

Developments and risks in crypto-asset markets

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Risks to financial stability

Why do crypto-assets matter for financial stability?

- Currently small in scale but fast evolving
- Could reach a point where they represent a threat to global financial stability due to their scale, structural vulnerabilities and increasing interconnectedness with the traditional financial system
- Vulnerabilities could materialize through:



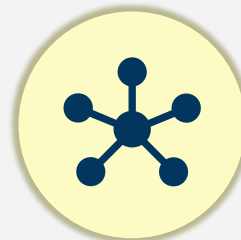
Financial sector exposures



Wealth effects



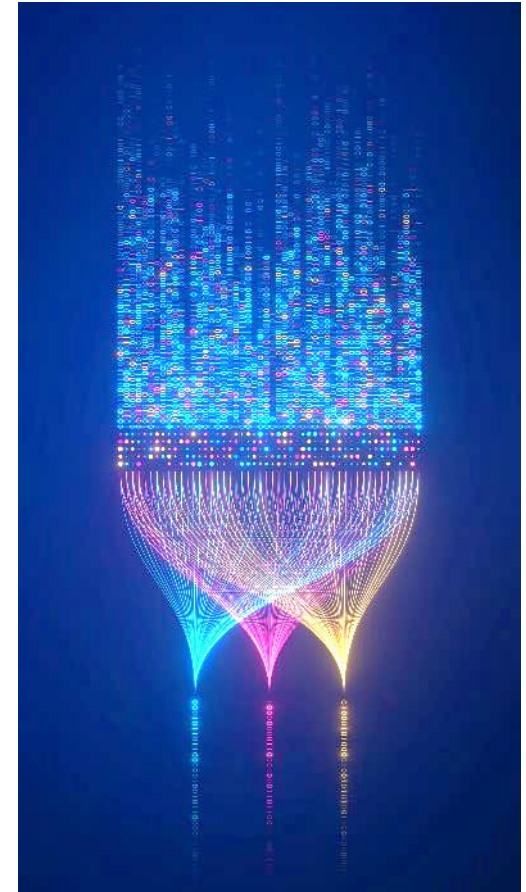
Confidence effects



Payments & settlement



Runs on stablecoins



Crypto-assets

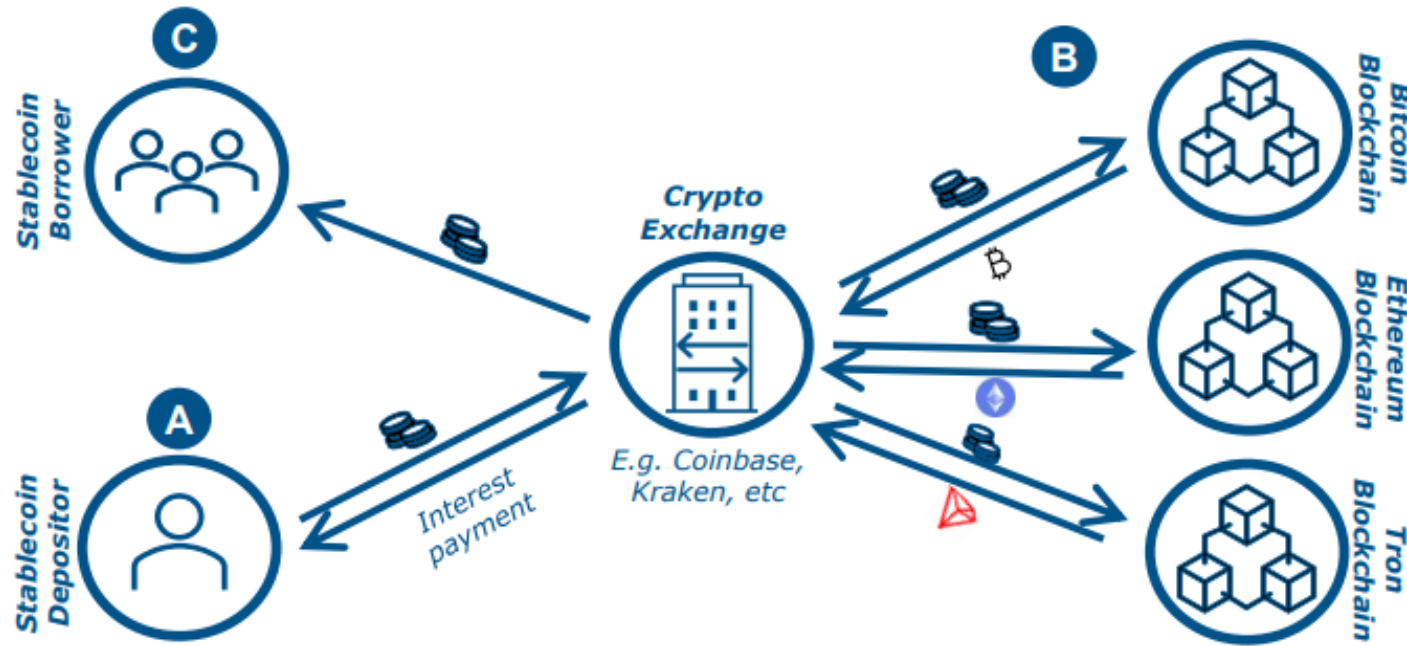
- A digital representation of value or contractual rights (issued by the private sector) that uses cryptography and distributed ledger or similar technology (DLT) to conduct financial transactions
 - A blockchain is a form of DLT in which details of transactions are held in the ledger in the form of blocks of information, and controlled by network participants using a consensus mechanisms and without relying on a central authority; provides decentralisation, (some) transparency and immutability
 - Cryptography is the conversion of transaction data (including timestamp and digital signature) into private code using encryption algorithms, typically for transmission over a public network
- Crypto-assets have grown rapidly in recent years (20,000+ in circulation), though only a small subset of these are traded on the largest crypto-asset exchanges
 - Examples include stablecoins, payment / meme coins, governance / utility / non-fungible tokens
 - Traded on-chain and off-chain
- Adoption is driven by a range of factors

Stablecoins


- A crypto-asset that aims to maintain a stable value relative to a specified asset (typically US dollars), or a pool or basket of assets
- Can provide relative price stability compared to the high volatility of ‘unbacked’ crypto-assets, facilitating their use in payments
- Generally created, and distributed through trading platforms, in exchange for fiat currency
- Various types: fiat-backed (e.g. Tether/USDT, Circle/USD Coin), commodity-backed, or algorithmic
- Main uses:
 - Acting as a bridge (on/off-ramp) between fiat currencies and other crypto-assets, and across exchanges
 - Serving as collateral in crypto-asset derivative transactions
 - Facilitating trading/lending/borrowing and acting as collateral in DeFi
 - Starting to be used for cross-border payments and even as a store of value in some emerging markets

