

Crypto: a Macroprudential Perspective

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*Co-Chair of European Systemic Risk Board Crypto Asset Task Force. Views expressed are personal and independent of ESRB. Many thanks to Yvan Dubravica of ESRB Secretariat for his invaluable help and to colleagues for discussions on stablecoins.

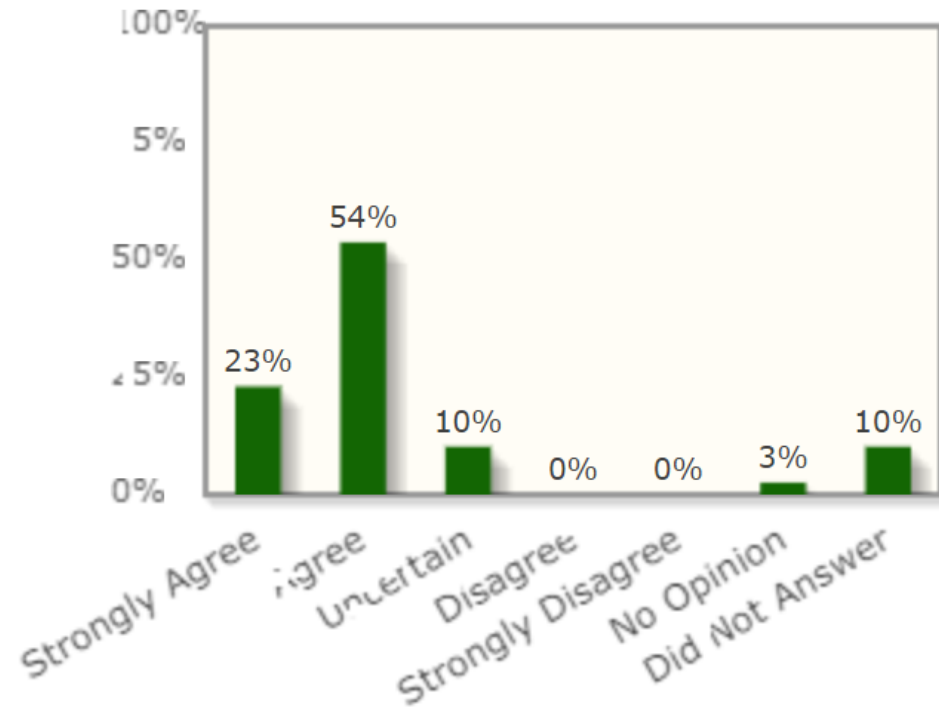
Road map

- Economists' ('experts') views on crypto
- Crypto assets background
- Data
- Politics and regulation
- Risk scenarios
- Focus on stablecoins, run risk
- The stablecoin 'fungibility' issue (Multi-issuer stablecoins), with financial stability risks
- Areas for policy attention
- Personal reflections

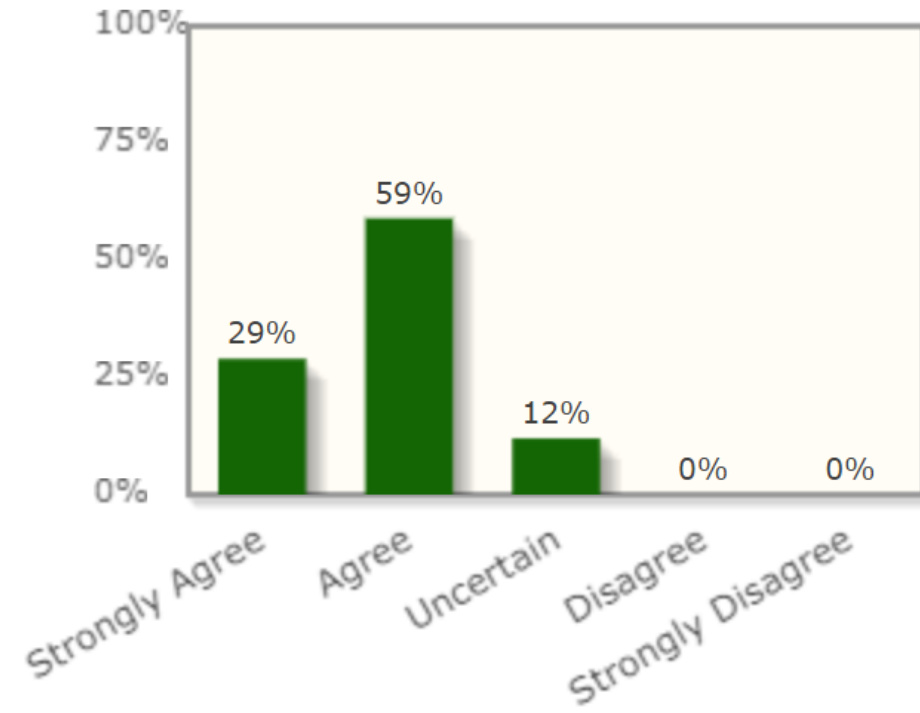
Question A:

A bitcoin's value derives from the belief that others will want to use it, which implies that its purchasing power is likely to fluctuate over time to a degree that will limit its usefulness.

Responses



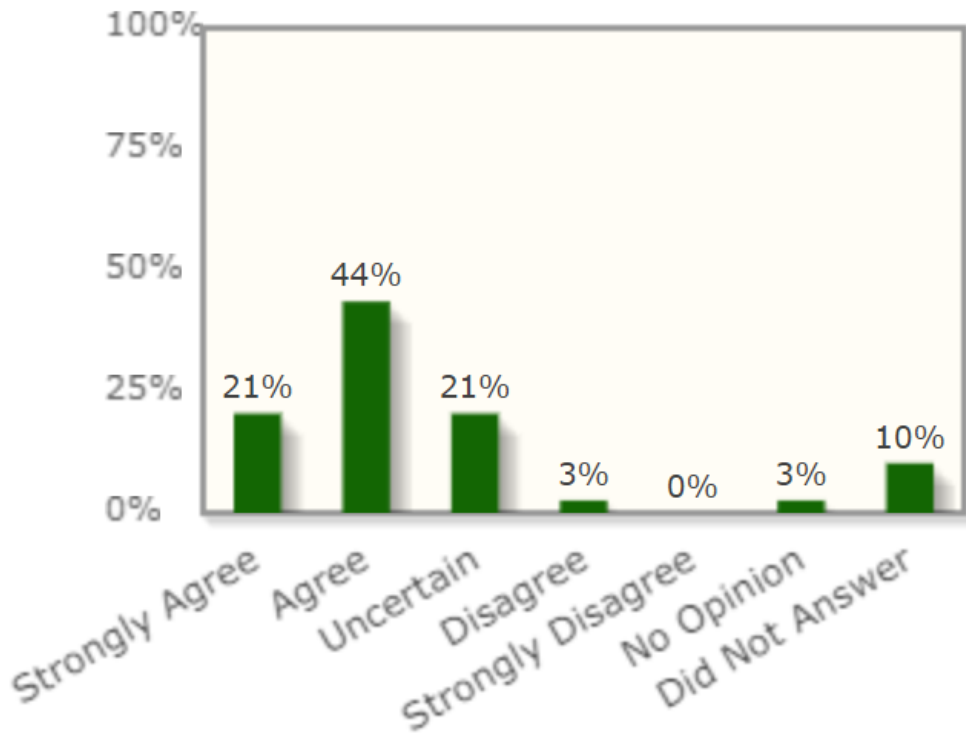
Responses weighted by each expert's confidence



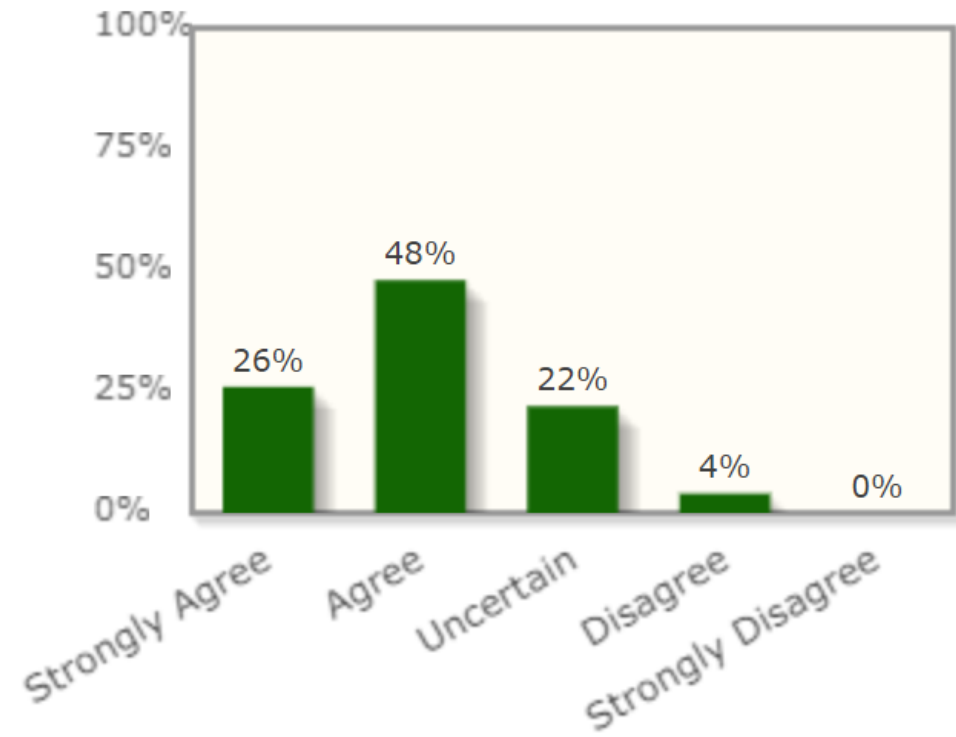
Question B:

A substantial source of the value of unbacked decentralized private cryptocurrencies, such as Bitcoin, arises from their convenience for use in illegal activities.

