comparison, an example of a fully independent and decentralized stablecoin is sUSD. This classification (Table 1), based on the origin and governance of collateral, provides a valuable framework for evaluating risk mechanisms, transparency, and degrees of control across different stablecoin models.

2.2. Historical Perspective on the Development of Stablecoins

The development of stablecoins—one of the most dynamic segments of the digital asset market—has unfolded in parallel with the evolution of blockchain technological infrastructure and the maturation of institutional and regulatory responses to new forms of digital money.

The first stablecoin, BitUSD, was issued in 2014 on the BitShares blockchain (Dionysopoulos & Urquhart, 2024). BitUSD was a pioneering stablecoin designed to maintain a stable exchange rate relative to the US dollar (Scheme 1), thereby making it more suitable for everyday transactions compared to highly volatile cryptocurrencies (Bergsli et al., 2022; Polasik et al., 2016).

The era of large-scale adoption of stablecoins began in October 2014 (Scheme 1) with the launch of Tether (USDT). As an off-chain stablecoin, USDT was theoretically backed 1:1 by US dollar reserves. Its primary objective was to combine the stability of fiat currency with the speed and accessibility of blockchain technology. Despite persistent controversies regarding reserve transparency and ownership structure, USDT dominated the market for many years as the primary store of value and medium of exchange within the cryptocurrency ecosystem (Dionysopoulos & Urquhart, 2024).

A qualitative shift occurred in 2017 with the creation of MakerDAO and the issuance of DAI, the first fully decentralized stablecoin (Scheme 1). Unlike Tether, DAI is crypto-collateralized and issued through smart contracts on the Ethereum network. In 2018, USD Coin (USDC) was launched by the Center Consortium, founded by Circle and Coinbase (Rana, 2022). USDC represented a new wave of regulated stablecoins (fiat-backed and fully audited), meeting compliance standards and subject to regular reserve audits, which started the era of professionalization of the stablecoin market.

A key milestone in Europe's stablecoin history was the European Union's adoption of the Markets in Crypto-Assets Regulation (MiCA) in 2023 (Scheme 1). This regulation introduced a unified legal framework for stablecoins, distinguishing between asset-referenced tokens and e-money tokens (Alcorta, 2025). MiCA mandates compliance with capital requirements, reserve management obligations, and operational transparency, while enabling the legal entry of stablecoins into the EU financial market. In turn, the MakerDAO project underwent a significant transformation in 2024. Its decentralized governance system was simplified and rebranded as "Sky", and the DAI stablecoin was renamed "USDS" (Genc & Acikgoz, 2025). This restructuring aimed to enhance operational efficiency and align the protocol with emerging regulatory oversight, while preserving the core elements of decentralization and on-chain governance.

In 2025 (Scheme 1), the US introduced the GENIUS Act (Guiding and Establishing National Innovation for US Stablecoins Act), which requires

stablecoin issuers to back their coins with US dollars or short-term US Treasury securities (Krause, 2025). It also mandates a public disclosure of the composition of backed reserves, licensing of issuers by banking authorities, and standardized audit procedures. While the EU and the US follow different approaches to control stablecoins, it is essential to understand the impacts on the adoption of stablecoins and identify the strengths and weaknesses of each approach.

2.3. Use Cases and the Development of the Stablecoin Market

The specific nature of stablecoins—namely, their linkage to a stable value or reference asset—directly influences their range of potential applications. A key feature of a stablecoin is its price stability, a characteristic that has also been confirmed by empirical studies (Ahmed & Aldasoro, 2025). This feature generally implies lower risk when compared to other crypto-assets due to reduced volatility (Arner et al., 2020, p. 7). However, research findings indicate that stablecoins do not serve effectively as strong hedges or safe havens; instead, they perform well in their stabilizing function (Kołodziejczyk, 2023).

Stablecoins can serve as a useful payment instrument (Martínez Nadal, 2025). Their adoption offers the potential to reduce costs associated with traditional payment methods, while also accelerating settlement times, as the use of distributed ledger technology (DLT)/blockchain enables real-time transaction processing. These features are particularly significant in business environments, especially in the context of cross-border transactions, and are also valuable in the e-commerce sector (BIS, 2023)

Stablecoins are also widely used (Chart 1) as settlement instruments within the decentralized finance (DeFi) ecosystem, supporting the execution of smart contracts (Arner et al., 2020, p. 6). In this domain, speed and low transaction costs are critical, alongside the ease of conversion between stablecoins and other crypto-assets.

Furthermore, stablecoins may serve as an investment vehicle. Research suggests that stablecoins can serve as an alternative to money market funds, given their asset backing and similar market infrastructure. However, important differences remain. For example, secondary market trading is generally possible for stablecoins, which may reduce their price stability. In contrast, money market funds may offer dividend payouts or other forms of fixed income, which are typically not associated with stablecoins (Oefele et al., 2024, p. 19). At the same time, research on the interaction between monetary policy and crypto-assets, particularly stablecoins, is intensifying. A study conducted under the auspices of the Bank for International Settlements (BIS) suggests that monetary policy shocks lead to capital inflows into prime money market funds and significant outflows from stablecoins (Aldasoro et al., 2024, p. 9).

Beltrametti and Pittaluga (2023, p. 466) identify two possible pathways for achieving widespread adoption of digital currencies on par with fiat money: (1) granting stablecoins the legal status of money, or (2) introducing Central Bank Digital Currencies (CBDCs). This raises a crucial question: should these solutions be viewed as mutually exclusive competitors, or can they coexist and complement each other within a hybrid financial system?

Central banks have also begun to recognize the growing significance of stablecoins. The U.S. Federal Reserve (FED) appears to perceive stablecoins as a potential instrument for reinforcing the global role of the U.S. dollar, notably since the majority of stablecoins (97,4% of market cap) are pegged to this currency (Chart 1). This perspective was articulated by Christopher J. Waller, Member of the Board of Governors of the Federal Reserve, during his address at A Very Stable Conference in San Francisco (Waller, 2025).