An illustration of how stablecoins are used in crypto-asset ecosystem

Main Uses of Stablecoins in the Digital Asset Ecosystem



- An investor holds their stablecoins at a Crypto exchange. Most exchanges now pay interest on their stablecoin holdings, effectively making them (unregulated and uninsured) deposits³
- Since stablecoins are issued on multiple chains, they serve as a vital source of liquidity for the exchange to facilitate transactions between and within different chains, allowing for more efficient and user-friendly cross-chain services. Over 80% of all crypto transactions involve Stablecoins¹
- In addition, many exchanges and defi platforms provide some sort of margin trading or direct lending services, of which stablecoins are used as the major source of funds or collateral

 = Stablecoin in the diagram above

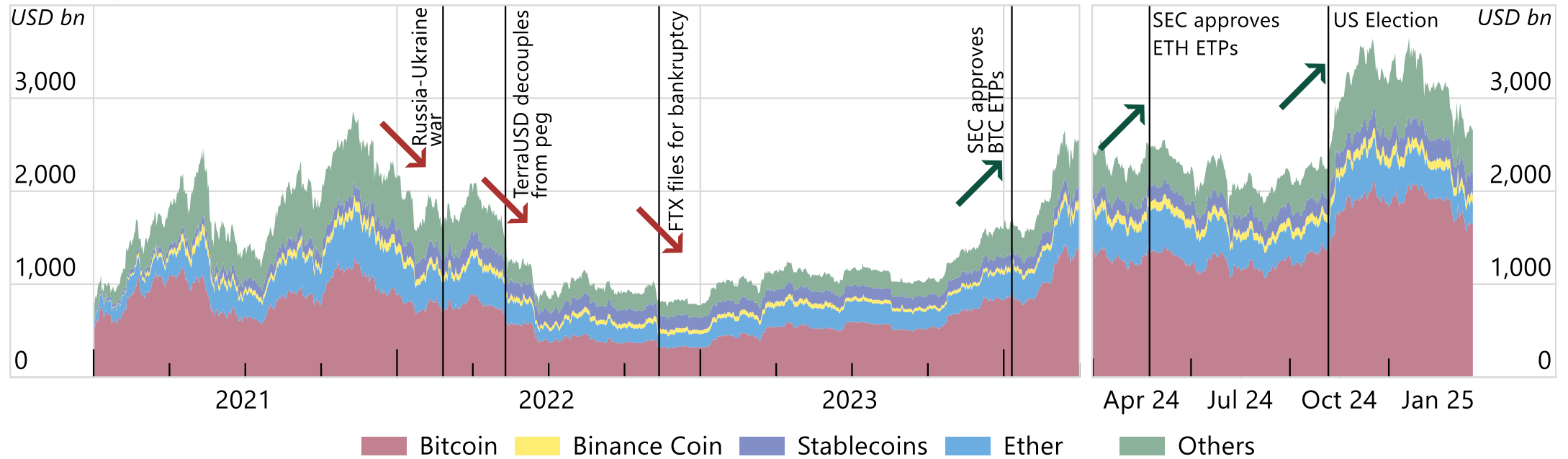
Sources (top-right): coinmarketcap.com

Decentralised finance (DeFi)

- A set of alternative financial markets, products and systems that operate using crypto-assets and 'smart contracts' (software) built using distributed ledger or similar technology, purportedly without the need for intermediaries
 - This includes lending, investment/trading/custody, payments and insurance of crypto-assets
 - Transactions are typically (over-)collateralised by crypto-assets
- Multi-layered architecture
 - Permissionless blockchains
 - Self-executing code (smart contracts)
 - Terms, conditions, and standards by which products and services are offered (DeFi protocols)
 - Decentralised apps that allow users to interact with smart contracts via a set of graphical interfaces and other components (DApps)
- Supposedly decentralised ownership and governance structure, but this varies in practice

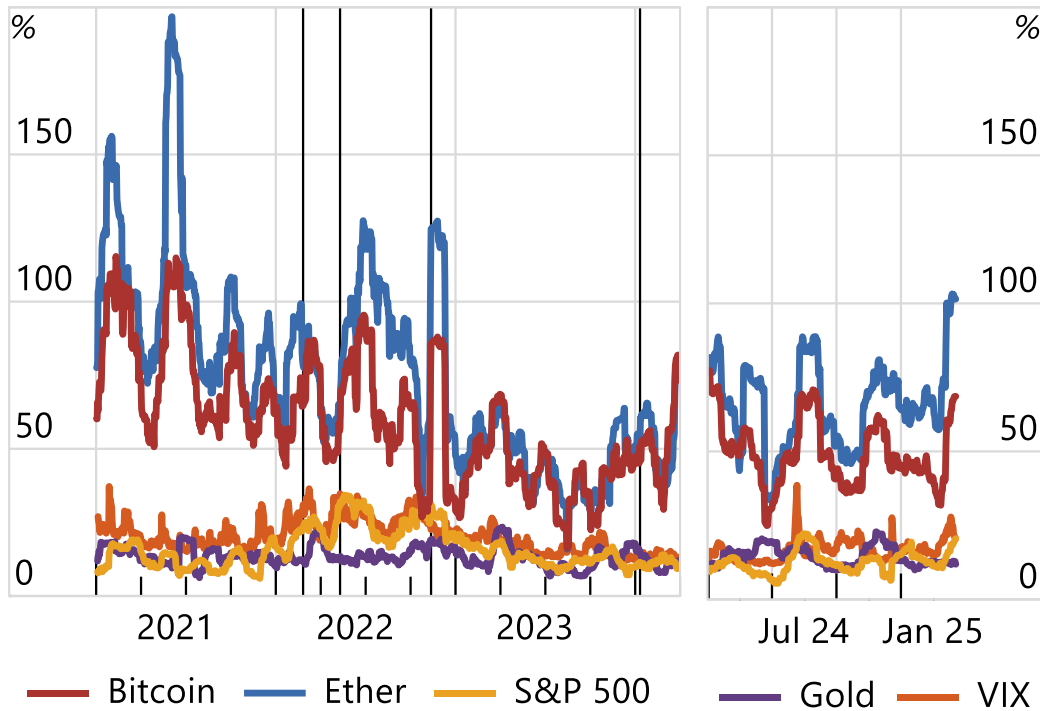
Crypto-assets have rebounded following the “crypto winter”...

