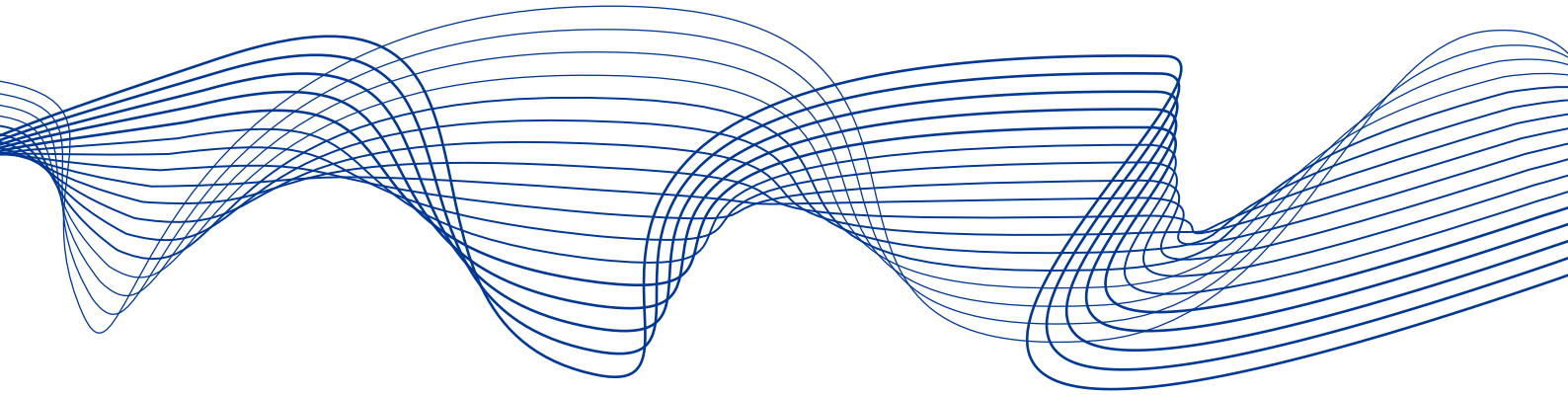
ESRB
European Systemic Risk Board
European System of Financial Supervision

Crypto-assets and decentralised finance

October 2025

Report on stablecoins, crypto-investment products and multi-function groups



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Executive summary

Financial stability risks are mounting in 2025 as crypto-assets, including stablecoins, go mainstream, buoyed by forceful US policy measures. By mid-2025, the crypto-asset market had reached record valuations, largely driven by US pro-crypto policies aimed at boosting demand for US Treasuries and reinforcing the dollar's dominance. In this context, the ESRB's General Board noted in June 2025 that the growing links between the crypto sector and the financial sector should be closely monitored. It also voiced concerns over rising financial stability risks from stablecoins, especially the fungibility of those issued in both the EU and third countries, which can create contagion channels extending well beyond the risks anticipated in the Markets in Crypto-Assets Regulation (MiCAR).

Building on the insights provided in its 2023 report[1], in 2025 the European Systemic Risk Board (ESRB) conducted an in-depth analysis of three key topics chosen for their significance in the evolution of crypto-assets: stablecoins, crypto-investment products (CIPs) and multi-function groups (MFGs) active in crypto-asset markets. These three topics were chosen because they reflect key dynamics of the crypto-asset ecosystem. Stablecoins raise concerns about spillover risks due to their rapid growth, their steadily increasing ties to traditional finance through backing assets, and the risks associated with a potential growing role in payment systems. CIPs highlight the industry's growing integration into mainstream finance, with such products becoming increasingly and more readily accessible to institutional and retail investors. While MFGs may offer opportunities to address market demand, the scale and concentration of their activities could give rise to risks that are significant from a macroprudential perspective.

Stablecoins

As their name suggests, stablecoins are crypto-assets designed to maintain a stable value relative to a specified asset or basket of assets. While they claim to offer the benefits of reduced volatility, a key concern is whether they maintain sufficient liquid reserves to support their value and ensure timely redemption, thus raising questions about their reliability and transparency.

Global stablecoin market capitalisation has more than doubled since the ESRB's May 2023 report on crypto-assets, while still remaining a relatively minor element of the global payment landscape. The total market capitalisation of stablecoins had reached USD 300 billion by September 2025, representing around 7.5% of total crypto-asset market capitalisation. The primary use case for stablecoins remains that of facilitating on and off-ramping between fiat currencies and crypto-assets within the crypto ecosystem, while also serving as collateral in decentralised

[1] ESRB (2023), Systemic implications and policy options.

finance applications. Authorities should continue to study the risks associated with a scenario where stablecoins became more prominent in payment systems.

Amid a fragmented global regulatory landscape, US crypto policies seek to strengthen the dollar's dominance by promoting the development and adoption of USD-denominated stablecoins worldwide. USD-pegged stablecoins currently dominate, accounting for 99% of total stablecoin market capitalisation and 70% of total off-chain spot crypto trading, while euro-denominated stablecoins remain marginal. The United States introduced its first regulatory framework for stablecoins with the Guiding and Establishing National Innovation for US Stablecoins Act (GENIUS Act), according to which a proportion of reserves must be held, inter alia, in US Treasury securities, thereby channelling demand to the T-bill market. This pro-crypto policy drive by the US authorities, which is likely to fuel stablecoin market growth, further increases the immediacy of stablecoin-related risks. The growth of USD-backed stablecoins, which could see their usage extend beyond serving as the bridge into crypto-assets and broaden into payment applications, has the potential to further expand the international role of the US dollar. The global implementation of the G20's crypto-asset roadmap, including the Financial Stability Board's (FSB) regulatory recommendations and international collaboration, is essential given the cross-border nature of crypto-assets.

MiCAR does not explicitly regulate the joint issuance of the same stablecoin by EU and third-country entities – a structure that has built-in vulnerabilities and heightens the EU's exposure to run risks.[2] A third-country multi-issuer stablecoin scheme involves an EU entity partnering with a third-country entity to issue fungible stablecoins that are technically identical and also legally indistinguishable. The reserves backing these stablecoins are distributed between jurisdictions. In observed market cases, the EU entity is typically owned or controlled by the non-EU entity. This model raises financial stability risks, as a run on a third-country stablecoin issuer could prompt holders to redeem from the EU issuer, thus straining the EU stablecoin's reserves, delaying redemptions and amplifying runs within the EU. Holders of tokens from third-country issuers, which are not bound by MiCAR-equivalent protections (including reserve requirements), may seek redemption in the EU if conditions are more favourable there (e.g. a MiCAR ban on redemption fees), leaving EU holders vulnerable. Legal barriers, especially in stress scenarios such as restricted reserve transfers, further amplify the risks. Notably, a fully-fledged run on the EU-issued coin could propagate instability. Furthermore, third-country reserves are largely invested in US dollar-denominated assets, undermining the EU's savings and investment union goals. As MiCAR does not explicitly foresee this business model, it does not provide dedicated and targeted tools, safeguards and common supervisory guidance to shield against the specific risks the model poses. Nevertheless, unless and until multi-issuance stablecoins are banned, the existing generic provisions should be applied to the fullest extent practicable to address these risks, with the three European Supervisory Authorities (ESAs) playing a key role in fostering convergence of supervisory practices. The limitations of the current framework, combined with evolving market dynamics,

[2] See Richard Portes, "The stablecoin loophole that could expose the EU", Financial Times, 25 July 2025.

highlight the urgent need to introduce safeguards against financial stability risks through enhanced supervisory measures, legislative reforms and closer international cooperation.

Policy challenges also arise in ensuring that stablecoins issued outside the EU that are non-compliant with MiCAR are not widely used within the EU. Non-compliant stablecoins – especially USDT (Tether), which continues to be traded among EU investors – may pose risks to financial stability in the EU through their global crypto market influence, raising the possibility of reserve asset fire sales in the event of a run. The potential impact of these shocks is steadily growing as the number of stablecoins in circulation increases. The chapter of the report on stablecoin concludes by identifying key areas for policy attention, including the need to clarify and strengthen the enforcement of MiCAR with respect to non-compliant stablecoins and to monitor the use of large, systemic non-compliant stablecoins within the EU, as well as their role in global financial markets.

Crypto-investment products (CIPs)

CIPs – a collective term for products other than direct holdings of crypto-assets (such as exchange-traded products) – have experienced significant growth since January 2024, with traditional financial institutions expanding their role in offering and managing these products. As of July 2025, the global capitalisation of crypto-investment products stood at USD 235 billion (up from USD 130 billion in December 2024), reflecting significant growth driven by both institutional and retail interest. Although still at a low base level, the figures point to the rapidly growing involvement of major financial institutions in these products. Custodians play a pivotal role here, offering storage solutions for crypto-assets while having to contend with risks such as theft and hacking.

The crypto-services market is highly concentrated, especially for custodians, thus increasing spillover risks into traditional finance, while most crypto-investment product issuers are based outside the EU. The market for CIPs is highly concentrated among custody providers, with the top three custodians managing 39% of all CIPs and 60% of the total market capitalisation for products, based on available data. This concentration is even greater for physically backed CIPs, where the same three custodians service at least 63% of products and hold 71% of the total market capitalisation. While exposure to crypto derivatives is still limited, the growing involvement of traditional financial institutions in CIPs has introduced new drivers of systemic risks and contagion, even though EU financial institutions currently play a relatively minor role in this market.

Recent EU regulations, including MiCAR and measures implementing the Basel Committee on Banking Supervision (BCBS) standards on banks' exposures to crypto-assets, have placed the EU ahead of many other jurisdictions in this respect. To address systemic risk, however, greater transparency is needed regarding the connections between non-bank financial institutions and crypto firms. This report highlights several key data gaps: insufficient

reporting on leverage undertaken by financial institutions and trading platforms in the crypto industry; limited regulatory data on the crypto-holdings of non-bank financial institutions (NBFIs) and their interlinkages with the crypto sector; and insufficient information on counterparty risks associated with crypto-investment products, crypto derivatives and services. These gaps restrict the analysis of the financial sector's exposure to crypto risks.

Multi-function groups (MFGs) active in crypto-asset markets

Crypto-asset products and services in the EU may be offered by entities belonging to the same group as other financial and non-financial firms. Such groups may be active only in the crypto-asset sector, while others may carry out a broader range of financial activities or other commercial pursuits. These groups are sometimes referred to as "conglomerates", although in this report we use that term only in reference to traditional financial conglomerates and their regulatory and supervisory treatment. Instead, we use the term "multi-function group" (MFG) to refer to those groups carrying out various crypto-asset activities within the EU. Many such groups may originate from, or be primarily active, outside the EU and combine multiple crypto-asset activities (and potentially other financial and non-financial activities) at scale, making them relevant from a macroprudential perspective.

The report proposes a taxonomy for classifying MFGs engaged in crypto-activities within the EU, including traditional financial groups and newer entrants such as crypto-focused groups. MFGs operating in the EU can be grouped into three main categories, based on their business models and regulatory status. Category 1 includes those MFGs engaged solely in regulated crypto-asset activities, such as providing crypto-asset services or issuing crypto-assets. Category 2 consists of MFGs that engage in both regulated crypto-asset activities and other financial services; this category is further divided into those MFGs primarily focused on the crypto sector (Category 2a) and those primarily involved in traditional finance, such as banking and payments (Category 2b). Category 3 encompasses all other MFGs, including non-financial groups such as big techs. These categories are important for assessing potential risks and evaluating whether current regulatory and supervisory frameworks are adequate.

MFGs present both significant opportunities and material risks. Their ability to bundle multiple services, such as issuance, exchange and custody, can drive innovation, reduce costs and enhance the user experience. By leveraging economies of scale, integrating infrastructure and accelerating product development, MFGs can respond rapidly to market demand and deliver efficiencies that benefit firms and customers alike. On the risk side, however, the same structural features that offer these advantages also raise serious macroprudential concerns. Financial dependencies, operational vulnerabilities, cyber threats, governance shortcomings, unmanaged conflicts of interest and reputational risks may be amplified by the scale, centralisation and interconnectedness typical of large MFGs. Moreover, opaque

corporate structures and cross-border regulatory arbitrage can complicate effective supervision, particularly for groups based outside the EU, further heightening the risks. The ability of supervisors to identify and mitigate macroprudential risk ex ante is undermined by the fact that group-wide regulatory and supervisory arrangements are largely non-existent for non-bank MFGs (e.g. no consolidated supervision or conglomerate supervision framework applies to these groups).

This report highlights key areas for policy attention, focusing on the need to strengthen oversight and coordination, particularly for Category 1 and Category 2a MFGs, which currently dominate the crypto-asset market. In the short term, the report underscores the need to enhance supervisory dialogue and collaboration among the European Banking Authority (EBA), European Securities and Markets Authority (ESMA), national competent authorities (NCAs), European Central Bank (ECB), European Systemic Risk Board (ESRB) and other relevant authorities. In the medium term, it advocates a more formalised framework, with clear objectives and a stronger MiCAR policy framework to include group-level reporting requirements and formalised supervisory cooperation mechanisms for non-bank MFGs.

1 Stablecoins

Introduction

In recent years, a number of forms of "tokenised money", including stablecoins, central bank digital currencies (CBDCs) and bank-issued tokenised deposits, have emerged and gained significant traction, fuelling public debate on which of them might ultimately prevail in the evolving financial ecosystem. Stablecoins, as privately issued tokens operating on public blockchains, are typically pegged to fiat currencies but do not hold the status of legal tender. CBDCs, by contrast, are official digital representations of national currencies, issued and backed by central banks, whose designs cater for both retail and wholesale use cases. Bank-issued tokenised deposits are digitally recorded customer deposits enabling real-time payments within permissioned networks. Collectively, these innovations reflect the breadth of the private and public approaches currently being explored to create digital settlement solutions, each with distinct implications for financial stability, regulatory oversight, and potential applications. This section on stablecoins largely focuses on unregulated ones, while referring to those regulated under MiCAR as e-money tokens (EMTs)[3] and asset-referenced tokens (ARTs)[4].

The rapid rise of stablecoins has introduced a wide array of challenges and risks, some of which are particularly significant from a financial stability perspective. While stablecoins offer benefits for crypto-users such as reduced volatility and on/off-ramp utility, the ambition among their promoters for broader use in payments outside the crypto ecosystem raises fundamental questions over their ability to function as money. This echoes the challenges that arose during the 19th-century US free banking era, when private banks issued currencies with no federal-level oversight and lack of clarity about the adequateness of reserves, as well as the problems associated with the Eurodollar system, in which US dollars are held in offshore accounts beyond the reach of US regulatory oversight. The potential of stablecoins to disrupt existing financial systems intersects with concerns over their implications for the international monetary system, monetary policy transmission and seigniorage. From a financial stability perspective, stablecoins are vulnerable to runs, with systemic consequences for markets in reserve assets backing them such as US Treasuries and possible contagion to the wider financial system. They also carry operational risks, including exposure to cyber vulnerabilities, and raise concerns about illicit use, such as money laundering and sanctions evasion. Stablecoins present a significant challenge to traditional financial institutions, driving them to explore competitive solutions. For instance, they may introduce tokenised

[3] E-money token (EMT): a type of crypto-asset defined under MiCAR as a digital token that is intended primarily to serve as a means of payment by maintaining a stable value, which is pegged to a single fiat currency (e.g. EUR or USD).

[4] Asset-referenced token (ART): a type of crypto-asset defined under MiCAR as a digital token that aims to maintain a stable value by referencing multiple assets, such as a basket of fiat currencies, commodities or other crypto-assets. ARTs can be used as a store of value or medium of exchange.

deposits, which are digital representations of fiat currency issued by banks and recorded on a blockchain, or offer services tailored to CBDCs, such as the digital euro.

A key challenge lies in fostering effective international coordination, as the efforts of some countries to position themselves as crypto-friendly hubs could complicate the process of achieving a balanced assessment of risks and ensuring the effective enforcement of appropriate measures. This dynamic may create opportunities for stablecoin issuers to strategically select jurisdictions that best serve their interests.

While this report acknowledges the broader context of these issues, it focuses on a selected number of topics relevant to financial stability and macroprudential considerations.

1. Stablecoin markets are expanding rapidly, still serving overwhelmingly as a bridge between traditional finance and the crypto-ecosystem

1.1. Stablecoin markets are growing rapidly, led by USD-pegged stablecoins

By September 2025, global stablecoin market capitalisation had more than doubled compared with the figure set out in the ESRB's May 2023 report on crypto-assets. Stablecoin markets have reached a total market capitalisation of around USD 300 billion, representing 7.5% of the total crypto-asset market capitalisation. The market is largely composed of reserve-backed stablecoins, with on-chain collateralised variants[5] accounting for just 12.8%[6] of total market capitalisation (Chart 1). US dollar-denominated stablecoins are the dominant force, representing 99% of total stablecoin market capitalisation and 70% of total off-chain spot crypto trading.[7] Tether (USDT) remains the market leader at USD 170 billion (representing 57% of total market capitalisation), followed by USD Coin (USDC, issued by Circle) at USD 71 billion (24% of total market capitalisation). Other stablecoins have much smaller market capitalisations, with the next largest being the algorithmic stablecoin USDe[8] (Ethena), whose market capitalisation is currently USD 13 billion. Meanwhile, euro-denominated stablecoins account for just 1% of total

5 On-chain collateralised stablecoins are backed by crypto-assets or tokenised traditional financial instruments (sometimes called "real-world assets" in crypto market jargon) held directly in smart contracts on a blockchain. In contrast, off-chain collateralised stablecoins are backed 1:1 by fiat (e.g. bank deposits, short-term debt traded directly in the traditional financial system) held by a custodian outside the blockchain, with trust relying on external audits of reserves.

6 Fiat-backed stablecoins currently comprise about 87% of the total circulating supply and algorithmic stablecoins less than 0.2%; see "What are stablecoins, and how are they regulated?".

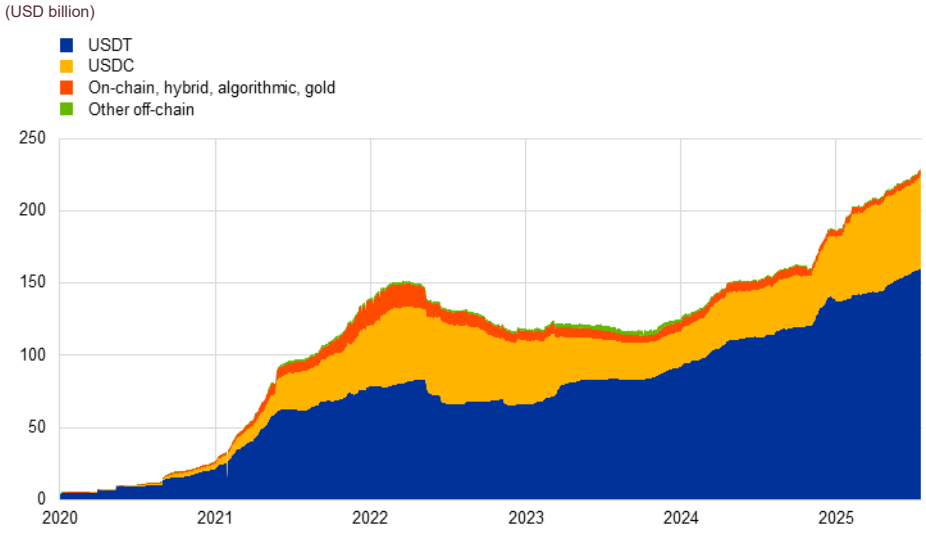
7 See "What are stablecoins, and how are they regulated?".

8 "Algorithmic" stablecoin, whose stable value is supposed to stem from an underlying price-neutral trading strategy.

market capitalisation, with a value of €500 million. Together, USDT and USDC represent 81% of the total market capitalisation, thus creating an unprecedented level of concentration within a financial market. As a result, the market is heavily dependent on just a handful of actors, limiting the potential counterbalances should one of these companies fail. For comparison, Bitcoin represents (as of mid-September 2025) 56% of the entire crypto-asset market, while Ethereum takes a 13% share, meaning less concentration for the whole market than in the stablecoin sub-market. Within the crypto-assets market, USDT ranks fourth, with a 4% market share, and USDC places seventh with 1.75%.

Chart 1

Market capitalisation of selected stablecoins



Source: Crypto-assets Dashboard, June 2025.

1.2. Stablecoins still serve as bridges to the crypto ecosystem and play only a marginal role for payments

Stablecoins are used mainly to access the crypto ecosystem and to facilitate trading in other crypto-assets.[9] Stablecoins are still primarily used as a bridge between fiat and crypto-asset trading and as providers of liquidity in decentralised finance[10] and lending[11]. They are essential to decentralised finance ecosystems such as decentralised exchanges and lending protocols, where they help users reduce their exposure to price volatility by providing a more stable settlement asset and are also used as collateral for loans. They are also key to fiat-crypto conversions on centralised platforms.

9 BIS (2025), The next generation monetary financial system.

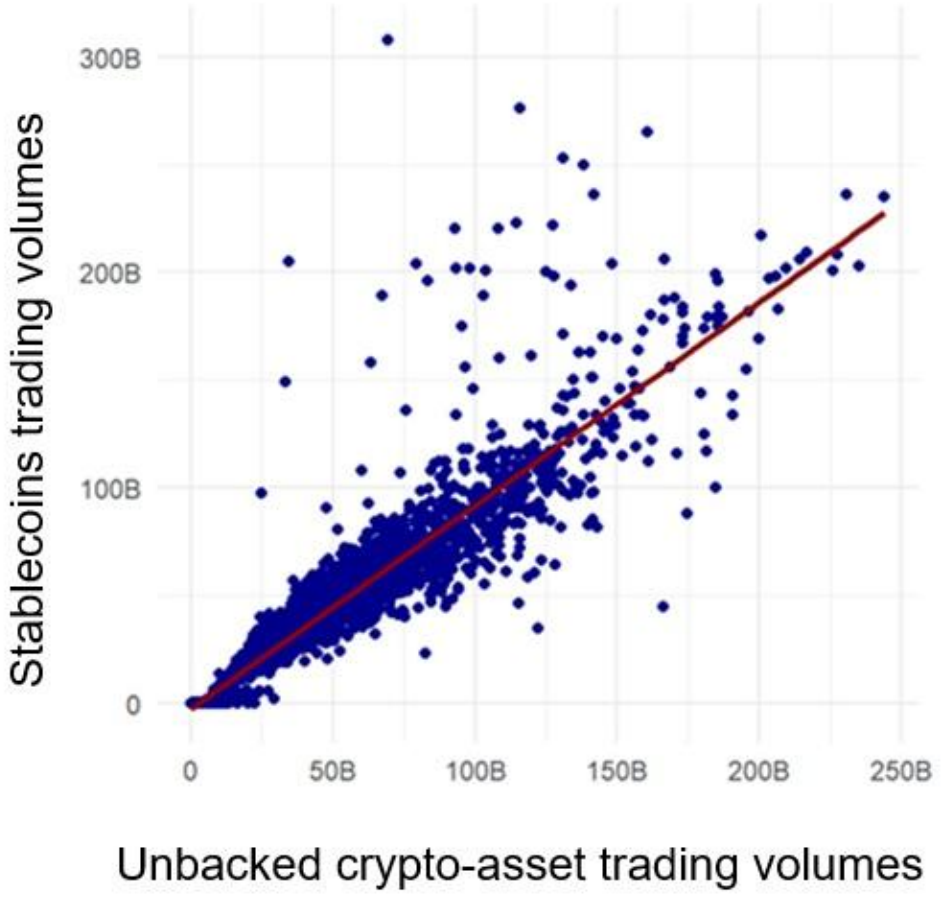
10 Liquidity providers in DeFi either provide funds to be lent out (depositing them in lending protocols) or deposit both tokens of a trading pair (e.g. ETH and USDC) in a decentralised exchange protocol, thus enabling other users to exchange these tokens.

11 See the January 2025 joint EBA and ESMA report on recent developments in crypto-asset markets.

The growth of stablecoins seems linked to trading volumes in unbacked crypto-assets.[12] This suggests that as overall crypto trading increases, so does the demand for stablecoins as a medium of exchange and source of liquidity, showing that stablecoins play a crucial role as a bridge between fiat currencies and the wider crypto ecosystem. Therefore, rising crypto trading volumes are a good indicator of stablecoin trading growth and could serve as a predictor. This relationship (Chart 2) was assessed using a Granger predictability framework.[13] The results indicate that past values of unbacked crypto-asset trading volumes help predict stablecoin volumes, and vice versa, suggesting strong bidirectional linkages. However, these tests capture only statistical predictability, not true causality, and the observed co-movement is best interpreted as mutual reinforcement rather than a one-way causal effect. Chart 2 below shows only a correlation that can be used for prediction purposes, suggesting that unbacked crypto-assets and stablecoin markets often move in tandem.

Chart 2

Impact of unbacked crypto-asset trading volumes on stablecoins trading volumes



Source: ESRB Secretariat calculations based on CoinGecko data for the 12 unbacked crypto-assets with the highest volumes and the 12 stablecoins with the highest volumes over the period 2015/01/01 to 2025/07/08.

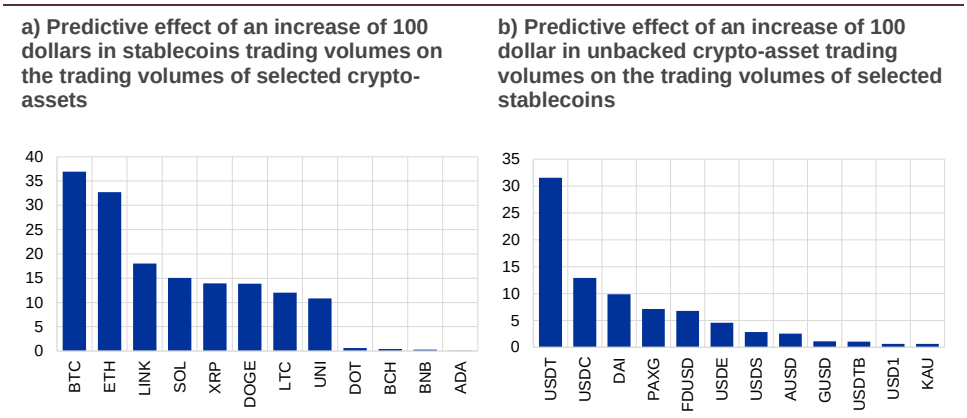
12 The term “unbacked crypto-assets” is meant to designate crypto-assets other than stablecoins (such as Bitcoin).

13 Statistical test used to determine whether one time series is useful in forecasting another.

The estimates show a strong and statistically significant relationship between unbacked crypto-asset trading volumes and stablecoin trading volumes, with a slope coefficient close to 0.94. This implies that, on average and all else equal, one additional dollar of trading in non-stablecoin crypto-assets is associated with almost one additional dollar of trading in stablecoins. This analysis focuses on the 12 largest unbacked crypto-assets and the 12 largest stablecoins in terms of trading volume, thus capturing the most active segments of the market without loss of generality. These findings suggest that the stablecoin market tends to expand in close step with the broader crypto-market, making unbacked crypto-asset trading a useful proxy when stablecoin data are missing.