Responses



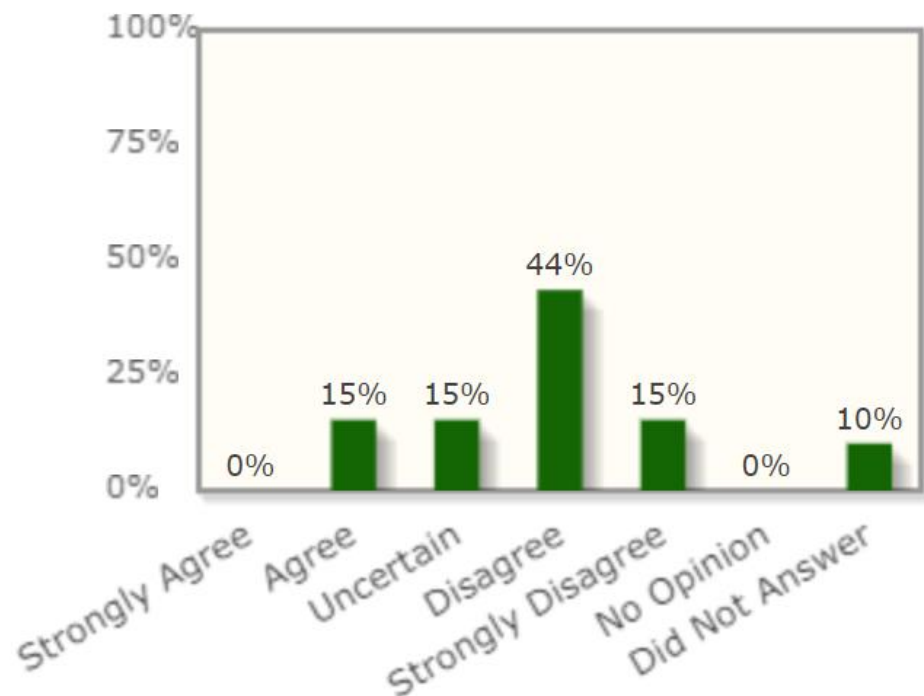
Responses weighted by each expert's confidence



Question C:

A properly diversified portfolio should include crypto assets.

Responses

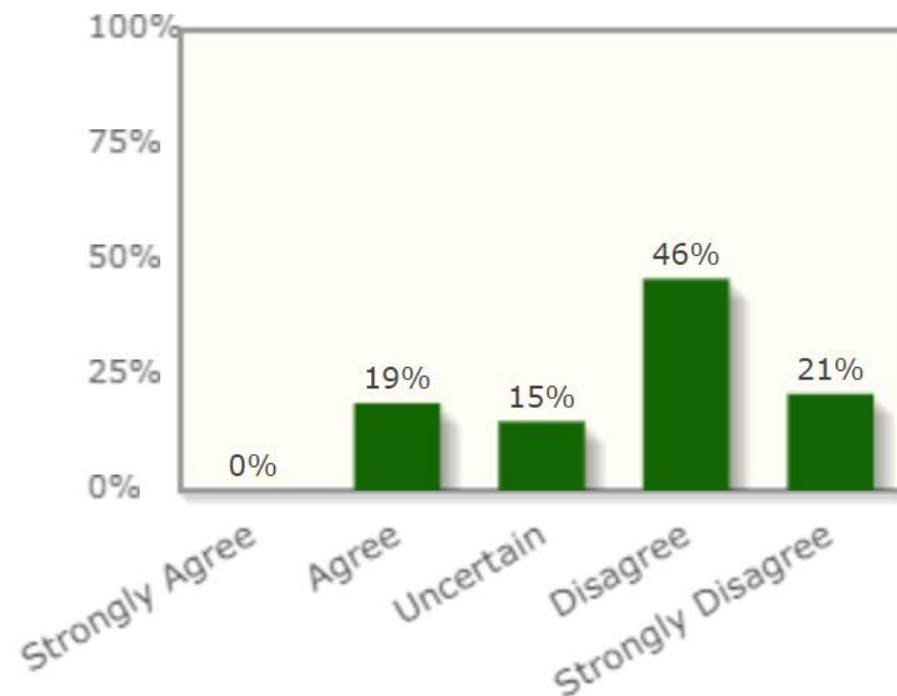


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Source: Clark Center Economic Experts Panel

Methodology

Responses weighted by each expert's confidence



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Source: Clark Center Economic Experts Panel

Methodology

Crypto assets – background*

- The crypto universe: ‘native coins’ with no backing (Bitcoin, Ethereum,...); ‘stablecoins’ pegged to fiat currency (Tether, USDC [Circle]...), supposedly backed by liquid reserves; crypto asset service providers (CASPs: exchanges, custodians, lenders, ...often combined in Multi-Function Groups [MFGs] – e.g. Binance)
- Rapid growth 2017-21 – then crash from autumn 2022. CA market cap fell 2/3, turnover down 2/3-3/4; Bitcoin down from \$65K to as low as \$16K, then surge in past two years, now (25.09.25) \$109K.
- Failures, scams, hacks: e.g., Mt. Gox, 3AC, Voyager, Celsius, BlockFi, Genesis, FTX-Alameda, and 2 medium-size US banks, Silvergate and Signature – and Silicon Valley Bank role as banker to Circle
- Some ‘stablecoins’ not so stable, have broken their pegs briefly (e.g. Tether, USDC) – *run risk*
- Key danger from macropru viewpoint: *interconnectedness with traditional financial system*. E.g., rapid growth of crypto asset ETFs since BlackRock launched theirs in January 2024; banks increasingly servicing crypto sector.

*See *Crypto-assets and decentralised finance*, ESRB, May 2023, at <https://www.esrb.europa.eu/pub/pdf/reports/esrb.cryptoassetsanddecentralisedfinance202305~9792140acd.en.pdf> and forthcoming new ESRB Report (October 2025).

Crypto-assets at a key stage between niche and global scale

Crypto-assets can now generate financial stability concerns

- Crypto-assets are increasingly mainstream among retail and institutional investors
- International regulatory frameworks are still fragmented
- Harmonising supervisory approaches among EU authorities is a key area of focus
- Interconnectedness between crypto-assets and traditional finance increasing