Daily crypto-asset market value

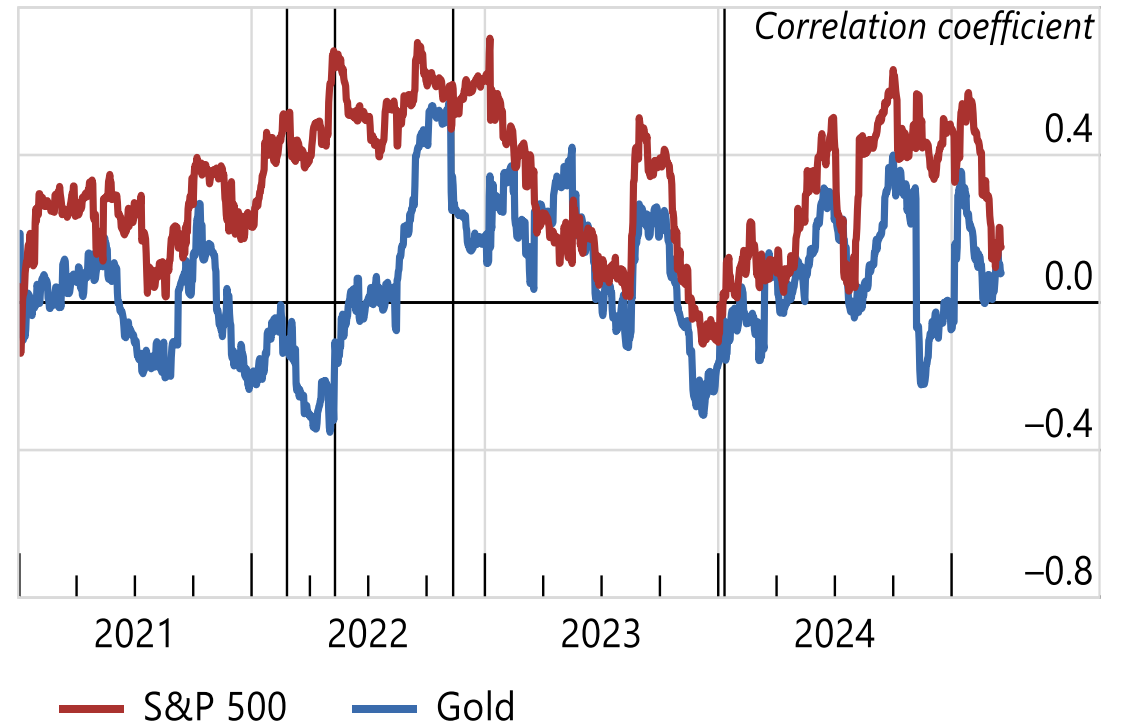


... but they remain volatile and behave similarly to risky assets

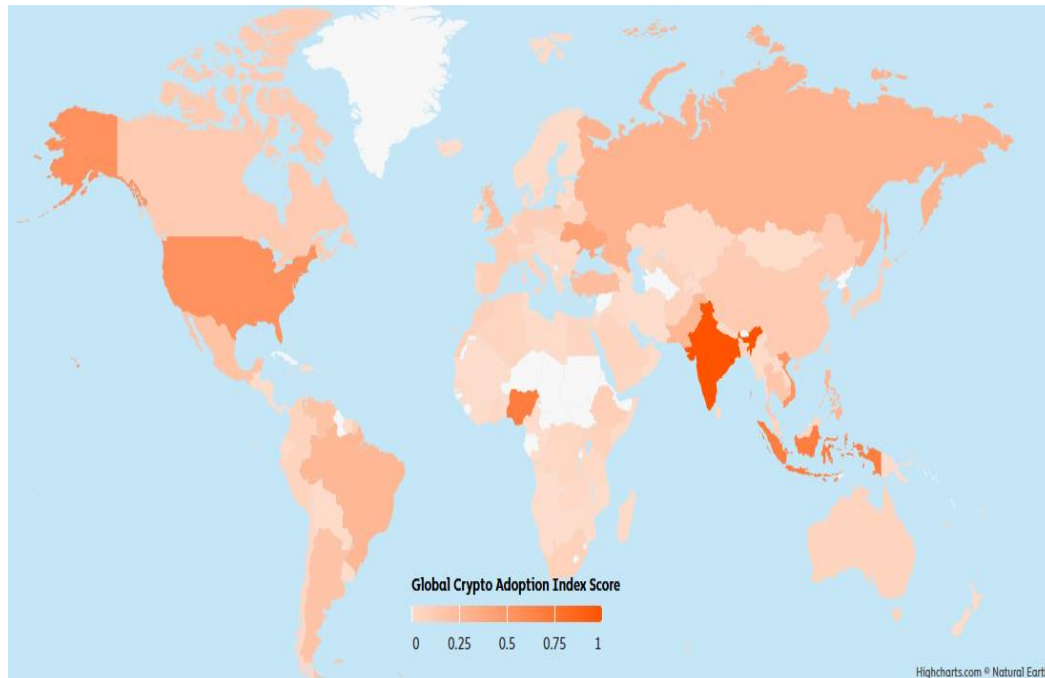
Rolling one month volatility of daily prices of BTC and ETH vs. other financial assets



60-day moving correlations of changes in the prices of Bitcoin and other assets



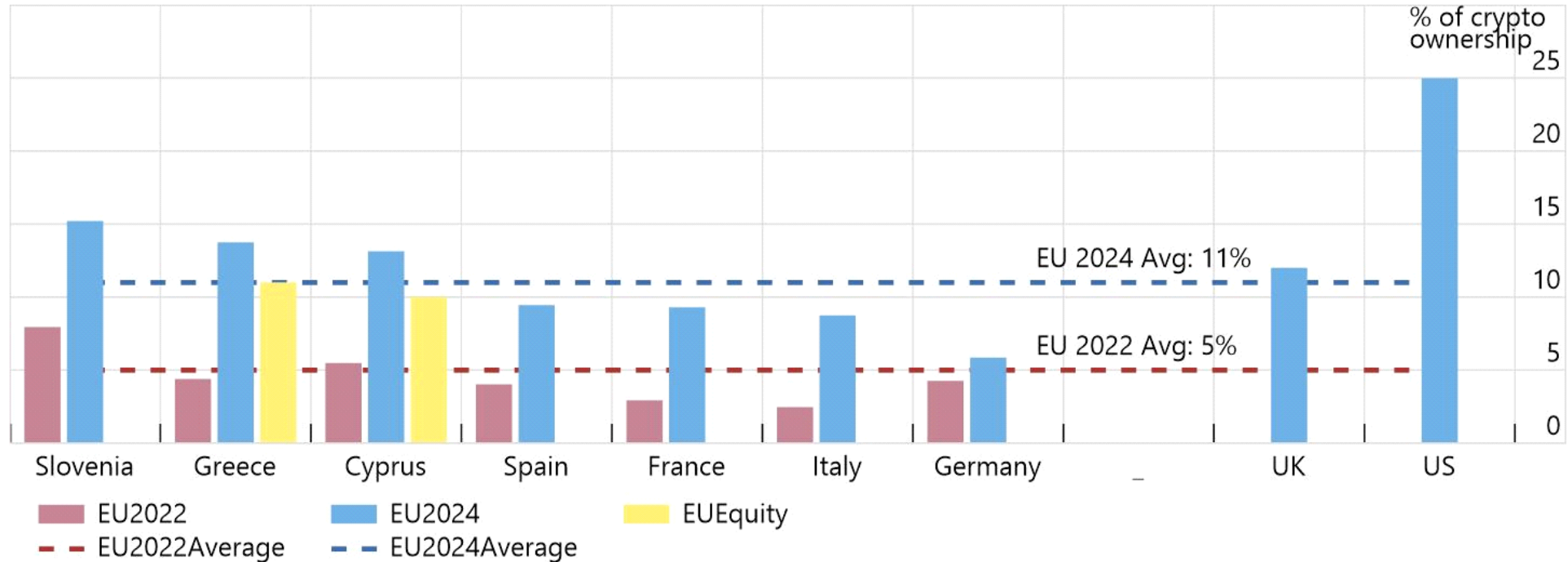
Reported ownership of crypto-assets is growing globally, especially in emerging market and developing economies (EMDEs)