Chart 3

Predictive relationships between stablecoins and unbacked crypto-asset trading volumes



Source: ESRB Secretariat calculations based on Coingecko data for the 12 unbacked crypto-assets with highest trading volumes and the 12 stablecoins with highest trading volumes, 2015/01/01-2025/07/08. The results are computed using a vector autoregressive (VAR) model.

The estimates presented in Charts 3a and 3b are obtained from a Granger causality framework applied to trading volume data of stablecoins and unbacked crypto-assets. Estimation is performed on vector autoregression models[14], including both groups of assets, and their response functions to shocks are calculated, reflecting predictive relationships between the series. Chart 3a shows the effect of a shock to stablecoin trading volumes on the trading volumes of selected unbacked crypto-assets. Conversely, Chart 3b shows the predictive effect of shocks to unbacked crypto-asset trading volumes on stablecoins.

The estimates may be affected by a two-way relationship, however, as stablecoin trading could also influence crypto-asset trading volumes. To address this issue, an instrumental variable[15] (IV) strategy is used, with overall crypto market capitalisation as the instrument for unbacked crypto-asset trading. This choice is justified because crypto market size primarily reflects price

[14] A vector autoregression (VAR) model is a statistical model that explains how several variables change over time by expressing each variable as a linear function of its own past values and the past values of the other variables.

[15] An instrumental variables (IV) regression is an econometric method used to estimate the causal effect of one variable on another when the relationship is potentially biased by unobserved factors, by using an external variable (the instrument) that influences the explanatory variable but is otherwise unrelated to the outcome.

movements and valuations, directly affecting trading activity and thus indirectly influencing simultaneous stablecoin transaction volumes. While traders often hold stablecoins to facilitate crypto trading, complicating the exclusion assumption, the IV approach provides a more credible estimate of the causal effect.

A comparison of ordinary least squares (OLS) and instrumental variable (IV) regressions suggest that the positive link between unbacked crypto-asset trading and stablecoin activity is not merely a mechanical correlation but reflects a causal relationship. Importantly, the explanatory power of the regressions illustrates the extent of this link: the OLS specification accounts for about 86% of the variation in stablecoin volumes, while the IV specification still explains about 73%. In other words, between 14% and 27% of stablecoin activity remains unexplained by crypto trading, which could be attributed to alternative uses such as remittances, payments, or off-chain settlement. The results therefore suggest that while the bulk of stablecoin volume is mechanically tied to crypto trading, a non-negligible portion points to uses outside pure crypto-to-crypto transactions.

Despite widespread attention, stablecoins continue to play only a limited role in the global payment landscape (Chart 4), although their presence is steadily expanding. According to Worldpay's 2025 Global Payments Report[16], stablecoins accounted for just 0.2% of global e-commerce transaction value in 2024. While interest in initiatives such as PayPal's USD stablecoin via Xoom[17] is rising, stablecoin adoption as a means of payment remains limited. A 2024 BIS survey[18] found that over half of central banks viewed stablecoin use in their jurisdictions as negligible, confined mainly to niche remittance and retail users. Although Coinbase reported stablecoin settlements amounting to USD 10.8 trillion in 2023, with USD 2.3 trillion tied to payments[19], independent analysts estimate that less than 10% of these transfers were for real-world purchases rather than trading or internal transfers[20]. Still, Visa/Allium data[21] show that proxies for payment-linked stablecoin volumes grew from USD 1.6 trillion in 2023 to USD 2.4 trillion in 2024.[22] The widespread use of foreign-currency-pegged stablecoins, such as those issued by big tech firms[23], could undermine monetary sovereignty and disrupt domestic monetary policy in regions outside the stablecoin's reference currency. Authorities should continue to study the financial stability implications of this scenario.

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16 According to Worldpay's 2025 Global Payments Report, all crypto-assets, including stablecoins, accounted for approximately 0.2% of global person-to-business e-commerce transaction value in 2024.

17 See "Xoom Users Can Now Make Transfers With PayPal Stablecoins".

18 See "Advancing in tandem - results of the 2024 BIS survey on central bank digital currencies and crypto".

19 See "Stablecoins and the New Payments Landscape".

20 See "More Than 90% of Stablecoin Transactions Aren't From Real Users, Study Finds".

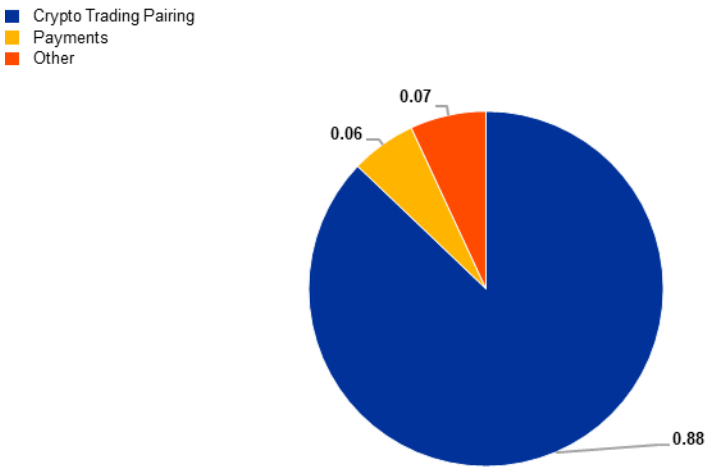
21 See "Visa Stablecoin Transactions".

22 This estimate strips out the following transactions from the total value of stablecoin transfers: deposits and withdrawals of stablecoins to and from labelled centralised and decentralised exchange accounts, other labelled categories that represent organic stablecoin activity, such as lending, investment funds, minting & burning, ramps, internal smart contract transactions, intra-exchange transactions, MEV bots transactions and unlabelled addresses that exceed the threshold of 1,000 monthly transactions or USD 10 million monthly volume (an approximation of high-frequency traders and unlabelled bot activity).

23 See "Stay safe at the intersection: the confluence of big techs and global stablecoins".

Chart 4

Breakdown of stablecoin transactions (2024)



Source: Apollo Global Management.
Notes: "Payments" include P2P, C2B/B2C and B2B payments. "Other" includes On/Off-Ramping and Tokenised RWA Settlements.

Authorities should prepare for risks arising from the potential disruptive use of stablecoins in financial markets, as illustrated by tender offer scenarios. For instance, when a controlling shareholder decides to sell a significant stake of a listed company, the buyer might want to use stablecoins as payment (provided that the seller is willing to accept stablecoins as a means of payment), which would trigger an equivalent offer to all other shareholders if the buyer is required to launch a tender offer. In EU countries that recognise the principle of freedom of contract, the parties to a financial market transaction are free to negotiate terms under the relevant applicable provisions, including the civil and the commercial code, and the financial market regulator cannot outright prohibit the use of stablecoins or unbacked crypto-assets as a means of payment between a buyer and a controlling shareholder. To address these challenges and protect market integrity, it would be beneficial that EU rules exclude crypto-assets as a means of payment in financial markets.

If stablecoins and other crypto-assets were recognised as legal tender under commercial law, they could be used in major financial transactions such as mergers and acquisitions, creating significant risks. Firms might even exploit crypto-assets to circumvent AML/CFT and securities regulations, while their volatility might destabilise deal valuations. A poorly regulated crypto-capital market could distort financial metrics, thus complicating risk assessments for investors. Furthermore, the cross-border use of crypto introduces legal challenges, including ownership disputes, contract enforcement and taxation complexities.

Box 1
Stablecoins and CBDCs

This box addresses stablecoins tied to a single official currency (EMTs under MiCAR), as they closely resemble other payment instruments denominated in that currency.

EMTs are a type of crypto-asset – a digital representation of value or a right that can be stored or transferred using distributed ledger technology (DLT) – designed to maintain a stable value by being pegged to the value of one official currency. As they are issued by credit institutions or e-money institutions, and are not a liability of the central bank, they are a form of private money. The stability of the value of an EMT is ensured by the quality of the reserve assets backing the EMT, permitting only low risk assets with minimal credit, concentration and market risk. This – combined with limits to asset maturity at portfolio level - aims to reduce the risk of the EMT issuer being unable to meet the redemption demands of EMT holders. But there is always a residual credit risk of the issuer borne by the holders because there is no zero-risk asset. EMTs, by being hosted on a DLT network, can take advantage of the programmable features (atomic settlement, programmable transactions through so-called smart contracts). As long as no restrictions are made with respect to who can hold EMTs, they can be used for cross-border transactions.

CBDC is defined by the BIS as a new form of digital money, denominated in the national unit of account, that is a direct liability of the central bank. If the CBDC is intended for use by households and firms for everyday transactions, it would be referred to as a retail CBDC. An example of a prospective retail CBDC is the digital euro, which aims to provide a uniform public retail payment instrument in central bank money across the eurozone. In contrast to a retail CBDC, a wholesale CBDC is meant for use in transactions between banks, central banks and other financial institutions. A wholesale CBDC would serve a similar role as today's reserves or settlement balances held at central banks, but with added functionalities enabled by DLT, such as composability and programmability. The ECB has recently decided to further develop its work on using central bank money for settlement of wholesale transactions using DLT.

The digital nature of both EMTs and digital euro prompts the question of whether they could compete in some use cases. In the area of retail payments, stablecoin usage is currently low. The introduction of the digital euro (or an EU private sector solution competing with global card schemes) would diminish any market needs in terms of retail payments that could be served by stablecoins in eurozone (a uniform, EU-headquartered, eurozone-wide retail payment instrument). The scope for stablecoins to fill market needs for cross-border payments in EU between the eurozone and non-eurozone Member States would also be greatly reduced due to the Instant Payments Regulation, which requires that payment services providers from non-eurozone MS that offer standard euro credit transfers, must also offer instant euro credit transfers from 2027. EMTs could however find a market niche in transfers between EU MS and third countries, as long as the

traditional financial intermediaries do not provide solutions which can compete on speed, price and useability.

For wholesale transactions, EMTs could hypothetically compete with central bank money as settlement asset for markets in tokenised securities. The main advantage of EMTs would be the ability to offer atomic – i.e. simultaneous and possibly instant – settlement as well as programmability of transactions, especially if both the EMT and the tokenised security reside on the same DLT network. However, it is far from clear whether wholesale market participants would be willing to forgo liquidity management benefits stemming from netting transactions. Furthermore, wholesale market participants may be unwilling to accept the credit risk of EMTs (compared to the lack of credit risk of central bank money) in a settlement asset.

Finally, central bank money can be flexibly created to meet short-term liquidity needs of eligible wholesale market participants (through central bank intraday credit facilities), as long as they hold eligible collateral. EMTs, which are created on a cash-in-advance basis, may not be available as easily[1]. These factors suggest that if DLT-based financial infrastructure develops, it will be more likely to gain widespread adoption if it is based on central bank money (possibly deployed on a technological platform enabling programmability of transactions for increased efficiency) as a settlement asset.

1.3. MiCAR licences and non-compliant stablecoins

MiCAR-authorised stablecoins

As of mid-September 2025, a total of 14 entities were issuing 23 EMTs under MiCAR (Table 2). Since 30 June 2024, stablecoin issuers in the European Economic Area (EEA) have to be appropriately authorised (in the case of EMTs, as credit institutions or electronic money institutions fully compliant with Title IV of MiCAR) and meet the relevant capital, governance, risk management and transparency obligations. Among USD-denominated stablecoins, Circle's USDC and Paxos' USDG lead the way in terms of market capitalisation, both operating under a contested multi-issuance scheme. For EUR-denominated stablecoins, Circle's EURC is the largest, followed by Société Générale's EURCV and Banking Circle's EURI.

Table 1

MiCAR-authorised 23 stablecoins (EMTs) issued by 14 entities (as of 15 September 2025)

Stablecoin Name	Issuer	Market Capitalisation as of 15 September 2025 (in USD)	Variation since 10 June 2025 (over three months)	Comment
USD pegged stablecoins				
USDC	Circle	$73.1 billion	+36%	multi-issuance with U.S. Circle LLC, figure reflects worldwide issuance
USDG	Paxos Issuance Europe	$592 million	n/a (new EMT)	multi-issuance with Paxos Singapore, figure reflects worldwide issuance
USDCV	Société Générale – Forge	$32 million	n/a (new EMT)	
USDQ	Quantoz Payments	$6.6 million	n/a (new EMT)	
USDR	StablR Ltd	$5.2 million	-13%	
USDSM	Stable Mint	$5 million	n/a (new EMT)	
eUSD	Paxos Issuance Europe			being withdrawn after Paxos acquired Membrane, focusing on USDG.
USDE	Eurodollar			no data available
EUR pegged stablecoins				
EURC	Circle	$238 million	+20%	
EURCV	Société Générale – Forge	$66 million	+37%	
EURI	Banking Circle	$56 million	+22%	
EURAU	AllUnity	$21 million	n/a (New EMT)	
EURR	StablR Ltd	$13 million	+8%	
EURQ	Quantoz Payments	$5.5 million	+44%	
EURØP	Schuman Financial	$4.1 million	+341%	
EURD	Quantoz Payments	$949 thousand	+2%	
EUROe	Paxos Issuance Europe	$183 thousand		being withdrawn after Paxos acquired Membrane, focusing on USDG.
EURSM	Stable Mint			no data available
ENEUR	Fiat Republic			no data available
Ambr EMT	Ambr Payments			no data available
BLUEUR	Blue EMI LT			no data available
GBP stablecoin				
ENGBP	Fiat Republic			no data available
CZK stablecoin				
CZKI	Payment Corporation SE			no data available

Source: ESRB CATF, based on the ESMA MiCAR Register, as of 15 September 2025.
Market cap data from CoinGecko, CoinMarketCap, Coinbase, blockchain explorers.

Non-authorised stablecoins under MiCAR

On 17 January 2025, ESMA issued a statement[24] requiring crypto-asset service providers (CASPs) to cease trading and brokerage services involving non-compliant stablecoins by the end of January 2025. To facilitate an orderly transition, CASPs were permitted to offer "sell-only" services until the end of the first quarter of 2025 to allow conversion of the affected holdings.

In response, major CASPs began delisting non-MiCAR compliant stablecoins. For instance, Binance removed nine stablecoins, including Tether (USDT), TrueUSD (TUSD) and Dai (DAI), for EEA users, effective 31 March 2025.[25] Crypto.com[26] and Coinbase[27] took similar steps. In contrast, some services (such as custody) are still offered by certain CASPs (e.g. Binance[28] and the crypto-asset arm of Revolut[29]). Most MiCAR-authorised CASPs no longer offer trading in non-compliant stablecoins as of September 2025, while the remaining ones – some of which have recently acquired their licenses – should be required by NCAs to adjust their services accordingly. Meanwhile, entities that currently provide crypto-asset services under the grandfathering provisions of MiCAR will be expected to adjust their operations once they become licensed under MiCAR at the latest. Convergence of supervisory practices in this respect is crucial in reducing the transmission of risks from non-compliant stablecoins to the EU market.

Binance and Kraken now convert stablecoins to MiCAR-compliant USDC, while Tether remains non-compliant in the EU. Exchanges such as Binance and Kraken have announced the automatic conversion of non-compliant stablecoins into compliant coins in the EEA (e.g. USD Coin – USDC), thus accelerating the shift toward MiCAR alignment. Conversely, Tether's issuer has yet to fall in line with MiCAR, making the coin unavailable through EU-licensed platforms. However, data suggest EU investors still use non-MiCAR compliant stablecoins, especially USDT.

While MiCAR enforcement will not erode USDT's global dominance, its importance in European crypto trading is expected to decline. USDC is currently the main alternative for EU-based users of centralised platforms, owing to its high liquidity and widespread adoption. Its usability within the EU, particularly for transactions with non-EU counterparts, relies on the unconfirmed assumption that the token issued in the EU is legally fungible with the one issued in the United States. Users seeking non-compliant stablecoins can still find them via decentralised

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24 See ESMA Public Statement.

25 See "Binance Will Delist Non-MiCA Compliant Stablecoin Trading Pairs For EEA Users on 2025-03-31".

26 See "Crypto.com delists USDT and other tokens to comply with MiCA".

27 See "Coinbase to delist some stablecoins in Europe ahead of new regulations".

28 See "Binance Will Delist Non-MiCA Compliant Stablecoin Trading Pairs For EEA Users on 2025-03-31".

29 As of 15 September 2025, Revolut still allowed EU customers to buy and sell USDT. Revolut's crypto-asset services arm (Cyprus-based Revolut Digital Assets Europe Ltd) had not received a CASP license as of that date.

finance protocols, such as decentralised exchanges, or through third-country CASPs under the reverse solicitation exemption[30].

Non-compliant stablecoins, especially USDT, may pose risks to EU financial stability through their influence on global crypto markets and the danger of reserve asset fire sales in the event of a run. Although issued outside the EU, USDT is still used by EU investors, and a sharp drop in its value could destabilise the crypto ecosystem, affecting crypto-asset prices, stablecoin issuers, and exchanges reliant on USDT trading pairs. Tether's reported USD 150 billion[31] in reserves include nearly USD 120 billion in US Treasury bills and reverse repo transactions backed by US Treasury securities, yet they also contain less transparent and less liquid assets, including USD 7.6 billion in Bitcoin[32]. In the event of a run, forced asset sales could ripple into global financial markets, indirectly affecting the EU. Other large non-compliant stablecoins, such as Ethena USDe, USDS and DAI, are on-chain collateralised, often using MiCAR-licenced assets like USDC. Additionally, Sky (formerly MakerDAO) is exploring investments in tokenised real-world assets, such as tokenised money market funds, further intertwining decentralised finance with traditional finance.[33]

The continued use of non-compliant stablecoins in the EU will depend on two key factors: (i) the advantages they offer users, such as higher liquidity, lower transaction costs and greater yields provided by decentralised finance applications; and (ii) ease of access through decentralised finance platforms or reverse solicitation. There is currently no evidence to suggest that these stablecoins are being adopted more broadly beyond the crypto ecosystem, particularly for payments or as a store of value within the EU. Notably, rising interest rates could incentivise holding stablecoins via third-country CASPs, as they are not subject to the interest payment prohibition set out in Article 40 of MiCAR.

The widespread use of non-MiCAR-compliant stablecoins would undermine the achievement of MiCAR's objectives and could warrant the introduction of specific measures. Beyond direct enforcement, further regulatory action or guidance may prove useful, such as banning custody services or other crypto-asset services linked to non-compliant tokens. To achieve this objective, competent authorities should make full use of the powers available under Article 94 of MiCAR to prohibit authorised crypto-asset service providers from offering any regulated services related to crypto-assets that violate MiCAR rules.

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30 Where a client established or situated in the EU at its own exclusive initiative requests the provision of a crypto-asset service or activity, the third-country firm contacted by the client may provide the requested crypto-asset service or activity without being in breach of the authorisation requirement established by MiCA (see ESMA Guidelines on reverse solicitation under MiCAR).

31 See Tether Approaching $120B in US Treasuries, Confirms Quarterly Operating Profit Over $1B, and Strengthens Global USD₮ Demand in Q1 2025 - Tether.io.

32 See Tether International Independent Authitors' report on the financials figures and reserves report.

33 See EXCLUSIVE. BlackRock among winners of Sky's (ex-MakerDAO) $1 billion tender.

To minimise regulatory arbitrage, exemptions (such as for reverse solicitation and fully decentralised services) should be interpreted narrowly, potentially through the strict enforcement of relevant ESMA guidelines. A future revision of MiCAR might also consider clarifying the treatment of decentralised stablecoins and tokens with no identifiable issuer, thus ensuring greater legal certainty and consistent application across the EU. At the same time, the development of attractive private or public alternatives to non-compliant stablecoins could help curb their use.

1.4. The impact of stablecoin growth on banks

The sharp increase in stablecoin market capitalisation raises concerns about their potential impact on the traditional banking system and its capacity to support the real economy. When customers move funds from insured bank deposits to purchase stablecoins, the issuers redeposit part of these funds into banks in amounts that may exceed deposit insurance limits. In the United States, for example, this situation arose when Circle, the issuer of USDC, held reserves at Silicon Valley Bank above the Federal Deposit Insurance Corporation's deposit insurance limits. In the EU, MiCAR requires stablecoin issuers to hold a large portion of their reserves in EU-regulated banks, (again, potentially above DGS insurance thresholds). As the stablecoin market grows, the increase in uninsured deposits represents a vulnerability, the current extent of which is illustrated in Chart 5 below.

A significant outflow of deposits to stablecoins could force banks to rely on costlier, less stable funding, reducing their capacity to lend to the economy. The risk of destabilising the banking system by draining deposits has led the Bank of England to suggest ownership limits on systemic stablecoins, defined as those widely used, or likely to be used, for payments[34]. Under MiCAR, the ECB can issue binding opinions to the competent authority regarding (i) the withdrawal of an authorisation for an issuer of ARTs[35] (Article 24(2)), or (ii) the imposition of issuance limits or minimum denomination requirements on an ART, or EMT[36], denominated in a currency that is not an official currency of a Member State (Articles 24(3) and 58). These opinions require either a threat, in the case of point (ii) above, or a serious threat, in the case of point (i), to (a) the smooth operation of payment systems, (b) monetary policy transmission, or (c) monetary sovereignty. However, these opinions would not address other concerns that may arise from multi-issuance schemes, such as those related to (i) financial stability, (ii) weakened safeguards for EU holders, and (iii) the prudential regime for the issuer. Furthermore, the MiCAR reporting framework does not provide the ECB with enough data to conduct timely, evidence-based risk analysis, especially in case of multi-issuance schemes. Moreover, such ECB interventions would constitute ex post measures, addressing risks only after

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34 See Financial Times, Crypto groups hit out at Bank of England plan to limit stablecoin ownership, September 2025.

35 These binding opinions oblige the competent authority to withdraw the authorisation of the ART issuer.

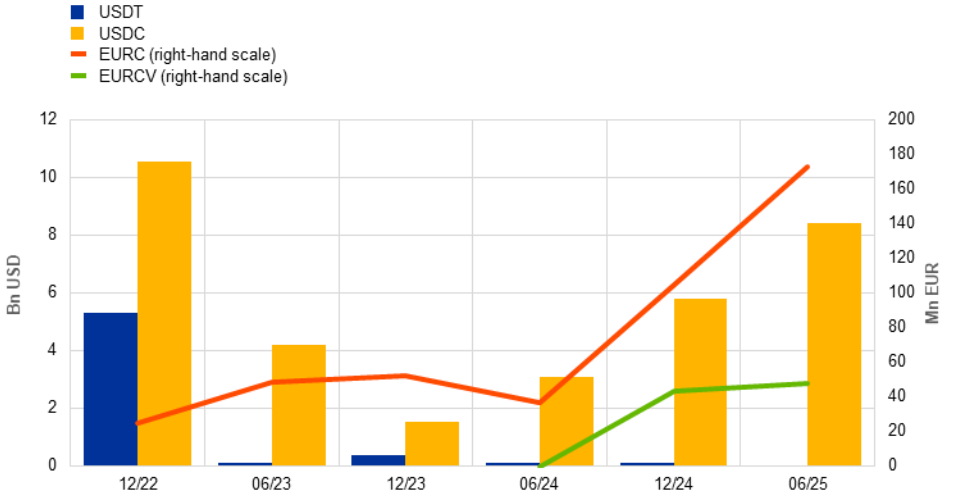
36 These opinions oblige the competent authority to limit the amount of an ART to be issued or impose a minimum denomination amount in respect of the ART. Article 58(3) extends the provisions on issuance limits to EMTs denominated in a third-country currency.

they materialise, such as where a large, non-euro-denominated EMT had already reached a significant size and posed a threat to monetary sovereignty.

Were an EU bank to issue its own EMT, customer funds would remain partly within the bank. However, given the higher liquidity coverage ratio (LCR) outflow factor assigned to EMT liabilities, these funds are treated as less stable from a liquidity perspective. This might limit the bank's ability to rely on such liabilities for funding loans to customers, as it would need to hold a larger reserve of high-quality liquid assets to cover potential outflows.

Chart 5

Reserves of selected stablecoins placed as bank deposits



Sources: Tether Holdings Ltd. (reports on financial figures and reserves), Circle Internet Group, Inc. (USDC and EURC reserve reports), CoinGecko, and ESRB calculations.
Note: As EURCV is 100% backed by cash held in accounts opened at Société Générale , reserves placed as bank deposits for EURCV are proxied by market capitalisation.

Stablecoins are likely to drive major banks and asset managers to develop competitive products, such as tokenised deposits and money market funds, to protect or expand their market share. Tokenised deposits, as highlighted by Cecchetti and Schoenholtz[37], leverage blockchain technology to enable programmability through smart contracts, offering a compelling alternative to stablecoins. Unlike stablecoins, tokenised deposits are offered by credit institutions that benefit from deposit insurance and lender-of-last-resort backing, making them less susceptible to sudden outflows driven by market volatility and ensuring greater resilience. By combining this enhanced stability with improvements in both efficiency and accessibility, tokenised deposits are well-positioned to emerge as a dominant solution in the evolving digital payments ecosystem. Additionally, tokenised deposits may be remunerated, while stablecoin issuers are not permitted to pay any yield to token holders in either the EU or the United States. In December 2024, the EBA released a report[38] outlining several opportunities in relation to tokenised deposits to improve the efficiency of fund transfers between on-chain deposit accounts,

[37] Cecchetti, S. and Schoenholtz, K. (2025), "Crypto, tokenisation, and the future of payments", *CEPR Policy Insight*, No 146, CEPR Press, Paris & London.

[38] EBA (2024), Report on tokenised deposits, December.

particularly through programmability features. The report also highlighted potential challenges, such as issues related to regulatory classification and operational risks.

Against the narrative that Europe is culturally driven by "risk aversion and fear"[39] and should "embrace stablecoins", which are now 99% USD-denominated, Europe is instead charting its own course forward, working towards strategic financial autonomy guided by careful stability analysis and a clear-eyed view of the dollar's dominance. MiCAR sets out to ensure a robust regulatory framework for stablecoins, which is why it should be enforced in that spirit, without allowing for any interpretation that might permit models to circumvent the safeguards foreseen by MiCAR (EU/third-country multi-issuer stablecoins). In this context, private actors have an opportunity to develop euro-denominated stablecoins that address the needs of users who wish to benefit from the euro currency while leveraging the advantages of the underlying technology. Users would also benefit from private pan-European initiatives (e.g. a multi-issuer model among EU-based firms), along with public initiatives to develop interoperability with other solutions. Such initiatives would support the growth of the market for euro-denominated stablecoins and address several financial stability issues flagged in this report, including challenges posed by US policies, such as the risk of euro area deposits migrating outside the EU. The digital euro project led by the ECB would serve as a secure means of payment and a unified, open-standards infrastructure, driving cross-border integration and reducing dependence on foreign payment systems. Finally, as highlighted by Cecchetti and Schoenholtz[40], market competition will likely see banks creating tokenised deposits in currencies where they see lending opportunities.

In these debates, the EU regulatory approach is technology-neutral, enforced by the neutrality of public institutions. This allows financial stability authorities to independently assess financial stability risks regardless of private interests, lobbying or media coverage. Through legislation, the public has entrusted central banks with the task of maintaining price stability and, by extension, defending money as a public good. Their responsibility is to raise awareness and take action where necessary to protect also the mandate of financial stability. While a complete privatisation of money without any oversight by the authorities may appeal to some, it does not serve the general interest.