The Chinese Central Bank Digital Currency (CBDC), known as Digital RMB, is issued by the People's Bank of China (PBOC) to establish the infrastructure for the long-term development of the digital economy, and it has a significant impact on businesses. Digital RMB is expected to promote China's competitive edge in the fourth Industrial Revolution (Yeung et al., 2020). The program is still in the test phase and yet to be rolled out.

India has taken a critical stance toward stablecoins. In a report by the Reserve Bank of India, stablecoins and other crypto-assets were identified as a threat to the effectiveness of monetary policy and as a factor limiting the financing of the real economy (Kasana & Singh, 2024). From India's perspective, the erosion of sovereign control over national currency and the diminished capacity to conduct autonomous monetary policy are seen as the most concerning implications of stablecoin proliferation (Malhotra, 2025, p. 145). Concurrently, India is conducting extensive testing of its own CBDC named e-Rupee or Digital Rupee (Kasana & Singh, 2024, p. 99), which in some respects serves as an alternative to stablecoins—particularly in terms of allowing the state to retain influence over monetary policy. The Indian government aims to utilize the e-Rupee for both public transactions and interbank payments.

The European Central Bank (ECB) is planning to roll out the digital Euro (CBDC) in 2025. The goal of the project is to ensure that people in the digital world retain the option to make or receive payments in central bank money. ECB also aims to provide an alternative to the usage of stablecoins through the Digital Euro in the European Union (Lane, 2025). At the same time, Europe is also planning to improve its market share of the stablecoin business by forming a European banking consortium consisting of banks such as Banca Sella, KBC, Danske Bank, DekaBank, UniCredit, ING, SEB, CaixaBank, and Raiffeisen Bank, to create a Euro-backed stablecoin under the MiCA regulations framework for cryptocurrencies by 2026 (Sims et al., 2025). Currently, Euro-pegged stablecoins have a market capitalization of

just 0.2% of all stablecoins (Chart 1), which is more than 500 times smaller than that of U.S. dollar stablecoins. Additionally, the American company Circle, based in Boston, is the most significant issuer of 43% of the eurozone's stablecoin value, issuing both EURC and USDC, the second most important stablecoin pegged to the dollar (Chart 1).

These varying national perspectives illustrate that political factors are the key determinants in shaping countries' attitudes toward stablecoins. In particular, the macroeconomic and monetary policy implications of stablecoin adoption are crucial. Given that the U.S. dollar is the dominant reference currency for most stablecoins, their global expansion reinforces the dollar's position as the primary reserve currency. Consequently, the United States has a strategic interest in supporting the development of this asset class. In contrast, geopolitical competitors of the U.S., such as Russia and India, are seeking to counterbalance or limit the influence of dollar-based stablecoins. Russia is leveraging them for sanction evasion, while India is reinforcing its monetary sovereignty.

3. Methods

A systematic literature review approach has been employed. A wide set of databases was explored on the subject of stablecoins, including ScienceDirect, JSTOR, and SpringerLink. We started by identifying research papers from reputable scientific journals by searching Web of Science, Scopus, and Google Scholar with keywords like "Stablecoins", "blockchain", "MiCA", "GENIUS Act", "CBDC", and the leading stablecoin brands – USDT, USDC, DAI, etc. Given that the subject of stablecoins also encompasses the practical aspects of the financial sector's operation, as well as monetary policy and payment infrastructure, we have utilized numerous statistical sources from public and financial institutions. These include, in particular, analyses, statistics, and policy statements published by the European Central Bank (ECB) and other central banks, the Bank of International Settlements (BIS), the International Monetary Fund (IMF), as well as national and European financial supervisory authorities, and the Eur-Lex database of legal acts. We also employed the current statistical data from portals that aggregate data from cryptocurrency exchanges.

The primary research was based on legal analysis. Several research methods were applied for this purpose. First, the dogmatic analysis of law method was used, which involves examining the content of the law as well as its interpretation found in the literature and case law (Szafrański, 2023, p. 61). The provisions of MiCA were analyzed in the context of legal acts relating to payment services and payment systems. This study aimed to place the MiCA regulation within the legal system and to interpret selected provisions in or-

der to assess their implications. This required a detailed analysis of the legal text, including the identification of legal norms, their systemic placement, and the interpretation of provisions using principles of legal interpretation (linguistic, systemic, and purposive). The study was based on legal sources, academic literature, as well as reports and analyses prepared by specialized industry entities.

Second, the economic analysis of law approach was applied, which allows for the assessment of legal regulations from the perspective of economic efficiency and the impact of legal norms on the behavior of individuals and businesses (Famulski, 2017). This method was employed to investigate the impact of MiCA on the market. Both direct regulatory effects—such as the obligations of entities to comply with the new framework and the exclusion of certain types of stablecoins from regulation—and indirect effects, including potential changes in market behavior, were taken into consideration. Elements of regulatory risk assessment, typical for interdisciplinary studies at the intersection of law and economics, were also incorporated.

Finally, the comparative-legal method was used to analyze selected provisions of the MiCA regulation by comparing them with corresponding solutions in other legal systems (the United States, the United Kingdom, Switzerland, and Japan). This enabled the identification of similarities and differences in the normative structure of the provisions and their potential consequences, allowing for the formulation of more comprehensive conclusions from the perspective of the law and economics approach.

4. Results

4.1. The legal nature of EMTs: e-money or sui generis digital assets

The MiCA Regulation defines electronic money tokens (EMTs) as crypto-assets that "purport to maintain a stable value by referencing the value of the official currency of a Member State" (MiCA, 2023, art. 3(6)). This definition highlights two essential features: (1) the reference to fiat currency, and (2) the intended stability of value. Crucially, MiCA explicitly states (MiCA, 2023, art. 43) that EMTs are deemed electronic money for Directive 2009/110/EC (EMD2).

This dual recognition has two implications. First, EMTs are not merely a new crypto-asset class, but are directly anchored in existing electronic money law. Second, EMT issuers must comply simultaneously with the requirements of MiCA (whitepaper, disclosure, prudential standards) and EMD2 (licensing and redemption rights), as well as with PSD2 (2015) when providing payment services based on EMT, thereby creating a complex, layered regulatory framework.