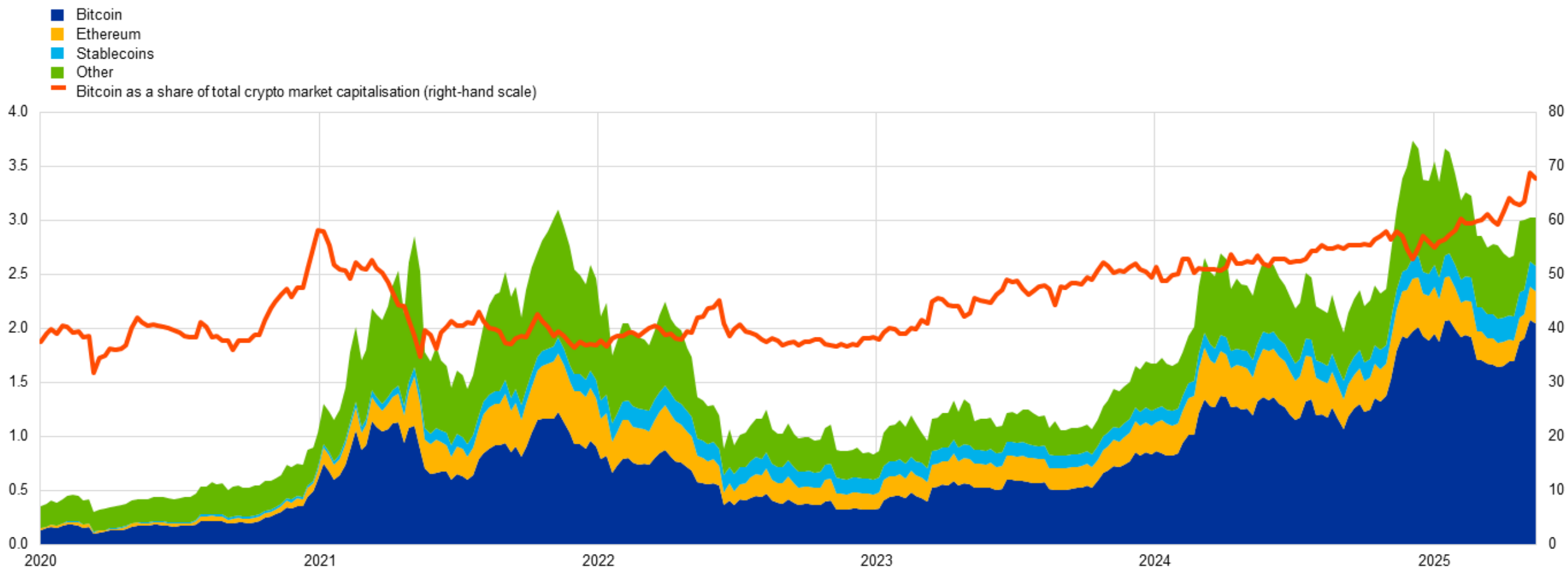
This development is accelerated by

- US pro-crypto policies aiming to drive broad financial gains
- Competition among some countries to become crypto hubs
- Intense lobbying pressures worldwide

Crypto valuations have surged since 'crypto winter'

Crypto-asset market capitalisation and Bitcoin's share of the total market

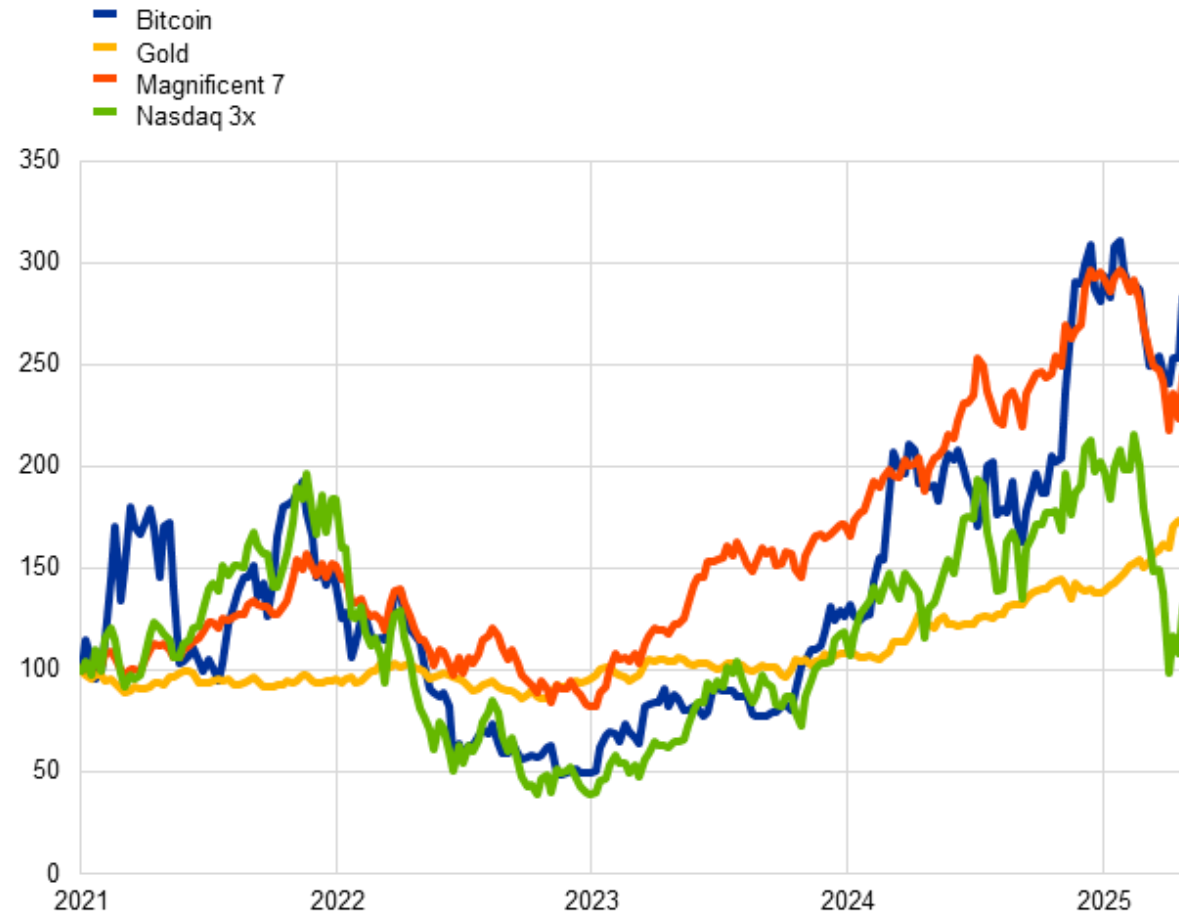
Jan. 2020-May 2025; left-hand scale: USD trillions, right-hand scale: percentages



Bitcoin way up but highly volatile

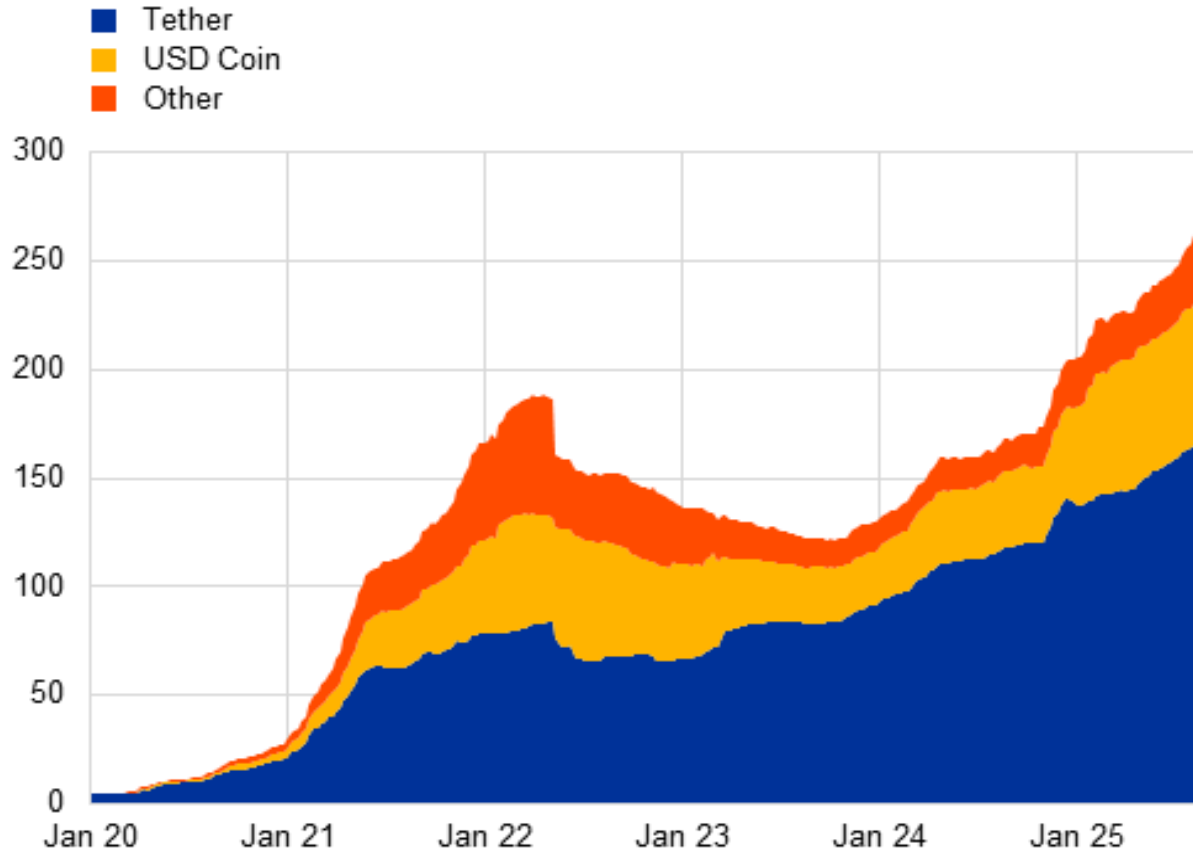
Bitcoin price trend versus gold price, Magnificent 7 and Nasdaq