[39] Financial Times (2025), Europe needs to shrug off fear and embrace stablecoins, July 4.

[40] Cecchetti, S. and Schoenholtz, K. (2025), op. cit.

2. The characterisation of stablecoins highlights their lack of key attributes for large-scale payments and the risk dynamics inherent in their design

2.1. The characterisation of stablecoins points to some shared traits with narrow banks and money market funds (MMFs) and lays bare their inability to support payments at scale

2.1.1. Stablecoins do not appear to possess the appropriate features to perform payments on the scale enabled by fiat money

The industry narrative often portrays stablecoins as digital "currencies" designed to function similarly to traditional money with the aim of replacing it for payment transactions. Stablecoin advocates argue that these crypto-assets could not only compete with fiat money, but also significantly challenge its dominance for payment use. They claim stablecoins can make payments faster, cheaper and more accessible worldwide. Supporting this view, news outlets frequently report on new stablecoin payment initiatives. While stablecoins are already used to a limited extent for payments, the key question is whether they possess the necessary properties to scale up significantly.

According to the Bank for International Settlements (BIS), stablecoins lack the fundamental features of sound money, making them unfit for payments at the scale of current money.[41] The BIS highlights three key limitations of stablecoins relative to fiat money: the absence of singleness, elasticity and integrity.

- Singleness means, for example, that one USD-backed stablecoin should always be reliably exchangeable for one real dollar and for another USD-backed stablecoin. This is a level of trust and universal acceptance that only central bank money can guarantee.
- Elasticity refers to the ability to expand the money supply through credit. Stablecoins do not possess this property because every transaction must be backed by existing reserves, making them less flexible within the financial system.
- Integrity means that stablecoins are vulnerable to being used for illicit activities and lack the same level of regulatory safeguards as traditional finance.

41 BIS Annual Economic Report 2025.

For these reasons, stablecoins fall short as viable and scalable alternatives to compete at scale with traditional money.

2.1.2. Stablecoins share certain features with narrow banks and MMFs, though key differences remain

Stablecoins are comparable in some respects to narrow banks and money market funds (MMFs). Narrow banking refers to a model in which bank activity is limited to accepting deposits and investing only in safe, highly liquid assets such as government bonds or reserves held at the central bank, without engaging in private lending or other, riskier activities. This stands in contrast to traditional fractional reserve banking, where banks lend out a portion of their deposits. Like narrow banks, MiCAR stablecoins follow a model whereby every token is fully backed by low risk, liquid assets, while avoiding riskier lending or investment activities and aiming to guarantee the safety and liquidity of users' funds. This 100% liquid reserve approach is designed to reduce the risk of "runs" and, like narrow banking, separates the lending function from deposit-taking.

At the same time, stablecoins share certain features with MMFs, as both hold high-quality liquid assets and offer users a way to store value with reduced risk of loss. Detailed disclosures and regular audits are often required for all three structures. They have proven to be vulnerable to market shocks on several occasions in the past. However, notably including the USDC depegging during the March 2023 collapse of Silicon Valley Bank (SVB), the USDT depegging in June 2023, and various MMF vulnerabilities during the 2008 and 2020 crises. Following SVB's collapse, USD Coin (USDC) temporarily lost its US dollar peg after it was revealed that Circle, its managing company, held USD 3.3 billion of reserves with the bank, leading to USD 3.0 billion in net redemptions in the space of just three days. Similarly, during the 2007-2008 financial crisis, MMFs faced stress due to their exposure to subprime-linked commercial paper, with some sponsors even intervening to stabilise funds, while central banks launched emergency facilities to stem outflows. The March 2020 MMF stress, which also led to central bank intervention, provided further evidence of their persistent structural vulnerabilities despite regulatory reforms.[42] These events raise concerns about stablecoins and MMFs relying on implicit government support during periods of instability and highlight the risk that the authorities could be drawn into intervening to stabilise markets, raising concerns that stablecoins may develop an implicit reliance on government support (bail-out). They also suggest that MMF shares are unsuitable as reserve backing for stablecoins.

Despite these structural similarities, key differences distinguish stablecoins from both narrow banks and MMFs. Under the GENIUS Act, stablecoin issuers in the US are prohibited from paying interest, although the American Bankers Association (ABA) has voiced concerns[43] about loopholes in the GENIUS Act

[42] ESMA Report on Trends, Risks and Vulnerabilities, Vulnerabilities in money market funds, 2021.

[43] Joint ABA and State Bankers Associations Letter Regarding Market Structure Recommendations, August 2025.

regarding the ability of crypto exchanges to offer interest on stablecoins. By contrast, narrow bank deposits and MMFs can pay interest. Stablecoins are unregistered bearer instruments that can be held in non-custodial wallets and transferred directly via blockchain, whereas narrow bank deposits and MMF shares are registered and must be held with intermediaries. A further distinction is programmability: stablecoins claim to be programmable for automated and complex transactions (smart contracts), unlike traditional narrow bank deposits and MMFs, unless they happen to be tokenised. The regulatory regime also varies: narrow banks are subject to prudential supervision and benefit from explicit central bank access and deposit insurance, and MMFs seem to have implicit government guarantees, whereas stablecoins are subject to a patchwork of regulatory approaches, often operating outside the traditional financial system. Furthermore, while narrow banks and MMFs are fully integrated into the broader financial infrastructure, stablecoins exist within a parallel digital ecosystem, raising questions about their universal acceptance and interoperability.

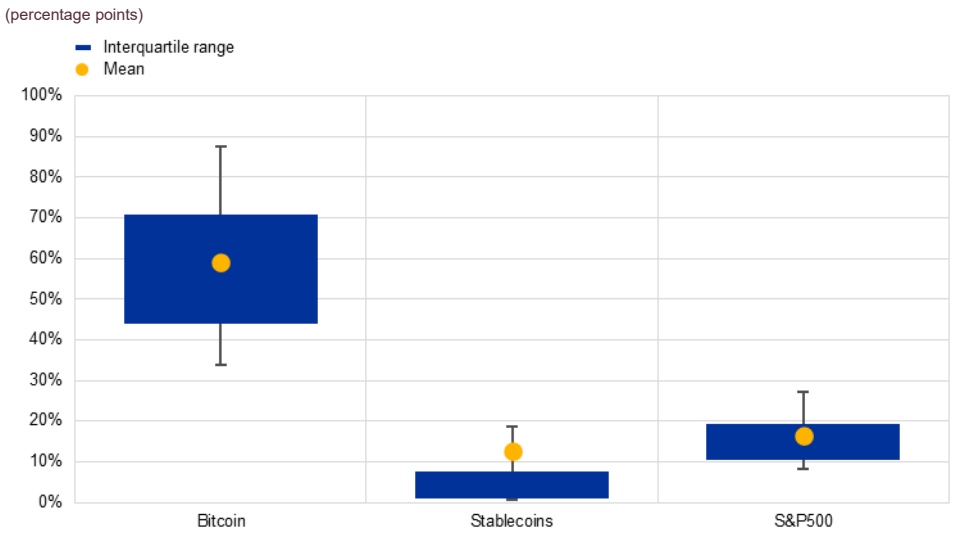
2.2. The design of stablecoins carries inherent risks

2.2.1. Despite promising a stable value, stablecoins can fluctuate in value

Fiat-backed stablecoins, though less volatile than other types, still fluctuate in price and lack the reliability of traditional money, raising concerns over their suitability for payments. Even during periods of market calm, fiat-backed stablecoins rarely maintain an exact one-to-one parity with their underlying unit of account in secondary markets, as shown in Chart 6. While users often tolerate some degree of volatility in stablecoins, especially for short-term transactions, this circumstance might limit their perceived reliability compared with traditional fiat money. This contrasts sharply with traditional forms of money, such as bank deposits, which are used for everyday transactions and consistently maintain their value, raising doubts about the reliability of stablecoins as a means of payment.

Chart 6

Annualised standard deviation of daily returns – 21-day moving window



Sources: ECB Crypto-assets Dashboard, Bloomberg, ESRB calculations, August 2025.
Notes: 21-days rolling standard deviation, annualised by dividing by the square number of working days in a year. Stablecoin computed using the average returns of stablecoins backed by USD-denominated assets only (BUSD, GUSD, PYUSD, TUSD, USDC, USDP and USDT). Data from 1 Jan 2019 to 13 August 2025. Black bars indicate the 10th and 90th percentile, respectively.
Reading note: The interquartile range, which measures the range within which the middle 50% of data points lie (between the first and third quartiles), represents the most common outcomes. The mean volatility of stablecoins falls outside this range, suggesting that extreme events (e.g. depegging) are significant enough to skew the mean upward. Therefore, such events must be considered as non-negligible factors when making investment or regulatory decisions.

2.2.2. Run risk in stablecoins reflects patterns seen during past money market fund crises

Due to the nature of their liabilities, stablecoins are generally vulnerable to run risk. Stablecoin issuers promise to keep the token's value pegged to the referenced official currency, and to redeem tokens in funds at sight and at par. The closest analogy would be a pegged exchange rate regime, where the value of a currency is maintained at a fixed level relative to another. This arrangement, like stablecoins, can come under pressure if confidence in the backing is shaken, and it may also be vulnerable to speculative attacks. Stablecoins also share similarities with money market funds operating under a constant net asset value model (CNAV MMFs)[44] and, to some extent, with bank deposits. Recognising the threat of run risk, CNAV MMFs are subject to strict regulations in terms of asset composition. The relative stability of banks, given their central role in financial intermediation, is supported by extensive regulation, as well as (public) guarantees for eligible deposits and access to central bank liquidity. Similarly to CNAV MMFs and currency pegs, doubts over the adequacy of reserves could trigger a stablecoin run, with EMT holders rushing to redeem their holdings en masse. As neither EMT issuers nor EU CASPs can offer interest, there is little incentive for holders to wait before seeking redemption if

[44] The definition and specific requirements for CNAV MMFs in the EU (which can take the form of public debt CNAV MMFs, or low volatility NAV MMFs) are laid down in Regulation (EU) 2017/1131 of the European Parliament and of the Council of 14 June 2017 on money market funds.

negative news emerges.[45] Even though prevailing regulations limit asset liquidity, maturity transformation and credit risk-taking among EMT issuers, they remain vulnerable to liquidity shocks triggered by either idiosyncratic or market-wide events. Such triggers might include:

- Doubts about the solvency of the bank(s) taking deposits from an EMT issuer (as happened in March 2023 when USDC broke its peg in the wake of the Silicon Valley Bank crisis). Such an event could be further exacerbated by market concentration. In the EU, a limited number of small banks currently take deposits from stablecoin issuers and CASPs. As long as banks continue to harbor concerns about the issuer's/CASP's compliance with AML/CFT regulations, the concentration of this market is unlikely to decrease.

- Changes in market perceptions regarding the credit risk of the securities included in the reserve assets, thus pushing up their risk premium (even if they are still classified as high-quality liquid assets), as happened, for example, when the DAI depegged in March 2023 (see Charts 7a and 7b).

- Large redemption requests if an EMT is used to settle, say, capital market transactions, with the receiving counterparty unwilling to hold the EMT and thus requesting reimbursement.

- Increases in interest rates for the currency referenced by the EMT, which changes the opportunity cost of holding EMTs. Given the dominant role of USD-linked tokens, fluctuations in US interest rates would have the greatest impact.

A run on a stablecoin classified as significant in the EU would directly trigger a significant deposit withdrawal from EU banks (at least 60% of reserves to be held in deposits) and the early termination of reverse repo arrangements with banking counterparties. Although the scale of the withdrawals may not be systematically significant at EU level, considering that only a handful of small banks accept deposits from stablecoin issuers, it could still cause shocks to these credit institutions and, if they happen to be significant within their national banking systems, to the countries that host them. Through confidence channels and wealth effects, a shock could propagate to other credit institutions serving the crypto-asset industry, similar to the events that unfolded during the 2023 regional bank stress events in the United States.

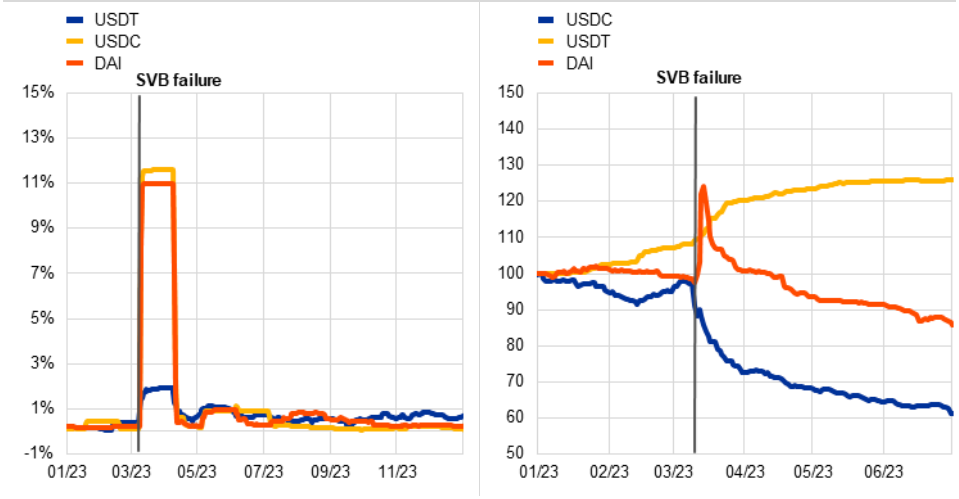
Depegging occurs when a stablecoin significantly deviates from its intended referenced asset(s). It typically involves larger and more prolonged deviations from the peg than usual, low-level volatility. Depegging risk refers to the likelihood of such events occurring, which can undermine confidence in a stablecoin's stability. Depegging risks pose a significant threat to the role of stablecoin as a reliable store of value or medium of exchange. Severe depegging events can lead to investor

[45] EMT and ART issuers may pause, limit or impose liquidity fees on redemptions, but only as part of a recovery plan. As the purpose of a recovery plan is to restore compliance with MiCAR reserve assets requirements, its activation signifies a stress episode for the issuer.

losses and erode trust in the affected stablecoin and the broader crypto-asset ecosystem.

Chart 7

Annualised return volatility of and market capitalisation of selected stablecoins



Source: ECB dashboard and Cryptocompare.
Notes (fig. 7a): 30-days rolling standard deviation of daily returns, annualised dividing by squared number of working days in a year.
Reading note: When Circle depegged in the aftermath of SVB failure, some on-chain collateralised stablecoins using it as collateral (such as DAI, which collateral reserves were constituted by over 50% of USDC and related instruments46) also broke their peg in result. Other off-chain collateralised stablecoins, such as Tether, experienced opposite (albeit more limited) price fluctuations, absorbing demand from Circle in a flight-to-safety fashion.

2.2.3. Macroprudential considerations in stablecoin reserve regulation

A key aspect of MiCAR's regulation of EMTs concerns the composition of reserve assets[47], which can be viewed from two main perspectives. First, the reserves must be sufficient to fully back all EMTs in circulation and ensure that issuers can redeem tokens promptly, on demand and at par. Second, holding bank deposits and securities as reserves creates links between EMTs and the traditional financial system, as flows into and out of EMTs may affect asset prices and bank liquidity. This section assesses the macroprudential implications of these regulations, with Annex 2 providing further detail.

MiCAR imposes several requirements in relation to EMT reserves[48]. Issuers must hold a minimum share of their reserves in bank deposits (30% for non-significant EMTs and 60% for significant EMTs), while the rest must- take the form of

46 Stablecoins: A Deep Dive into Valuation and Depegging (S&P Global, 2023).

47 Art. 54 of MiCAR (funds to be deposited in a separate account at a credit institution or invested in secure, liquid low-risk assets as defined by EBA regulatory technical standards issued on the basis of Art. 38(1) of MiCAR.

48 This assessment is based on the rules set out in Arts. 36, 38 and 54 of MiCAR and on the EBA final report on draft RTS to further specify the liquidity requirements of the reserve of assets under Article 36(4) of Regulation (EU) 2023/1114. See Annex 3 for a broader description of how reserves of ARTs and EMTs are regulated under MiCAR.

quality liquid assets. Concentration limits also apply: the value of deposits accepted by a bank from a given EMT issuance may not exceed 1.5% of that bank's total assets, and reserves must be distributed across at least two banks for non-significant EMTs and at least three banks for significant EMTs.[49]

These policy choices involve trade-offs. From a holder protection standpoint, reserves must support prompt, at-par redemption. A higher share of bank deposits in reserves may be a closer match with a given EMT's liquidity profile and reduce disintermediation pressures, although it may also increase interconnectedness. As stablecoin issuance grows, a macroprudential view must consider that EMTs "free ride" on the safety of bank deposits, which benefit from strict regulation and public guarantees. If EMT reserves represent a significant share of bank deposits, banks may shift their assets towards more marketable securities to manage greater liability volatility, potentially reducing lending to the real economy. An optimal balance would combine a minimum share of bank deposits in reserves with caps on the share of EMT reserves relative to bank liabilities.

The current value of euro-denominated EMT (below €300 million) is very small when compared with bank deposits in the euro area or euro area debt securities markets. Consequently, in order to gauge the impact, the analysis below considers a hypothetical scenario in which the euro EMT sector increases in size to 1.25% of euro area M1 money supply, which is the ratio between the value of USD stablecoins outstanding and USD M1 money supply at the end of 2024. Under this assumption, EMT supply would reach €130 billion.[50]

Even if 100% of these reserves were to be placed as bank deposits, this circumstance would not materially affect the aggregate liquidity coverage ratio (LCR) of the significant institutions (SIs) supervised by the ECB. At the end of 2024, the liquidity buffer of SIs amounted to €4,950 billion, while their average LCR was 158%. Assuming that EMT reserves enter bank liabilities as deposits with a high (100%) runoff rate, replacing deposits with a low (5%) runoff rate, the average LCR for SIs would fall to 154%. As the LCR is a measure of a bank's resilience to short-term liquidity outflow shocks, the results above suggest that euro area SIs could absorb even a significant liquidity outflow related to EMT redemptions in a scenario where the size of the EMT sector reaches €130 billion.

While the aggregate picture can mask vulnerabilities at the level of individual banks, the concentration limits set out in the draft EBA RTS should indirectly ensure that the funding profile of an individual bank does not become reliant on deposits from a single EMT issuer. There is no limit on the total share of deposits that a bank can accept from multiple EMT issuers, however, thus requiring supervisors to monitor this risk. Currently, taking deposits from stablecoin issuers

[49] The share of deposits that may be placed with any single bank cannot exceed 25% of an EMT's reserves if that bank is a G-SII or an O-SII; 15% for other large banks (with assets exceeding €30 billion or a top-three bank in an EU Member State that is not an O-SII); and 5% for other banks. Since issuers of non-significant EMTs must place at least 30% of reserves in deposits and issuers of significant EMTs must place at least 60%, it follows that they must place them with at least two and three banks, respectively.

[50] This analysis abstracts from the question of how a multi-issuer stablecoin scheme should be treated. The €130 billion value could be interpreted as the value of EMT reserves that would have to be absorbed by the euro area banking sector and financial markets.

and crypto-asset service providers appears to be limited to relatively few, small-sized banks, most of them falling within the category of less significant credit institutions and thus subject to national supervision. Supervisory scrutiny should be increased if clusters of banks become significantly involved in crypto-activities at country level, as in this case ensuring adequate supervision may stretch supervisory resources.

EMT issuers can elect to hold part of their reserves in high-quality liquid assets (HQLA). In such cases, a redemption shock can lead to forced sales of such securities in the market. In the scenario under consideration, where the size of the euro area EMT sector reaches €130 billion, no more than €91 billion (70%) can be held in HQLA.

Eligible reserve assets in the EU must remain genuinely high quality and liquid, in alignment with existing practices in the region. Some jurisdictions designate investments in certain types of MMFs as "highly liquid" assets (or otherwise permit such investments as part of reserves). Clear evidence from periods of market stress[51], however, including in the context of the COVID-19 crisis, shows that notwithstanding post-global financial crisis regulatory reforms, MMFs do not necessarily meet this standard. For instance, MMF redemptions can be subject to fees, gates and other restrictions in times of market stress and, even on a business as usual basis, can involve long processing periods. If an issuer finds it hard to liquidate a specific type of reserve asset, they may prioritise the withdrawal of funds held in accounts with depository institutions, thus elevating contagion risk to banks. Moreover, the ESRB has identified a need for material improvements to the EU regulatory framework for MMFs which, as at the date of this report, have not been acted upon by the European Commission.[52] Furthermore, allowing MMF units to be used as reserve assets would increase the interconnectedness within the financial system generated by the growth of stablecoins. With MMFs functioning as an additional layer of intermediation, cross-sectoral links would become more opaque. For these reasons, the EU should avoid departing from the concept of HQLA used for the purposes of EU banking regulation and ensure that issuers of ARTs and EMTs are able to redeem tokens promptly without placing undue stress on the EU banking system. On 10 October 2025, the European Banking Authority (EBA) published two Opinions[53] highlighting that the European Commission's proposed amendments to the draft RTS on the liquidity requirements for the reserve assets are not consistent with the prudential framework established by MiCAR as they would introduce material liquidity risk, weaken alignment with the banking liquidity framework, and open scope for regulatory arbitrage.

The possible scale of such an impact can be gauged from studies on investment fund behaviour. A recent study by Sowiński (2024)[54] estimates the price impact of forced sales of sovereign bonds (driven by outflows from investment funds) on market yields. In a scenario where 10% of the net asset value of

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51 See ESRB recommends increasing the resilience of money market funds, January 2022.

52 See Recommendation ESRB/2021/9 - Compliance Report.

53 Opinion RTS to further specify the liquidity requirements of the reserve of assets and Opinion RTS to specify the HLFI with minimal market risk credit risk and concentration risk.

54 See Sowiński, A. (2024), "The potential impact on the euro area bond market of forced asset sales by euro area investment funds", *Financial Stability Review*.

investment funds is withdrawn in a single day, the impact on sovereign bond yields is not material (approximately 55 basis points). In addition, estimates show that the yield impact at a five-day liquidation horizon is one-third of that corresponding to a one-day horizon (around 18 basis points). As the assets of euro area investment funds are much larger than those of the hypothetical EMT sector[55], this suggests that fire sales driven by EMT redemptions in the scenario under consideration should not generate a meaningful market impact.

3. Regulatory fragmentation, US policy, and EU financial stability risks

3.1. Overall US policy strategy regarding crypto-assets

The United States has introduced significant measures aimed at positioning itself as a global leader in crypto-assets, particularly in the domain of USD-denominated stablecoins. An Executive Order was issued on 23 January 2025[56] in a bid to promote USD-backed stablecoins. In response, regulatory agencies and lawmakers have taken coordinated steps to introduce new rules and supervisory practices aligned with pro-crypto objectives. Legislative measures, such as the already adopted GENIUS Act[57] and the proposed CLARITY Act[58], have further solidified this direction.

On 30 July 2025, the US President's Working Group released a report[59] outlining several recommendations to bolster US leadership in crypto-assets, including stablecoins. More precisely, the report contains key recommendations for stablecoins and payments. It calls for the full implementation of the GENIUS Act, which sets standards for stablecoin issuance. To provide legal clarity, stablecoins would be explicitly defined as neither securities nor commodities under federal law. The report also recommends banning the issuance of a US central bank digital currency (CBDC) so as to preserve the private sector's role in payments and protect individual privacy. It further directs US authorities to engage with international standard setters (FSB, BCBS, IOSCO) to promote the adoption of rules aligned with US interests.[60] Lastly, it underscores the importance of US leadership in setting global standards for digital payments, promoting private sector innovation in cross-

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55 Assets held by euro area bond funds amounted to roughly €4.3 trillion at the end of the first quarter of 2025. Euro area investment funds held around €1 trillion of euro area sovereign bonds at the end of the first quarter of 2025.

56 *Strengthening American Leadership in Digital Financial Technology*, Executive Order 14178.

57 The "GENIUS Act" was signed into law in July 2025

58 Digital Asset Market Clarity Act of 2025, adopted by the US House of Representatives and awaiting consideration in the Senate.

59 See "Strengthening American Leadership in Digital Financial Technology".

60 For instance, the report states that "Additionally, the United States should advocate that the BCBS revisit the crypto-asset standards to ensure similar treatment to U.S. capital requirements".

border transactions, and further strengthening the dominance of the US dollar in international finance.

3.2. The new US crypto regulatory framework aligns with overall US economic policy

The US GENIUS Act enacted in July 2025 creates a federal regime for the issuance and regulation of payment stablecoins. Until now, stablecoins have lacked a unified federal regulatory framework in the United States. The GENIUS Act introduces significant changes, notably exempting banks from leverage ratio and risk-based capital requirements for stablecoin activities. Unlike the EU's MiCAR framework, the Act permits redemption fees and explicitly restricts interest payments only for issuers, potentially allowing crypto exchanges to offer yield or "rewards". This regulatory divergence could incentivise investors to hold stablecoins with US-based crypto exchanges offering yield, while redeeming them in the EU, where fees are banned. Furthermore, the GENIUS Act contains a very broad definition of stablecoins, including cases where issuers merely "create the reasonable expectation that [the stablecoin] will maintain a stable value relative to the value of a fixed amount of monetary value". Such a definition-related divergence may give rise to regulatory arbitrage initiatives.

The GENIUS Act permits the circulation of foreign stablecoins under strict conditions. While both the GENIUS Act and MiCAR impose clear requirements on entities providing custody services for reserve holdings of domestically issued stablecoins, the GENIUS Act uniquely allows foreign-issued stablecoins to be registered and offered in the United States. Section 10(a) mandates that only entities under US supervision may provide custodial services for reserves, collateral or private keys, similar to MiCAR's Article 37(3). Section 18 allows foreign-issued stablecoins to be distributed in the United States, however, if the Secretary of the Treasury determines the foreign regulatory regime is comparable. The Treasury may also establish reciprocal or bilateral arrangements with other jurisdictions, although foreign issuers must hold sufficient reserves at US financial institutions to meet US customer liquidity needs, unless a reciprocal arrangement states otherwise. The possibility that the Secretary of Treasury could find MiCAR to be comparable to the GENIUS Act does not, however, imply that operating a multi-issuer scheme between the two sides of the Atlantic would carry less risk for the EU. Indeed, the GENIUS Act and MiCAR diverge on certain areas (permissibility of redemption fees, composition of reserves, and crisis management regime) and the former still contains no requirements regarding solvency level. Therefore, it is hard to say for sure that a token holder would encounter the same process or outcome when filing a redemption request with an EU firm as they would with a US firm.

The CLARITY Act, if approved, would complement the GENIUS Act by clarifying the oversight responsibilities of crypto-assets in the United States. The CLARITY Act could complement the GENIUS Act by creating a comprehensive regulatory framework governing crypto-assets in the United States. While the GENIUS Act focuses on stablecoins, the CLARITY Act would govern oversight for

unbacked crypto-assets, defining the roles and remits of the Commodity Futures Trading Commission (CFTC) and the Securities and Exchange Commission (SEC). Together, the CLARITY Act and the GENIUS Act would provide a cohesive structure for regulating US crypto-assets.