	Top jurisdictions under Chainalysis Crypto Adoption Index	EMDE
1	India	✓
2	Nigeria	✓
3	Indonesia	✓
4	United States	
5	Vietnam	✓
6	Ukraine	✓
7	Russia	✓
8	Philippines	✓
9	Pakistan	✓
10	Brazil	✓

Sources: Chainalysis (2024).

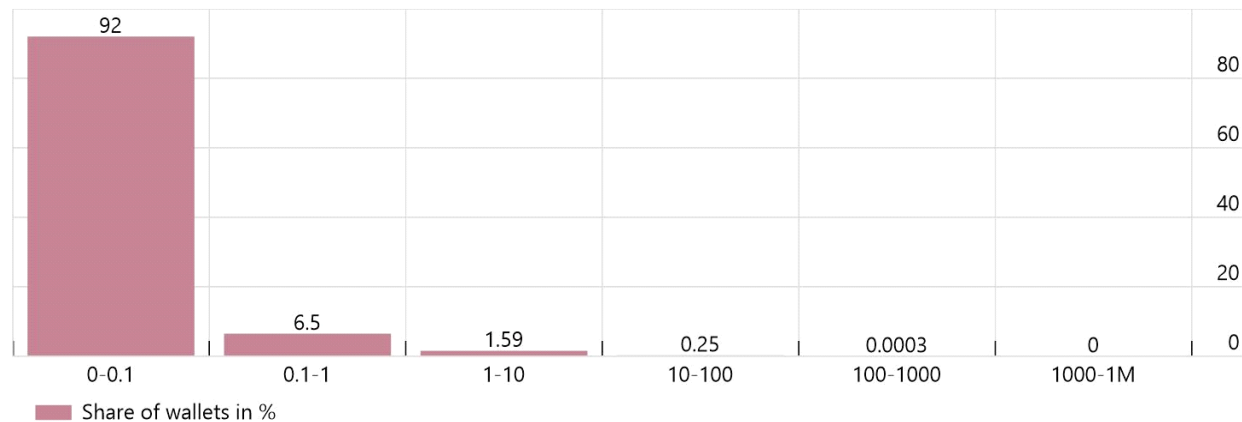
Crypto-asset ownership in the EU is also growing, though it is not as high as the US



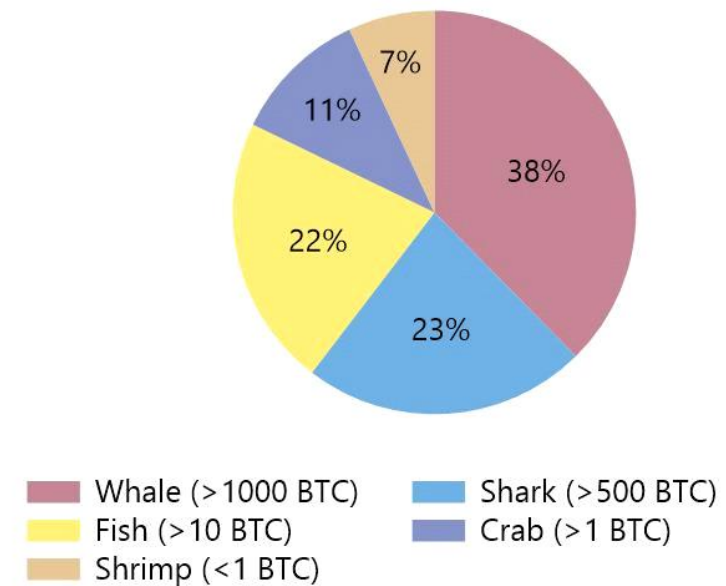
Sources: Household surveys and ECB, EC, UK FCA, US FRB. "EU Equity" refers to the percentage of households stating that they have holdings in financial assets such as equity.

Despite the uptake, retail investors are a small part of the market

Majority of market participants hold only very small quantities of BTC...



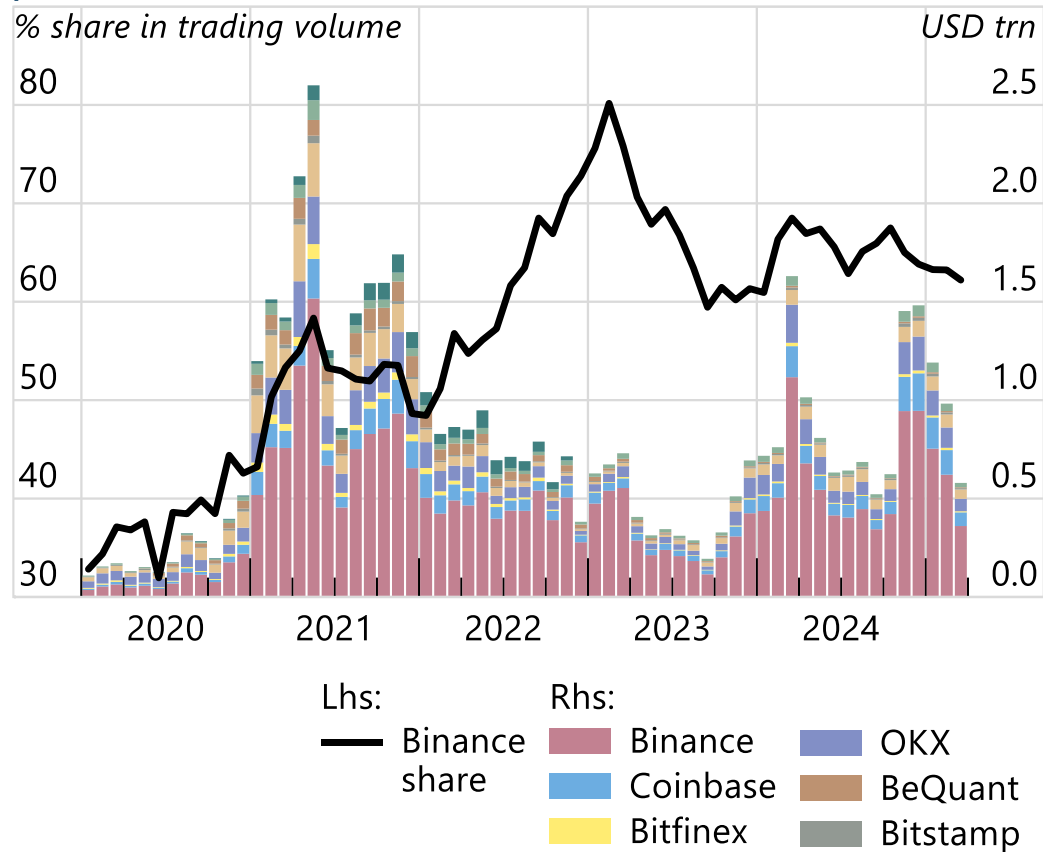
... and a very few hold most of the market value