Jan. 2021-May 2025; price indices, Jan. 2021 = 100



Stablecoin market expanded significantly 2024-2025

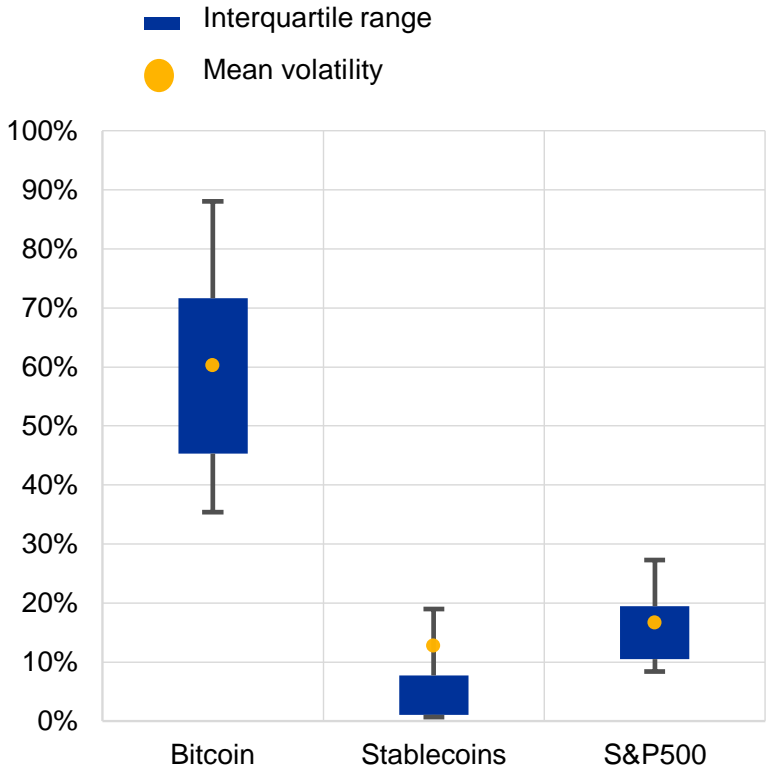
Market capitalisation of selected stablecoins (\$ bn)



- Total apparent market cap of stablecoins – ca. USD 250 bn – 7.5% of crypto market
- USDT [Tether] (\$174 bn) and USDC [Circle] (\$74 bn) retain dominance
- USD-denominated – 99%

Stablecoins should show zero volatility! – but they aren't so stable... and their reserves hold major amounts of US Treasuries

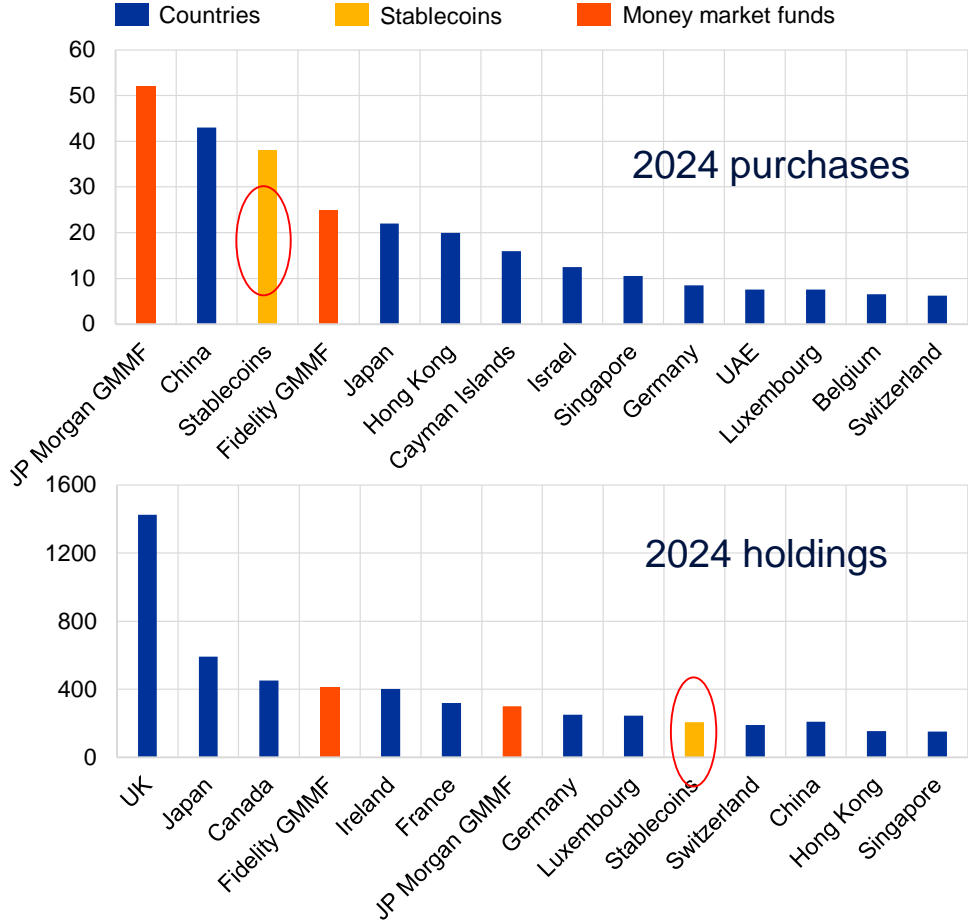
Annualised standard deviation of daily returns – 21 day moving window



Source: ECB Crypto Assets Dashboard, Bloomberg, ESRB calculations

Note: 21-days rolling standard deviation, annualised dividing by squared number of working days in a year. Stablecoin computed using average returns of Stablecoins backed by USD-denominated assets only (BUSD, GUSD, PYUSD, TUSD, USDC, USDP and USDT). Data from 01 Jan 2019 to 24 Jun 2025. Black bars indicate 10th and 90th percentile respectively.

Stablecoins are rapidly increasing holdings of short-term Treasury bills (\$bn)



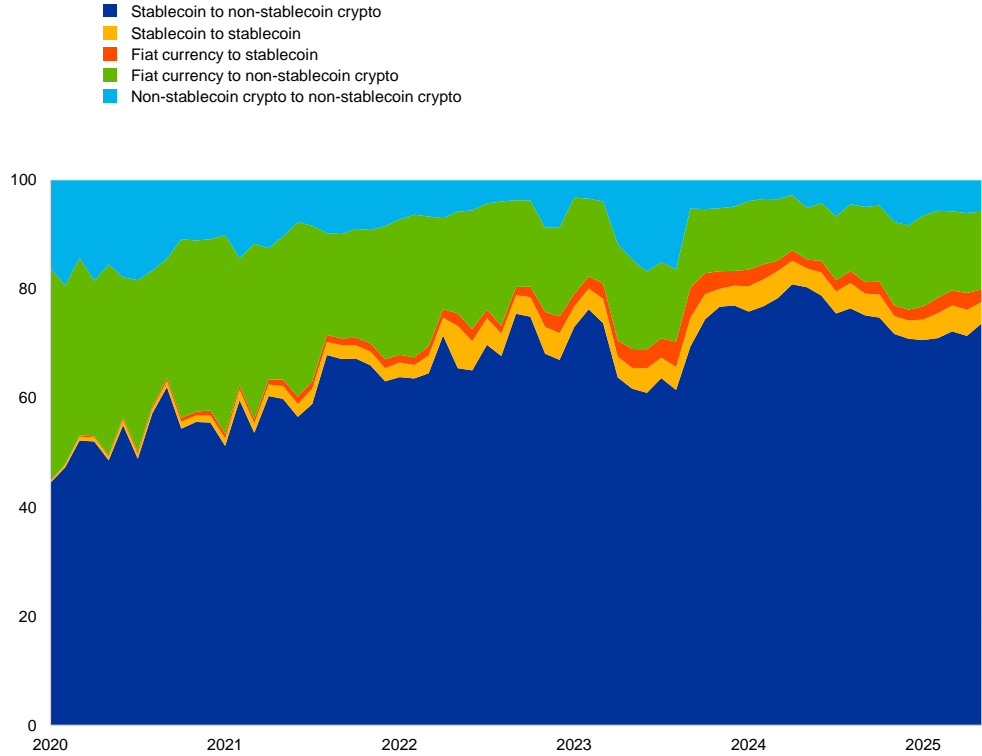
Source: Bank for International Settlements.

Note: Holdings as of end 2024, purchases for FY2024.