US fiscal deficits, and the associated issuance of US Treasuries, are expected to remain high moving forwards. The GENIUS Act, which supports the use of USD-backed stablecoins collateralised 1:1 by HQLA such as Treasury bills, reverse repos and bank deposits, is indicative of a deliberate strategy to expand the investor base for US Treasuries by making them part of the stablecoin ecosystem.

3.3. Impact analysis of USD-denominated stablecoins on the Treasury market

As of mid-2025, USD-denominated stablecoin issuers – mainly Tether (USDT) and Circle (USDC) – have become significant participants in the US Treasury bill (T-bill) market. Their growing market share will most likely be strengthened by the arrival of the GENIUS Act, which restricts stablecoin reserve investments to US Treasury securities with a maximum remaining maturity of 93 days. This regulatory environment channels stablecoin reserve demand almost exclusively towards the T-bill segment of the Treasury market. As of mid-2025, stablecoin issuers collectively held between USD 150 billion and USD 200 billion (values vary according to different sources) in US government debt, with the vast majority in short-term T-bills.[61] Tether and Circle, which together account for over 90% of the stablecoin market, held about USD 98-120 and USD 28 billion in Treasuries, respectively, as of the end of May 2025.[62] The total outstanding stock of US Treasury securities amounts to roughly USD 29 trillion, with T-bills accounting for around USD 6 trillion of this figure. Therefore, between them these two issuers account for around 2.1-2.5% of total outstanding T-bills. This places stablecoin issuers among the top private holders of T-bills, comparable to large sovereign investors and government MMFs.[63] Overall, stablecoin issuers currently hold about 0.5-0.6% of total US Treasury debt.

Stablecoin market projections for the next 3-5 years vary widely, reflecting regulatory uncertainty and divergent opinions among analysts with respect to stablecoin adoption. Most forecasts (Table 2) expect significant growth, with estimates of total market capitalisation ranging from USD 500 billion in 2028 to USD 3.7 trillion in 2030.

61 See, for example, Forbes or Reuters.

62 See Deloitte Independent accountants' report.

63 See "The next-generation monetary and financial system".

Table 2

Stablecoin market size projections

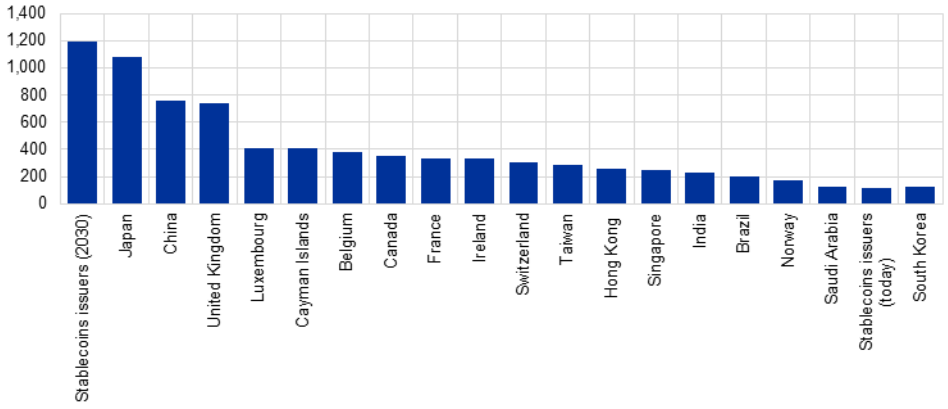
Source/Institution	Projected market size (year)	Notes/Scenario
Citigroup (Citi)[64]	USD 1.6 trillion (2030, base)	Base case, assumes regulatory support and integration
Citigroup (Citi)	USD 3.7 trillion (2030, bull)	Bullish scenario, mainstream adoption
Standard Chartered[65]	USD 2 trillion (2028)	Industry estimate; aligns with US Treasury
JPMorgan[66]	USD 500 billion (2028)	Downward-revised, sceptical of mainstream use

Source: ESRB CATF.

These projections point to a massive accumulation of US Treasuries by stablecoin issuers. Based on Citigroup's projections for stablecoin growth (Chart 8) and taking into account projections regarding the future size of the US Treasury debt market, one can project the potential share of stablecoin issuers in the US Treasuries market. The projections presented in Chart 8 below refer to the year 2030. Given the projected range of stablecoin market capitalisation of between USD 1.6 trillion and USD 3.7 trillion and projected total US Treasury debt of USD 47.6 trillion, and assuming that stablecoin issuers continue to back their tokens primarily (70% of their assets) with US Treasuries, the resulting share of stablecoin issuers in the US Treasury market would likely be between 2.4% and 5.4% (Chart 9). By contrast, this percentage would be less than 1% under the more sceptical scenario put forward by JPMorgan for 2028.

Chart 8

Projection of US treasuries held by stablecoins issuers by 2030



Sources: City Institute, Fed, Bank of England and European Central Bank.
Note: Stablecoins issuers could be one of the largest holders of US Treasuries bonds by 2030 ($ billion).

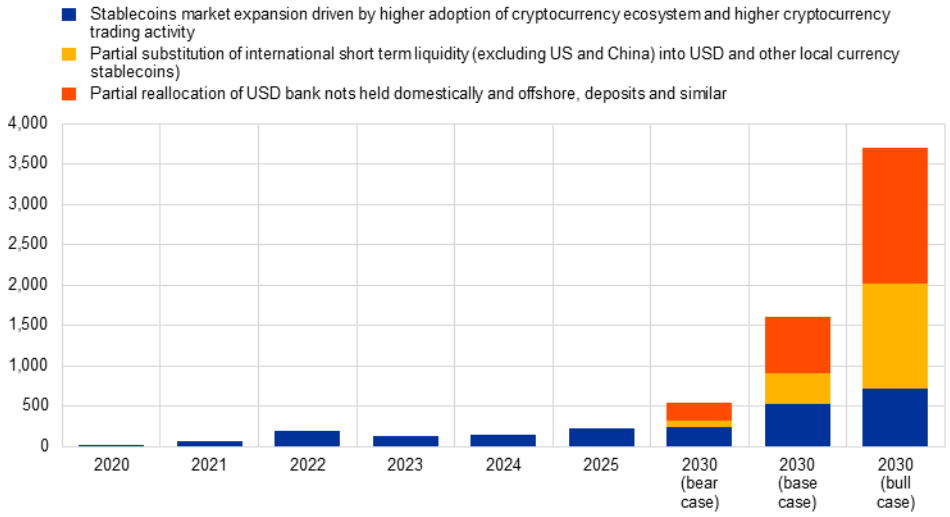
64 See Citigroup (2025): Digital Dollars.

65 See "Standard Chartered expects stablecoin supply to surge to $2 trillion by 2028".

66 See "J.P.Morgan wary of stablecoin's trillion-dollar growth bets, cuts them by half".

Chart 9

Drivers of the increase in market share among stablecoin issuers in US treasuries



Sources: City Institute, Fed, Bank of England, European Central Bank.

The GENIUS Act's push for stablecoins to use US Treasuries as backing assets could lower Treasury yields while incentivising stablecoin issuers to pursue riskier investments, potentially increasing systemic financial risks. The implementation of the GENIUS Act could have profound implications for both the sovereign debt and risky asset markets. By directing stablecoin issuers toward US Treasuries as a "natural" backing asset and granting institutional legitimacy to stablecoins, the Act is likely to generate significant demand for these public debt instruments, as indeed anticipated by the US Treasury Secretary[67]. While this influx could absorb a substantial portion of US Treasuries, an estimated USD 2 trillion would still remain on the market, exerting downward pressure on interest rates. But this increase in demand may create systemic ripple effects. The reduced profitability of holding US Treasuries as a backing asset could push stablecoin issuers to seek higher returns by diversifying into potentially riskier, more lucrative investments. Such shifts could alter the composition of risky asset portfolios not only for stablecoin issuers but also for other market participants, potentially heightening volatility and systemic risk across financial markets.

In a scenario where stablecoins suddenly collapsed, with issuers rushing to sell large portions of their reserves, a wave of US Treasuries could hit the market, overwhelming demand. Such a situation could push up the interest rate on short-term US treasuries, with global systemic implications.

The question whether a widespread adoption of USD stablecoins could also affect monetary sovereignty would largely depend on the concrete design and use case. For instance, were the stablecoin to be used solely for cross-border transfers and be immediately exchanged into local fiat currency before and after the transaction (a practice often referred to as the "stablecoin sandwich model"), the impact on monetary sovereignty would likely be limited. By contrast, were foreign-

[67] Financial Times, "Scott Bessent bets on stablecoins to bolster demand for Treasuries", August 2025.

denominated stablecoins for cross-border payments to expand into domestic payments or be used as a store of value, this could undermine the euro's function as a unit of account. Such developments might increase the euro area's exposure to foreign monetary policies and external economic shocks, thereby posing greater risks to monetary sovereignty.

A growing use of USD stablecoins for cross-border payments could affect global currency demand and amplify the spillover effects on the European financial system were any instability to arise. If the US strategy were successful, it could weaken the role of other currencies, including the euro, in international finance and trade. Moreover, the business models of incumbent cross-border payment service providers, such as providers of correspondent banking services, could come under pressure. The impact on financial stability would largely depend on how resilient and credible these stablecoins remained, especially under stressed conditions; a factor that would be shaped by the enforcement of US regulations. Should the regulatory framework for stablecoins in the US prove to be robust, structural vulnerabilities of stablecoins – such as maturity and liquidity mismatches – could be contained. Otherwise, instability in USD-backed stablecoins could spill over into European markets.

If euro-denominated stablecoins were to grow significantly, matching the same ratio to the money supply (M1) as USD stablecoins currently have, their impact on the euro area government debt market would be measurable but not systemically disruptive. In this scenario, we assume that euro-denominated stablecoins reach the same ratio to EUR M1 as USD stablecoins currently have to US M1 and ask what their potential impact on the euro area government debt market would be (assuming all stablecoin reserves were held in euro area government debt). As of May 2025, Euro Area M1 stood at €10.79 trillion[68], while euro area government debt amounted to €13.26 trillion in the fourth quarter of 2024[69]. As of June 2025, EUR stablecoin market capitalisation stood at USD 480 million[70], while USD stablecoin market capitalisation came to USD 250 billion[71]. USD M1 stood at USD 18.80 trillion in June 2025[72]. According to these figures, the USD stablecoin ratio to M1 is roughly 1.3%. If EUR stablecoins were to match this ratio, their market capitalisation would be about €145 billion. If all EUR stablecoin reserves were held in government debt, it would account for 1.1% of total government debt, which is a significant, but not systemically dominant, share.

68 See Monetary aggregate M1 reported by MFIs, central gov. and post office giro institutions, Stocks, Euro area (changing composition), Monthly.

69 See "Government debt at 87.4% of GDP in euro area".

70 See "Market Cap of Euro Stablecoins Surges to Nearly $500M as EUR/USD Rivals Bitcoin's H1 Gains".

71 See "Stablecoins' market cap surges to record high as US senate passes bill".

72 See "Seasonally Adjusted Components of M1 and Non-M1 M2".

3.4. The stablecoin loophole that could expose the EU (the stablecoin multi-issuer)[73]

The approval in the EU of the issuance of an EMT that is identical to a token issued by a third-country issuer (multi-issuer scheme) presents significant regulatory, supervisory and financial stability challenges. Under such an arrangement, stablecoins issued by different firms under common control are deemed fully fungible, meaning that tokens issued under different regulatory regimes are interchangeable. This fungibility enables global stablecoin issuers to operate across jurisdictions, effectively circumventing national safeguards and exploiting regulatory arbitrage.

The fragmentation of reserve management under the multi-issuer model raises concerns over the effectiveness of redemption guarantees and the adequacy of investor protection. Under current EU law, stablecoins jointly issued by EU-established firms are subject to prudential requirements: issuers must maintain a single reserve, implement a unified custody policy, and coordinate their recovery and resolution plans. When the same stablecoin is issued by both an EU-regulated entity and a third-country entity, however, reserves are distributed between jurisdictions and managed according to the requirements of local regulators, with each likely to prioritise their own markets in times of stress.

This fragmentation exposes EU markets to the risk of a run on stablecoins, as investors may preferentially seek redemption within the EU, where prompt and cost-free redemption at par is mandated by law. In a crisis scenario, reserves held outside the EU could be ring-fenced by foreign authorities and therefore be unavailable to meet redemptions in the Union. This carries the risk that EU-regulated entities could become liable for obligations originating from third-country issuers, with potentially severe implications for the solvency and liquidity of the EU issuer and for the wider financial system. The potential impact of these risks is likely to increase as the multi-issuer stablecoins in circulation continue to grow. As evidenced by several past episodes of financial turbulence, contagion risk and reputational concerns may induce authorities to step in and support troubled financial institutions, even in the absence of ex ante guarantees.

The lack of harmonisation in stablecoin regulation across jurisdictions further exacerbates these vulnerabilities and complicates effective oversight. Prudential requirements regarding eligible reserve assets, redemption rights and prohibitions on interest differ significantly between the EU and third countries. Although the FSB issued recommendations on global stablecoin arrangements in July 2023, significant divergences across jurisdictional regulatory frameworks persist, making it difficult to estimate the total value of stablecoins circulating within the EU and to calibrate the corresponding reserve amounts, thus increasing the risk of under-collateralisation and contagion in the event of a major run.

[73] Richard Portes (London Business School) has addressed this issue in "The stablecoin loophole that could expose the EU", *Financial Times*, 25 July 2025. A full technical description of the model and its associated risks can be found in Annex 1.

Given these risks, the multi-issuer model warrants urgent regulatory attention and coordinated action at both EU and international levels. The fact that MiCAR has nothing to say about these third-country multi-issuer schemes undermines financial stability, and a run could create pressure for public intervention, as witnessed in previous episodes involving MMFs. Therefore, it is recommended that the European Commission and the Parliament conduct a formal review of the regulatory framework to explicitly address the risks of multi-issuer schemes, and that macroprudential authorities do more to analyse the systemic threats posed by this model.

See Annex 1 for a detailed risk assessment of multi-issuer schemes.

Annex 1
Risks related to third-country multi-issuer stablecoins

MiCAR contains clear provisions for asset-referenced tokens (ARTs) and electronic money token (EMTs) that are jointly issued by two or more entities established within the EU (hereinafter, "intra EU multi-issuers"). More precisely, the Regulation stipulates that EU entities issuing the "same" ART or EMT must operate a single reserve of assets (Art. 36(5)), maintain a single custody policy (Art. 37(2)) and meet tailored requirements under the two sets of guidelines issued by the EBA for recovery plans and redemption plans.

By contrast, MiCAR makes no explicit reference to the possibility of an EU firm and a third-country firm issuing the same token. MiCAR does not explicitly regulate the case of a multi-issuer scheme involving a third-country leg.

The requirements applicable to intra-EU multi-issuer schemes are justified by the fact that all the firms participating in such a scheme are subject to MiCAR, while being jointly and severally liable for the redemption of the tokens issued. They are exposed to different and greater risks than firms engaging in the issuance of individual tokens, thus illustrating the tougher challenges arising from a multi-issuer scheme involving a third-country leg.

From a technical standpoint, the cross-border multi-issuer scheme marks a fundamental deviation from traditional risk management and supervision in the financial sector. For the first time, the board of an EU legal entity and the relevant EU supervisors would be responsible for the solvency of that entity by ensuring the reimbursement not only of the liabilities directly taken by the firm (EU liabilities), but also of the third-country issuer's liabilities – as the latter are fully fungible and indistinguishable from EU liabilities. As EU supervisors (either European or national) have no insight or control over risk management or assets outside the EU, they do not have adequate tools to achieve this objective. To draw an analogy with traditional finance, under no circumstances could the EU supervisors of an EU subsidiary of a large and global banking group be held liable for the solvency and liquidity of a third-country parent bank by allowing depositors of that third-country bank to redeem their third-country deposits from an EU subsidiary.

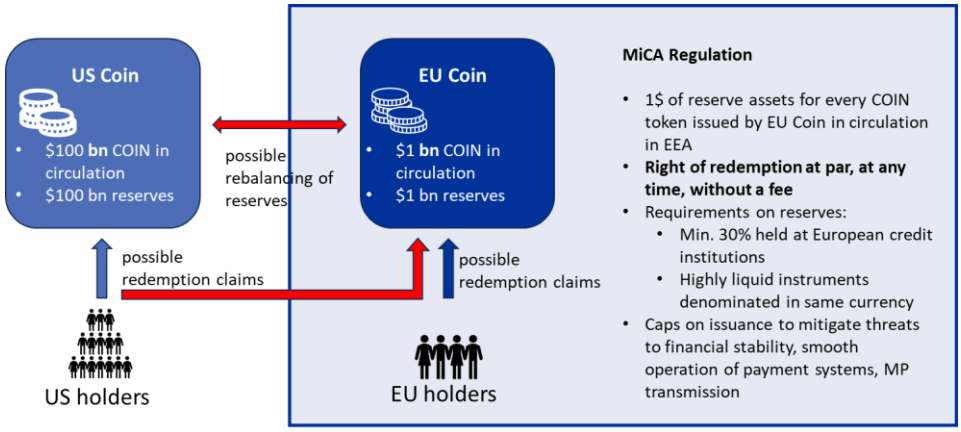
Under a multi-issuer scheme involving a third-country leg, an EU EMT issuer could receive requests from third-country holders to redeem the tokens issued by the third-country issuer (and vice versa). If sufficient reserves are not available in the EU, the two entities[74] would be expected to rebalance their respective reserves.

[74] In theory a multi-issuer scheme could operate with more than two entities across multiple jurisdictions outside the EU. However, as those schemes currently operating comprise only two entities, for the sake of simplicity this report considers only the case of a scheme comprising two entities.

This scenario is presented in the figure below as a generic example applied to the EU and the United States as a third country. The size of the reserves indicated within this example are provided for illustration purposes only.

Figure A1

Generic example of EU and third-country stablecoin multi-issuer applied to EU and US



Sources: ESRB CATF, ECB non-paper on EU and third-country stablecoin multi-issuance.

Thus, a multi-issuer scheme with a third-country leg would:

- Significantly weaken the EU prudential regime for EMT issuers by increasing the likelihood of a run, as EU issuers may not have enough assets under the supervision of EU authorities to fulfil redemption requests by both EU and non-EU token holders. Regulatory arbitrage could exacerbate this risk, as EU-based issuers are mandated to redeem EMTs at par and at no cost, incentivising holders to redeem their tokens with the EU issuer—especially if the third-country issuer applies redemption fees or has a longer timeline for reimbursement. Were the market value of the EMT to fall below par, the incentive to redeem from the EU firm would be greater. The insolvency of an EMT issuer may produce further contagion effects: direct contagion to the banking system may arise if the issuer is a credit institution, or indirect contagion may arise if the issuer is an e-money institution (EMI) and therefore holds deposits at EU credit institutions, as required under MiCAR. A run on the EMT issuer could also trigger a run on other EU bank(s), EMT issuers, or the specific EU banks where the EMI held its deposits, if these deposits are viewed as significant with respect to that bank's liquidity position. Herding effects, exacerbated by the rapid spread of news (either real or fake), can amplify the dynamics of such runs, as happened, for example, in the case of Silicon Valley Bank. While there are limits on the size of deposits that can be held at a single bank following an individual EMT issuance (capped at 1.5% of the bank's assets), there is no overall limit on the deposits that banks can gather from various EMT (and ART) issuances or issuers, potentially leading to the emergence of so-called "crypto-friendly banks" that are disproportionately dependent on funding from crypto-asset players. Runs on EMT issuers could produce shocks in the EU banking sector, especially when considering the large

reserve requirement for banking deposits (30% and 60% for non-significant and significant issuers, respectively).

- Weaken EU safeguards for EU (retail) EMT holders. EU-held reserve assets meant to cover the liability of the EU undertaking could be (fully) used instead to meet the liability of the third-country firm and may prove insufficient to cover both EU and non-EU redemption requests. This would undermine the protection afforded to EU holders, thus exposing them to heightened risks.

- Allow for the circumvention of EU requirements designed to mitigate challenges to financial stability or the smooth operation of payment systems. These requirements include caps on the issuance of foreign-denominated EMTs and increased supervisory scrutiny when certain thresholds are reached. Ultimately, this would allow negative shocks originating from outside the EU to spill into the EU's financial sector. It would also be difficult to enforce other supervisory measures aimed at limiting the role of foreign currency EMT in intra-EU payments.

- Create reputational risk for the EU. Third-country issuers may consider it attractive to partner with EU firms because they could then market their jointly-issued tokens while benefitting from MiCAR protection. This association could be used as a marketing tool, even though the third-country issuer is not subject to the EU regime. Essentially, third-country issuers that are part of a multi-issuer scheme could claim to offer their customers MiCAR protection, despite not being subject to EU requirements and supervision.

- Entail an unjustified and material deviation from traditional risk management and supervision standards. An EU entity and its prudential supervisor would be accountable, in their respective roles, for ensuring the solvency and liquidity soundness of both the EU-based issuer's and the third-country issuer's liabilities, as the latter are fully fungible with the former. This would dilute the effectiveness of EU supervisory frameworks and impose an undue burden on EU authorities.

- Set a dangerous precedent, by allowing all non-EU EMT issuers to gain access to the EU single market without satisfying the relevant requirements regarding protection and EU supervision to safeguard the interests and liabilities of EU holders. Setting such a precedent could encourage further regulatory arbitrage, undermining the EU's financial stability and investor safeguards.

Confidence that a multi-issuer scheme with a third-country leg would operate smoothly rests on the assumption that the transfer of funds (the rebalancing mechanism) from one jurisdiction to the other – to meet redemption requests at the firm they are filed with – will be permitted at all times by third-country authorities. Ensuring that the rebalancing mechanism works in a business-as-usual situation is not enough, because what really matters is that it works under stressed conditions, whether due to idiosyncratic or systemic shocks. Even when the respective supervisory authorities of the firms taking part in the multi-issuer scheme with a third-country leg have entered into a cooperation agreement and their respective

regulatory frameworks are aligned, it is entirely conceivable that, in the case of urgent need, one of the authorities will prioritise national interest. In this context, the lessons of the Global Financial Crisis and the spring 2020 Covid crisis are clear, especially the practice among national authorities of ring-fencing capital and liquidity during such moments of stress.

The proper functioning of the rebalancing mechanism between EU and third-country firms also relies on the:

- effectiveness and efficiency of the risk management and procedural arrangements of all parties involved (EU and third-country issuers and their respective banks and custodians);
- adequacy of the business continuity arrangements of the parties involved;
- availability of sufficient liquid assets that can be moved rapidly from one party to the other as needed.

While operational incidents or other impediments, including legal obstacles, may hinder the proper functioning of the rebalancing mechanism, the most critical aspect is the availability of liquid reserve assets to meet redemption requests. Estimating the amount of the reserve assets to be held by each issuer in the scheme is a highly subjective exercise, with limited data availability and uncertainty over the true amount of tokens in circulation. More to the point:

- A material share of stablecoins is held through non-custodial (or self-hosted) wallets – 44% in the case of Circle USDC as of 28 February 2025[75] – and for such wallets there is no reliable way of determining the location and nature of the owner.
- The obligations incumbent on customers to report their holdings of tokens to issuers apply only to crypto-asset service providers (CASPs) established in the EU, and moreover these reporting practices are not yet aligned with supervisory requirements. Such information can at best provide a lower bound for the value of EMTs held by EU residents, as they may also hold EMTs in self-hosted wallets. Neither the EU issuer nor the third country issuer has information on the number of tokens entrusted in custody to CASPs established outside the Union.

In the absence of reliable information on the location of token holders, the distribution of reserve assets among the various issuers participating in the scheme is to a large extent conjectural. Moreover, formulating behavioural assumptions regarding tokens held in self-hosted wallets is a largely judgement-based exercise. Similarly, it is not possible to formulate reliable behavioural assumptions regarding tokens that are held through omnibus wallets at third-country CASPs (a fairly frequent practice). Against this backdrop, it becomes harder for EU issuers to

[75] Figures based on publicly available blockchain data analysed by the ECB.

calibrate the parameters to be used for their stress-testing and exposure to model risk (an inherent feature of any stress-testing exercise) – is magnified.

The regulatory and supervisory framework of the third-country banking sector and its overall financial stability are almost as important as the soundness of the crypto-asset issuer itself. Indeed, while the third-country issuer may be solvent and hold enough liquid assets, difficulties within its domestic financial sector may impair its ability to mobilise such funds promptly. This risk becomes more pronounced where the third-country issuer holds a material amount of reserves in MMFs, as is the case with Circle, whose assets are predominantly held in a dedicated MMF. In such circumstances, the authority tasked with supervising the MMFs may suspend redemptions of the funds to contain an idiosyncratic or systemic crisis. Unless a robust agreement is in place with third-country financial market and MMF supervisors, the EU competent authority cannot be confident that the rebalancing mechanism will operate under stressed conditions.

Thus, a multi-issuer scheme with a third-country leg carries a heightened inherent risk affecting both the issuers and the token holders. If such a scheme is authorised, this risk must be reliably disclosed to (prospective) token holders by means of a white paper. Information availability for investors would be strengthened if ESMA were to issue, on its own initiative, guidelines on third-country multi-issuer specific disclosures in the form of ART and EMT whitepapers. The mandate for issuing such guidelines would be further reinforced if the text of MiCAR were revised to explicitly refer to risks relevant to multi-issuer schemes.

The fact that a stablecoin (EMTs in the case of MiCAR-authorised stablecoins) is exchanged in various jurisdictions and issued by different legal entities subject to distinct prudential regimes magnifies the likelihood of de-pegging, thus creating arbitrage opportunities. Indeed, purchasing the stablecoin below par and then seeking redemption at face value without any fee from the EU issuer would ensure a secure profit. The emergence of these arbitrage opportunities could also be caused by malicious actors (market manipulation). In a de-pegging scenario, the ban on EU issuers charging redemption fees would create strong incentives to file redemption requests with the EU entity.

Competent authorities could toughen the requirements applicable to issuers on the basis of:

- Article 45(4): competent authorities may strengthen the liquidity requirements for significant issuers based on the results of a stress-testing exercise. However, the absence of (accurate) data on holdings of tokens and their locations makes it harder to calibrate the stress-testing parameters. These data gaps highlight the need for the supervisory toolbox to evolve. Nevertheless, existing regulatory tools should be used to the fullest extent possible to ensure that risk factors related to the multi-issuance scheme are factored into stress-testing practices and that liquidity requirements are strengthened accordingly. Supervisory cooperation and coordination under the aegis of the EBA are crucial to ensure that these supervisory tools are used consistently across the EU.

- Article 94(1)(v): competent authorities may take any action to ensure that issuers comply with MiCAR.

Competent authorities could also increase own funds requirements for all issuers on the basis of Article 35. In particular, they could increase the standard own funds requirements by:

- 20% (i.e. from 2% to 2.4% and from 3% to 3.6% for non-significant and significant issuers, respectively) based on, among other factors, an assessment of the issuer's risk management processes and internal control mechanisms and the relevance of the markets on which the asset-referenced token is offered and marketed.