In the opinion of many legal experts, EMTs are a direct extension of the e-money concept under EMD2 (Martínez Nadal, 2025). The core rationale lies in their functional similarity: EMTs represent a claim against the issuer, must be issued at par value in exchange for fiat funds, and must be redeemable at par on demand (MiCA, 2023, art. 44). These features replicate the essence of electronic money under the EMD2 directive, which defined it as a monetary value stored electronically, representing a claim on the issuer and issued upon receipt of funds.

Accordingly, EMTs are best understood as technologically updated e-money, circulating not through centralized systems but via distributed ledger technology (DLT). From this perspective, the main novelty lies not in the legal nature of the instrument but in the infrastructural environment in which it operates (Alcorta, 2025).

By contrast, other legal experts argue that EMTs should be recognized as a *sui generis* category of digital assets, rather than assimilated into the EMD2 framework (Włoczka, 2025). Their reasoning emphasizes the distinct technological characteristics of EMTs:

    a. They are issued and transferred on blockchain networks, often public and permissionless, which radically alters the mechanics of storage, transfer, and settlement.

    b. EMTs are embedded in decentralized ecosystems, where intermediaries may no longer play the same role as in traditional electronic money.

    c. Their potential integration into decentralized finance (DeFi) raises novel risks (e.g., smart contract vulnerabilities, governance failures) that were not envisaged by the EMD2 regime .

On this basis, proponents of the *sui generis* approach suggest that classical e-money concepts cannot fully capture EMTs. They constitute hybrid assets that combine contractual claims with technological self-execution, requiring tailored rules beyond those of EMD2.

The EU legislator appears to have adopted a compromise position, recognizing EMTs as both e-money and a distinct subcategory of crypto-assets. This dual classification has important regulatory consequences. EMTs fall under:

    1. EMD2 obligations – licensing of issuers as electronic money institutions, safeguarding of funds, and redemption at par value.

    2. MiCA obligations – mandatory whitepaper disclosure, prohibition of remuneration (no interest), full reserve requirements, and EBA oversight for significant issuances.

The overlap creates both strengths and challenges. On the one hand, it ensures legal continuity and consumer protection by integrating EMTs into existing monetary law. On the other hand, it generates complexity and possible regulatory redundancies, requiring close coordination between national competent authorities and the EU supervisor (EBA, 2024).

A related issue concerns whether EMTs qualify as "funds" under PSD2 (Polasik et al., 2020). The directive defines funds as "banknotes and coins, scriptural money and electronic money" (PSD2, 2015, art. 4(25)). Since MiCA recognizes EMTs as electronic money, they logically fall within the scope of PSD2 as a form of funds. As a result, payment services involving EMTs must comply with PSD2 rules, particularly those related to strong customer authentication, fraud prevention, and user rights (Alcorta, 2025).

This creates regulatory interoperability: EMTs serve as the bridge between traditional payment services and DLT-based ecosystems. In practice, it enables hybrid models where EMTs are used within conventional payment frameworks while still benefiting from the transparency and programmability of blockchain (see Opinion on the interplay between PSD2 and MiCA (EBA, 2025)).

The legal nature of EMTs remains a subject of contention between two interpretations. Functionally, EMTs strongly resemble e-money as defined in EMD2, and EU law explicitly adopts this classification. Doctrinally, however, their operation on DLT supports an argument for a *sui generis* category. The EU has resolved this debate pragmatically by applying a dual regulatory framework: EMTs are both e-money and crypto-assets. This layered approach enables regulators to maintain continuity with existing monetary law while addressing the novel risks associated with blockchain-based finance (Zetzsche & Woxholth, 2025).

Another issue is whether EMT can be considered a legal tender. The literature suggests that although MiCA does not confer upon them the formal status of "legal tender," their practical use as a substitute for fiat currency may lead to a quasi-monetary character (IMF, 2025). A constitutive feature of EMT is also the right to redemption at face value at any time (MiCA, art. 44). The issuer's obligation is thus unconditional and lies at the very core of the legal relationship between issuer and holder.

The EBA notes (2025) that in the event of large-scale adoption of EMT in payment ecosystems, the traditional role of money issued by central banks could be eroded. The debate over the legal nature of EMT is also embedded in the broader discussion on the distinction between private and public forms of digital money. While central banks focus on CBDC projects, the private sector is developing EMT as an instrument for faster and cheaper cross-border payments.

4.1.2. EMT in relation to Payment Services Directive 2

The Payment Services Directive 2 (PSD2) regulates the provision of payment services, including the initiation of transactions and access to payment accounts. Although PSD2 does not directly address crypto-assets, its logic applies in the case of EMT, which are treated as electronic money, and

electronic money constitutes a type of fund. Moreover, pursuant to MiCA, transactions involving EMT must be executed in accordance with PSD2 principles concerning security, fraud prevention, and user protection in payment services (MiCA, 2023).

For example, payment service providers (PSPs) may offer payment initiation services using EMT, while remaining subject to PSD2 requirements on strong customer authentication (SCA). In practice, this may lead to the emergence of hybrid models in which classical payment regulations under PSD2 are applied to operations conducted in DLT environments. Such a solution poses the challenge for regulators of ensuring interoperability between the world of "traditional" payment services and the world of crypto-assets.

Both EMD2 and PSD2 form the foundation upon which EMT regulation rests. It can be argued that MiCA does not so much "replace" earlier regulations as extend their logic to a new category of instruments with a different technological nature.

A similar process can be observed in other jurisdictions (see section 4.3). In Japan, stablecoins have been subject to the Payment Services Act, i.e., the payment services regime, whereas in the United States, the GENIUS Act explicitly references the principles of banking law and deposit liability (JFSA, 2022). This demonstrates that worldwide EMTs and their equivalents are treated as instruments closely related to traditional payment services.