Stablecoin transaction volumes and asset reserves are significant

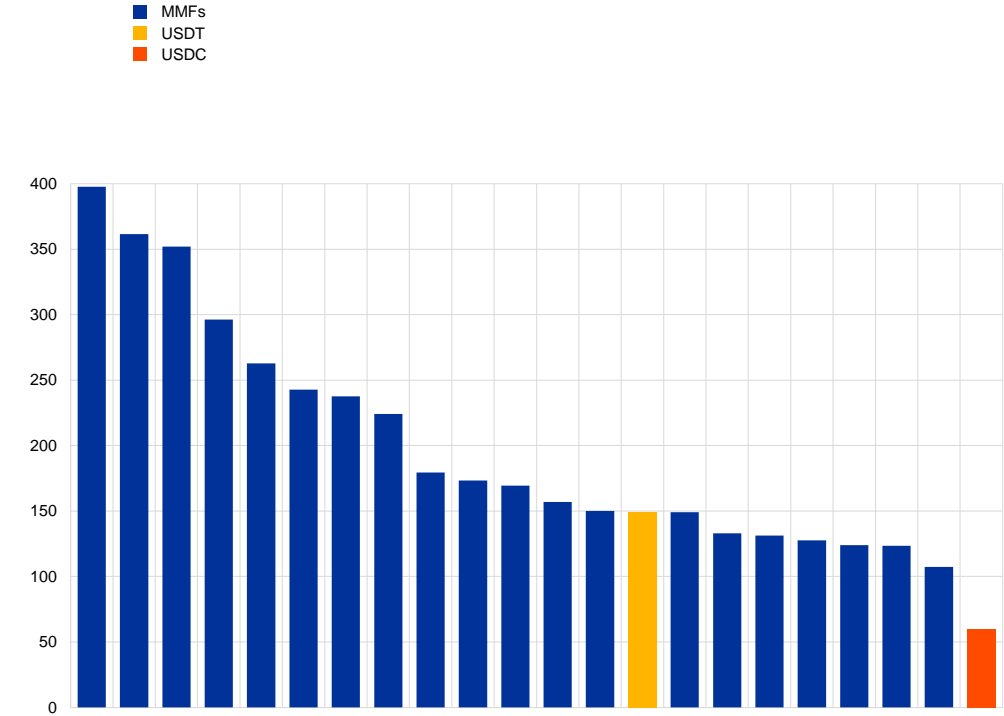
Share of transaction volumes on crypto-asset trading platforms

Jan. 2020-May 2025, percentages



USDT and USDC reserve assets and assets under management of the 20 largest MMFs

Mar. 2025, USD billions



Illustrative projection of stablecoin growth*

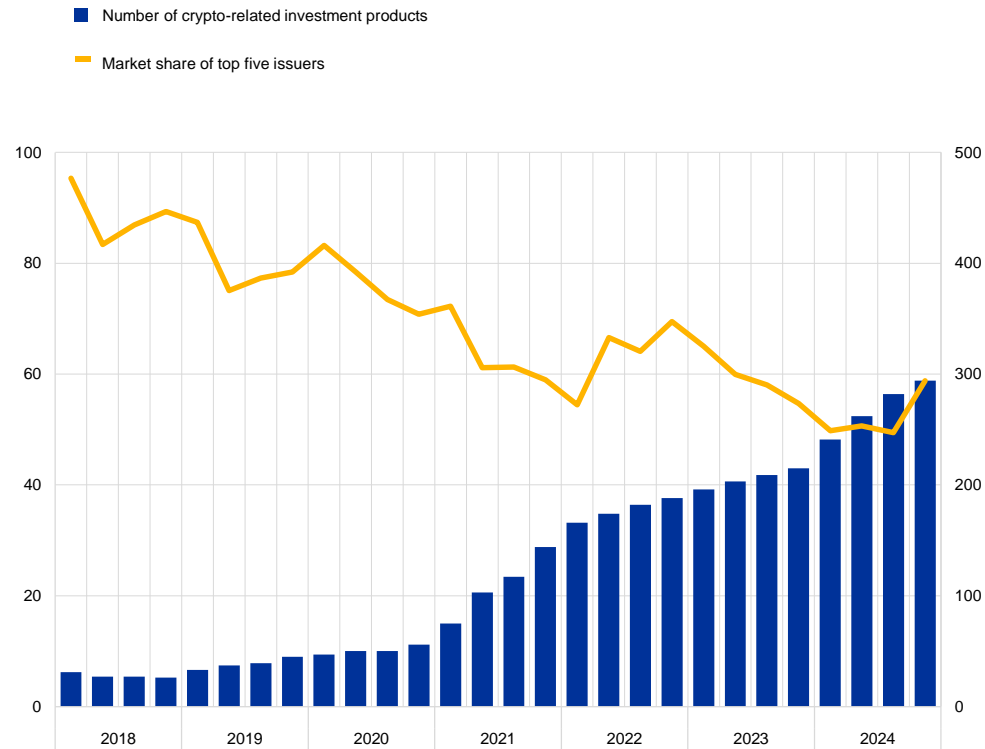
- Citi projects total stablecoin volume at USD 1.6tn to 3.7 by 2030
- By 2030, SCs would (assuming current Tether portfolio structure) hold USD 2.4tn in TSY which would be 8.5% of today's TSY market outstanding and 5.7% of a 2030 TSY bond market assuming the 7.2% CAGR of the last decade.
- But where are the funds coming from? This is a reallocation of investors' holdings of highly liquid assets/money/payments instruments.
- Would they shift from government money market funds that currently hold \$5.7 trillion U.S. Treasury and agency securities ? Or from banks, which currently hold \$4.6 trillion?

*Back of the envelope estimates and discussion due to Steffen Kern and Stephen Cecchetti.

Crypto-related investment products and holdings rise

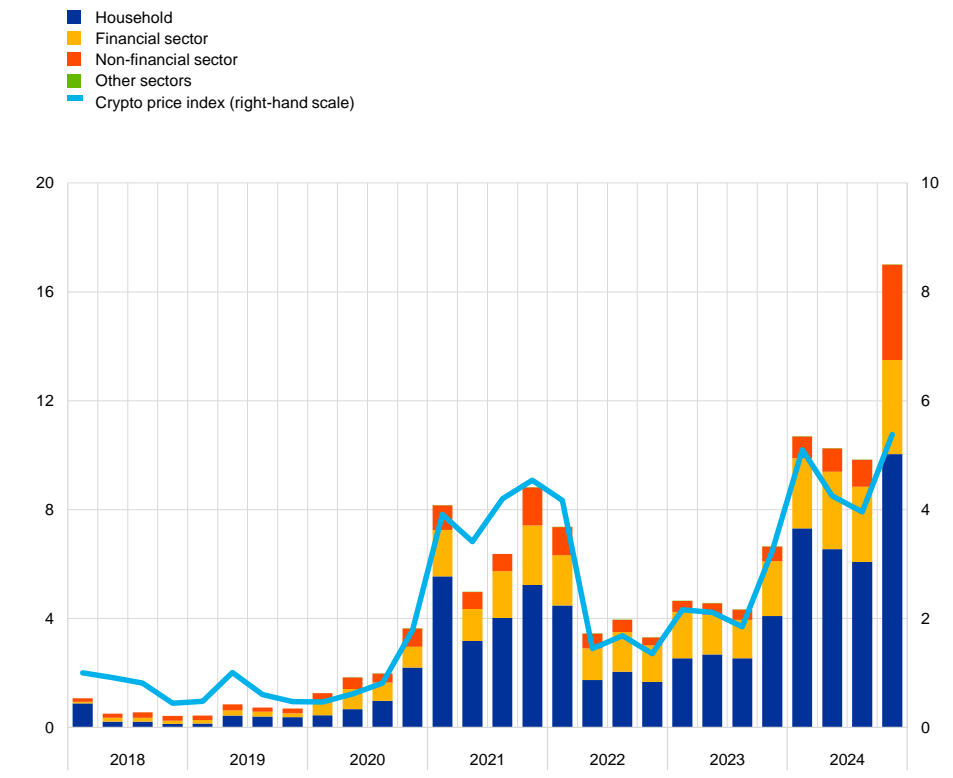
Availability and concentration of holdings of crypto-asset-related investment products