- Between 20% and 40% in certain circumstances, having regard to the risk outlook and solvency stress-testing results. Based on the draft regulatory technical standards (RTS) on the adjustment of own funds requirements and stress-testing, competent authorities must apply, among other factors, the following criteria when deciding on the add-on: whether or not redemption at par value and market value is ensured at all times, either in normal or in stressed market conditions. Being part of a multi-issuer scheme involving a third-country leg appears to heighten the risk of failing to meet redemption requests at par value at all times.

Given that being part of a multi-issuer scheme raises, inter alia, the business model risk of the EU firm, toughening the own funds requirement may be effective in strengthening the issuer's loss-absorbing capacity. The participation in a third-country multi-issuer scheme heightens all the risks borne by an issuer and should therefore be subject to enhanced supervisory scrutiny.

The question whether an EU issuer qualifies as significant is invariably based on the tokens in circulation within the EU, the measurement of which is subject to substantial uncertainty. This classification can also take into account the international use of the token and its interconnectedness with the financial system. At the current juncture, the quality of the data reported by CASPs does not appear to be sufficient for stablecoin issuers to comply with their supervisory reporting obligations. Given the relatively recent enactment of these reporting requirements, there is scope for improvement as market participants gradually improve their reporting processes. Such further improvements would allow competent authorities to prove more reliably that the quantitative thresholds under Article 43(1)(a), (b) and (c) of MiCAR have been met. But the ability of competent authorities to exercise their powers under Article 23 of MiCAR is currently constrained by the aforementioned data reporting issues.

Considering that redemption requests are likely to be filed with the issuer subject to the regime most friendly to stablecoin holders (i.e. no redemption cost, reimbursement at sight), it is very difficult to ensure that the EU issuer participating in a multi-issuer scheme involving a third country is always able to honour redemption requests unless the entire reserve of assets is held by the issuer. However, these inherent risks could be mitigated by strengthening the existing requirements,

including liquidity and capital requirements based on stress-testing results, and imposing recovery options such as redemption fees or limits on redemptions if those requirements are not met, or are likely to not be met, in the near future.

Lastly, the cross-border nature of third-country multi-issuer schemes and the threats they pose to the EU financial system should be treated as a compelling criterion for EU firms participating in such schemes to be classified as significant, thus giving the EBA supervisory responsibility for such matters. This would ensure a level playing field across the EU and reduce coordination costs when dealing with third-country authorities.

Annex 2
Macroprudential issues arising in the calibration of stablecoin (EMT) reserve requirements

The regulation of EMT reserves has both a microprudential and a macroprudential angle. From a microprudential perspective, the composition of reserve assets should ensure that the value of EMTs in circulation is fully backed and that the EMT issuer is able to meet token redemptions on demand and at par. Thus, these rules aim to prevent or mitigate failures stemming from liquidity and credit risks inherent in stablecoin issuers' business models. The presence of bank deposits and securities among reserve assets creates interconnectedness between EMTs and the traditional financial system, however, as inflows and outflows of funds into EMTs have the potential to influence asset prices and bank liquidity positions. This interconnectedness and its macroprudential implications gain importance as the size of the sector increases. A useful parallel for this transition would be the evolution of money market mutual fund regulations in the United States following the 2010 reforms.

MiCAR's entry into force has sparked debate over its macroprudential adequacy in this regard. Some argue that the EU rules on reserve assets are overly strict and may reflect a broader intent to limit the growth of significant stablecoins. Meanwhile, global market and regulatory developments have underscored the risks posed by regulatory arbitrage and cross-border interconnectedness.

This annex first outlines the macroprudential rationale behind MiCAR's rules on reserve asset composition for stablecoins, particularly EMTs. It then quantitatively assesses the potential systemic risks arising from redemptions, including possible impacts on bank liquidity and financial markets. Lastly, it compares MiCAR with the regulatory approach in the United States, revealing differences in policy trade-offs.

MiCAR and the level 2 regulation based on it require that EMTs be backed by reserves in the form of bank deposits, liquid debt securities and other liquid instruments (see Annex 3), so as to ensure that issuers can meet redemption requests in a timely fashion. But the task of calibrating the composition of reserve assets involves some fairly subtle trade-offs. Requests to redeem stablecoin tokens issued by e-money institutions, if sufficiently large and concentrated in time, could cause disturbances to both securities markets and banks. Selling securities from the reserve assets to accommodate redemptions might lead to price volatility, depending on the urgency and scale of the demand for liquidity experienced by stablecoin issuers. Moreover, bank liquidity management could also be disrupted by large and sudden withdrawals of deposits triggered by stablecoin issuers.

Regulating reserve assets can influence these channels and mitigate contagion effects by setting limits on reserve asset structure, such as by enumerating eligible categories of assets and capping reserve exposure to each type of asset (such as securities or bank deposits). This calibration process may need to recognise that shocks within the financial markets can still occur even when the bank deposits account for a high proportion of total reserves. As long as the magnitude of the

shock and the ensuing withdrawals of bank deposits by e-money institutions do not significantly deplete the liquidity buffers held by banks, the shock will be contained within the banking system. If the shock is sufficiently large that it cannot be accommodated smoothly by banks drawing on liquid assets of their HQLA buffer or by refinancing operations, banks would be forced to sell assets, potentially as fire sales. In other words, when redemption reaches a certain size, bank deposits in stablecoin reserves may only reduce (or likely delay) the scale of market shocks and not prevent them altogether.

A macroprudential perspective is also particularly important in the case of stablecoins owing to the differences that exist between US and EU regulations with regard to reserve asset composition. The US GENIUS Act does not mandate a minimum share of bank deposits, thus potentially limiting the direct impact on banks[76]. The main rule contained in the Act restricts the maximum time to maturity of investable T-bills, bonds and notes to 93 days. This largely matches current practice among major issuers, including Circle and Tether, with Circle holding close to 90% of its reserves in T-bills with an average duration of 12 days. Tether reportedly holds a somewhat smaller yet still substantial share of these instruments (around 65%). Meanwhile, MiCAR and its implementing delegated regulations adopt a more balanced and explicit approach comparable to the diversification requirements imposed on MMFs. More precisely, at least 30% of the reserve assets must consist of deposits with credit institutions, and in the case of a significant EMT, the minimum climbs to 60%. Delegated regulation further requires that for significant issuers, at least 40% and 60% of the reserve assets, respectively, must mature within one and five days.

Assessing the merits of these two different approaches calls for an assessment of their respective costs. The elements to consider when carrying out a stylised evaluation include the size of the stablecoin sector, the depth of the relevant securities market, the price impact of fire sales, and the extent to which changes in deposit run-off rates distort bank liquidity metrics.

As regards the potential future size of the EUR stablecoin sector, a useful hypothetical benchmark to consider is the ratio of USD stablecoins to M1, which amounted to 1.25% in the United States at the end of 2024 (around USD 230 billion). Given the negligible current size of the sector in the EU, such a scenario would imply strong growth in the use of EUR stablecoins. In that scenario, the size of the EUR stablecoin sector would reach €130 billion.[77]

To calculate the maximum impact of a stablecoin sector worth €130 billion on bank liquidity metrics, we can consider a scenario in which all of the stablecoin reserves are held as bank deposits.[78] As a starting point, the value of the liquidity buffer for

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[76] This may also reflect the larger role played by financial markets in the US economy compared with the EU. It should be noted that the adopted US legislation allows the OCC, as supervisor, to issue secondary regulation setting, inter alia, liquidity and diversification standards for issuers of payment stablecoins.

[77] M1 amounted to €10,600 billion at the end of 2024.

[78] This analysis abstracts from the question of treatment of the multi-issuer model of stablecoins. The €130 billion value could be interpreted as the value of EMT reserves that must be absorbed by the euro area banking sector and financial markets.

SIs at the end of 2024 amounted to €4.95 trillion and their average LCR was 158%. The maximum deterioration of the average LCR can be approximated by assuming that the entirety of stablecoin reserves enters bank liabilities as deposits with a 100% runoff rate, replacing deposits with an assumed low runoff rate of 5%. Under such assumptions, the average LCR for SIs would fall to 154%. Doubling or tripling the size of the stablecoin sector (€260 billion and €390 billion) would reduce the average LCR to 149% and 145%, respectively.

The aggregate deterioration of average liquidity metrics would therefore not be significant. Furthermore, the magnitude of the impact on individual banks is capped in the EU by the requirement that deposits from a single EMT issuance held with a particular bank cannot exceed 1.5% of that bank's total assets (see Annex 3). Around nine euro area banks could accept €10 billion in deposits from stablecoin issuers without breaching this limit. In practice, this restriction (combined with requirement for at least 30% of reserves to be held in bank deposits) may limit the growth of the stablecoin sector, as larger issuers would need to arrange deposit relationships with multiple large banks.

The potential market impact of forced sales of securities from stablecoin reserves can be extrapolated from studies for the euro area investment fund sector.[79] Any mismatch between the redemption terms of mutual funds and the liquidity of their assets may generate a significant market impact in sectors where liquidity is lower and holdings concentration is greater. Sowiński (2024) estimates the price impact of forced sales of sovereign bonds in different scenarios involving outflows of various sizes (1, 2, 5 and 10% of assets under management[80]) and for different volatility conditions and liquidation horizons (1, 2, 3, 4 and 5 days). The results show that for up to 10% of outflows (corresponding to €400 billion), the price impact is not material (around 55 basis points). Moreover, estimates show that the price impact at a five-day liquidation horizon is one-third of the impact corresponding to the one-day horizon (around 18 basis points). The magnitude of these effects precludes significant second-round effects. Meanwhile, Mirza et al. (2020) examine the price impact of fire sales by euro area banks and funds, considering also second-round effects. In a setting where the initial shock is a 100-bp upward shift in the yield curve, banks respond with much stronger asset sales than funds (6.6% vs 1.2% of the respective total assets) and dominate sales in absolute terms (92%). Looking at second-round price effects, the model uses banks' and funds' common holdings as a contagion channel but abstracts from other possible channels, such as those related to bilateral exposures. In any case, the overall system of banks and seven categories of funds experiences losses amounting to 1.85% of the sum of bank equity and the shares issued by funds owing to second-round price effects. Bank sales account for 1.64% of this loss, while bond funds contribute the rest. The magnitude of second-round effects may be not fully relevant in the case of shocks originating from the stablecoin sector, as such shocks would largely affect the short end of the yield curve. Furthermore, such shocks would likely be smaller, as the

[79] See Mirza et al. (2020), "Fire sales by euro area banks and funds: what is their asset price impact?"; Sowinski (2024), "The potential impact on the euro area bond market of forced asset sales by euro area investment funds"; and Lo and Carpentier (2023): Liquidity Stress Test for Luxembourg Investment Funds: the Time to Liquidation Approach.

[80] In 2024, 1% of assets under management in the bond funds sector amounted to €40 billion.

study by Sowiński (2024) cited above suggests that flows the size of the euro stablecoin sector would not be enough to generate a 100-bp shift in yields.

The preceding analysis shows that macroprudential risks arising from the growth of euro-denominated non-bank stablecoins are currently limited. MiCAR has opted to limit contagion risk by requiring that a significant portion of EMT reserves be held as bank deposits, while simultaneously setting a limit on a single bank's liability in respect of a particular EMT issuance. This choice may limit the yield available to stablecoin issuers and therefore dampen incentives to issue stablecoins. The alternative of allowing securities to account for more of reserves may be seen as promoting capital market integration by generating demand for securities from EMT issuers, although it might not have a beneficial impact on the risk profile of EMTs.

Annex 3
Detailed description of the regulation of EMTs and ARTs under MiCAR

Compliance with MiCAR is supervised by the national competent authorities designated by Member States in accordance with Article 93 of MiCAR. The EBA and ESMA oversee the supervisory activities of those NCAs and promote supervisory convergence. More precisely, the EBA is responsible for supervisory convergence activities with regard to ARTs and EMTs (and directly supervises ARTs and EMTs determined to be significant), while ESMA coordinates the supervisory activities of CASPs.

If ARTs are issued by credit institutions, compliance with the relevant requirements under Regulation (EU) No 575/2013 (CRR) and Directive 2013/36/EU on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms (CRD) is supervised by prudential competent authorities at national or EU level (ECB), while compliance with MiCAR requirements is supervised by the competent authorities designated under that regulation. Thus, cooperation between competent authorities is important. For EMTs issued by credit institutions, the MiCAR competent authority has responsibility vis-à-vis issuers essentially for white paper-related matters. MiCAR does not impose additional prudential requirements on credit institutions beyond CRD/CRR rules, meaning that supervisory responsibility remains with the banking supervisor. Banks (i.e. credit institutions licensed in the Union) are not subject to any reserve requirement when they issue EMTs, as explained below. Banks are liable with their entire assets vis-à-vis EMT holders and are free to use the proceeds of the EMT issuance as they would any other liability raised from the public.

EMTs are legally equivalent to funds, meaning that issuers must invariably redeem them at par value, just as issuers of traditional e-money would. If the issuer is an electronic money institution (EMI), it is subject to the safeguarding obligations set out under Article 7 of the Electronic Money Directive (EMD) and Article 54 of MiCAR (funds must be deposited in a separate account held at a credit institution or invested in secure, liquid and low-risk assets as defined by the EBA regulatory technical standards issued on the basis of Article 38(1) of MiCAR). Competent authorities may require EMIs issuing EMTs that are not significant to comply with any requirements for significant issuers where necessary to address liquidity risks, operational risks, or risks arising from non-compliance with requirements for the management of reserve assets.

Banks issuing ARTs are subject to the same reserve requirements as those set for other ART issuers and described below.

ART issuers and issuers of significant EMTs issuing the same token must operate a single reserve of assets (Article 36(5)) and operate and maintain a single custody policy. MiCAR thus allows for the joint issuance by entities established and licensed in the Union, albeit subject to strict requirements, including those related to the

recovery plan and the redemption plan as prescribed by the two sets of EBA Guidelines.

ART issuers must ensure that the issuance and redemption of tokens are always matched by a corresponding increase or decrease in their reserve assets. The issuer must determine the aggregate value of those reserves by using market prices, in accordance with the rules set out in money market fund regulations. The aggregate value of the reserve assets must be at least equal to the aggregate value of the claims made against the issuer by the holders of those ARTs in circulation. ART issuers must also have in place a clear and detailed policy describing the stabilisation mechanism for such tokens.

The issuer must bear all profits or losses, including those arising from fluctuations in the value of the financial instruments concerned, and any counterparty or operational risk-related costs resulting from the investment of the reserve assets. Neither issuers nor CASPs (the latter when providing crypto-asset services related to ARTs and EMTs) are permitted to offer interest on ARTs and EMTs. The purpose of this prohibition on remuneration is to ensure that ART/EMT are not held for investment purposes and to prevent them from competing with bank deposits.

ART issuers and EMIs issuing significant EMTs that invest a part of the reserve assets must invest those assets only in "highly liquid financial instruments" carrying minimal market risk, credit risk and concentration risk. The investments must be capable of being liquidated rapidly with minimal adverse price effect. This requirement is clearly intended to preserve financial stability by limiting contagion through fire sales.

EMIs issuing EMTs that are not significant, and which safeguard funds received in compliance with the EMD, must:

- deposit at least 30% of the funds received in separate accounts held at credit institutions;
- invest the remaining funds in secure, low-risk assets that qualify as "highly liquid financial instruments" with minimal market risk, credit risk and concentration risk (as per the MiCAR definition of "highly liquid financial instruments") and are denominated in the same official currency as that referenced by the EMT.

In the case of non-significant ARTs referencing one or more official currencies, the reserve assets must be composed of deposits held at credit institutions for at least 30% (or 60% if required by the relevant competent authority or for a significant ART) of the amount of the assets referenced in each official currency. In the case of ARTs referencing a combination of official currencies and assets other than official currencies, the minimum required amount of deposits held at credit institutions applies only to the part referencing official currencies.

EMIs issuing EMTs that are significant must hold at least 60% of their reserves in deposits at credit institutions. EMIs issuing EMTs that are not significant may be

required by their competent authority to hold a minimum of 60% in the form of deposits with credit institutions.

Pursuant to the draft regulatory technical standards under MiCAR, the following "highly liquid financial instruments" are eligible for inclusion in the reserve assets:

- Those meeting the definition of "financial instruments" under the Markets in Financial Instruments Directive (Directive 2014/65/EU).
- Those that can be included in the pool of high-quality liquid assets (HQLA) Level 1 for the LCR as set in the Union Single Rule Book. HQLA Level 1 bearing a 0% haircut can be included in the reserve without any cap, while HQLAs Level 1 qualifying as exposures in the form of extremely high-quality covered bonds cannot exceed 35% of the reserve assets.
- Those complying with the general and operational requirements set under Commission Delegated Regulation (EU) 2015/61 (the LCR Regulation).

Haircuts under the LCR Regulation do not apply because issuers are subject to an over-collateralisation requirement.

In a similar fashion to the LCR regime:

- for derivatives used to hedge highly liquid financial instruments, the net liquidity outflows and inflows that would ensue from an early close-out of the hedge, including from derivatives hedging the difference between the change of the market value of reserve assets and the change of the market value of the assets referenced by the token, must be taken into account in the valuation of the highly liquid financial instruments;
- issuers have to unwind short-term collateral swaps, repos and reverse repos to prevent the computation in the reserve assets of collateral received under securities financing transactions that are due to be paid out in the short term (i.e. within five working days).

Units in collective undertakings (UCITS) are considered highly liquid financial instruments if the UCIT invests solely in highly liquid financial instruments and the issuer of the token ensures that the concentration risk of the reserve assets is minimal.

Single-name concentration limits are applied to:

- Issuers of government bonds - 35%.
- Issuers of covered bonds – 10%.
- UCITS – 5%. This limit applies to the market value of UCITS managed by a single management company or by management companies with close links.
- The unmargined part of OTC derivatives – 10% if the counterparty is a credit institution, and 5% in all other cases.

Deposits at credit institutions are also subject to concentration limits. In particular, for each ART and EMT, deposits at a single credit institution may not exceed:

- 25% if the bank is a Global Systemically Important Institution (G-SII) or an Other Systemically Important Institution (O-SII);
- 15% if the bank is a "large credit institution" as defined in the CRR and is not a G-SII/O-SII;
- 5% if the bank does not fall in any of the previous two categories.

In any case, deposits held at a credit institution are eligible for inclusion in the reserve assets if such deposits do not exceed 1.5% of the bank's total assets. This is a backstop measure aimed at preventing a single stablecoin issuance from becoming too large a depositor for a bank. However, this requirement does not prevent a credit institution from taking deposits from various issuers and thereby gathering a material amount of funding from the crypto-asset sector, which would make it more vulnerable to runs from that sector. Banking supervisors must monitor the level of sectoral concentration of bank funding and prevent the emergence of crypto-friendly banks, such as the failed Signature Bank in the United States.

The amount of the deposits held at a credit institution, together with the market value of highly liquid financial instruments in the form of securities or money market instruments issued or guaranteed by the same credit institution, and the risk exposure to that credit institution in unmargined over-the-counter (OTC) derivatives, must not exceed 30% of the market value of the reserve assets related to the same tokens. For the purpose of assessing compliance with the single-name concentration limit, the issuer must consider all other entities with which that credit institution has close links.

A look-through approach should be followed when assessing compliance with the concentration limit for UCITs or collective investment undertakings (CIUs).

If an issuer does not meet all the requirements set out in the regulatory standards, such as where the financial instruments no longer fulfil the conditions set out therein, or where the issuer or the competent authority concludes that such requirements are likely to be breached, the issuer must draw up a detailed plan, including when so requested by the competent authority, and submit it to the authority within five working days.

For tokens referencing official currencies, issuers must maintain assets with daily and weekly maturities as follows (percentages expressed as the market value of reserve assets maturing within the timeframe relative to the total market value of the overall reserve assets): (i) at least 40% (daily) and 60% (weekly) for significant tokens, and (ii) at least 20% (daily) and 30% (weekly) for tokens that are not deemed significant.

Deposits at credit institutions may be included in the reserve assets if issuers have no reason to expect non-performance by the credit institutions holding the deposits (this requirement mirrors that under the LCR Regulation). The assessment referred

to in the previous paragraph must be carried out for a time horizon of 365 days for sight deposits, and for the remaining time to maturity in the case of term deposits.

Custody:

- Segregation requirements are set out in Article 36(2) and (3) of MiCAR which insist on the legal and operational segregation of the reserve assets from the issuer's estate and from the reserve assets of the issuer's other tokens, so that the issuer's creditors have no recourse to the reserve assets, especially in the event of insolvency.
- Custodial services may be provided only by legal entities (as described above) that are licensed in the Union. Such territorial restrictions appear to be consistent with the goal of fostering the development of an EU crypto-asset sector and with the deliberate absence of a mechanism for recognising a third-country regime as being equivalent to MiCAR.
- ART issuers must exercise all due skill, care and diligence when selecting, appointing and reviewing CASPs, credit institutions and investment firms as custodians of the reserve assets. The custodian must be a legal person other than the issuer.
- Custodians must act honestly, fairly, professionally, independently and in the interests of the issuers and the holders of such tokens. In the event of the loss of a financial instrument or crypto-asset held in custody, the custodian that lost that financial instrument or crypto-asset must compensate, or make restitution, to the issuer with a financial instrument or a crypto-asset of an identical type, or with the equivalent value, without undue delay.

2 Crypto-investment products

Overview

- Crypto-investment products have experienced significant growth since January 2024, boosted by the approval of spot Bitcoin exchange-traded products (ETPs) by the US Securities and Exchange Commission (US SEC) in January 2024 and by strong investor appetite. They are still relatively small in size but are likely to continue to grow, especially considering the supportive regulatory stance adopted by the US administration.
- Crypto-investment products make it easy for investors to build exposure to crypto-assets, without having to deal with the technicalities typically involved in holding crypto-assets directly. The growing exposure of investors to crypto-assets increases the risk of negative spillover effects from crypto to traditional markets and therefore should be monitored closely.
- A source of vulnerability in relation to crypto-investment products is the high concentration that prevails for custody services. This concentration increases the risk of chain effects and may amplify losses for investors, such as in the event of a glitch or cyber-attack at a key service provider. While such an incident is unlikely to trigger broader financial instability at this point in time, it could significantly disrupt crypto markets and have negative spillover effects on traditional financial markets if crypto-investment products continue to grow substantially.
- Traditional financial institutions are increasingly engaging in crypto-related activities such as custody services, including those related to crypto-investment products. This matter should also be monitored closely, as it increases interlinkages between the crypto and the traditional financial systems and therefore heightens the risk of contagion.

Introduction

This part of the report focuses on the financial stability impact of tokens and applications other than stablecoins on the EU's financial markets and institutions. The scope of analysis covers approximately 90% of the global value assigned to crypto-assets, including three of the four largest: Bitcoin (market capitalisation > USD 1.6 trillion), Ether (market capitalisation > USD 230 billion) and Ripple (market capitalisation > USD 130 billion). These crypto-assets are "unbacked", meaning that they do not represent tokenised real assets.

Current direct exposures of both euro area banks[81] and insurance undertakings[82] to crypto-assets appear to be low and the proposed or existing prudential measures are designed to effectively mitigate the associated risks. Since 1 January 2025, EU credit institutions are required to assign a risk weight of 1250% with two exceptions: (1) exposures to tokenised traditional assets, including EMTs, should be treated as exposures to the traditional assets they represent ("look-through"); and (2) exposures to asset-referenced tokens by MiCAR-compliant issuers referencing traditional assets are risk-weighted at 250%. In addition, the value of a bank's total exposure to crypto-assets, pursuant to Article 3(1)(5) of MiCAR, with a risk weight of 1250% must not exceed 1% of that bank's Tier 1 capital.[83] Under the European Insurance and Occupational Pensions Authority's (EIOPA) draft advice for the European Commission, as published in the consultation paper of October 2024, EIOPA proposes to introduce a one-to-one capital weight for crypto-assets (100%) without diversification, and also regardless of their balance sheet treatment or direct/indirect investment status.[84]

On the assumption that crypto-assets will continue to grow moving forward, systemic concerns of indirect exposures warrant further analysis. These may stem from three sources:

First: crypto-linked investment products (CIPs), as a collective term for products other than direct holdings of crypto-assets, where the initial investment determines the investor's maximum loss.[85] CIPs are subject to various forms of crypto-related market risk. Examples include open-ended and mutual funds, index funds and exchange-traded funds (ETFs), exchange-traded notes (ETNs), exchange-traded certificates (ETCs) and closed-ended funds that are materially exposed to crypto-assets and the related crypto industry.[86] CIPs may have a leveraged component embedded.

Second: crypto-derivatives, as a collective term for financial contracts (other than CIPs) whose value is derived from an underlying crypto-asset. Examples

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81 At the end of 2024, euro area significant institutions' direct holdings of crypto-assets, as defined in Article 3(1)(5) of MiCAR (excluding tokenised financial instruments and deposits), were only around €1 million. Similarly, exposures to derivatives with crypto-assets as the underlying stood at €600 million. See Aerts et al. (2025), "Just another crypto boom? Mind the blind spots", *Financial Stability Review*, ECB, May.

82 According to EIOPA, the crypto-asset exposure of the EU's insurance industry, including through investment funds, is equivalent to 0.0068% of the overall assets held by EU insurance companies. See EIOPA, Consultation paper on technical advice on standard formula capital requirements for investments in crypto-assets, 10/24, p. 10.

83 See Article 501d of the Capital Requirements Regulation (CRR) and Regulatory Technical Standards on the calculation and aggregation of crypto exposure values | European Banking Authority. These transitional provisions will remain in place until a dedicated prudential framework for crypto-asset exposures taking into account the applicable BCBS standard is incorporated into EU law. By 30 June 2025, the Commission shall, it considers it justified, submit a legislative proposal for a dedicated prudential treatment of crypto-assets exposures. The BCBS standards must be implemented by 1 January 2026. For more details, see here: BCBS, Prudential treatment of cryptoasset exposures (16 December 2022), at SCO60.84 et seq.

84 See EIOPA, Consultation paper on technical advice on standard formula capital requirements for investments in crypto-assets, 10/24, p. 18.

85 Service providers, meanwhile, may be exposed to risks commensurate with the assets they serve, as discussed in the next paragraph.

86 There is no consistent terminology. Some use the term exchange-traded products (ETPs) for ETFs, ETNs and ETCs.

here include futures, swaps and options. While similar to CIPs, crypto-derivatives are predominantly exposed to market risk. Unlike CIPs, potential losses stemming from the financial contracts may exceed the initial investment (even though market practice limits maximum exposures).