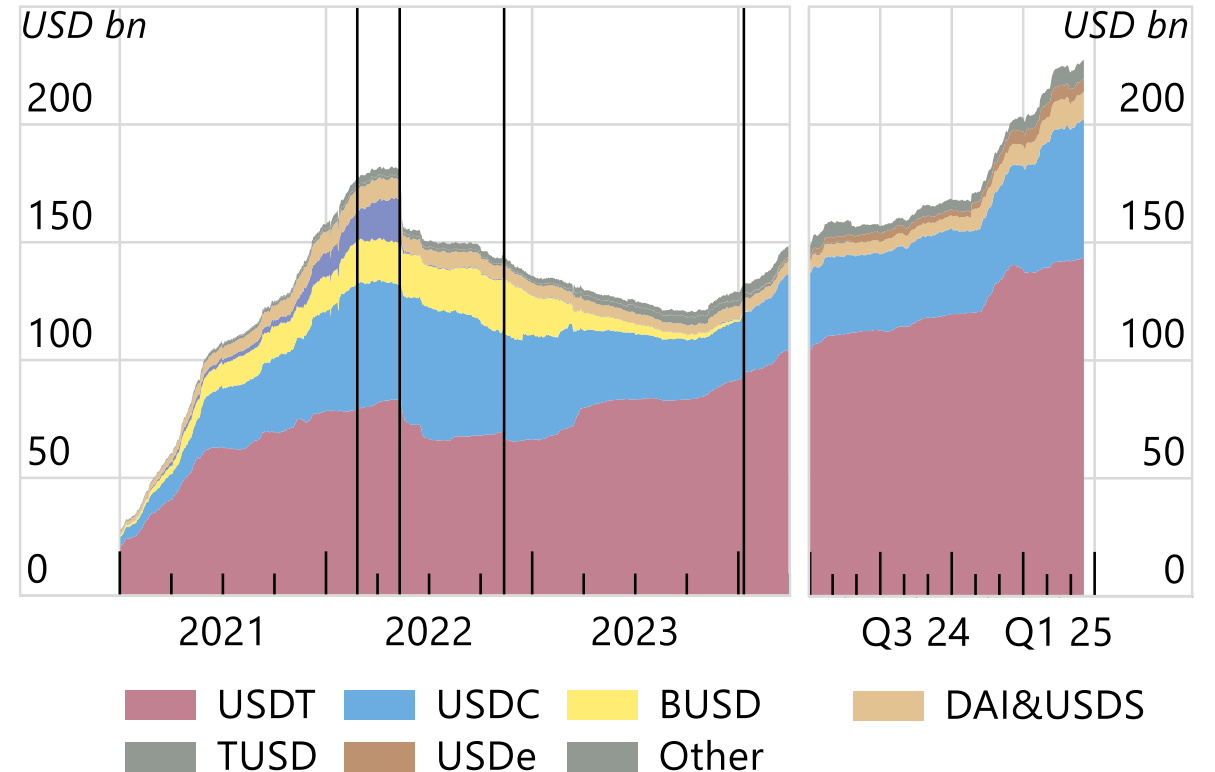
Sources: BitInfoCharts, Chainalysis.