Q1 2018-Q4 2024; left-hand scale: percentages, right-hand scale: number



Market value of euro area holdings of crypto-asset-related investment products

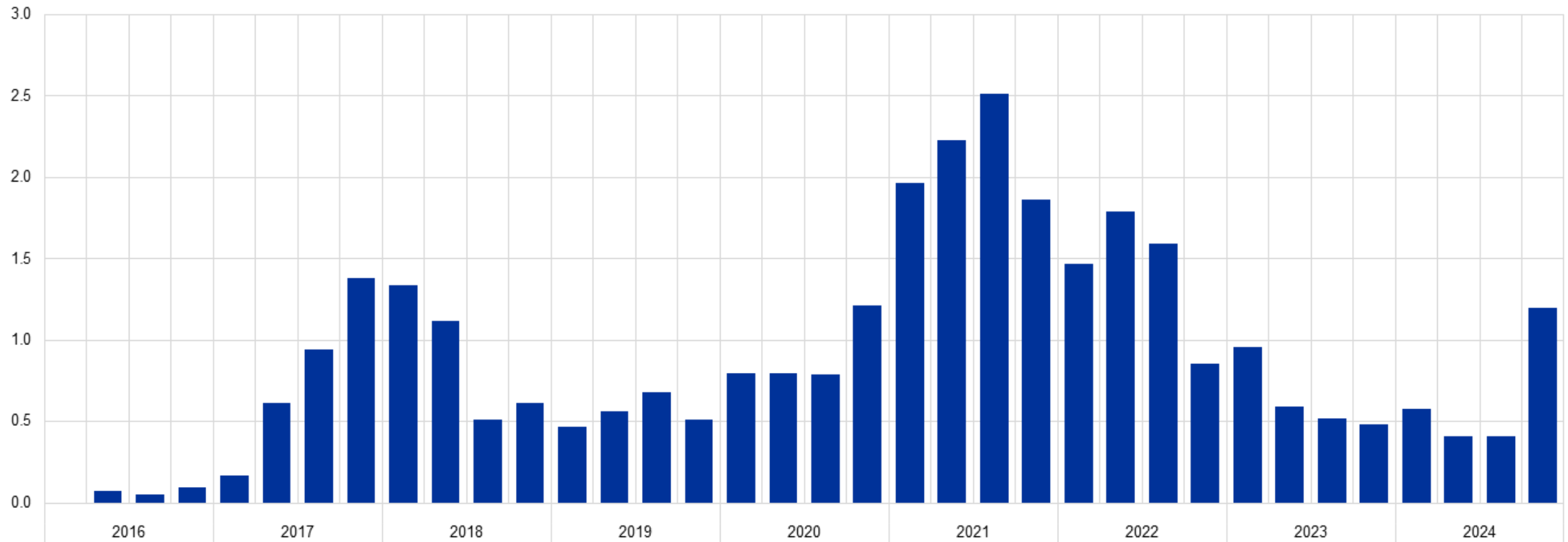
Q1 2018-Q4 2024; left-hand scale: € billions, right-hand scale: index: Q1 2018 = 1



Bank deposits from crypto trading platforms limited in euro zone

Large deposits by crypto trading platforms

Q2 2016-Q4 2024; € billions



Politics and regulation

- Lobbying in US and EU – financed by big profits of the stablecoin issuers and crypto asset service providers, a factor in US elections and subsequent legislation (GENIUS Act, with wide-ranging support from legislators who received campaign contributions...). Circle lobbying heavily in Europe.
- Different regulatory approaches in different jurisdictions – little international cooperation, indeed some signs of a ‘race to the bottom’ as jurisdictions (e.g. Hong Kong, UK, Malta, ...) compete to be ‘crypto hubs’, showing they are ‘pioneers in financial innovation’
- EU introduced wide-ranging Markets in Crypto Assets Regulation (MiCAR, 2024), but mainly consumer and investor protection, not much related to financial stability

Inherent risks from stablecoins

Core risks

- **Volatility:** Stablecoins fluctuate in price and can break pegs, like pegged exchange rates;
- **Runs:** vulnerability to massive redemptions, with systemic impacts.

Robust requirements for the composition of reserves is key to mitigate these risks

- The report strongly advises against the EU allowing MMF units as reserves, urging to keep adherence to High-Quality Liquid Assets (HQLA) rules to ensure prompt redemptions.

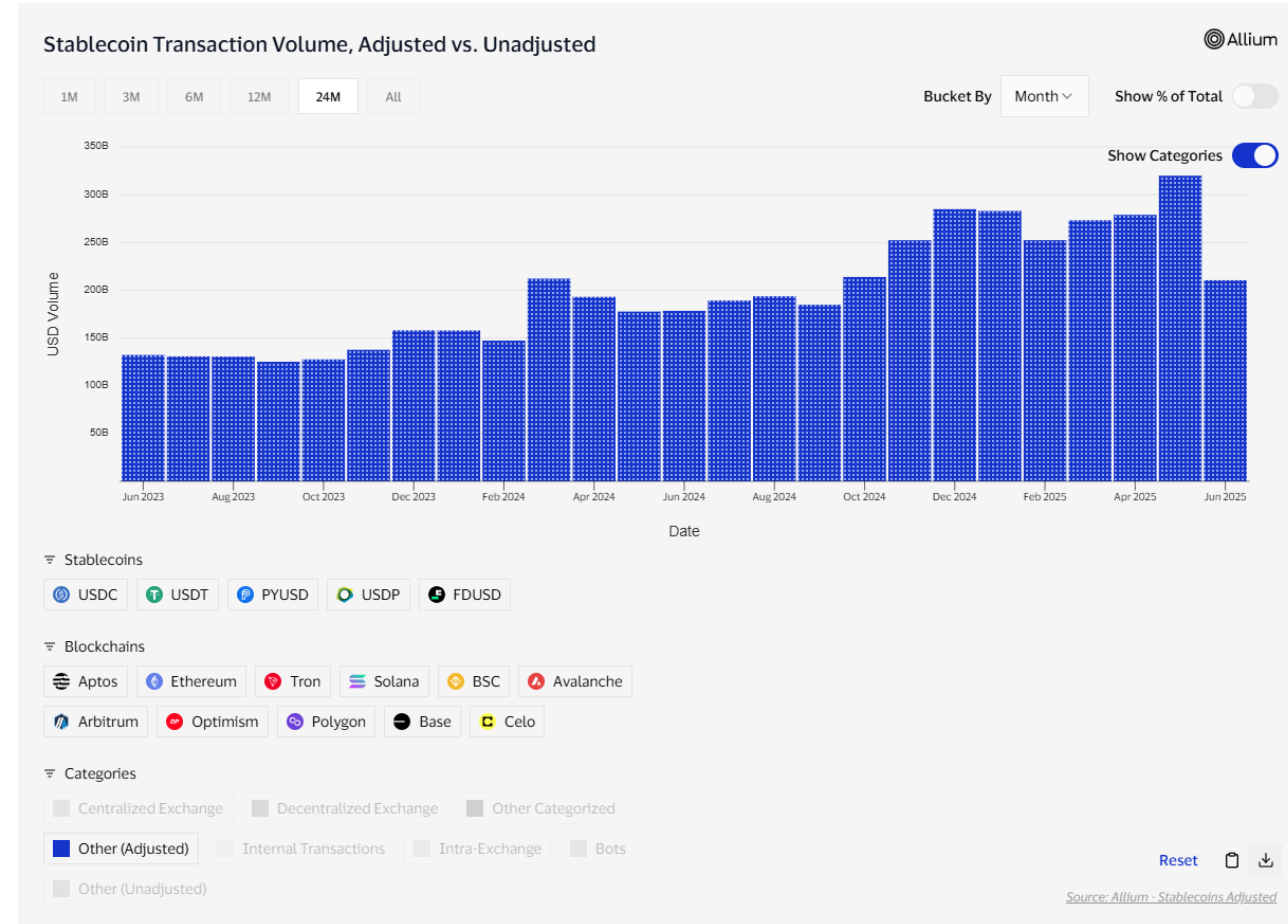
Operational risks

- **Exposure to cybersecurity risk, hacks and thefts;**
- **Custody risks** associated with the safekeeping and management of the assets;
- **Money laundering** (AMLA 2025 work programme priority on risks from crypto);
- **Sanctions evasion** (e.g. ruble-backed stablecoins used to bypass sanctions on Russia).

Risk scenarios

- **Information sensitivity** \Rightarrow **run on reserve-backed stablecoin**: Liquidity vanishes, price volatility jumps; haircuts and margin calls surge triggering fire sales; transmission through *interconnections* between crypto and TradFi markets and institutions
- **TradFi institutions and infrastructures hold crypto/DeFi**: Price declines trigger loss of trust; decline in credit supply to healthy borrowers
- **Crypto/DeFi entities own TradFi institutions**
- **Native coins become prominent in TradFi payments**: Congestion or hacks undermine essential financial services
- What to do? Different regulatory approaches – EU, US, ‘let it implode’, regulate like gambling

- *Intra-crypto*: trading, liquidity provision, lending (incl. collateral in DeFi)
- *Bridge official-crypto*
- Hard to assess payment usage outside crypto
 - Visa/Allium – claim USD 2.4 trn /yr of potential payment usage, actual USD 300 bn May 2025 (Visa total transactions USD 1.3 trn in May)
 - WorldPay Global Payments Report – total crypto: <0.2% of global retail e-commerce payments
 - Cross-border flows concentrated in countries with high cost / currency volatility
 - USDC integration by traditional financial firms (Stripe, Visa) – live but hard to assess scale