Third: crypto-services, as a collective term encompassing a financial institution's crypto-related activities performed on behalf of customers and third parties[87], such as brokerage, trading, marketing, asset management and custody. In the EU, these services are regulated under MiCAR, which holds service providers liable and exposes them to compliance, legal, operational and reputational risks, similar to those faced by traditional financial service providers. For example, financial institutions might need to cover their customers' losses for CIPs marketed to them, or for assets held in custody on their behalf; these losses may, in turn, destabilise these institutions. For instance, under Article 75(8) of MiCAR, crypto-custody providers are "liable to their customers for the loss of any crypto-assets or of the means of access (the private key) to the crypto-assets as a result of an incident that is attributable to them", up to the market value of the crypto-asset at the time the loss occurred.[88] Financial institutions engaging in crypto-asset related activities may therefore suffer losses from these activities, such as where their internal risk management processes are not sufficiently robust. While such risks are not unique to crypto activities, they are likely to be exacerbated in the case of crypto markets on account of the specific risks inherent to those markets (e.g. high price volatility, numerous hacks and frauds) and the fact that they may remain largely unregulated outside of the EU.

1. Data analysis

1.1. Availability of regulatory data and gaps

Regulatory and ad hoc reporting for the euro area banking sector provides a relatively good picture of the contagion channels running from crypto-assets to the banking system.[89] This includes information on banks' direct holdings of crypto-assets and crypto-assets at large, exposures to derivatives with crypto-assets as the underlying or crypto-investment products, and the services that banks provide to the crypto industry, such as custody, brokerage and trading. Data are also available on banks that provide deposit-taking services to companies with crypto-related business models. Assessing such data can provide useful information on the

[87] This excludes trading in CIPs and crypto derivatives on the institution's own accounts; trading on own account is considered as trading in CIPs and crypto derivatives.

[88] See, for relevant scenarios, Dirk Zetzsche, Julia Sinnig and Areti Nikolakopoulou (2024), "Crypto custody", *Capital Markets Law Journal*, Vol. 19, Issue 3, July, pages 207-229.

[89] Data are also available at the global level for several large global banks reporting to the BCBS QIS, showing their prudential exposures and assets under custody, including a breakdown for spot, ETP and derivatives holdings: https://www.bis.org/bcbs/dashboards.htm.

size and concentration of specific depositors, as long as they exceed a certain threshold.

For insurance undertakings, Solvency II supervisory reporting provides information on direct holdings of crypto-assets. However, the identification of additional exposures through crypto-investment products and crypto derivatives requires manual identification and may not cover all investments. Forthcoming amendments to the relevant Implementing Technical Standards (ITS) on supervisory reporting may serve to remedy this shortcoming.[90]

The available data fail to provide adequate visibility into the counterparties and interlinkages of banks and insurance undertakings. This applies both to exposures involving counterparties in CIPs and crypto-derivatives, and also to the lack of information needed to identify risk concentrations at the level of service providers.

In addition, cross-sectoral data on the exposure of euro area investors are available through the Securities Holdings Statistics by Sector (SHSS).[91] While the SHSS present some shortcomings, they are useful in analysing holdings of CIPs among euro area investors and showing whether these investors belong to the financial, non-financial or household sector.[92] However, as the database does not flag CIPs, these products need to be identified manually, increasing the likelihood of inaccuracies. Furthermore, data on CIPs held by non-bank financial institutions (NBFIs) are not yet part of the regular reporting for these NBFIs.

On crypto-derivatives, reporting under the European Market Infrastructure Regulation (EMIR)[93] provides daily data on the total notional amount outstanding by reporting counterparty and type of derivative contract within the EEA.

Three main data gaps have been identified:

First, there is insufficient data on leverage for all types of financial institutions. While total leverage in the crypto industry can be approximated, such as by open interest in Bitcoin perpetual swaps[94], total volumes of leveraged contracts and the extent to which leverage is actually used on trading platforms and by financial sector institutions involved in, or exposed to, crypto, are generally not reported. However, this should be qualified, as EMIR now provides data on the outstanding notional amount of open crypto-derivative contracts by counterparty.

Second, crypto-related regulatory and supervisory reporting among non-bank financial institutions (NBFIs) could be improved with regard to NBFIs' holdings of crypto-assets, CIPs and crypto derivatives, as well as their interlinkages with the crypto industry through crypto services, in particular marketing,

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90 See "Financial Stability Report", EIOPA, June 2024.

91 See Securities Holdings Statistics | ECB Data Portal.

92 See Securities Holdings Statistics | ECB Data Portal.

93 Since the EU EMIR Refit (April 2024), the Regulatory Technical Standards provide additional data on derivatives based on crypto-assets.

94 This estimate has limitations, as it only captures the number of open positions, while leverage is not standardised across positions and can vary, from very low to very high.

exchange and custody. The scarcity of data on NBFIs' crypto activities is a concern, given the frequent interactions that take place between credit institutions and insurance companies on the one hand and NBFIs on the other. Under MiCAR, ESMA maintains a register of authorised CASPs, which helps to improve our understanding of such activities, although such information is largely lacking in other jurisdictions.

Third, there is a lack of data on counterparty risk associated with CIPs, crypto derivatives and crypto services.

1.2. Overall volumes

As of July 2025, the total valuation of CIPs on a global level has grown substantially, reflecting increased institutional and retail interest in CIPs. However, precise capitalisation figures for CIPs are difficult to estimate owing to limited regulatory reporting and varying methodologies and terminologies. Available data suggest growth: in December 2024, the global capitalisation of CIPs exceeded USD 130 billion.[95] In early July 2025, the capitalisation of 336 of 383 CIPs reached USD 235 billion.[96] The main products were launched in North America (over 60%[97] of total market capitalisation) and Europe (over 10% of total market capitalisation). Spot Bitcoin ETPs, following their approval by the SEC in January 2024[98], make up the largest share of total market capitalisation. As of July 2025, BlackRock's iShares Bitcoin Trust (IBIT) had a total net asset value (NAV) exceeding USD 80 billion[99], making it one of the most notable ETF launches to date.

It is estimated that EU investors had invested approximately USD 18 billion in 270 ETPs as of June 2025 (including ETFs, ETNs and ETCs).[100] Bitcoin-focused ETPs exceeded USD 10 billion, while Ethereum-based ETPs represented an estimated USD 2.3 billion, reflecting cautious but increasing adoption. This marks an increase of around 150% over 12 months (roughly €7 billion reported in 2023Q4);[101]

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95 According to the Flow Traders 2024 Crypto ETP Report (December 2024), global crypto-asset ETPs' assets under management (AUM) totalled approximately USD 134.5 billion as of November 2024. Other sources estimate that the AUM of US-market crypto-asset ETPs exceeded USD 100 billion (see Nico Oefele (2025), "One year of bitcoin spot ETPs: A brief market and fund flow analysis", Elsevier, April). Based on calculations by CoinGlass, Bitcoin ETFs alone had a total AUM of 129.79 billion as of 5 June 2025 (see Bitcoin ETF Overview; Bitcoin ETF Flows; Bitcoin ETF Inflows and Outflows; Bitcoin ETF Tracker | CoinGlass). Cointelegraph estimates even higher numbers of USD 187 billion in AUM as of 2 June 2025 (see Crypto ETPs keep $10.9 billion inflows in the past 7 weeks).

96 See D.A. Zetzsche, D. Blangero & A. Waicman-Gonçalves (2025), "An Empirical Analysis of Crypto-investment Products, July. These data do not consider some 50 open-ended and mutual funds (including private funds) whose shares are not traded at trading venues and for which net asset value (NAV) values are not regularly disclosed to the public, as well as certain ETPs and ETFs for which trading data are not consistently available.

97 The Big Three include iShares Bitcoin Trust ETF (approx. USD 75 billion), Fidelity Wise Origin Bitcoin Fund (approx. USD 21 billion) and Grayscale Bitcoin Trust ETF (approx. USD 20 billion).

98 See SEC.gov | Statement on the Approval of Spot Bitcoin Exchange-Traded Products.

99 See iShares Bitcoin Trust ETF | IBIT.

100 See ETFbook.com - Crypto ETP EU.

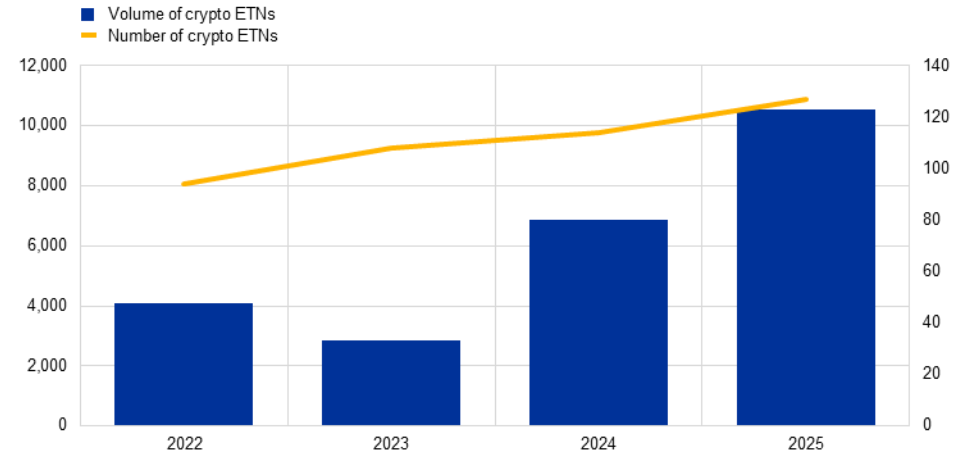
101 See Aerts, S., Born, A., Gati, Z., Kochanska, U., Lambert, C., Reinhold, E. and van der Kraaij, A. (2025), "Just another crypto boom? Mind the blind spots", *Financial Stability Review*, May.

the Bitcoin price rose by a similar figure over that period. Note that figures for EU investors investing in crypto-investment funds are not available.

Most of the EU-traded ETPs are traded on XETRA in Frankfurt, with a market capitalisation exceeding €10.5 billion in June 2025 for all products.[102]

Chart 10

ETPs traded on XETRA



Source: Xetra.

The market capitalisation of XETRA-traded ETPs increased by nearly 230% from 30 April 2022 to 30 June 2025.

Table 3

Holdings of CIPs by sector, in euro billions (as of Q1 2025)

	Households	Financial sector (banks, investment funds, insurance undertakings, pension funds)	Non-financial firms	Total
2025Q1	8.5	2.7	5.1	16.3
2024Q1	7.3	2.6	0.8	10.7
2023Q1	2.5	1.7	0.4	4.6
Increase 2023-25	240%	59%	1175%	254%

Source: SHS data.

Crypto derivatives reported under EMIR, such as futures and options traded on exchanges like Eurex[103], seem to add only marginally to the total exposures. The notional amount of outstanding crypto-derivative contracts in the EEA reported under EMIR totalled €5.9 billion in June 2025, a level comparable to that observed in December 2024 and representing a tiny portion (less than 0.01%) of the overall EEA derivatives market.[104] However, these figures reflect only data

[102] See Deutsche Börse Cash Market - ETF & ETP Statistiken. More than 90 per cent of all trading in shares at all German exchanges and about 30 per cent of trading in ETFs in Europe is transacted through Xetra (Deutsche Börse Xetra - Handelsmodelle).

[103] See Cryptocurrency Derivatives.

[104] The total notional amount of outstanding derivatives contracts reported under EMIR stood at €425 trillion as of the end of June 2025.

provided by EMIR reporting entities, as trading venues and counterparties outside the EU do not provide EMIR data.

The global market for CIPs is expected to grow[105], driven by increasing institutional adoption, regulatory advances, and product innovation, as well as expectations that market prices will continue to rise moving forwards. Regulatory progress, especially in the United States with approvals for Bitcoin and Ethereum ETFs and a more crypto-friendly environment conveyed by the US administration, is laying the groundwork for broader institutional adoption. Data obtained from Form 13F filings by US issuers confirm this expectation.[106]

Available data pointing to a growing number and range of products, and the introduction of thematic and sector-specific CIPs beyond Bitcoin and Ethereum, including many crypto-assets with smaller market capitalisations, appear to support that assumption by indicating considerable investor appetite and facilitating mass-market adoption. The market entry of large incumbent financial institutions (including BlackRock, Fidelity, Bank of America, BNY Mellon, State Street, LGT and other big names in the asset management industry) further underscores this institutionalisation trend, with firms like BlackRock having already integrated Bitcoin into its model portfolios.[107] Further regulatory developments following the US presidential election, along with macroeconomic factors, will play pivotal roles. Global interest rate cuts in 2024 lowered borrowing costs, encouraging risk-on investments in CIPs, a trend likely to persist with accommodative monetary policies. In the EU, MiCA offers significant safeguards that may support wider crypto adoption by more risk-averse investor groups.

1.3. Concentration among service providers

The global market comprises at least 377 CIPs, plus a further six CIPs undergoing liquidation.[108]

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[105] According to the State Street 2025 Global ETF Outlook Report titled "*Digital asset ETF AUM will grow larger than precious metals ETF AUM by the end of 2025*".

[106] SEC Form 13F filings show growing institutional holdings of ETPs, with institutional investors accounting for 22.9% of the total capitalisation of all US Bitcoin ETFs. See Rapport CoinShares – Déclarations Institutionnelles sur les ETF Bitcoin 1er trimestre 2025.

[107] See Why bitcoin? A model portfolio builder's view.

[108] The data in this section are drawn from Zetzsche, op. cit.

Table 4

Crypto-investment products by product type, expressed in numbers and USD billion

	Open-ended & mutual funds	Index funds and ETFs	ETPs/ ETNs/ ETCs	Closed-ended funds	Treasury companies
Number of products	64	142	161	7	+100
Market capitalisation at 31/07/25	8 bn	68 bn	135 bn	2 bn	118bn

Source: D.A. Zetzsche, D. Blangero and A. Waicman-Gonçalves (2025), "An Empirical Analysis of Crypto-Investment Products", July.
Notes: Data on market capitalisation are based on estimates drawing on figures disclosed by trading venues. Some open-ended and mutual funds that do not qualify as exchange-traded funds (ETFs) report assets under management at NAV dates that diverge from 31 July 2025. The estimate is based on 32 funds that have disclosed NAVs as of 31 July 2025.
The estimates for treasury companies are based on the Top 100 BTC Treasury Companies listed on BitcoinTreasuries.NET (data as of 31 July 2025). Other estimates report holding values of close to USD 150 billion as of 31 July 2025 (cf. Bitcoin Treasuries Charts: Holdings for Bitcoin Treasury Companies). Treasury companies are also increasingly investing in non-BTC crypto-assets (see Top Crypto Treasury Companies Holding Bitcoin, ETH and more).

1.4. Backing/collateralisation of products referencing crypto-assets

Out of a total of 374 CIPs (other than treasury companies), 235 hold crypto-assets directly, while 132 hold crypto-related securities and derivatives. Among the former, nine products hold both crypto-assts directly and crypto-related securities and derivatives at the same time.[109]

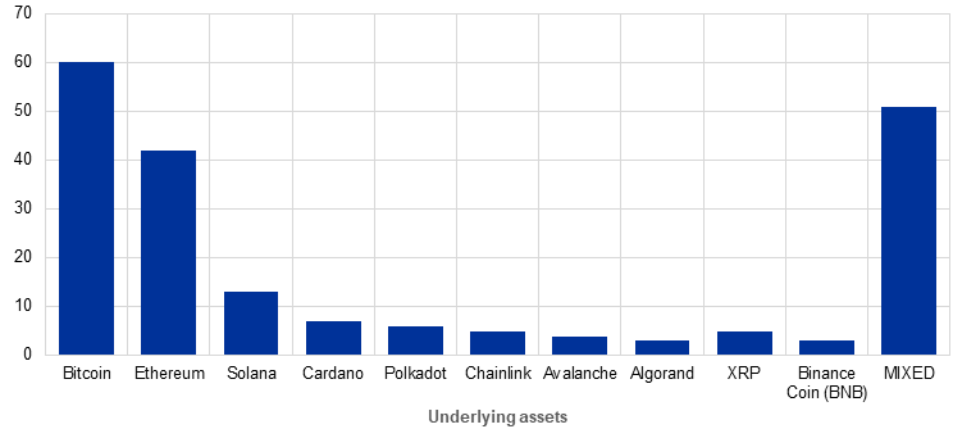
Among the 235 CIPs holding crypto-assets directly, at least 36 products enable or make use of staking (indicating some form of encumbrance).[110] Meanwhile, 60 products (25%) provide exposure to Bitcoin alone, and 42 (18%) to Ethereum alone. The remaining 56 (24%) provide exposure to a basket of digital assets (often including Bitcoin and Ethereum) (see Chart 11 below).

[109] Cf. Zetzsche, op. cit.

[110] The implications of how staking facilitates leverage inside crypto ecosystems fall outside the scope of this report. The staking of crypto-assets refers to the process of locking up crypto-assets to support the operations of a blockchain network in exchange for rewards. Staking is a key mechanism used in Proof-of-Stake (PoS) blockchains, as opposed to Proof-of-Work (PoW) networks, which rely on mining to validate transactions. Staking as part of the PoS mechanism requires the original token of the designated blockchain to be staked with a so-called validator. Aside from being used to validate transactions, staking has become a business in itself for crypto lending, bundling of governance rights, as rewards for the acquisition of crypto-assets, and as liquidity provision. Cf. D.A. Zetzsche, R.P. Buckley, D.W. Arner and M.C. van Ek, *Remaining regulatory challenges in digital finance and crypto-assets after MiCA* (Study for the European Parliament), May 2023, pp. 64-69.

Chart 11

Physical backing by type of crypto-asset[111] (July 2025)



Source: Zetzsche, op. cit.

Among the remaining 139 products, 42 (30%) invest in other crypto-investment products, 51 (37%) inf derivatives, and 69 (50%) have exposure to securities issued by crypto-asset service providers and other actors in the crypto-industry. We noted significant exposure to Coinbase shares in 30 cases (22%). Note that a single product can make use of several types of exposures at the same time.[112]

1.5. Trading venues

In the European Economic Area, available data point to a concentration of trading activity in crypto-investment products, with most of these products listed on Deutsche Börse (including Deutsche Börse XETRA).

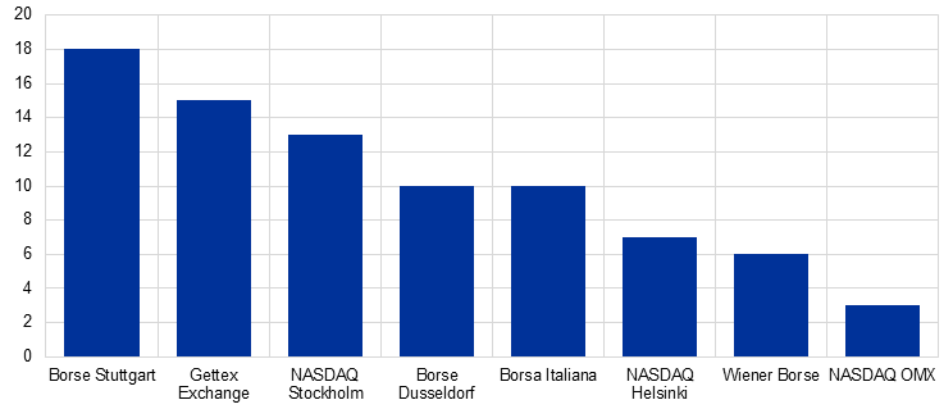
[111] Cf. Zetzsche, op. cit.

[112] Cf. Zetzsche, op. cit.

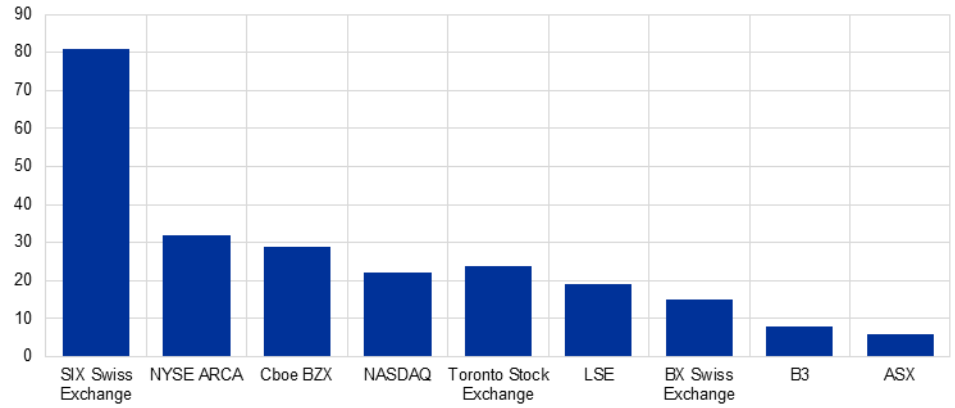
Chart 12

Trading venues by number of crypto-investment products (July 2025)[113]

a) Main trading venues in the EU



b) Main trading venues in third-countries



Source: Zetzsche, op. cit.

1.6. Origin of issuers

Most issuers (68%) are based outside of the EU. Their main jurisdictions of origin are the United States (109), Switzerland (59), Jersey (37) and Canada (23). Within the EEA, the main issuer countries are Liechtenstein (29), Germany (26), Sweden (16), France (14), Ireland (9), Malta (10) and Luxembourg (6).

1.7. Custodians

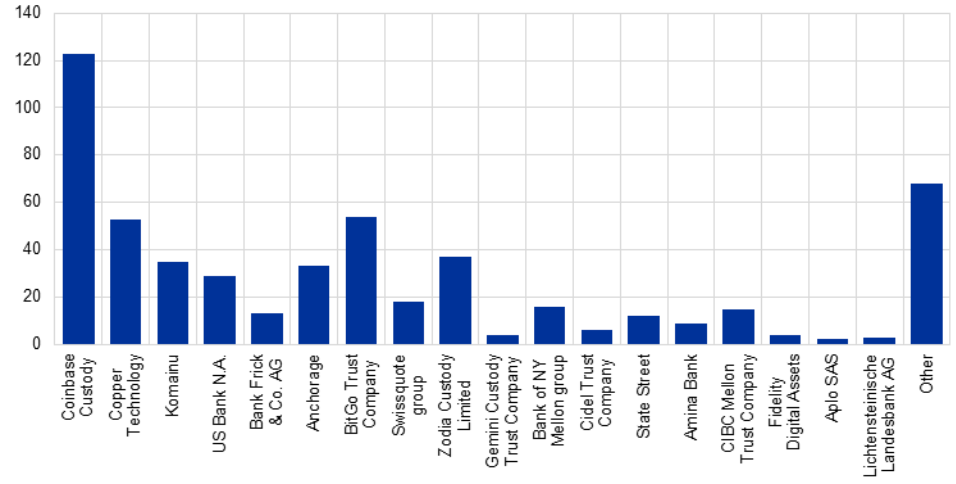
Custody services for crypto-investment products are highly concentrated. Coinbase alone has a 32% market share, followed by BitGo and Copper Technologies (both at around 14%), as measured by the number of crypto-investment products for which those firms provide custody services. In total, the

[113] Cf. Zetzsche, op. cit.

three largest custody providers account for around 39% of the total number of investment products, which is equivalent to 60% of the total size of crypto-investment products for which data are available.[114]

Chart 13

Custody providers for crypto-investment products (July 2025)



Source: Zetzsche, op. cit.

For those CIPs that hold crypto-assets exclusively and directly, custody services are even more concentrated: the top three custody providers named above serve at least 63% of crypto-investment products (at least 149 out of 235) and hold assets in custody that are equivalent to approximately 71% of the total market capitalisation of CIPs for which data are available.

This high concentration is a source of vulnerability. Were one of these custody providers to experience financial or operational difficulties, perhaps on account of cyber-attacks or technical malfunctions (see supra), it could affect a wide range of CIPs, amplify losses for investors, and have a wider destabilising effect on crypto markets, with potentially negative spillover effects to traditional financial markets. It could also indirectly affect traditional financial institutions engaged in activities in relation to those CIPs, such as where they derive a significant portion of their revenues from such activities. The finding on concentration among crypto custodians also holds true for spot crypto ETFs launched in the United States since January 2024.

2. Potential threats to financial stability from spillovers to the traditional financial system

While exposure to crypto derivatives currently appears to be low, the involvement of traditional financial institutions in CIPs, coupled with ongoing

[114] The daily data on market capitalisation not considered concern, in particular, the holdings of 59 open-ended and mutual funds whose shares are not traded at trading venues, as well as several products presenting data availability issues.

market growth, has opened new channels for contagion and the emergence of systemic risks. A key concern is that risks in the CIPs market will spill over to the traditional financial system, undermining its critical intermediation role for the real economy. Concretely:

The failure of – or operational risk events at – a systemically important crypto intermediary could lead to shocks across crypto markets and cause losses at traditional financial institutions. A run on stablecoins (or on any tokenised money market fund that has an estimated market capitalisation exceeding USD 8 billion) could put pressure on the markets in which they invest, including the US Treasury bill market.[115]

If credit institutions and other traditional financial institutions issue stablecoins, sponsor crypto-investment products or become otherwise involved in crypto markets (for instance, as custodians, trading venues or fund depositaries), shocks in crypto markets could trigger stress scenarios for these institutions. In extreme cases, this could compromise their ability to sustain payment infrastructures and perform their role in supporting the real economy.

Should stress arise in the crypto market and through these channels threaten to undermine financial stability, there is a risk that crypto and other intermediaries will turn to the public sector for emergency support (bailouts). This would be a striking historical irony for a sector that grew out of Bitcoin's genesis block, which included a January 2009 headline about the government pledging to support banks made by the UK Chancellor of the Exchequer[116]. After years of substantial financial gains in the crypto sector primarily benefiting private entities, the socialisation of these losses could be perceived as inequitable.[117]

3. Results and areas for policy attention

Risks to traditional financial institutions could stem from crypto derivatives and from CIPs for which traditional institutions serve as custodians. Furthermore, crypto-induced counterparty risk may stem from derivatives and insolvencies of key participants in the crypto industry, particularly custodians. Given these concerns, we propose the following recommendations.

First, significant data gaps persist that impair the assessment of systemic risk stemming from holdings of CIPs and crypto derivatives among NBFIs, crypto services provided by credit institutions, and data on leverage.

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115 For example, Ahmed and Aldasoro (2025) suggest that outflows from stablecoins can have a much more severe yield impact on Treasury bills than inflows.

116 See *The Times*, 3 January 2009, "Chancellor on brink of second bailout for banks".

117 Notably, there are broader distributional concerns over rising prices for Bitcoin and other crypto-assets. For example, Bindseil and Schaaf (2024) argue that, even without any losses to investors, there is the possibility for losses among non-holders of Bitcoin. Since "Bitcoin does not increase the productive potential of the economy the wealth effects on consumption of early Bitcoin holders can only come at the expense of consumption of the rest of society"; see Ulrich Bindseil and Jürgen Günter Schaaf (2024), "The distributional consequences of Bitcoin", available at SSRN.

Second, the available data point to: (a) an increasing number and volume of CIPs, which were worth more than USD 235 billion globally as at 31 July 2025; (b) increasing involvement of large traditional financial institutions in CIPs as offerors and service providers (most notably as custodians); and (c) a very high concentration in core crypto services, particularly the custody of physically backed crypto-investment products, where just three service providers service around 80% of the products. These three developments combined could adversely affect EU financial markets and financial institutions.