A few large players dominate the crypto-asset market

Monthly spot trading volumes for selected trading platforms

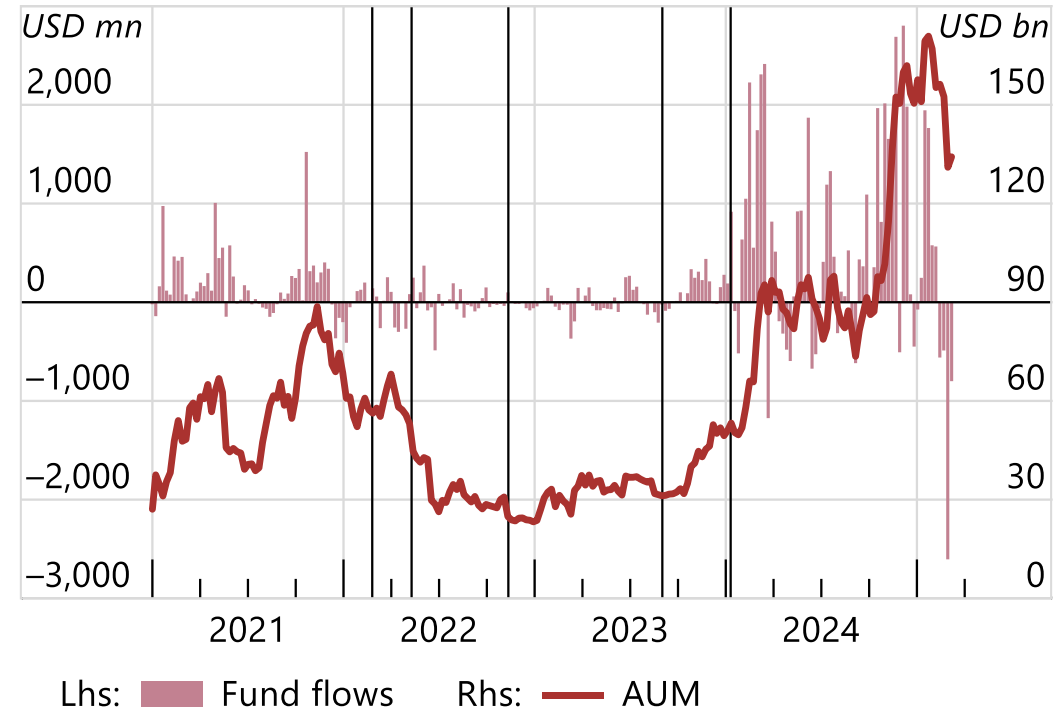


Daily market value of stablecoins



Net inflows into crypto-asset funds have significantly increased

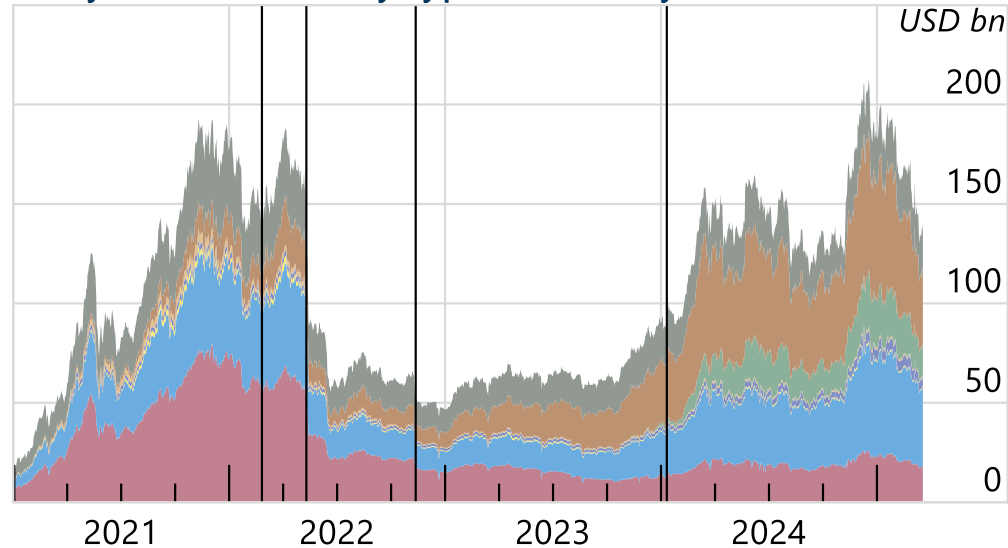
Weekly fund flows and AUM of crypto-asset funds¹



¹ The vertical lines indicate 23 February 2022, the day before the start of the Russia-Ukraine war; 9 May 2022, the day TerraUSD started to significantly decouple from its peg; 11 November 2022, the day FTX filed for bankruptcy; and 10 January 2024, the day the SEC approved 11 spot Bitcoin ETPs.

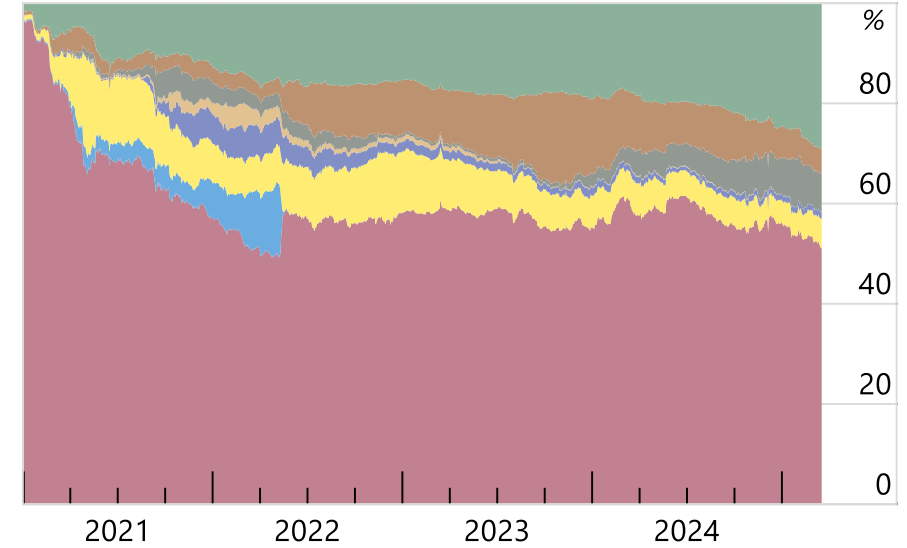
DeFi remains relatively small and esoteric

Daily TVL in DeFi by type of activity



- DEXes²
- Lending
- Asset management³
- Restaking
- Liquid Staking⁴
- Derivatives
- Payment & Insurance
- Others⁵

Daily market share of TVL in DeFi by blockchain



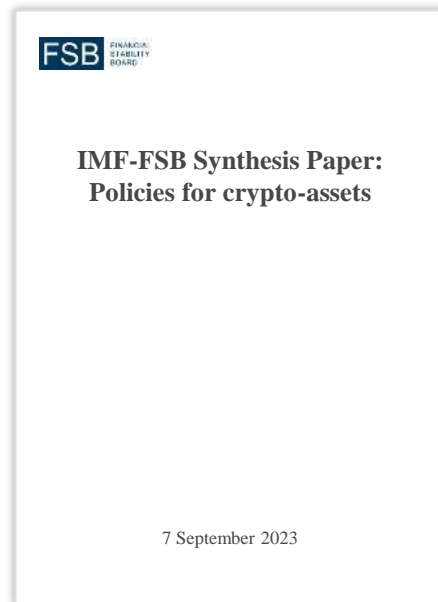
- Ethereum
- Terra Classic
- BSC
- Avalanche
- Fantom
- Solana
- Tron
- Others

TVL refers to the total dollar amount of assets that is deposited across all DeFi protocols. It does not refer to transaction volumes or market value of crypto-assets, but rather to the value of reserves that are "locked" into smart contracts. The TVL may vary depending upon the source and is subject to overestimation. 2 DEXes stands for decentralised exchanges and include protocols which allow users to trade crypto-assets. 3 Sum of Yield, Yield Aggregator and Indexes categories. 4 Liquid staking allows participants to exchange their staked crypto-assets as liquid tokens that can be freely traded while still earning staking rewards. This mechanism is similar to repo activities in traditional financial markets which aims to provide liquidity and flexibility for the investors. 5 Others include all other protocols categorised by DeFiLlama such as Bridge, Collateralised Debt Position, Services, Algo-Stables etc.

FSB is focused on financial stability risks

But crypto-assets pose other risks and implications

IMF-FSB Synthesis Paper



Implications

Macroeconomic stability

Financial stability

Legal risks

Financial integrity

Market integrity

Environmental risks

Policy responses

- Safeguard monetary sovereignty and stability
- Guard against excessive capital flow volatility
- Address fiscal risks

FSB high-level recommendations

Other international policies
(IOSCO, FATF, BCBS)

Data gaps and monitoring challenges

- It is challenging to assess inflection points given the rapid evolution of crypto-asset markets and the significant data gaps that impede authorities' risk assessments
- Distributed ledger technology's transaction data is difficult to aggregate and analyse, especially "off-chain" transactions that are not reported, or transactions reported through complex protocols and smart contracts
- Anonymous identity of users of public blockchains makes it difficult to assess interconnectedness within the crypto-asset ecosystem and with the broader financial system
- Sources differ in terms of methodologies, data coverage, and access to and quality of primary data, largely due to a lack of standardised reporting requirements and regulation or compliance with regulation

Financial stability risk assessment methodology

- The vulnerabilities in crypto-asset markets – relating to asset valuations, leverage, liquidity/maturity mismatch, operational/technological fragilities and interconnectedness – are similar to those in traditional finance, though they can manifest themselves in different ways
- 2018 FSB report provides framework for transmission channels through which crypto-asset vulnerabilities might affect financial stability:
 - Financial sector exposures to crypto-assets
 - Wealth effects, i.e. the degree to which changes in the value of crypto-assets might impact their investors with subsequent knock-on effects on the financial system
 - Confidence effects, through which crypto-asset developments could impact investor confidence in the broader financial system
 - Extent of crypto-assets' use in payments and settlements

Crypto-asset turmoil episodes have so far been (mostly) contained...