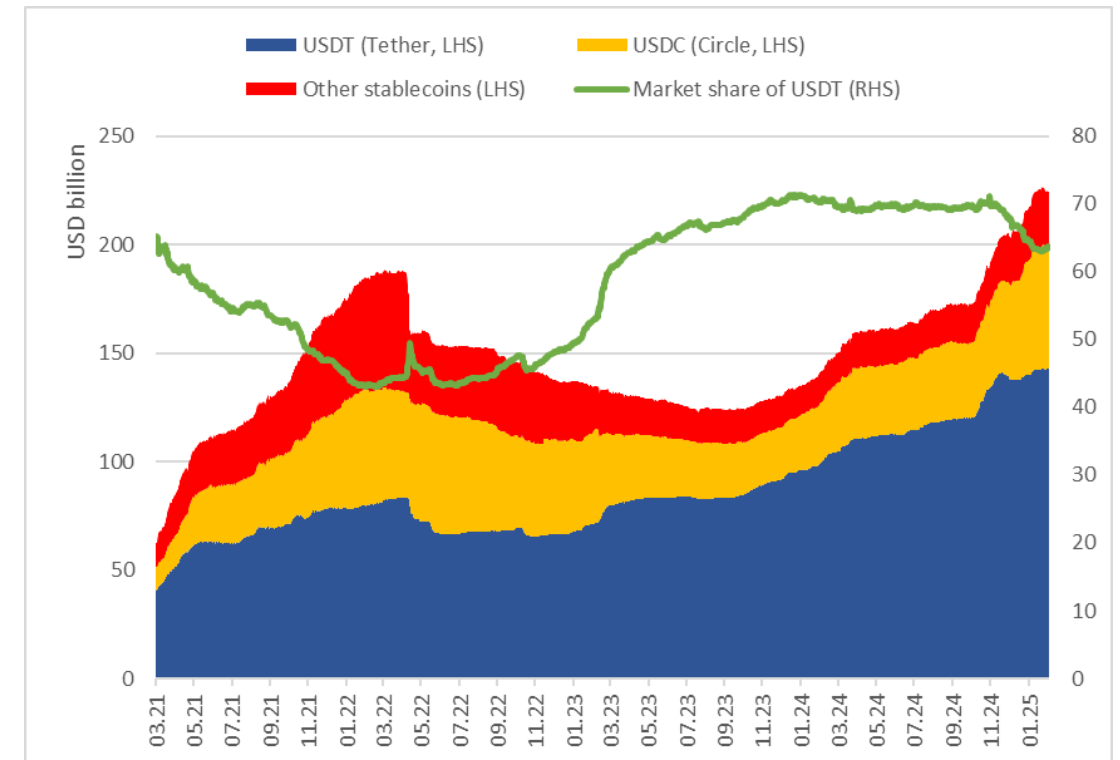
Visa/Allium: This estimate strips out the following transactions from the total value of on-chain stablecoin transfers:

- deposits and withdrawals of stablecoins to and from labelled centralised and decentralised exchange accounts,
- other labelled categories: lending, investment funds, minting & burning, ramps,
- internal smart contract transactions,
- intra-exchange transactions,
- MEV bots transactions
- unlabelled addresses that exceed the threshold of 1,000 monthly transactions or \$10m monthly volume (an approximation of high-frequency traders and unlabelled bot activity).

Stablecoin Name	Issuer	Market Capitalization as of June 10 (in USD)	Pegged Currency
USDC	Circle	\$53.6 billion	USD
EURC	Circle	\$199 million	EUR
EURCV	Société Générale – Forge	\$48 million	EUR
EURI	Banking Circle	\$46 million	EUR
eUSD	Membrane Finance	\$27 million	USD
USDR	StablR Ltd	\$6 million	USD
EURR	StablR Ltd	\$12 million	EUR
EURQ	Quantoz Payments	\$3.8 million	EUR
EURØ	Membrane Finance	Not enough data	EUR
EURD	Quantoz Payments	Not enough data	EUR
EUROe	Membrane Finance	\$345 thousand	EUR
EURØP	Schuman Financial	Not enough data	EUR
EURSM	Stable Mint	Not publicly disclosed	EUR
ENEUR	Fiat Republic	Not enough data	EUR
Ambr EMT	Ambr Payments	Not publicly disclosed	EUR
USDE	Eurodollar	\$5.14 million	USD

- All issued by EMIs except EURI
- Minor size except USDC
- StablR and Quantoz are reported to have capital and technology links to Tether
- Jurisdictions: FR, LU, FI, MT, DK, LT, CZ
- *New initiative* (announced 25.09.25): 9 major EU banks to issue jointly EUR-denominated stablecoin in 2026

- Following ESMA and EC statements, major platforms made USDT (Tether), DAI & other non-registered SC unavailable to EU users
 - Some entities - not CASP-licensed (yet?) - still offer USDT
- Continued use will depend on:
 - Relative benefits (liquidity, transaction cost, yield opportunities)
 - Ease of access (reverse solicitation, DEX)
- Clarity needed on MiCAR application to (apparently) decentralised issuance (DAI/USDS)



Source: DeFiLlama

- Shift in supervisory activity away from enforcing securities regulation in crypto markets
- New stablecoin regulation (GENIUS Act)
 - Broadly aligned with MiCAR on reserve requirements (in terms of permissible assets)
 - No ban on redemption fees
 - Issuers can't offer yield, CASPs can – incentives for holders?
 - Still unclear scope of application to non-US based issuers (e.g. USDT – Tether based in El Salvador) – equivalence assessment seems to be mandated by US Senate
 - Permits stablecoin companies to engage in risky activities like private credit or derivatives trading
- US Treasury Secretary sees stablecoins as major source of *demand for US Treasury issuance* (but biases towards short-dated), others see USD stablecoins as a *vehicle for international dominance of dollar*
- USD stablecoins are vulnerable to a Treasury market whose plumbing is increasingly fragile. Trading quality periodically becomes degraded, impairing quick liquidation. Opening hours of the Treasury market do not fit the 24/7/365 operations of stablecoins.
- US support for stablecoins may increase the challenges of cross-border cooperation and enforcement of MiCAR protections

Characteristics of stablecoins

- Are stablecoins just tokenized Money Market Funds (dollar or euro peg, liquidity transformation)? Or analogous to 'narrow banks'? Or a combination of the two? (not if they don't pay interest)
- The peg to fiat is like any peg – in particular, a pegged exchange rate – vulnerable to a run and breaking of the peg
- In a run, would the Fed (ECB, BoE,...) feel obliged to bail out stablecoins as they did MMFs in 2008 and 2020?

Critique of stablecoins (Hyun Song Shin):

- **Lack of Singleness:** Stablecoins, unlike central bank money, don't have a single, universally accepted standard. Hence could have different stablecoins trading at varying exchange rates depending on the issuer, undermining the principle of money being accepted at par.
- **Inelasticity:** Stablecoins may not be able to expand or contract their supply quickly enough to meet fluctuating demands, potentially leading to instability and "fire sales" of their underlying assets during periods of market stress.
- **Integrity Issues:** potential for illicit use, lack of robust know-your-customer (KYC) and anti-money laundering (AML) procedures associated with some stablecoins, particularly those using unhosted wallets.

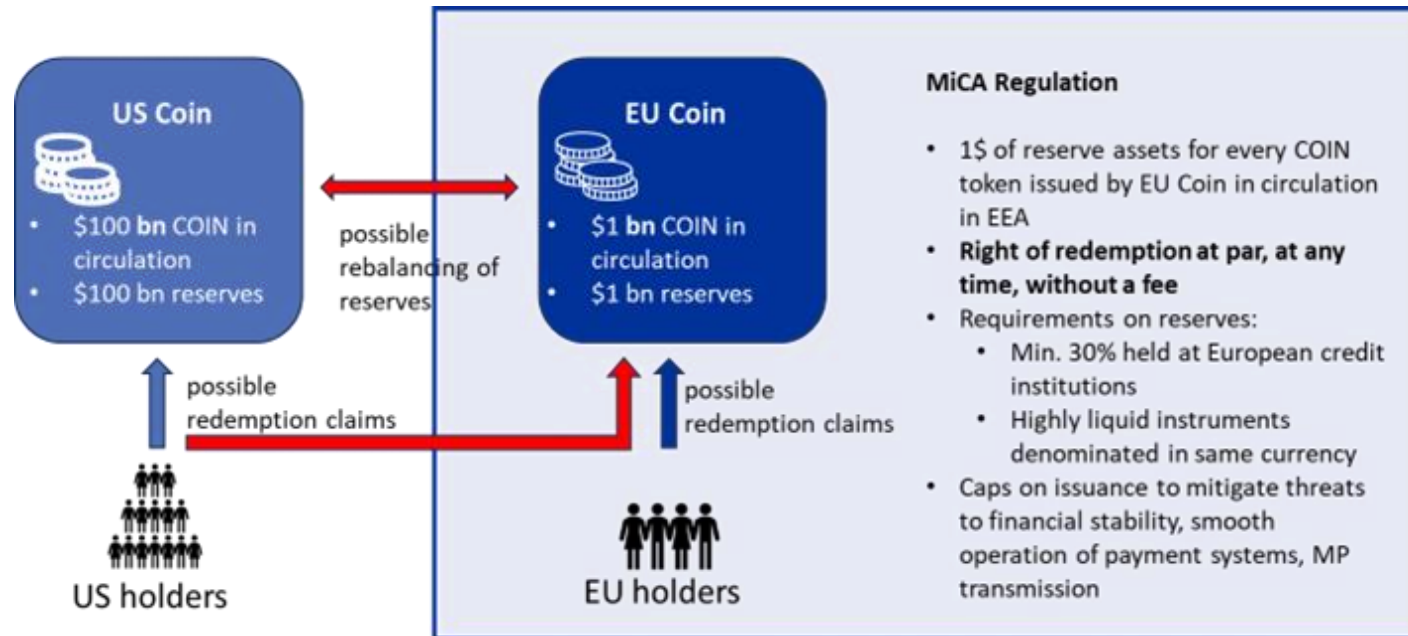
- Stablecoin market growing rapidly
- USDT/USDC dominance
- Intra-crypto use dominates
- Still hard to assess non-crypto use, cross-border flow estimates based on proxies
- MiCAR-registered market still minor apart from USDC
- Delisting of non-compliance progressing, although further enforcement needed
- US moving towards a MiCAR-light / like (?) regime, but with a strongly supportive stance – likely further growth, with global implications