The relationships between EMT, EMD2, and PSD2 point to clear regulatory continuity. EMT did not emerge in a vacuum, but constitutes the next stage in the evolution of concepts related to electronic money and payment services. At the same time, their reliance on DLT required the creation of a new regulatory layer supplementing the earlier directives. In practice, this means that EMTs operate simultaneously within three layers of legal acts, which increases system complexity but also provides greater coherence and consumer protection.

4.2. Stablecoin arrangements and the definition of a payment system under EU law

The rapid development of stablecoins has raised fundamental questions about their legal and systemic classification in the European Union. While stablecoins are primarily designed to function as a means of payment or store of value, their qualification under existing EU legal frameworks remains contested. A central issue is whether a stablecoin arrangement, particularly when organized through blockchain-based infrastructures, can be regarded as a "payment system" within the meaning of European Union law.

The answer to this question has direct implications for regulatory oversight. Payment systems in the EU are subject to stringent prudential and operational requirements under the Settlement Finality Directive (SFD) and

the Payment Services Directive (PSD2). Classifying stablecoin arrangements as such systems would therefore impose licensing obligations, systemic oversight by central banks, and mandatory participation rules, potentially transforming their regulatory treatment from a private contractual mechanism to a systemically significant market infrastructure.

The Settlement Finality Directive (Directive 98/26/EC or SFD) defines a payment system as a formal arrangement between at least three participants, governed by common rules and standardized arrangements for the execution of transfer orders, and recognized as such by a Member State authority (SFD, art. 2(a)). This definition presupposes the existence of multiple participants, mutual arrangements, and a degree of formalization comparable to that of clearinghouses or central counterparties.

By contrast, stablecoin issuance typically involves a single issuer and a decentralized technological infrastructure for token transfer. The transfer of stablecoins on a blockchain, although facilitating payments, does not constitute an "arrangement" between independent participants in the sense envisaged by the SFD. Instead, it is a technical protocol that enables peer-to-peer value exchange, without a central operator or a designated set of participants bound by common contractual rules (Zetzsche & Sinnig, 2025).

Stablecoins should be treated as a means of payment, but not as a payment system *per se*. The distinction is significant: whereas a payment system constitutes an organized market infrastructure that requires authorization, an EMT is a digital representation of value circulating within such infrastructures and is deemed electronic money, which, according to PSD2, is considered a type of "funds".

Stablecoin issuers are not themselves operators of payment systems merely by issuing tokens. Their activity is closer to that of electronic money institutions under EMD2, where the emphasis lies on the legal claim of redemption rather than on operating multilateral settlement frameworks. Only if a stablecoin arrangement were to develop institutionalized rules among multiple participants could it potentially qualify as a payment system.

This interpretation has two consequences. First, it avoids overextending systemic regulation to every blockchain-based stablecoin, which would be impractical and disproportionate given the decentralized architecture of many arrangements. Second, it ensures that stablecoins remain regulated under MiCA as electronic money tokens (EMTs), with a focus on issuer obligations, prudential safeguards, and consumer protection, rather than under SFD as infrastructures.

Nonetheless, the boundary is not absolute. Hybrid models may arise where stablecoins are embedded in payment arrangements that could function as systems, for example, if EMTs are used for settlement among financial institutions. EBA's evolving supervisory regime (e.g., its technical standards and oversight of significant EMTs) suggests that individual assessment will

be required where systemic risk is possible (EBA, 2024; Zetzsche & Woxholth, 2025).

In conclusion, a stablecoin-based arrangement does not qualify as a "payment system" under EU law in its ordinary form, since it lacks the organizational and contractual structure required by the SFD. Instead, electronic money tokens under MiCA are classified as funds, subject to prudential and consumer protection obligations, but not to systemic payment system regulation. This approach preserves regulatory coherence, ensuring that stablecoins are supervised as financial products rather than as infrastructures, while leaving open the possibility that more institutionalized arrangements could be brought within the SFD framework in the future.

4.3. Comparative perspectives: the EU model and other jurisdictions

4.3.1. The European Union model under MiCA

The European Union's approach under MiCA regulation is widely recognized as one of the most comprehensive and restrictive stablecoin regimes globally. EMT issuers are subject to exclusive licensing requirements (only credit institutions and electronic money institutions may issue), full reserve backing in low-risk liquid assets, and strict redemption rights at par value (MiCA, 2023, arts. 44–47). MiCA also prohibits the payment of interest on EMT holdings to prevent their misuse as investment instruments and imposes liability on issuers for misleading information disclosed in whitepapers (Alcorta, 2025).

In addition, MiCA introduces a special category of "significant EMTs", defined by thresholds such as more than 10 million users or circulation above EUR 5 billion (MiCA, 2023, art. 51). Such issuers fall under the direct supervision of the European Banking Authority (EBA), which may impose higher capital requirements, enhanced liquidity measures, and transaction limits (EBA, 2025). This reflects concerns that large-scale stablecoins could attain systemic importance comparable to that of global systemically important banks (Hafner et al., 2024).

The regulatory philosophy of MiCA can be summarized in three pillars: (1) strong consumer protection through redemption rights and transparency obligations; (2) financial stability safeguards via prudential and reserve requirements; and (3) fostering innovation under supervision, by creating a harmonized EU-wide regime to avoid regulatory fragmentation.

4.3.2. United States: the GENIUS Act

The United States adopted the GENIUS Act in 2025, which establishes a federal framework for the issuance of stablecoins. The Act restricts issuance to insured depository institutions and licensed non-bank entities that federal

regulators have approved. It requires 1:1 reserve backing US dollars or short-term Treasury securities, mandates monthly disclosure of reserve composition, and prohibits misleading claims of federal backing.

A distinctive feature of the US model is the priority status of stablecoin holders in insolvency proceedings, ensuring that they are repaid ahead of other creditors (FSB, 2023). While the reserve and disclosure obligations broadly mirror MiCA, the US regime places more emphasis on consumer recourse in bankruptcy and on aligning stablecoins with banking law concepts of deposit protection. At the same time, enforcement authority is fragmented between federal and state regulators, which may result in regulatory heterogeneity compared to the EU's harmonized approach.