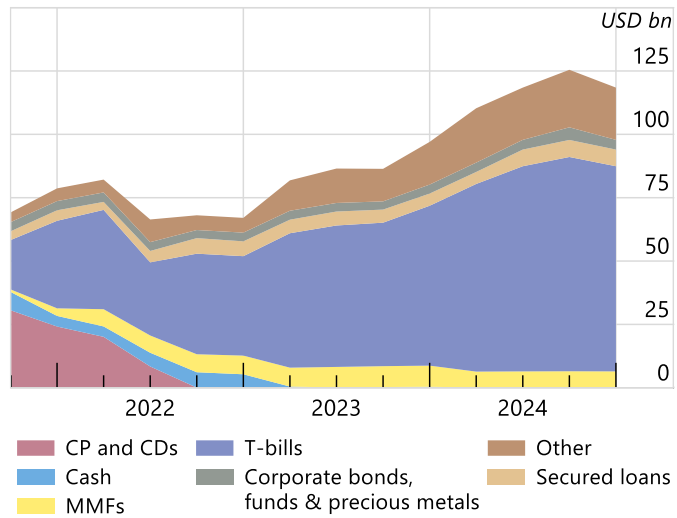
- Collapse of Terra/Luna, Celsius, Three Arrows Capital (May/June 2022)
 - Unsustainable and/or fraudulent business models, lack of controls
- Collapse of FTX and its Alameda affiliate (November 2022)
 - Vulnerabilities from vertical integration (“multi-function crypto-asset intermediaries”) not typically permitted in traditional finance
 - Fallout led to wind-down and voluntary liquidation of Silvergate Bank in March 2023
- US authorities’ legal cases against Tether/Bitfinex (2021), Binance (late 2023) and many other crypto-asset players
- Numerous cyber hacks of crypto-asset exchanges

... but this could change if interlinkages grow between crypto-asset markets and the financial system

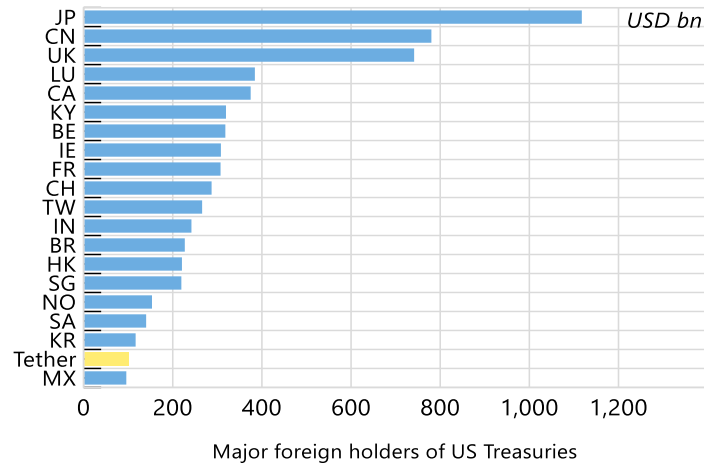
- **Via stablecoin reserve assets**
 - Exposures of stablecoin issuers (through their reserves) to financial assets, and importance of stablecoin issuers as investors in certain markets or as depositors of banks
 - Most stablecoin issuers are not subject to standards regarding the reserve assets backing the stablecoin, or sufficient disclosure about the adequacy and composition of their reserves
 - A run on a major stablecoin (analogy to money market funds 'breaking the buck') could trigger fire sales of its holdings, resulting in market liquidity and valuation pressures of certain financial assets, as well as impacting banks that hold deposits for stablecoin issuers
- **Via potential use of stablecoins in payment and settlement**
 - Significant use for payments could pose risks if a stablecoin collapses and therefore disrupts payment channels
 - Dominance of USD-denominated stablecoins exacerbates foreign exchange mismatches in emerging markets and can lead to 'silent' capital outflows/ineffective monetary policies
- **Via increased exposures to crypto-assets**
 - This can take many forms, e.g. payment/deposit services, investments, lending against crypto collateral, custody, advisory, trading/market-making etc.

Tether is reportedly becoming a sizeable investor in US Treasuries

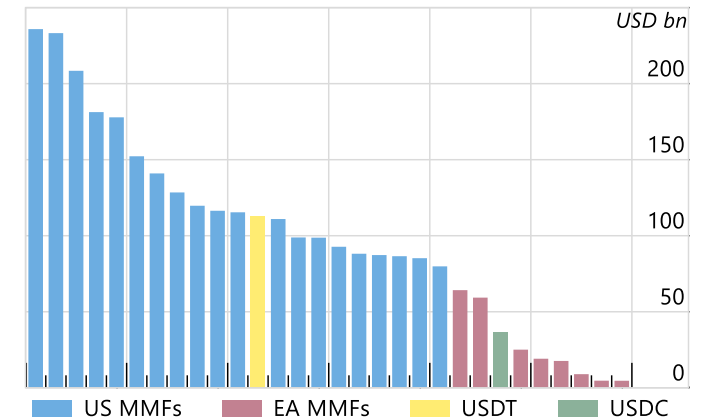
Tether reported reserves breakdown



Tether claims to be in the top 20 of the largest holders of US treasuries



Tether and USDC reported reserves compared to largest US and EA MMFs



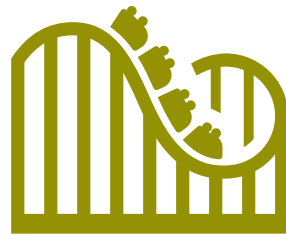
Cross-border stablecoin issues for emerging markets

Over 99% of all existing stablecoins are pegged to USD



Higher adoption

- Higher level of interest and activities related to stablecoins in emerging markets
- Demand for USD, store of value, speculative trading, cross-border payments



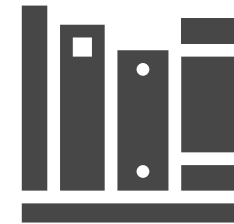
Unique Risks

- Undermine monetary policy
- Circumvent capital controls
- Strain fiscal resources
- Macroeconomic instability



Additional Challenges

- Capacity and resource constraints
- Monitoring and enforcing FX and CFM regulations
- Higher demands for cross-border cooperation and regulation



Policy considerations

- Technical assistance
- Addressing data gaps
- Offshore stablecoins
- Domestic payments
- Sandboxes

FSB Global regulatory framework for crypto-assets

- The FSB global regulatory framework for crypto-assets consists of two sets of high-level recommendations:
 - High-level recommendations for the regulation, supervision and oversight of **crypto-asset markets and activities**;
 - High-level recommendations for the regulation, supervision and oversight of **global stablecoin arrangements**
- Both sets of recommendations are guided by the same principles:
 1. Same activity, same risk, same regulation
 2. Technology neutrality
 3. high-level and flexible
- Crypto-assets do not operate in a “regulation free space”



What are the high-level FSB crypto-asset recommendations?