Third-country multi-issuer stablecoins (MISCs*)

- The EU Commission, upon request from a National Competent Authority (NCA – a regulator), propose to authorise an EMT fully fungible with a token issued by a third-country firm ('the scheme').
- Under the scheme every issuer is liable for every token in circulation.
- The scheme was initiated by Circle, which currently issues a MiCAR-compliant EMT denominated in USD (USDC) through an EMI licensed in France. This token is 'fungible' with the USDC token issued by Circle US licensed by the New York state regulator.
- There are two different white papers (underlying authorisation) for the same token because depending on which entity is engaged by clients, rules are (slightly) different. For instance, Circle US charges redemption fees while under MiCAR they are prohibited.

* See R. Portes, *Financial Times*, 24 July 2025, 'The stablecoin loophole that could expose the EU', and R. Portes, 'Multi-issuer Stablecoins: a threat to financial stability', forthcoming in D.Niepelt, ed., *Frontiers of Digital Assets, Currencies and Payments*, CEPR Press.

Third-country multi-issuer stablecoin schemes



- In these schemes, an EU entity and a non-EU entity issue stablecoins that are bearer instruments, **technically the same and legally undistinguishable**;
- This fungibility enables *de facto* global stablecoin issuers to operate across jurisdictions;
- Two of these schemes currently operate in the EU.

MiCAR does not explicitly regulate the risks stemming from the joint issuance of fungible stablecoins by an EU entity and a third-country (non-EU) entity.

Built-in vulnerabilities that may turn into systemic risks

What are the vulnerabilities?

- Inadequate reserves and barriers to flow of reserve assets
- Regulatory arbitrage incentives;
- Contagion to the traditional financial sector;
- Absence of bilateral cooperation agreement, notably to exchange data;
- Empty shells in the EU, unable to properly manage risks in the EU;
- Insufficient information for customers can make runs more likely and severe;
- Inadequacy of supervisory tools for EU authorities vis-à-vis third-country issuers.

➤ **Systemic risks: Destabilising runs, also affecting traditional finance**

The scheme would...

- 1. significantly weaken EU's prudential regime for EMT issuers with negative implications for credit institutions and prudential supervision**
 - Higher likelihood of a *run*: issuers may not have enough reserve assets to fulfil redemption requests by both EU and non-EU token holders
 - Direct *contagion* channel to banking system as EMT issuers maintain funds at credit institutions, so complications for supervision and setting of own funds
- 2. allow circumvention of EU measures to mitigate challenges to financial stability, smooth operation of payment systems, monetary sovereignty and monetary policy transmission from foreign-denominated stablecoins active in the EU market**
 - Difficult to monitor and enforce caps on issuance for foreign denominated stablecoins and increased requirements for significant issuers based on activity within EU
 - Fungibility blurs perimeter of Eurosystem payments oversight. Problematic for monitoring, understanding, and managing risks that the scheme generates.

3. hinder a level playing field and hamper the EU's strategic autonomy

- Sets a precedent and incentive for all existing and future third-country stablecoin issuers to seek an EU licence for a (very partial) share of their global business
- Existing third-country issuers can exploit their existing oligopolistic market position and network effects, while most of their business is not subject to EU requirements, resulting in a competitive advantage

4. reduce the protection for EU stablecoin holders

- Redemption without fee sets an incentive for non-EU holders to redeem with Circle France, then EU holders might not be able to redeem as EU assets insufficient and thus suffer losses
- Resulting losses could further transmit to the EU banking sector, especially if a future issuer were a bank

Missing policy tools to respond

MiCAR does not contain references to these schemes. As a result, there is no:

- Regulatory alignment and cooperation with third-jurisdictions;
- Required assessment by third-country authorities of the size of asset flows, particularly during market stress;
- Control on decisions made by firm headquarters outside the EU;
- Visibility on the third-country structure and its decisions;
- Reliable data on the localisation of tokens and their holders.

Prompt action is necessary to address the issues identified:

- **The first best would be to ban these schemes;**
- **The second best is to enforce stricter prudential tools.**

Alternative safeguards unconvincing

- **NCA to 'consider' if the third-country is FSB-compliant when licensing:** assessment of equivalence is an EU-level task in all other areas, should be same here. Absent a provision in MiCAR, NCAs have no ability to reject the license upon this ground: indeed they can only 'consider' it.
- **Limitation of redemption rights to EU holders:** MiCAR sets an unconditional right of redemption in favour of all token holders. No provision that permits restricting redemption rights on the basis of nationality, country of residence, etc. All token holders rank *pari passu*.
- **Rebalancing mechanism:** it is a private law agreement, relying on assumptions that may hold in a fair-weather situation but likely not in a stressed situation. And authorities where bulk of reserves are held may 'ring fence' them in crisis (as during GFC and covid crisis).
- **Additional capital and liquidity measures for the EU stablecoin issuer:** may improve soundness of the EU issuer but cannot fix key issues like third country supervisors restricting transferability of reserves to the EU issuer.

Areas for policy attention (1)

- Clarify and strengthen MiCAR enforcement for non-compliant stablecoins
 - Provision of services for non-compliant crypto assets
 - EMTs/ARTs and decentralisation exemption
 - Reverse solicitation exemption
- Further monitoring of the role of large non-compliant stablecoins in EU and global markets
- EMT reserves
 - current size of the sector not meaningful for financial stability risks
 - no apparent cause for recalibration,
 - monitor individual bank business models for vulnerabilities,
 - reassess if/when EU/euro area EMT sector grows significantly

Areas for policy attention (2)

- Coordination and cooperation needed with US authorities to prevent arbitrage, ensure investor protection and prevent reserve ring-fencing
- Multi-issuer – ideally, ban them, if not:
 - Foreign part should be in a FSB-compliant jurisdiction
 - Risks specific to multi-issuer schemes should be duly taken into account by relevant EU supervisors and reflected in supervisory actions
 - Disclosure of risks in whitepaper
 - Need for mechanism of equivalence assessment and cooperation agreements (explicit legal basis may be needed)
 - Multi-issuer significance assessment (explicit legal basis may be needed)

Crypto: personal reflections of a 'mainstream' economist

- *No convincing use case* for crypto – except crime, fraud, money laundering, regulatory arbitrage – maybe for blockchain (DLT), but what examples of significant efficiency savings?
- Blockchain financial transaction cost and duration should include KYC and AML (TradFi must satisfy)
- Crypto doesn't have traditional attributes of money (nor is it an inflation hedge)
- Most crypto activity is in CeFi not DeFi – exchanges (CASPs-MFGs) are not 'decentralized'
- DeFi 'smart contracts' are *not* smart – no recourse (and can you really 'trust code'?), no body of contract law
- Blockchain (DLT) vulnerable to hacks (\$11 bn losses from 118 hacks on exchanges 2012-2022)
- Purchase and holding of native coins – in particular, Bitcoin – is gambling and should be regulated as such
- Otherwise, is formal regulation (e.g. MiCAR) desirable? – it legitimizes crypto
- National competition to become crypto hubs → regulatory arbitrage, crypto players 'cherry-picking' – previous UK Prime Minister was 'thrilled' that Andreessen Horowitz was establishing crypto hub in London, France welcomed Binance, then authorized Circle MISC; HK and Dubai pushing strongly; and US SEC now favours crypto industry
- Hence *need for close international cooperation* – but no sign of that!