4.3.3. Japan: the Payment Services Act

Japan was one of the first jurisdictions to comprehensively regulate stablecoins. The 2022 amendment to the Payment Services Act (PSA) classified stablecoins as "means of payment" and required them to be fully backed by bank deposits (JFSA, 2022). This effectively limited issuance to banks and trust companies, ensuring extremely high levels of stability but significantly narrowing the space for private sector innovation.

In 2025, Japan introduced further reforms allowing up to 50% of reserves to be invested in highly secure government bonds, thereby expanding issuers' flexibility while maintaining prudential safeguards (JFSA, 2022). Compared to the EU, the Japanese regime is more conservative in restricting issuers to traditional financial institutions, but it imposes fewer disclosure and whitepaper obligations. The focus lies squarely on prudential safety rather than on transparency and consumer liability mechanisms (Bains, 2025).

4.3.4. Switzerland: FINMA's flexible approach

Switzerland has not enacted dedicated stablecoin legislation; instead, it relies on supervisory practice by the Swiss Financial Market Supervisory Authority (FINMA). FINMA assesses projects on a case-by-case basis, applying existing laws in the financial market. Stablecoins backed by fiat currency are typically treated as deposit-taking activities, requiring either a banking license or equivalent safeguards such as a complete bank guarantee (FINMA, 2024; FINMA Guidance 06/2024, 2024).

This approach offers greater regulatory flexibility than MiCA, enabling diverse tokenization models to emerge, including stablecoins utilized in wholesale financial markets. However, it also relies heavily on supervisory discretion rather than codified obligations. Consumer protection focuses primarily on ensuring the segregation and safekeeping of reserves, with less emphasis on disclosure and harmonized redemption rights.

4.3.5. United Kingdom: evolving regulation

The United Kingdom is in the process of finalizing its stablecoin regime, with reforms announced in 2025. The Financial Conduct Authority (FCA) has proposed the introduction of "qualifying stablecoins", defined as tokens maintaining stable value relative to fiat currency (FCA, 2025). These tokens will be subject to reserve backing, redemption rights, and transparency requirements, closely aligning with the EU model.

Additionally, the Bank of England has outlined that systemic stablecoin arrangements will be subject to prudential oversight, ensuring they meet standards equivalent to those of traditional payment systems (FCA, 2025). Notably, UK regulation intends to apply PSD2-style safeguards, including strong customer authentication, to stablecoin-based payments. This reflects a convergence with EU law, though the UK regime remains more principles-based and flexible in implementation (FSB, 2023).

4.3.6. The Comparison of Stablecoin Regulations

The EU's MiCA framework represents the most codified and harmonized approach, combining consumer protection, systemic safeguards, and prudential requirements in a single legal act. The US and Japan adopt similarly stringent reserve obligations but differ in institutional design: the US emphasizes insolvency protection, while Japan restricts issuance to banks. Switzerland and the UK pursue more flexible approaches, with Switzerland relying on supervisory discretion and the UK developing a hybrid regime aligned with PSD2 principles. Given that all these regulations are still relatively new, dating back to 2022-2025, it is still too early to assess their effects on the development and innovation of individual markets, as well as on the stability of the financial system and consumer protection.

5. Conclusions

One of the most important conclusions of our study is that a stablecoin-based arrangement does not qualify as a "payment system" under EU law in its ordinary form, due to a lack of organizational and contractual structure (research question Q1). Under MiCA, electronic money tokens (EMTs) are categorized as funds and are subject to prudential and consumer protection requirements. The act of issuing tokens does not, by itself, make stablecoin issuers operators of payment systems. Such an arrangement would only be considered a payment system if it evolved to include formalized rules among several participating entities.

Our studies, aimed at answering research question Q2, allowed us to determine that there is a strong similarity between EMT and electronic money under EMD2, as both involve a digital representation of value linked to fiat currency and used as a means of payment. At the same time, EMT differs from classical electronic money in infrastructural terms, as EMT operates in a decentralized system. For this reason, their regulation required a separate legal act in the form of MiCA. EMTs serve as the bridge between traditional payment services and DLT-based ecosystems. In practice, it enables hybrid models where EMTs are used within conventional payment frameworks while still benefiting from the transparency and programmability of blockchain. EMTs are both e-money and crypto-assets.

Referring to the comparison of regulatory models in different jurisdictions (research question 3), one can generally conclude that stablecoin regulations in the countries compared reflect a similar main approach applied in MiCA. It consists in the fact that the new regulations do not so much "replace" earlier regulations as extend their logic to a new category of funds that use decentralized blockchain technology. However, the accents are distributed differently. In Japan, stablecoins fall under the scope of the Payment Services Act, which governs the provision of payment services. In the United States, the GENIUS Act directly references banking law principles and deposit obligations. This suggests that, globally, EMTs and similar instruments are viewed as closely aligned with conventional payment services.

It may be assumed that the regulation of stablecoins will affect their market significance. The first natural consequence of the restrictions imposed on issuers by MiCA is the withdrawal of certain stablecoins from the European market. A notable example is the withdrawal of USDT from cryptocurrency exchanges, such as Binance. The issuer of USDT has not applied for authorization to conduct a public offering within the European Union's territory, which may be due to the fact that it essentially maintains its reserves in assets other than fiat currency (B. Cheng, 2024).

On the other hand, significant development may await those stablecoins whose issuers are the first to obtain, or have already obtained, the relevant authorization. An example of a stablecoin recognized as a potential market leader and successor to USDT is USDC. Its issuer, Circle, has already obtained authorization from the French supervisory authority. Less than all, however, the visible result of being a pioneer of new technology is the absolute dominance of stablecoins based on the US dollar.

The introduction of regulation may contribute to increased confidence in stablecoins (Kapica & Goławska, 2023, p. 52). Elements such as the obligation to maintain reserves (including in specified assets), ongoing supervision by a state authority, and a range of measures ensuring client protection may encourage investment in stablecoins by individuals who have so far been reluctant to engage in the crypto-asset market due to the high risks associated

with it. On the other hand, it should be assumed that some individuals, for whom the absence of state supervision was an advantage of crypto-assets, may be inclined to seek other forms of investment that will remain outside the regulatory sphere.