As of 31 July 2025, at least six crypto-investment products had a market valuation exceeding USD 5 billion, with the three largest showing capitalisations of USD 21 billion, 24 billion and 85 billion. In other words, three CIPs alone account for close to half of the total market capitalisation. In parallel, these physically backed CIPs are served by a very small number of crypto custodians. Were one of these custodians to experience operational or financial difficulties, contagion to other CIPs would likely result, and a step-in situation could arise, driven by legal or reputational concerns, given the involvement of large incumbent financial institutions in the product set-up and marketing. The overall volumes have now reached levels that make this scenario a genuine concern.

Third, risks are further concentrated at the level of service providers, particularly where key services are bundled within multi-function groups that serve both as crypto custodians and exchanges.

In short, growing interlinkages between traditional finance and crypto, coupled with high market concentration in core crypto services, increase the contagion risk for traditional finance. Assuming further growth, as indeed supported by available data, the increase in overall exposure raises concerns over the stability of the traditional financial system, as potential spillover effects can be expected as overall capitalisation levels rise. Notably, these spillover effects have already been observed in the case of stablecoins. Spillover risks to CIPs may also arise from the failure of a large crypto custodian, many of which form part of multi-function groups that offer custodian, transfer and exchange services. The steady increase in market capitalisation, coupled with strong concentration in core crypto infrastructure, suggests that a tipping point may be reached sooner rather than later. Moreover, the lack of comprehensive data complicates the monitoring of both growth and market concentration. Regulators are therefore encouraged to keep a close watch on further developments and enhance their data collection and monitoring in relation to crypto-investment products, leverage and crypto services provided by traditional financial institutions.

3 Multi-function groups (MFGs) active in crypto-asset markets

Overview

Various types of groups may choose to offer crypto-asset products and services within the EU. Some of these may already be well-established and be active primarily in the traditional financial sector (e.g. banking groups), whereas other multi-function groups (MFGs) engaged in crypto-asset activities within the EU may be newer entrants operating in a specific segment of the financial sector (e.g. payments), in wider commerce (e.g. big techs), or exclusively in the crypto-asset sector. Many non-bank groups may originate from, or be primarily active, outside the EU.

From a microprudential perspective, potential opportunities and risks posed by crypto-asset activities are broadly similar across different types of MFGs. However, factors including the scale of the activities, interconnectedness within the group, interconnectedness with the wider crypto-asset sector and, potentially, the traditional finance sector, can amplify risks to the point where they become significant from a macroprudential perspective.

Despite these considerations, the ability of supervisors to identify and mitigate macroprudential risk ex ante is undermined by the fact that group-wide regulatory and supervisory arrangements for non-bank MFGs are largely non-existent. In particular:

- consolidated supervision arrangements exist only for banking groups and do not apply to any other type of group;
- the conglomerates supervision framework applies only to certain types of group carrying out traditional banking/insurance/investment activities and pre-dates the emergence of crypto-asset activities;
- the supervisory college framework under MiCAR is focused on a specific type of crypto-asset activity: the issuance of significant asset-referenced tokens (ARTs) and significant electronic money tokens (EMTs);
- while MiCAR envisages arrangements between EU and third country authorities[118], no structures exist to ensure fully formalised and structured group-wide cooperation with third-country authorities, despite the large non-EU footprint of many relevant groups.

Although no systemic risk has yet been identified, NCAs, the EBA and ESMA should prioritise the need to strengthen arrangements for cross-group supervisory dialogue for non-bank MFGs engaged in significant crypto-asset activities (issuance, custody,

[118] See Articles 107, 126 and 127 of MiCAR.

exchange, trading etc) within the EU, so as to ensure effective group-wide supervision from a macroprudential perspective.

In the mid to long term, and in the event of a significant increase in the scale (volume/value) of crypto-asset activities among non-bank MFGs in the EU, the regulatory framework should be further enhanced to provide more formalised arrangements to ensure group-wide reporting and to facilitate effective risk mitigation and supervisory dialogue, including with third-country authorities.

Introduction

Crypto-asset products and services may be offered by entities belonging to the same group as other financial and non-financial firms. Such groups may be active only in the crypto-asset sector or may carry out a broader range of financial or other commercial activities. This chapter establishes a taxonomy of the different types of multi-function groups (MFGs) engaged in crypto-asset activities within the EU.[119] It goes on to explore the potential opportunities and risks and reflects on the adequacy of existing regulatory and supervisory arrangements with regard to specific types of MFGs, concluding with areas for potential future policy attention to address macroprudential considerations.

1 Taxonomy of MFGs

MFGs active in the EU can be divided into three core categories: Category 1 MFGs, which carry out various regulated crypto-asset activities (crypto-asset services and/or issuance); Category 2 MFGs, which carry out regulated crypto-asset activities and provide other financial services (this category can be further sub-divided into those MFGs predominantly engaged in the crypto-asset sector, and those predominantly involved in the traditional financial sector); and Category 3 MFGs, meaning those that do not fall under Categories 1 or 2. These categories, as further described in Table 5 below, are especially relevant when it comes to considering potential risks and the adequacy of existing regulatory and supervisory arrangements.

[119] In this sense, the chapter takes a broader view of MFGs than international bodies such as the Financial Stability Board (FSB, which typically focus on “multi-function crypto-asset intermediaries” (in this chapter referred to as Category 1 MFGs).

Table 5
Taxonomy of MFGs (predominant activity)

Group type: predominant activity		Description
MFG Cat. 1	Crypto	MFGs carrying out (only) various regulated crypto-asset activities. The MFGs may focus on crypto-asset services (exchange, custody, transfer etc) or may, in addition, issue crypto-assets, such as EMTs.
MFG Cat. 2a	Crypto + limited traditional financial services	MFGs carrying out regulated crypto-asset activities as the predominant activity, and other financial services such as payments, often complementary to the crypto-asset activities.
MFG Cat. 2b	Banking + crypto	MFGs carrying out predominantly traditional financial services, as well as regulated crypto-asset activities. For example: (a) MFGs who are banking groups, with parts of the group carrying out regulated crypto-asset activities; (b) MFGs who are payments groups, with parts of the group carrying out regulated crypto-asset activities; (c) MFGs with other types of regulated financial institution (e.g. non-bank lenders), with parts of the group carrying out regulated crypto-asset activities.
	Payments + crypto	
	Other financial services + crypto	
MFG Cat. 3	Commercial + crypto	MFGs whose predominant activities are not in the financial services sector, but who carry out regulated crypto-asset activities (e.g. large non- financial corporates, including potentially big techs).

Source: ESRB CATF.

Some MFGs may have significant operations outside the EU; some may also carry out crypto-asset activities that are not regulated. Importantly, some MFGs may be primarily active in jurisdictions where activities that are regulated in the EU under MiCAR are not yet regulated (fully or in part). Moreover, some MFGs may engage in crypto-asset activities that are not regulated within the EU, including the facilitation of crypto-asset borrowing and lending[120] and blockchain validation. Financial losses or reputational issues arising from such activities may affect not only the third-country entity but potentially the wider group. Some groups may also purport to operate on a "decentralised" basis and/or provide customers with access to decentralised finance (DeFi) applications.[121]

Some groups may become exposed to crypto-assets when performing their core activities. For instance, a banking group may partner with a fund to offer customers exposure to crypto-assets, may provide a deposit account to a crypto-asset issuer in which reserve assets can be held in the form of deposits[122], or may enter into derivatives contracts referring to crypto-assets. Moreover, an insurer may provide an insurance policy to a crypto-asset service provider to insure against theft, or a corporate may accept some types of crypto-asset as a means of payment. Such activities fall outside the scope of this chapter.

2 Potential opportunities

Engaging in crypto-asset activities may offer potential opportunities for both the MFG and its customers, often for their mutual benefit. For instance, network effects may lower costs and the cost savings may then be passed on to customers.

120 See the January 2025 EBA ESMA report on recent developments in crypto-asset markets.

121 For a discussion of recent crypto-asset market developments, including DeFi, see EBA and ESMA (2025). For instance, Binance enables clients to participate in DeFi staking via its Binance Web3 Wallet.

122 Such as in the context of the issuer's compliance with reserve requirements for ARTs, pursuant to Article 36(4)(d) of MiCAR.

Benefits may also arise in terms of compliance, with integrated group functions potentially consolidating compliance activities and providing broader contact points for supervisors, thus enhancing "supervisibility". See Annex 1 for a more detailed description of these potential opportunities.

Overall, MFGs may be well positioned to drive innovation and adapt their business models to meet evolving market demands. By leveraging synergies across their various activities, data pools and technology interfaces, MFGs may be able to develop and deliver enhanced customer-facing platform functionalities, integrate services, and expand their products and services rapidly (see Box 1). This can improve user experience and create new revenue streams. Moreover, economies of scale, combined with shared infrastructure and resources, can enable MFGs to offer competitive pricing models and better levels of service. This cost efficiency can not only strengthen competitive advantage but also create room for further innovation in product development and business model strategies/evolution.

Box 2
Service integration

Some Category 1 (see, for example, Table A) and Category 2 MFGs combine various types of crypto-asset activity to improve customer experience and broaden their service offering. For instance, many crypto-asset exchanges "reward" customers by giving exclusive access to a range of features and services (potentially offered by other group entities), such as enabling users to earn rewards through staking, or to acquire tokens that enable participation in decision-making processes (governance) or that can be exchanged for goods and services[123].

In relation to payments, some Category 2 MFGs offer payment cards linked to a bank account or digital wallet, enabling users to immediately convert crypto-assets into fiat currency when making payment. This functionality can facilitate the use of crypto-assets in everyday transactions, thus improving their integration into the broader financial system. One such example is Bitpanda, which allows users to make purchases using crypto-assets with automatic fiat conversion at the time of payment.[124] As for lending and borrowing, some MFGs allow users to borrow fiat currency or crypto-assets using their existing crypto-assets as collateral. When it comes to trading, some MFGs offer instruments that track, or are backed by, traditional financial instruments, thus further integrating crypto-assets and traditional financial markets. Meanwhile, some MFGs offer staking-as-a-service (StaaS) which is a model where a third-party provider manages the staking process for users, allowing them to earn rewards without directly operating their own infrastructure. For example, Revolut offers staking programmes covering ETH (Ethereum), ADA (Cardano), DOT (Polkadot), XTX (Tezos), SOL (Solana) and POL (Polygon).[125]

123 See "Benefits of Using Exchange Tokens in Crypto Trading".

124 Similar solutions are offered by, for example, Deblock, Crypto.com and Coinbase.

125 See "How does crypto staking work?".

Broadly speaking, banks and other financial institutions are gradually entering the market for crypto-asset activities, albeit still at a low base.[126]

Traditional payments companies and so-called "PayTechs" have also entered the crypto market. For example, consumers can now make payments with crypto-assets linked to Visa and Mastercard cards. Coinbase customers can use Mastercard credit and debit cards to make purchases in the crypto company's non-fungible token (NFT) marketplace. PayPal users can transfer, send and receive crypto-assets. This company has also launched a new rewards programme allowing users in the United States to earn a 3.7% annual return on their holdings of PayPal USD (PYUSD).[127] This initiative aims to encourage broader usage of PYUSD and to differentiate it within the fiercely competitive stablecoin market. Users can earn rewards while holding PYUSD in their PayPal or other wallets.

Turning to Category 3 MFGs, large technology companies and big techs have significantly expanded their presence in the payments industry[128] by offering digital wallets and payment apps, and some have even moved into the crypto-asset sphere. Examples here include Facebook's (now Meta) proposals for Libra/Diem[129], Apple's partnership with Mesh[130], Google's investments in crypto-focused companies (including digital asset custody firms[131]), and Amazon with its now phased-out Amazon Coins, all of which show interest in expanding into crypto-assets and related services.

126 For data on EU credit institution engagement in crypto-asset activities, see the EBA's regular Risk Assessment Reports.

127 See PayPal Aims To Boost Stablecoin Use By Offering 3.7% on Balances.

128 For example, a joint-ESA 2025 monitoring exercise conducted through the European Forum for Innovation Facilitators (EFIF) showed that, in the EU, five big techs have a total of six subsidiaries authorised in the EU to carry out payment services and issue electronic money (data to be published in September 2025). A further five big techs have a total of 11 subsidiaries relying on exclusions under the Second Payment Services Directive (PSD2) to carry out specific payment services without the need for authorisation.

129 See Facebook-funded cryptocurrency Diem winds down.

130 See Apple (NasdaqGS:AAPL) Embraces Crypto with Mesh Partnership for Apple Pay Integration.

131 Google has invested in crypto-focused companies, including digital asset custody firms, NFT platforms and venture funds. Additionally, Google Cloud offers services such as Blockchain Node Engine, enabling businesses to deploy and manage blockchain infrastructure.

Table A

Overview of activities provided by selected (Category 1) MFGs (September 2024)

Type of Activity	Activities	Binance	Coinbase	Bybit	OKX	Whitebit	P2B	Upbit
Issuance, promotion and distribution	Stablecoins	NO	NO	NO	NO	NO	NO	NO
	Other crypto-assets	YES	YES	NO	YES	YES	NO	NO
Trading	Spot	YES	YES	YES	YES	YES	YES	YES
	Derivatives	YES	YES	YES	YES	YES	NO	NO
	Margin	YES	NO	YES	YES	YES	NO	NO
	OTC market	YES	YES	YES	NO	NO	NO	NO
	Brokerage	NO	YES	NO	NO	NO	NO	NO
Investment programmes	Staking / Staking as a service	YES	YES	YES	YES	NO	NO	YES
	Yield / Earn programmes	YES	YES	YES	YES	YES	YES	NO
Lending & Borrowing	Lending / Liquidity provision	YES	YES	YES	?	YES	NO	NO
	Borrowing	YES	YES	YES	YES	YES	NO	NO
Wallet / custody, transmission and payment	Custodial wallet services	YES	YES	YES	YES	YES	YES	YES
	Non-custodial wallet	YES	YES	NO	YES	NO	NO	NO
	Crypto-asset payment services / prepaid cards	YES	YES	YES	NO	YES	NO	NO
Proprietary activities	Proprietary trading	?	?	?	?	?	?	?
	Direct (venture capital) investment	YES	YES	YES	YES	NO	NO	NO
Other activities	Others	YES	YES	YES	YES	YES	YES	YES
Number of activities		14	14	12	11	10	4	4

Source: Based on the exercise carried out by A. Born, E. Marchi, L. Painelli, T. Räsänen, and E. Rubera within the Crypto-asset Monitoring Expert Group (CAMEG). To enable a deeper analysis, from the set of major centralised crypto-exchanges, a subset comprising the five largest global crypto-exchanges, and the two largest crypto-exchanges headquartered in the EU were subject to deeper analysis. It is inconclusive if at the time of the analysis all crypto-exchanges offered all listed services to European customers.

3 Potential risks

Despite the opportunities, certain risks may arise which, under some conditions, could become significant from a macroprudential perspective. These risks include (i) prudential risks, (ii) operational risks, (iii) conflicts of interest and wider governance risks, (iv) reputational risks, (v) concentration risk, and (vi) risks stemming from opacities in corporate structure and regulatory arbitrage. Considerations that may elevate such risks to a level considered significant from a macroprudential perspective include the scale of the activities concentrated in the MFG, interconnectedness within the group, and interconnectedness with the wider crypto-asset sector. However, interconnectedness with the traditional finance sector remains very limited to date owing to the de minimis direct exposure of the EU

financial sector to crypto-assets[132], and despite the integration of crypto-asset issuance and crypto-asset services into the stable of products and services offered by some EU financial institutions (Category 2b MFGs in our taxonomy).[133]

Intra-group funding challenges, including liquidity shortfalls, can create risks for both MFGs and the wider market. MFGs, like other types of interconnected conglomerate, may rely on intra-group funding for their operations. Such dependencies may propagate risk through the MFG. For instance, if a subsidiary suffers a major outflow of funds – perhaps to meet redemption requests in very stressed market conditions, or to pay a large penalty or compensation following a major operational or conduct-related failure (e.g. data or sanctions breach) – other group entities may need to step in to support its viability. Group entities may also sustain financial losses if the subsidiary is unable to repay intra-group financing in line with the initial terms. Should these other group entities be engaged in significant financial activities (e.g. lending), any impairment in their ability to perform these activities could pose wider risks.

MFGs can be especially sensitive to operational risks, particularly technological and cyber risks, owing to their heavy reliance on common or interconnected technological infrastructure; should the MFG handle high values/volumes, operational disruptions can pose system-wide risks. Concentration of infrastructure can cause an operational disruption or breach in one area to affect a wide range of services and become significant from a macroprudential perspective. For instance, if core systems such as authentication servers and trading platforms are compromised, attackers could gain widespread access to systems, resulting in knock-on effects (such as major crypto-asset market dislocation) extending beyond the MFG. Moreover, the larger the market share, the more attractive the MFG becomes for illicit actors looking to steal data or crypto-assets or extract a ransom (e.g. the Bybit hack – see Annex 2). Such actors may be external or internal. Moreover, human error can propagate a broader impact owing to the scale of an MFG's operations.

The structure and business models of MFGs can carry risks related to governance challenges and conflicts of interest, which may cause reputational risks to spill over to other entities/groups perceived as having similar issues. The vertical and horizontal integration of multiple crypto-related services and/or issuance under a single umbrella – often characterised by opaque governance[134] – makes it more likely that governance challenges and conflicts of interest will materialise (see Annex 3). Shortcomings when interacting with customers can also quickly erode market confidence in the MFG. This may affect not only the MFG itself, but also the stability of the wider crypto-asset market should other entities/groups be identified as having similar deficiencies.

Indeed, a loss of market confidence in an MFG may trigger contagion. Reputational harm can trigger sudden withdrawals from platforms operating in similar

[132] Based on EBA bank sector, ESMA fund sector, and EIOPA insurance sector data on exposures to crypto-assets among institutions.

[133] See, for example, ESMA's interim register of EMT (and ART) issuance under MiCAR.

[134] See the FSB's report on the financial stability implications of MCIs (November 2023).

markets, potentially forcing distressed crypto-asset sales. This could destabilise not only the affected MFG but also interconnected crypto-assets, platforms or services, thus propagating contagion risk (see Box 2).

Box 3
FTX

As highlighted by the FSB in its November 2023 report titled Financial Stability Implications of Multifunction Crypto-asset Intermediaries, "[multi-function groups] represent a critical part of crypto-asset markets and can exacerbate structural vulnerabilities in those markets, e.g. relating to leverage and liquidity mismatch. Some MFGs are deeply interconnected with a broad range of counterparties across the crypto-asset ecosystem. As a result, a major [group's] failure could be significant for the crypto-asset ecosystem owing to its centrality and interconnectedness in the market."

These risks materialised with the collapse of FTX in November 2022.135 FTX operated in multiple capacities, including token issuance (FTT), exchange, and investment services; its quantitative trading fund, Alameda Research, specialised in crypto-assets that borrowed strategies from traditional hedge funds. According to bankruptcy filings, the group had over 134 legal entities around the world, owned by seven "top companies" for each of which Samuel Bankman-Fried was the controlling owner, director, officer, manager or other authorised person.[136] Extensive failures in governance and risk management were exposed, including the co-mingling of own account and customer funds and crypto-assets, coupled with poor accounting practices and record-keeping.[137] Notably, some group entities were also using another group entity's token (a liability) as collateral for loans, resulting in "wrong-way risk", as sliding confidence in those group entities fuelled demand for additional collateral and collateral (FTT) liquidation, resulting in a run on the issuer.

When FTX collapsed, the impact was not confined to investors in FTX and users of its products and services; it also affected other investors across the entire crypto-asset market owing to contagion effects. For example, the firm's failure had a major impact on the price of crypto-assets serving as collateral for crypto lending. This triggered cascading liquidations by crypto lenders because of the decrease in the value of the collateral.[138] In short, the FTX case goes to show

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135 See Arner, D.W., Zetzsche, D.A., Buckley, R.P. and Kirkwood, J.M. (2023), "The Financialization of Crypto: Lessons from FTX and the Crypto Winter of 2022-2023", March, *University of Hong Kong Faculty of Law Research Paper*, No 2023/19, *UNSW Law Research Paper*, No 23-31; available at SSRN. See also What happened to FTX and could the crisis spill over to the rest of crypto?.

136 See Voluntary Petition for Non-Individuals Filing for Bankruptcy.

137 See Cecchetti, S.G. (2022), *Tales from the Crypt(o) — Money, Banking and Financial Markets*.

138 Speech by Fabio Panetta, Member of the Executive Board of the ECB, delivered at a panel on the future of crypto at the 22nd BIS Annual Conference, 23 June 2023.

the risks posed by intra-group interconnectedness and interconnectedness within the crypto-asset market.[139]

Importantly, a concentration of market power in an MFG may cause risks that would ordinarily be of microprudential relevance only at some groups to become relevant from a macroprudential perspective. Globally, crypto-asset markets exhibit high levels of concentration, with a few (non-bank) MFGs dominating trading volumes. The Herfindahl-Hirschman Index (HHI) shows that the crypto-asset market was "highly concentrated" in 2023 (2,500 > HHI), with the market share of the five largest exchanges having increased consistently over the last five years. Recent analysis indicates that around 90% of trades are executed on the ten largest exchanges globally, with Binance alone accounting for more than 50% of global trading volumes. The next largest exchange, UPbit, records only about a seventh of this volume.[140] Indeed, high levels of concentration can also be observed within the EU, with 95% of transactions conducted on licenced EU CASPs attributable to two platforms: Binance and Coinbase.[141] Additionally, two exchanges (Bitvavo[142] and Kraken[143]) dominate EUR-denominated trade volume (Chart 1).[144] This concentration means that any issues with these groups are likely to have a broader impact owing to the scale of their operations. Similar concentration risks can be observed in the market for stablecoins, with Tether Ltd, the issuer of USDT, being a prime example of concentration risk given its dominant role in providing liquidity (as well as wider risks owing to Tether's lack of transparency regarding its reserves and the potential impact on market stability if confidence in USDT were to decline) (see the chapter on stablecoins).

139 For a wider discussion, see Section 3.2.4 of the FSB's February 2023 report on the Financial Stability Risks of Decentralised Finance.

140 See ESMA (April, 2024)

141 See Kaiko Research (2024), The State of the European Crypto Market – 2024 Trends in Trading Activity

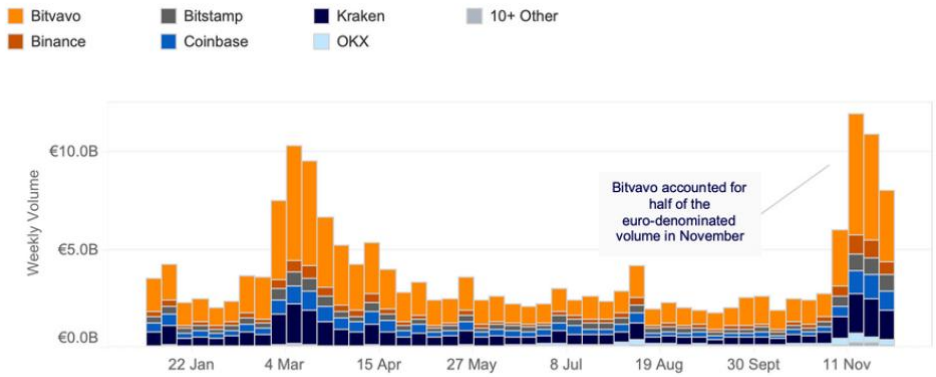
142 In the EU, Bitvavo is authorised as a crypto-asset service provider under MiCA. It is in a group with Bitvavo Custody BV, an authorised custodian.

143 In France, Kraken provides services through a group company called Coin Meester B.V., which is registered with the Autorité des Marchés Financiers (AMF) as a digital asset service provider (DASP). A large number of other group companies, including Payward Europe Solutions Limited (trading as Kraken and regulated by the Central Bank of Ireland), provide other services.

144 Ibid.

Chart 14

2024 weekly EUR-denominated trade volume by exchange



Source: Kaiko Report – The State of the European Crypto Market – 2024 Trends in Trading Activity.

Centralisation and concentration risk can lead to systemic vulnerabilities and increase the potential for market manipulation. For example, Binance not only operates one of the world's largest crypto-asset exchanges, but also manages the Binance Smart Chain (BSC),[145] where it exerts significant influence over network governance and validator selection. This vertical integration allows Binance to control multiple layers of the transaction process, raising potential concerns over market concentration and potential conflicts of interest.

The multi-function and global nature of many Category 1 and Category 2a MFGs poses additional challenges. Their operating structures may be opaque, making it difficult for supervisors to monitor risks and identify supervisory counterparts. Some MFGs may also specifically structure themselves in ways to arbitrage applicable regulatory frameworks, basing their operations in jurisdictions with less stringent regulatory regimes, or no sector-specific regulation whatsoever (as in the case of FTX). Without effective ex ante mechanisms in place to ensure supervisory vigilance and mitigation, risks emerging from such parts of the MFG may spill over into other parts of the group. Moreover, most large Category 1 and Category 2a MFGs are established outside the EU, which may limit the ability of EU supervisors to exercise effective oversight. This risk is compounded by the potential for EU customers to engage with non-EU entities through reverse solicitation. While ESMA's Guidelines clarify that reverse solicitation should be interpreted narrowly and cannot be used to circumvent MiCAR requirements, this mechanism introduces potential gaps in regulatory compliance and consumer protection.[146]

[145] See Harnessing Decentralization to Make the Impossible Possible.

[146] See ESMA Guidelines on reverse solicitation under the Markets in Crypto-assets Regulation (November 2024).

4 Existing regulatory and supervisory arrangements

The activities of MFGs must be assessed on a case-by-case basis to determine what (if any) activities are subject to regulation and supervision in the EU. To carry out crypto-asset activities in the EU, the legal entity must be authorised under MiCAR (specifically, to offer to the public or seek admission to trading in the EU of ARTs or EMTs[147] or to carry out one or more crypto-asset services[148]), or otherwise already hold a relevant licence (e.g. to operate as a credit institution). The legal entity will be subject to regulation and supervision as regards the regulated activity/activities concerned, which may entail activities-based regulation (e.g. in the context of the issuance of ARTs[149]) and/or entities-based regulation (e.g. for credit institutions, regardless of the blend of activities undertaken). In terms of regulatory reporting requirements for crypto-asset activities, only banks and issuers of ARTs/EMTs are subject to specific requirements (in the former case under the CRD/CRR, and in the latter, pursuant to the EBA's own-initiative Guidelines[150]). Other crypto-asset activities (lending, staking, etc.) do not require authorisation and are thus not subject to regulation or supervision, although AML/CFT rules may still apply in some cases.

Looking at activity- and entity-based regulation/supervision, the question of whether any group-wide arrangement applies depends on a range of factors, including the type of group and the entity's position within it. Most obviously, if the entity is a credit institution, or in a group featuring a credit institution, the prudential consolidation framework under the CRD/CRR will apply. By contrast, other types of group established in the EU are not subject to prudential consolidation and are therefore subject to more limited frameworks, or no framework at all, for conglomerate supervision or college coordination for specific purposes, as outlined in Table 6. Groups established outside the EU that have one or more entities carrying out crypto-asset activities within the EU fall outside the scope of these frameworks.