1. Appropriate powers and tools	8. Disclosures
2. Comprehensive oversight	9. Interconnectedness monitoring
3. Cross-border cooperation	10. Risks of combining multiple functions
4. Governance	11. Compliance before operation
5. Risk management	
6. Data management	
7. Appropriate recovery and resolution plans	

Addressing unique risks of stablecoin arrangements

(Recommendation 9)

- Robust legal claim to all users
- Guarantee timely redemption at par into fiat

Redemption rights



- Effective method to maintain stable value at all times
- Reserve of high quality assets or subject to BCBS prudential requirements

Stabilisation mechanism



- Capital to absorb losses and liquidity to deal with outflows

Prudential requirements



Key implementation challenges

Challenges common to all jurisdictions may be amplified for emerging markets



Cross-border activities from offshore jurisdictions



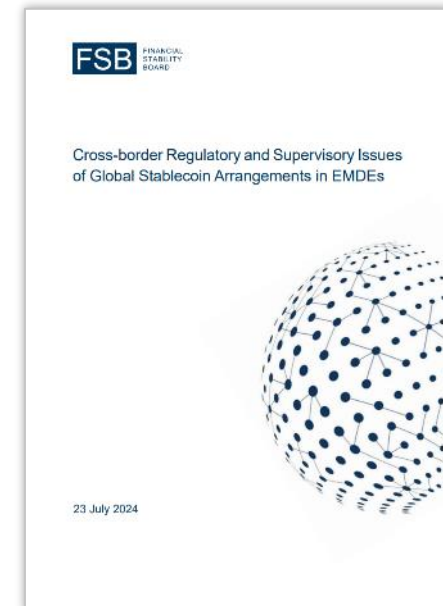
Non-compliance and enforcement challenges



Data Gaps

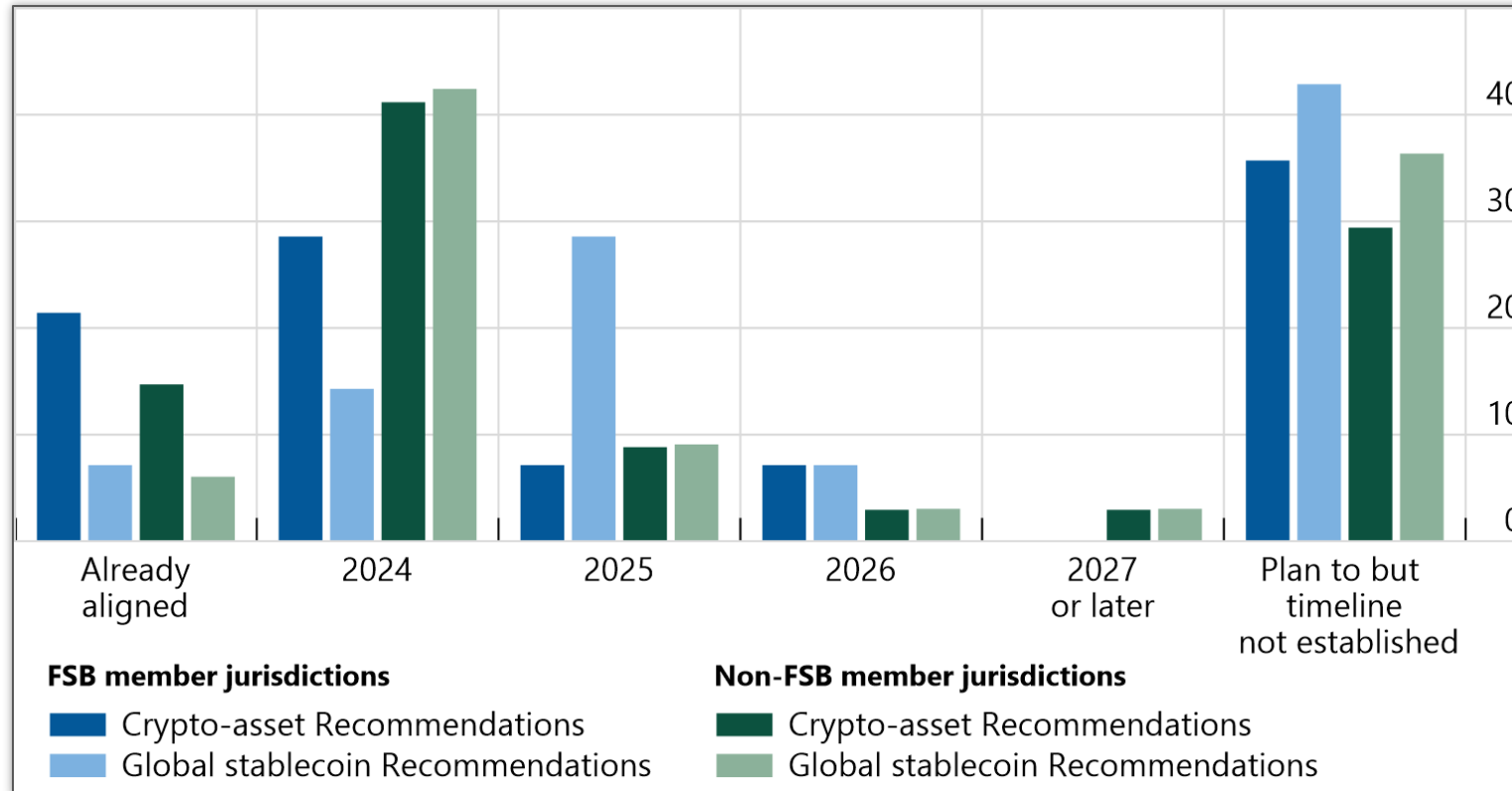


Foreign-currency pegged stablecoins



Significant progress is expected this year, but lots of work still needed

Expected time to reach alignment with FSB Framework measured by effective date of rules, at year ends



Percentage of responding jurisdictions. Source: FSB survey

Concluding thoughts

- **Crypto-assets are here to stay...**
 - The underlying technology and some of the products could lower transaction costs, enhance payment system efficiency and transparency, and provide more choice for users...
 - ... but these need to be undertaken safely and accompanied by effective policy frameworks that mitigate risks and maintain trust and integrity in the financial system
- **Risks to financial stability are likely to increase as crypto-asset markets grow and as links with the financial system increase**
 - Need for ongoing monitoring of developments; lots of work necessary to address data gaps
 - Stablecoins will be key area of focus
- **... and the adoption of comprehensive regulatory framework globally**
 - International co-operation among regulatory authorities is essential