Nevertheless, the mere structuring of the market should have a positive effect on its development. MiCA defines the market structure by specifying its participants and their respective obligations (MiCA, 2023). This will improve market transparency and organization. The structuring of the crypto-asset market (including stablecoins), together with its regulation and state supervision, should encourage institutional investors to enter this market. The risks (other than those related to changes in the value of a crypto-asset) associated with such investments will be reduced. Furthermore, this may provide an impetus for stablecoins to be incorporated into the product offerings of entities from the traditional financial sector. In addition, regulation is of major importance from the perspective of financial system security and the prevention of fraud and abuse. Particularly important is the extension of AML/CFT obligations to a broader group of entities. This will reduce the risk of crypto-assets being used for illegal activities, and in particular for circumventing international sanctions.

Nevertheless, due to the short duration of the MiCA regulation, the answer to research question Q4, concerning its general effects on the innovativeness of the European digital payment services market, will require a longer observation horizon. In particular, some treats to stablecoins market developments can be identified, e.g. possible quantum computing negative impact on blockchain or competition with digital euro and other Central Bank Digital Currencies. Therefore, the impact of MiCA regulation on the stablecoins and the whole digital assets market should become an important subject of future studies.

References

Ahmed, R., & Aldasoro, I. (2025). Stablecoins and safe asset prices. *BIS Working Papers, 1270*, 1–27. www.bis.org

Alcorta, J.G. (2025). Regulating Stablecoins in the European Union. Asset-Referenced Tokens and E-Money Tokens. In C. Pastor Sempere (Ed.), *Governance and control of data and digital economy in the European single market: Legal Framework for New Digital Assets, Identities and Data Spaces* (Vol. 71, pp. 147–176). Springer. https://doi.org/https://doi.org/10.1007/978-3-031-74889-9

Aldasoro, I., Cornelli, G., Ferrari Minesso, M., Gambacorta, L., & Habib, M.M. (2024). Stablecoins, money market funds and monetary policy No 2987. *ECB Working Paper Series, 29*.

Arner, D.W., Auer, R., & Frost, J. (2020). Stablecoins: Risks, Potential and Regulation. *BIS Working Papers*, *905*. https://doi.org/10.2139/ssrn.3979495

Bains, P. (2025). Blockchain Consensus Mechanisms. A Primer for Supervisors. *IMF Working Papers*, *2025*(186), 1. https://doi.org/10.5089/9798229024815.001

Beltrametti, L., & Pittaluga, G.B. (2023). Monetary Policy Implications of Stablecoins and CBDCs. *International Economics / Economia Internazionale*, *76*(3), 453–478. https://research.ebsco.com/linkprocessor/plink?id=b21936f6-790b-35e1-b68a-95bc7ba7031d

Bergsli, L.Ø., Lind, A.F., Molnár, P., & Polasik, M. (2022). Forecasting volatility of Bitcoin. *Research in International Business and Finance*, *59*(August 2021). https://doi.org/10.1016/j.ribaf.2021.101540

BIS. (2023). *Considerations for the use of stablecoin arrangements in cross-border payments, CPMI Report* (Issue October). https://www.bis.org/cpmi/publ/d220.html

Castrén, O., Kavonius, I. K., & Rancan, M. (2022). Digital currencies in financial networks. *Journal of Financial Stability*, *60*(March), 101000. https://doi.org/10.1016/j.jfs.2022.101000

Caudevilla, O., Crant, A., & Haas, T. (2022). *Stablecoins: Recommendations for the An Introduction and European Union* (Private Digital Euro Working Group, Issue August).

Cheng, B. (2024). Run Away from the Run Risk of Stablecoins. *Penn State Law Review*, *129*, 19–45.

Cheng, J., & Torregrossa, J. (2022). What is money? A lawyer's perspective on the evolution of the US payment system and dollars in the digital age. *Journal of Payments Strategy and Systems*, *16*(1), 28–38. https://doi.org/10.69554/jmom2389

Clements, R. (2021). Built to fail: The inherent fragility of algorithmic stablecoins. *Wake Forest L. Rev. Online*, *11*, 131.

Coingecko. (2025). https://coingecko.com/

CoinMarketCap. (2025). https://coinmarketcap.com/view/stablecoin/

Czarnecki, J. (2025). Stablecoins w porządku finansowym świata [Stablecoins in the financial order of the world]. *XII Digital Money & Blockchain Forum*, 1–54.

Dionysopoulos, L., & Urquhart, A. (2024). 10 years of stablecoins: Their impact, what we know, and future research directions. *Economics Letters*, *244*(August), 111939. https://doi.org/10.1016/j.econlet.2024.111939

EBA. (2024). *Draft regulatory technical standards on EMT under MiCA. European Banking Authority*.

EBA. (2025). *Opinion of the European Banking Authority on the interplay between Directive EU 2015 / 2366 (PSD2) and Regulation (EU) 2023 / 1114 (MiCA) in relation to crypto-asset service providers that transact electronic money tokens* (Vol. 2366).

ECB. (2025). *Stablecoins' role in crypto and beyond: functions, risks and policy.* 1–21.

Famulski, T. (2017). Economic Efficiency in Economic Analysis of Law. *Finanse i Prawo Finansowe*, *3*(15), 27–39. https://doi.org/10.18778/2391-6478.3.15.03

FCA. (2025). *Stablecoin Issuance and Cryptoasset Custody* (CP25/14; Consultation Paper of Financial Conduct Authority).

Fiedler, I., & Ante, L. (2023). Stablecoins. In *The emerald handbook on cryptoassets: investment opportunities and challenges* (pp. 93–105). Emerald Publishing Limited.