147 Under Title II of MiCAR, authorisation is not required to offer to the public crypto-assets other than ARTs and EMTs. However, the offeror must be a legal person (not necessarily a legal person established in the EU) and have drawn up a white paper in conformity with MiCAR and meet all other relevant requirements (Article 4 of MiCAR).

148 See Title V, Article 3(1)(16) of MiCAR for a definition of "crypto-asset service".

149 For example, the requirement to issue a white paper (Article 19 of MiCAR), and to hold reserve assets (Article 36 of MiCAR).

150 EBA own-initiative Guidelines on templates to assist competent authorities in performing their supervisory duties regarding issuer compliance under MiCAR (2024).

Table 6

Taxonomy of MFGs and applicability of group-wide regulation/supervisory arrangements

Group type: predominant activity		Consolidation	Conglomerates supervision	Colleges
MFG Cat. 1	Crypto	No	No	Limited*
MFG Cat. 2a	Crypto + limited traditional financial services	No	No	Limited*
MFG Cat. 2b	Banking + crypto	Yes	Yes (some groups)	Yes
	Payments + crypto	No	No	No
	Other financial services + crypto	No	No	No
MFG Cat. 3	Commercial + crypto	No	No	(Yes) Limited*

Source: ESRB CATF.
Notes: ONLY where the activities involve the issuance of an asset-referenced token or electronic money token determined by the EBA to be "significant" in accordance with MiCAR. The college focus is on the ART/EMT (see further details below).

Prudential consolidation rules do not apply to Category 1, 2a and Category 3 MFGs and apply only to a specific type of Category 2b MFG (banking groups). Consolidation enables holistic prudential regulation and supervision of the group, including governance and ICT risk management. While banking groups are subject to consolidation (including for group entities carrying out crypto-asset activities[151]), the same cannot be said for other types of group – notably mixed-activity payments groups and wider mixed-activity financial (and non-financial) groups.[152] This is because such groups, including big techs, do not have entities of a kind that trigger consolidation rules under the CRD/CRR (and, with respect to insurance groups, Solvency II).[153] Additionally, they do not have entities that would engage a supervisory option requiring the imposition of a holding company structure for the "financial" parts of the group.[154] The overall effect is that there is no regulatory or supervisory "overlay" to account for group wider/cumulative risks posed by the financial, including crypto-asset, activities of the group.

Conglomerates supervision does not apply to Category 1, Category 2a and Category 3 MFGs and applies only to very specific types of Category 2b MFGs. Only very specific types of group – classically groups active in banking and insurance (so-called bancassurers) – are subject to the financial conglomerates supervision framework under the Financial Conglomerates Directive (FICOD) (Directive 2002/87/EC). FICOD establishes a framework for supplementary supervision, focusing on capital adequacy, risk concentration and intra-group transactions. However, this supplementary supervision applies only to EU "regulated entities"[155] within the group (banks, insurers and investment firms) and thus does not encompass other types of entity, such as financial subsidiaries authorised as

151 For the rules on prudential consolidation, see Title II, Chapter II of Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012 Text with EEA relevance (OJ L 176, 27.6.2013, pp. 1–337) (as amended).

152 See the EBA's response to the Call for Advice on PSD2 (2022): on the potential need for a prudential consolidation framework for large non-bank payments groups, and the ECB's Opinion on the PSD2.

153 See the ESA's response to the Call for Advice on digital finance (2022).

154 For instance, the groups do not include investment firms: see further the ACPR article on the growth of big techs (2024).

155 Regulated entity is as defined in Article 2(4) of FICOD.

electronic money institutions (e.g. for EMT issuance) or as CASPs. Moreover, FICOD does not extend to other types of group, or to other types of risk (e.g. reputational and operational interdependencies, including in the context of recovery and resolution, and digital operational resilience). As such, FICOD does not provide a supplementary supervisory overlay for the full range of groups and risks discussed in this chapter, nor does it facilitate cooperation with third-country authorities responsible for supervising the non-EU parts of the group.[156]

Supervisory college arrangements apply only in limited cases. If an MFG includes an entity that issues ARTs or EMTs determined by the EBA to be "significant", regardless of the regulatory status of the issuer, the EBA is required to establish and chair consultative supervisory colleges "to facilitate the exercise of supervisory tasks and act as a vehicle for the coordination of supervisory activities under MiCAR" (Article 119(1) of MiCAR). Colleges must include the ECB, ESMA, the competent authority of the home Member State in which the issuer is established, the competent authorities of the most relevant CASPs (including trading platforms where the ART or EMT is admitted to trading), the competent authorities of entities keeping custody of reserve assets, and the relevant supervisory authorities of third countries with which EBA has concluded administrative arrangements in accordance with Article 126 of MiCAR. The college may issue non-binding opinions on specific matters (Article 120 of MiCAR), which must be "duly considered" by the EBA when fulfilling its supervisory function (Article 120(4) of MiCAR). These matters include, but are not limited to, decisions requiring an issuer to hold additional own funds, updates to recovery or redemption plans, modified white papers, and the application of corrective or supervisory measures. Therefore, the MiCAR supervisory college structure should be seen as being very much focused on issuance activity, and not on the wider group. As such, the supervisory colleges should be viewed as having limited utility as they do not encompass all the risks referred to in this chapter, nor indeed are they there to facilitate the coordinated supervision of wider group entities. Indeed, MiCAR supervisory colleges stand in clear contrast with colleges of supervisors for banking groups (Article 16 of the Capital Requirements Directive (CRD IV))[157], which involve the joint assessment of bank risks and joint decisions on the adequacy of cross-border banks' capital within a college setting, rather than non-binding opinions focused on one specific activity (issuance).[158]

Broadly speaking, with the exception of banking groups, formalised mechanisms to facilitate MFG-wide risk monitoring and coordinated supervisory action do not exist, making it much harder for EU-based supervisors to identify and mitigate risks on a group-wide and potentially

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156 For a discussion on the limits of conglomerates supervision in the context of novel mixed-activity groups, see Noble. E (2020), "Next generation of financial conglomerates (2020)".

157 Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2006/49/EC Text with EEA relevance *(OJ L 176, 27.6.2013, pp. 338–436). Article 116 of CRD IV (colleges of supervisors) sets out a narrower set of functions for the college as compared with the college arrangements under MiCAR, including sharing information, ensuring the consistent application of the prudential framework to entities within the banking group, and taking joint decisions on the application of specific prudential requirements (see, in particular, Article 113 of CRD IV).*

158 Further information about colleges of supervisors.

systemic basis. More precisely, no mechanism exists to facilitate coordinated supervisory actions for Category 1 and Category 3 MFGs, or for the majority of Category 2 MFGs. While competent authorities in the EU, and the EBA when discharging its supervisory functions under MiCAR, are required to cooperate in the performance of their tasks,[159] there is no formal setting in which to monitor, coordinate or instigate initiatives (including on a group-wide basis) in order to address risks that may propagate across MFGs (whether prudential, operational or governance-related). Moreover, no toolkit exists to address opaque corporate structure and the risks posed by regulatory arbitrage. This is a particular concern, as there have been known instances of "shape-shifting" to avoid emerging regulation, and also in view of the lessons learned following the collapse of various MFGs, including FTX. Moreover, while group entities may be required to comply with reporting requirements with regard to specific activities (e.g. under Article 22 of MiCAR with regard to ARTs), there is no toolkit to require reporting on a consolidated basis across a (non-bank) MFG's crypto-asset[160] and other financial activities. This situation poses significant challenges for supervisors in trying to piece together their independently held data to assess and monitor the cumulative significance of a given MFG's activities.

These issues may be further exacerbated if large payments groups and big techs become increasingly active in the realm of crypto-assets. As acknowledged in multiple papers issued by the BIS, the ESAs, the ECB, the FSB, the FSI and several national authorities,[161] should large payments groups and big techs become increasingly active in financial services, including activities involving crypto-assets, there may be a need to re-think supervisory arrangements owing to the potential systemic impact linked to scaling and network effects. Interestingly, some of these papers have reflected not only on prudential risks, but also on the kind of governance, conduct and operational resilience considerations discussed in this chapter, and have put forward options for new supervisory frameworks capable of addressing these elements (see Table 7 below).[162]

[159] For example, see Articles 95, 96 and 98 of MiCAR.

[160] For a discussion of some of the reporting gaps under MiCAR, see Section 1.3 of Chapter 3.2 of the ESRB Report on Crypto-assets and Decentralised Finance (2023).

[161] See, for example, the Joint-ESA report on BigTech direct financial service provision (2024) ; ACPR article on the growth of BigTechs (2024); and the BIS Working Paper on Consumer Financial Data and Non-horizontal Mergers (2025).

[162] For a discussion of the risks posed by big techs in financial services, and some regulatory/supervisory options, see FSI (2022), "Big tech regulation: in search of a new framework".

Table 7

Proposed regulatory requirements for big tech financial groups (BTFG)

Governance	Conduct	Operational resilience	Financial soundness
Group-wide corporate governance standards: • Suitability of board members and senior management • Constraints on overlapping boards within BTFG • Transparency of organisational structure • Policies to identify conflicts of interest • Risk management culture • Internal interdependencies • Pricing policy for intragroup transactions	Group-wide conduct of business standards: • Collection and use of client and user data • Sharing of data within group and external parties • Anticompetitive practices (ex ante rules) • Unethical, illegal or discriminatory misuse of platform	Group-wide operational resilience standards: • Mapping of intragroup interdependencies • Interdependencies between services offered to financial institutions and other big tech activities • Business continuity • planning and testing • Disclosure to supervisors	Group-wide prudential requirements: • Capital requirements • Liquidity requirements • Group-wide capital and liquidity planning • Management of group-wide concentration risks and significant intragroup transactions

Source: FSI (2022).
Notes: Requirements apply to all BTFGs.
Requirements apply only to BTFGs that fall under existing financial group categories (eg FHC or MFHC).

At the international level, no structures exist to formalise supervisory coordination with regard to MFGs carrying out crypto-asset activities on a cross-border basis, despite FSB and IOSCO recommendations for close supervisory cooperation and coordination. However, authorities in some jurisdictions have started to put in place memoranda of understanding and cooperation arrangements (as also envisaged in Articles 107, 126 and 127 of MiCAR) to facilitate supervisory dialogue cross-border. While such measures can be effective in improving the exchange of information, they provide a relatively weak basis for coordinated supervisory action, especially in stressed market conditions, as they typically contain expressions of goodwill rather than binding commitments.

Lastly, while MiCAR requires issuers of ARTs and EMTs to have recovery and redemption plans in place, no resolution toolkit exists to facilitate the orderly wind-down of crypto-asset activities among non-bank MFGs. Under MiCAR, entities that issue ARTs or EMTs are required to have recovery plans in place to help restore compliance with requirements applicable to reserve assets, and to address operational disruptions.[163] Recovery actions can be triggered by the issuer, potentially on the instruction of the competent authority (Article 94(1)(v) of MiCAR). Redemption plans are required to support the orderly redemption of the ART/EMT in situations where a competent authority has determined that the issuer is unable, or likely to be unable, to fulfil its obligations, including in the event of insolvency or withdrawal of authorisation.[164] For EU banking groups, the general recovery and resolution framework under the BRRD applies, although for other types of MFG no group-wide requirements or powers are available. Ultimately, this means that supervisors and resolution authorities lack the tools needed to manage destabilising

[163] Article 46(1) of MiCAR (as applied to EMTs under Article 55 of MiCAR). For further information about recovery plans, see the EBA's 2024 Guidelines.

[164] Article 47 of MiCAR (as applied to EMTs under Article 55 of MiCAR). For further information about resolution plans, see the EBA's 2024 Guidelines.

events within MFGs and prevent disorderly failure and, potentially, significant dislocation in the market for crypto-assets.

5 Areas for policy attention

The crypto-asset market is currently dominated by a small number of Category 1 and Category 2a MFGs that conduct a wide range of activities globally. At present, operational incidents or wider failures of these groups are unlikely to threaten financial stability owing to their limited interconnectedness with the traditional financial sector. However, as illustrated by the collapse of FTX, the crypto-asset market is highly interconnected and highly sensitive to confidence effects.[165] As such, a major failure (financial, operational or otherwise) at a Category 1 or Category 2a MFG could have dire, if not catastrophic, implications for the EU crypto-asset market (and indeed globally). By contrast, Category 2b and Category 3 MFGs currently carry out crypto-asset activities on a far more limited scale and thus are not the focus of the identified areas for policy attention.[166]

While no systemic risk has been identified at present, in the immediate term the EBA, ESMA, NCAs and the ECB are strongly encouraged to use all means available to enhance supervisory dialogue and the coordination of supervisory activities over Category 1 and non-bank Category 2a MFGs engaged in crypto-asset activities within the EU. As noted in the preceding sections of this chapter, no formalised mechanism currently exists within the EU to enable coordinated supervisory action in respect of Category 1 and 3 MFGs, and for the majority of Category 2 MFGs. Given the relative predominance of Category 1 and Category 2a MFGs in the EU crypto-asset market, as a priority the EBA (in its capacity as a supervisor of significant ARTs and significant EMTs, and in view of its broader policy responsibilities under MiCAR and with regard to the EU banking sector) and ESMA (in view of its responsibilities, including for CASPs under MICAR) are invited to establish designated structures to enhance supervisory dialogue with respect to those Category 1 and Category 2 MFGs that:

- do not include a credit institution;
- have at least one issuer of a significant ART or significant EMT, or at least one significant CASP in the group; and
- have at least one other entity established in the EU carrying out any type of financial service (potentially including crypto-asset activities).

These conditions have been identified in the first instance as a means of drawing the perimeter of relevant MFGs – i.e. those that are non-banks and have significant

[165] For a discussion of this, see Milind Tiwari, You Zhou, Jamie Ferrill and Marcus Smith (2025), "Crypto Crashes: An examination of the Binance and FTX scandals and associated accounting challenges", The British Accounting Review, 101584, ISSN 0890-8389.

[166] Indeed, according to ESA data, no big techs currently carry out crypto-asset activities (2023 monitoring results, as refreshed in 2025).

operations (as a result of ART or EMT issuance activity or crypto-asset service provision) in the EU.

Such structures should be used to promote dialogue between NCAs, the EBA, ESMA, the ECB and any relevant national central bank, and the ESRB. They should facilitate, where possible, multilateral engagement and include the relevant supervisors of those parts of the MFG based in third countries. These structures should have the overarching objective of promoting a common level of understanding of:

1. interconnectedness (including financial and operational) and concentration risks within and beyond the MFG, including with the traditional financial sector;
2. changes in business strategy, including the commencement or discontinuation of crypto-asset and other financial activities;
3. the scale and geographic footprint within the EU of crypto-asset and other financial activities;
4. emerging or growing risks (e.g. stemming from unregulated activities such as staking as a service, novel activities, or business partnerships with regulated or unregulated firms).

The structures should develop risk dashboards, inspired by the ESRB approach to NBFI risk monitoring, encompassing prudential risks such as liquidity, leverage and interconnectedness (within the crypto-asset market and with the wider financial sector). They should also serve as a venue to facilitate supervisory coordination, including in the event of idiosyncratic or market-wide stress events.

In the mid-term, the policy framework should be strengthened in the context of a wider MiCAR review in response to a significant increase in the scale (volume/value) of crypto-asset activities among non-bank MFGs in the EU warranting a re-assessment of the systemic relevance of MFGs. Such a process should encompass, as a priority: (a) group-level reporting requirements for Category 1 and Category 2a MFG crypto-asset activities; and (b) the strengthening of supervisory cooperation mechanisms across Category 1 and Category 2a MFGs that meet the conditions described above. As noted in this chapter, no MFGs are subject to group-wide regulatory reporting requirements except for those that are banking groups. Moreover, reporting requirements are very limited under MiCAR and are supplemented only by the EBA's own-initiative Guidelines (for issuers of ARTs/EMTs), which were developed to address reporting gaps under MiCAR. This means that supervisors lack the quantitative data they need to effectively monitor activities and associated risks, including liquidity and leverage, on an individual and collective basis. This makes it significantly harder for them to scan the horizon for the threat of macroprudential risks emerging from MFGs.

Moreover, while short-term measures to strengthen supervisory dialogue and coordination through non-formalised mechanisms are welcome, a more formalised framework, including clear objectives and potential joint decision-

making capabilities, should be considered in the event of a significant increase in the scale (volume/value) of crypto-asset activities among non-bank MFGs in the EU. Such a structured framework should build on, but go substantially beyond, the concepts of MiCAR supervisory colleges and any experience acquired in the context of the "immediate term" solution referred to above. It should ensure effective oversight of MFG activities within the EU, including issuance activities, crypto-asset service provision, non-MiCAR scope crypto-asset activities, non-crypto financial activities, and intra-group financial, operational or other dependencies. The overall objective should be to enhance risk monitoring and support supervisory cooperation and coordinated or joint supervisory action, thus helping to mitigate potential serious threats to investors or to the orderly functioning of crypto-asset markets or the wider financial markets.

Finally, we believe it is premature to consider the potential need for early intervention powers or resolution powers. However, any such need should be kept under review as the crypto-asset sector continues to grow in the EU and becomes more interconnected internally and with the traditional financial sector.

Annex 1
Potential opportunities posed by MFGs

By offering a range of services under one umbrella, MFGs can deliver an enhanced user experience and improve efficiencies. For customers, accessing a range of services through a single group eliminates the need to rely on multiple providers and navigate multiple interfaces. This not only is more convenient but can also reduce account provision/transaction costs. For example, crypto-asset trading platforms such as Coinbase offer integrated services, including custody and staking, allowing customers to manage their crypto activities through a single interface. The existence of complementary services may also enable customers to use their crypto-assets in multiple ways (e.g. using crypto-assets held for trading and earning interest through staking), thus potentially increasing the overall utility and value to be derived from their holdings.

MFGs may also be able to leverage network effects to enhance their market share and profitability. Consolidating multiple services could allow them to achieve economies of scale and scope, reducing operational costs related to technology infrastructure, compliance, customer acquisition and marketing. For instance, exchanges such as Binance use a unified platform that spreads costs over a larger service base. The complementarity of services can create cross-selling opportunities and possibly strengthen customer loyalty, as customers tend to stay within an ecosystem that can fulfil multiple needs. This integrated approach can provide a competitive advantage in the marketplace. Furthermore, strong network effects — where the value of the platform grows as more users participate — can bolster MFG growth.

Supervisors also stand to benefit from the consolidation of services under the umbrella of MFGs, as this can simplify monitoring and enforcement. Taking into account the operational integration of MFGs, supervisors may be able to insist on the implementation of compliance measures on a more uniform basis than would be possible with free-standing entities. The complementarity services may serve to enhance transparency and traceability, as transactions occurring within an MFG's service offering may be easier to align with individual customers. This, in turn, could contribute to market stability by enhancing the detection of risks amid higher volumes of activity within a more integrated environment. Moreover, more profitable MFGs may be better positioned to invest in more sophisticated cyber-security applications and compliance systems.

MFGs may also benefit from enhanced intra-group liquidity. Managing liquidity is essential for payment and settlement across the entire range of wholesale instruments (foreign exchange (FX), securities, money markets and derivatives) and in collateral management. As evidenced by the use of JPMCoin, the integration of DLT-based settlement using an on-chain asset can help mobilise and optimise liquidity among the relevant connected entities, facilitating fund movements globally 24/7 and on demand, or through pre-determined rules. The use of such infrastructure can also help banks identify token holders in real time, improving the calculation

sensitivity of outflow rates (BCBS). Similar benefits could also be reaped by other types of MFG.

MFGs can also support deeper crypto-asset market liquidity by integrating crypto-assets into traditional financial products and offering those products to their existing customer base. For example, although research on the topic is limited, the introduction of spot Bitcoin ETF options marks an integration of crypto-assets into the broader financial ecosystem. It provides a regulated avenue for accessing crypto derivatives and could increase market liquidity, attract greater institutional involvement and contribute to price discovery. These developments could have a positive effect on the credibility and stability of crypto-asset markets over time, thus supporting their future integration into the mainstream financial sector.

Annex 2
Vulnerabilities to hacking and theft

MFGs that integrate trading, custody, lending and other services have become major targets of increasingly sophisticated cyber-attacks. In 2024, funds stolen from cryptocurrency platforms were around 21% higher than in 2023, amounting to USD 2.2 billion, with hacking incidents rising from 282 to 303 over the same period.[167] The size, concentration of assets and activities, and operational complexity of MFGs create broad attack surfaces, exacerbating vulnerabilities linked to governance weaknesses, conflicts of interest and insufficient cybersecurity controls.[168]

Over the past decade, cyber-attacks on major Category 1 and Category 2a MFGs have grown in scale and complexity. Prominent examples include Mt. Gox in 2014 (USD 473 million stolen owing to inadequate security), Bitfinex in 2016 (USD 71 million lost despite the use of multi-signature wallets[169]), Coincheck in 2018 (USD 530 million taken from compromised hot wallets[170]), Binance in 2022 (USD 570 million stolen through flaws in its cross-chain bridge) and Ronin Network in 2022 (USD 625 million stolen through social engineering and compromised validator nodes).[171] Most recently, the February 2025 hack of Bybit (USD 1.5 billion stolen), attributed to North Korean hackers, marked the largest incident yet. Attackers inserted hidden malicious code into a seemingly safe transaction, tricking Bybit members into digitally approving a transaction they believed to be legitimate. This deception gave hackers control over the exchange's supposedly more secure "cold" offline wallets, enabling them to transfer tokens directly into their own accounts.[172]

The Chainalysis 2025 Crypto Crime Report[173] highlights the frequent use of bespoke combinations of tactics. Among these, recurring attack vectors include: (i) theft or social engineering of private keys through phishing or insider access; (ii) exploitation of smart contract flaws; and (iii) infected third-party vulnerabilities, such as wallet infrastructures or application programming interfaces. Sophisticated actors often combine these techniques, increasingly targeting authentication systems and exploiting immature or rapidly evolving protocols.

Given their interconnectedness and growing role in crypto-asset markets, MFGs require robust cyber resilience frameworks. These should be underpinned by enhanced supervisory scrutiny, greater transparency in operational risk management, and cross-border coordination to address confidence shocks and

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167 See the Chainalysis report on crypto hacking and stolen funds (December 2024)

168 See the FSB report on the financial stability implications of MCIs (November 2023)

169 See the OCCRP article on Bitfinex security lapses in the 2016 hack (May 2023): In the Bitfinex case, the multi-signature wallets setup failed because Bitfinex stored both of its private keys on a single server, thus nullifying the protection intended with the "2-of-3" scheme (three keys in total, two signatures needed for any transaction).

170 See the Reuters article on the 2018 Coincheck hack, in which around USD 530 million was stolen (January 2018). Coincheck stored all NEM tokens in a single, online wallet ("hot"), without multi-signature protection. The hackers were able to access the private key and drain the entire balance.

171 See the Techloy infographic on the biggest crypto hacks from 2014 to 2025.

172 See the Chainalysis analysis of the Bybit theft (February 2025).

173 See the Chainalysis 2025 Crypto Crime Report (February 2025).

contagion risks. Recent work by the FSB (2023) and IOSCO[174] (2023) has laid bare the need for comprehensive, function-based regulation of multi-function crypto-asset intermediaries, addressing risks arising from functional integration, poor governance and technological vulnerabilities.

In the EU, the Digital Operational Resilience Act (DORA) represents a significant step forward in regulating cyber risk in the financial sector. DORA strengthens existing requirements on ICT risk management, incident reporting and digital operational resilience testing, and creates an oversight framework for critical ICT third-party providers, recognising that cyber incidents and attacks can propagate across interconnected financial entities. DORA applies to a wide range of financial entities[175], including crypto-asset service providers authorised under MiCAR. As such, subsidiaries of certain Category 1 and Category 2 MFGs that qualify as financial entities under DORA fall within its scope.

While DORA places the EU at the forefront of global regulatory efforts to enhance cyber resilience, its coverage does not yet extend to the full spectrum of MFGs active in, or connected to, EU markets owing to the focus on financial entities established in the EU and critical ICT third-party providers.

[174] See the IOSCO report on policy recommendations for crypto and digital asset markets (November 2023).

[175] See Article 2 of DORA.

Annex 3
Overview of potential governance challenges and conflicts of interest risk

The wide range of activities that MFGs may carry out increases the risk of conflicts of interest arising between the activities of the MFGs and their customers. For instance, if an MFG also issues crypto-assets, it may prioritise its own assets on its trading platforms. Conflicts can also arise when an MFG provides investment advice or portfolio management services while simultaneously engaging in proprietary trading. In such cases, there is a risk that customer portfolios may be tilted towards investments in the MFG's own crypto-assets in which they hold a significant position. This creates incentives for the group to inflate the value of the crypto-assets to enhance their own financial gains, potentially at the expense of customer interests.

Further risks may emerge where an MFG acts as a custodian for customer assets while also engaging in proprietary trading. Without appropriate safeguards, large MFGs might leverage insights from asset holdings to inform their own trading strategies, giving rise to market manipulation risks.

Moreover, MFGs might exploit their informational and positional advantages to impose high fees on their customers. Initially, these conglomerates may leverage network effects and integrated services to attract customers with competitive pricing. By offering multiple crypto-asset services – such as trading, custody and lending – within a single ecosystem, MFGs can create strong incentives for customers to remain with their platform. This reliance may make customers less willing or able to switch providers, particularly if services are bundled or if off-platform transfers are costly or complex. Once customers are embedded in the ecosystem, MFGs could progressively raise fees or impose unfavourable conditions, capitalising on such reliance among customers.

By combining multiple functions (exchange services, custody, issuance, etc.), MFGs may have both the incentives and the means to favour crypto-assets or services that generate higher fees. The absence of comprehensive disclosure frameworks further exacerbates this risk, making it harder for customers to assess fee structures or identify potential conflicts of interest. As a result, capital allocation in crypto-asset markets may become distorted, with funds disproportionately directed towards high-fee products or riskier assets. Such distortions could have systemic consequences, as explained in the case of traditional finance by K. Judge (2015) in "Intermediary influence", in which the author describes this phenomenon of "fee effects".

Risk of lack of clear separation of powers and of a fit and proper governance. The internal governance of MFGs is often undisclosed and opaque (e.g. FSB). The group might present a complex architecture, with subsidiaries and branches located across different jurisdictions. Very little information is currently available, since in most cases disclosure requirements are either minimal or non-existent. This is particularly true for Category 1 entities, which do not engage in other financial activities alongside crypto-assets services and/or issuance and, therefore, are not subject to more stringent requirements beyond those laid down in MiCAR, where applicable.

MiCAR introduced specific provisions to address conflicts of interest, particularly for CASPs. Under Article 72, CASPs are required to take steps to prevent and manage conflicts of interest when providing their services. This includes implementing clear and effective procedures to identify and disclose potential conflicts of interest to clients. However, these measures may prove insufficient in certain scenarios. Effective consolidated supervision may not be possible if a CASP is not part of a bank or financial holding group. In such cases, conflicts of interest involving parent or subsidiary companies may go undetected, particularly when governance structures are fragmented across several jurisdictions.

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For specific terminology please refer to the ESRB glossary (available in English only).

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