FINMA. (2024). FINMA Guidance 08/24. *Finma.Ch*, *41*(July). https://www.finma.ch/en/~/media/finma/dokumente/dokumentencenter/myfinma/4dokumentation/finma-aufsichtsmitteilungen/20241218-finma-aufsichtsmitteilung-08-2024.pdf?sc_lang=en&hash=AA85AC0A19240FFFA14E4692BF385651

FINMA Guidance 06/2024. (2024). *Stablecoins: risks and challenges for issuers of stablecoins and banks providing guarantees.*

FSB. (2023). *Review of the FSB High-level Recommendations of the Regulation, Supervision and Oversight of "Global Stablecoin" Arrangements. Financial Stability Board report* (Issue July). https://www.fsb.org/2022/10/review-of-the-fsb-high-level-recommendations-of-the-regulation-supervision-and-oversight-of-global-stablecoin-arrangements-consultative-report/

Genc, H.O., & Acikgoz, E. (2025). Constructing an Evaluation Framework for Full Decentralization: A Case Study on DeFi's Stable Currency Issuance Services-CDP Protocols. *Stan. J. Blockchain L. & Pol'y*, *8*, 177.

Hafner, M., Pereira, M.H., Dietl, H., & Beccuti, J. (2024). The Four Types of Stablecoins: A Comparative Analysis. *Ledger*, *9*, 108–135. https://doi.org/10.5195/ledger.2024.326

IMF. (2025). Global Financial Stability Report. In *International Monetary Fund*. https://doi.org/10.2139/ssrn.2753667

JFSA. (2022). *Amendments to the Payment Services Act regarding stablecoins.*

Kapica, P.W., & Goławska, A. (2023). Regulacja rynku kryptoaktywów pod reżimem prawnym rozporządzenia MiCA. *Problemy Współczesnego Prawa Międzynarodowego, Europejskiego i Porównawczego. Review of International, European and Comparative Law*, *XXI*, 27–54. https://doi.org/10.26106/095g-0z43

Kasana, E., & Singh, R. (2024). Central Bank Digital Currency (CBDC) implementation in India: Implement strategies and challenges. In D. Singh, G. Malik, & S. Bhatnagar (Eds.), *Revolutionizing Customer-Centric Banking Through ICT* (Issue May). IGI Global. https://doi.org/10.4018/979-8-3693-2061-7.ch005

Kołodziejczyk, H. (2023). Stablecoins as diversifiers, hedges and safe havens: A quantile coherency approach. *North American Journal of Economics and Finance*, *66*(January). https://doi.org/10.1016/j.najef.2023.101912

Kołodziejczyk, H., & Jarno, K. (2020). Stablecoin – the stable cryptocurrency. *Studia BAS*, *3*(63), 155–170. https://doi.org/10.31268/studiabas.2020.26

Krause, D. (2025). The GENIUS Act: A New Era of US Stablecoin Regulation. In *SSRN working paper series* (SSRN Working Paper Series).

Lane, P.R. (2025). The digital euro: maintaining the autonomy of the monetary system. *Keynote Speech, University College Cork Economics Society Conference.*

Lyons, R.K., & Viswanath-Natraj, G. (2023). What keeps stablecoins stable? *Journal of International Money and Finance*, *131*, 102777. https://doi.org/ https://doi.org/10.1016/j.jimonfin.2022.102777

Malhotra, S. (2025). Exploring the global adoption of stablecoins and India's strategic preference for central bank. *Education*, *11*(7), 142–146.

Martínez Nadal, A. (2025). Stablecoins in the MiCA Regulation. *Law, Governance and Technology Series*, *71*, 177–198. https://doi.org/10.1007/978-3-031-74889-9_8

MiCA. (2023). Regulation (EU) 2023/1114 Of The European Parliament and of the Council of 31 May 2023 on Markets in Crypto-Assets, and Amending Regulations (Eu) No 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937. *Official Journal of the European Union*, L 150/40. https://eur-lex.europa.eu/eli/reg/2023/1114/oj/eng

Oefele, N., Baur, D.G., & Smales, L.A. (2024). Are stablecoins the money market mutual funds of the future? *Journal of Empirical Finance*, *79*(October 2023), 101557. https://doi.org/10.1016/j.jempfin.2024.101557

Polasik, M., Huterska, A., Iftikhar, R., & Mikula, Š. (2020). The impact of Payment Services Directive 2 on the PayTech sector development in Europe. *Journal of Economic Behavior and Organization*, *178*, 385–401. https://doi.org/10.1016/j.jebo.2020.07.010

Polasik, M., Piotrowska, A., Wisniewski, T.P., Kotkowski, R., & Lightfoot, G. (2016). Price fluctuations and the use of Bitcoin: An empirical inquiry. *International Journal of Electronic Commerce*, *20*(1), 9–49. https://doi.org/10.1080/10864415.2016.1061413

Polasik, M., Widawski, P., Keler, G., & Butor-Keler, A. (2021). Retail Payments Strategy for the EU versus the challenges of the payment sector. *Ekonomia i Prawo*, *20*(3), 617–640. https://doi.org/10.12775/eip.2021.037

PSD2. (2015). Directives Directive (EE) 2015/2366 of the European Parliament and of The Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Di. *Official Journal of the European Union*, *L 337/35*(260), 35–127.

Rana, D. (2022). Cryptocurrencies in the Globalized World. *Issue 6 Indian JL & Legal Rsch.*, *4*, 1.

Sims, T., Wilkes, T. R., & Za, V. (2025). European banks to launch euro stablecoin in bid to counter US dominance. *The Thomson Reuters*. https://

www.reuters.com/business/finance/big-european-banks-form-company-launch-stablecoin-2025-09-25/

Szafrański, A. (2023). O metodach badawczych w publicznym prawie gospodarczym. *Studia Prawa Publicznego*, *4*(4 (44)), 53–70. https://doi.org/10.14746/spp.2023.4.44.3

Waller, C.J. (2025). *Reflections on a Maturing Stablecoin Market.* https://www.federalreserve.gov/newsevents/speech/waller20250212a.htm

Włoczka, R. (2025). Standard ochrony konsumenta na rynku reklamy kredytu konsumenckiego w świetle dyrektywy Parlamentu Europejskiego i Rady (UE) 2023/2225 oraz innych regulacji prawa unijnego z zakresu regulacji rynku finansowego. *Internetowy Kwartalnik Antymonopolowy i Regulacyjny*, *14*(1), 7–25. https://doi.org/10.7172/2299-5749.ikar.1.14.1

Yeung, E., Leung, T., Huang, E., Gee, W., Wang, J., Cheung, C.Y., & Zhao, G.B. (2020). *The business implications of China's digital RMB: PWC report.*

Zetzsche, D., & Sinnig, J. (2025). The EU Approach to Regulating Digital Currencies. *Law and Contemporary Problems*, *87*, 157–183. https://doi.org/10.2139/ssrn.4707830

Zetzsche, D., & Woxholth, J. (2025). Product Regulation of Stablecoins (E-money Tokens and Asset-Referenced Tokens) in Titles III and IV MiCA. In *The EU Law on Crypto-Assets: A Guide to European FinTech Regulation* (pp. 77–94). Cambridge University Press.

Acknowledgments

Appendix

Table 1. Classification of Stablecoins by Collateral Origin and Management Structure

Collateral Origin	Collateral Management	
	Centralized	Decentralized
Exogenous	USDT, USDC	Dai
Endogenous	TerraUSD	sUSD

Notes: Exogenous collateral refers to assets external to the native blockchain ecosystem (e.g., fiat currencies); Endogenous collateral is based on native tokens of the issuer's protocol; Centralized management implies control by a single entity, while smart contracts or DAOs govern decentralized management.

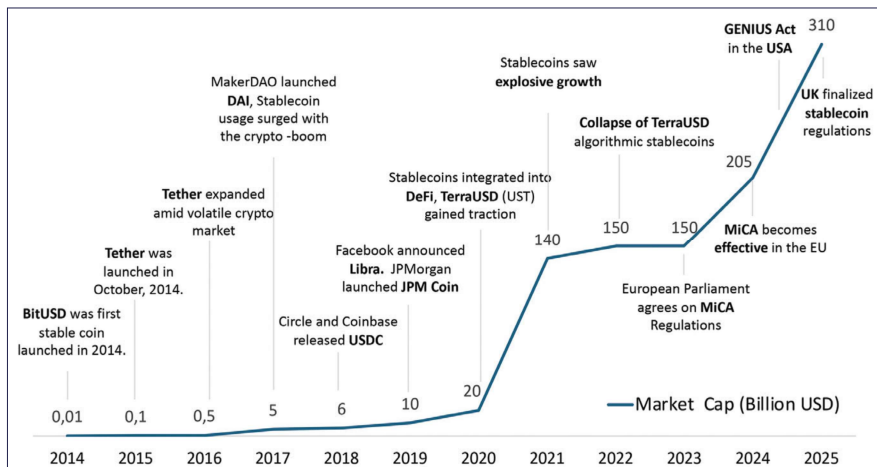Source: Own preparation based on Hafner *et al.* (2024).

Table 2. The Comparison of Stablecoin Regulation Across Jurisdictions

| Category	EU (MiCA)	US	Japan	Switzerland	UK
Scope of issuers	Only credit institutions and e-money institutions	Banks and licensed entities under federal approval	Only banks and trust institutions	On a case-by-case basis, often a banking license or guarantee	Open to non-bank entities, subject to prudential oversight
Reserve requirements	100% in low-risk liquid assets	100% in US dollars/ treasuries	100% bank deposits (later 50% bonds allowed)	Flexible, subject to FINMA review	Expected robust reserve assets, details pending
Consumer protection	Redemption rights; liability for misleading disclosures; prohibition of interest	Redemption rights plus priority in insolvency	Strong prudential guarantees, limited transparency obligations	Deposit protection focus, limited harmonized disclosure	PSD2-style safeguards; disclosure under FCA oversight
Supervisory architecture	Centralized under EBA for significant EMTs	Fragmented federal/state oversight	Centralized under JFSA	Case-by-case FINMA supervision	Joint FCA and BoE oversight, systemic focus
Interest-bearing possibility	Prohibited (no interest in EMTs)	Generally prohibited under stablecoin guidance	Prohibited from avoiding a bank-like deposit function	Case-by-case; typically not allowed without a banking license	Pending – expected prohibition for systemic tokens

Source: Own elaboration.

Scheme 1. The evolution of stablecoins and the capitalization of the stablecoins' market

Source: Own preparation based on Dionysopoulos and Urquhart (2024), J. Czarnecki (2025), and CoinMarketCap (2025).

Chart 1. Stablecoins market caps in billions of USD
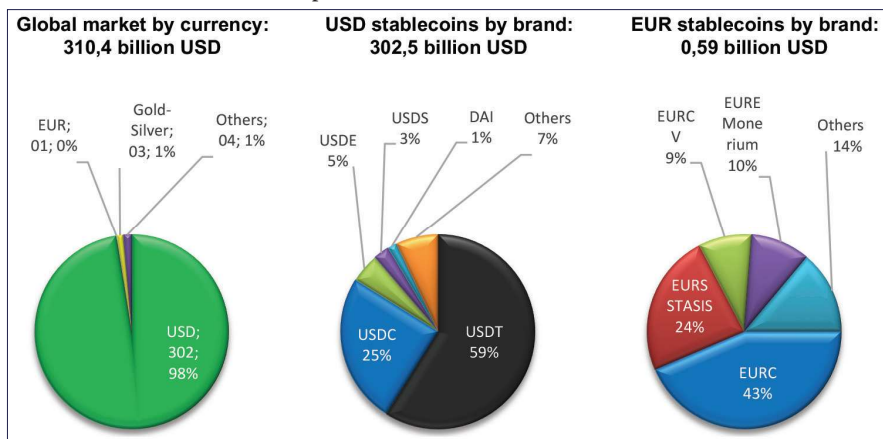
Source: Own preparation based on Coingecko data for 12 October 2025 (*Coingecko*, 2025).