



# Innovation and financial stability: AI and stablecoins

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*Disclaimer: Views are those of the author and not necessarily those of the BIS*

# Part I

## Artificial intelligence and the financial system

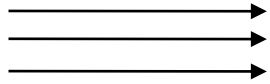
# The role of the financial sector as an information aggregator



Financial sector

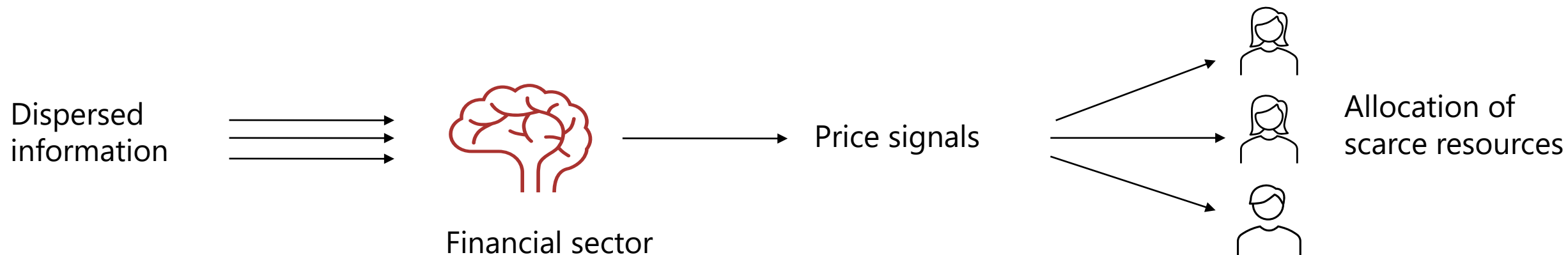
# The role of the financial sector as an information aggregator

Dispersed  
information



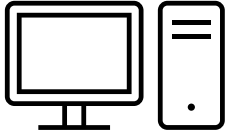
Financial sector

## The role of the financial sector as an information aggregator



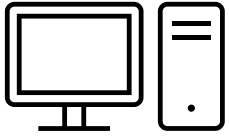
Finance as the **brain** of the economy: enables efficient flow of capital, manages risk, maintains liquidity.

## The journey to modern AI



Financial sector among the first to adopt and use the earliest **computers** (e.g. IBM 650).

# The journey to modern AI

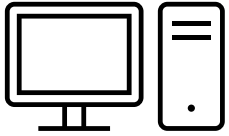


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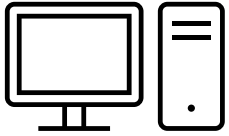


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**Machine learning** quick to be adopted in finance though limited by computation power.

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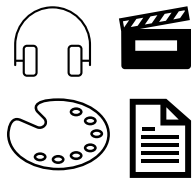
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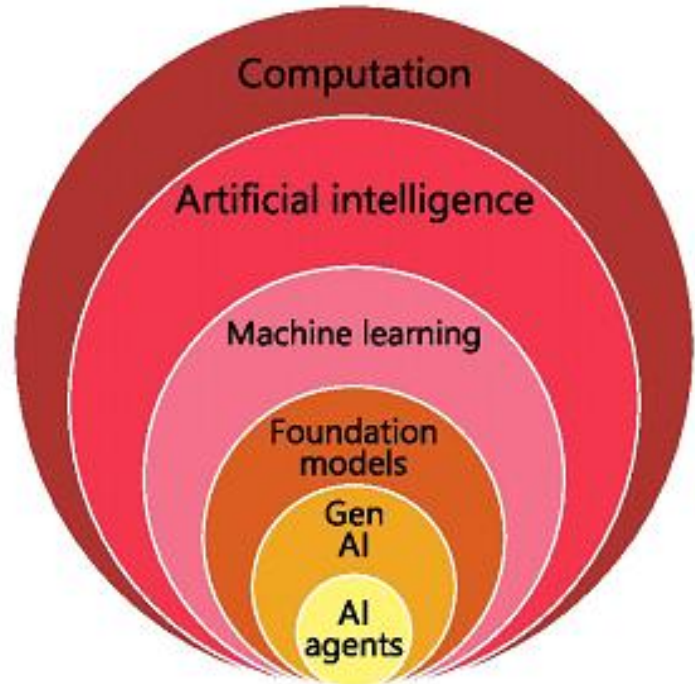


**Machine learning** quick to be adopted in finance though limited by computation power.



New frontier for finance is **generative AI**. Vast potential, new risks?

# Decoding AI: what's new for the financial sector?



- ❖ Financial sector is among the most-exposed to AI, reflecting the high share of cognitive tasks and abundant data
- ❖ With Gen AI, what is new?
  - ✓ Automaticity: no human intervention
  - ✓ Speed: in processing data and in diffusion
  - ✓ Ubiquity: across sectors and the economy
- ❖ What are the emerging opportunities and challenges of using Gen AI in banking and finance?
- ❖ Let's compare traditional analytics, with ML and Gen AI

# Opportunities of AI in finance

	Financial intermediation	Insurance	Asset management	Payments
Traditional analytics	Rule-based risk analysis, greater competition		Risk management, portfolio optimization, HF trading	Fraud detection
Machine learning	Credit risk analysis, lower underwriting costs, financial inclusion	Insurance risk analysis, lower processing costs, fraud detection	Analysis of new data sources, HF trading	New liquidity management tools, fraud detection and AML
Generative AI	Enhanced credit scoring (unstructured data), easier back-end processing, better customer support	Better risk analysis with newly legible data, easier compliance	Robo-advising, asset embedding, new products, customer service	Enhanced KYC and AML processes

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# Challenges arising from AI use in finance

	Financial intermediation	Insurance	Asset management	Payments
<b>Traditional analytics</b>	Rigid, requires extensive human supervision, small number of parameters		Zero-sum arms race for private gains, flash crashes	Technical vulnerabilities
<b>Machine learning</b>	Black box mechanisms, algorithmic discrimination, threats to consumer privacy, emergence of data silos		Zero-sum arms race for private gains, model herding, algorithmic coordination	New liquidity crises, increased cyber risks
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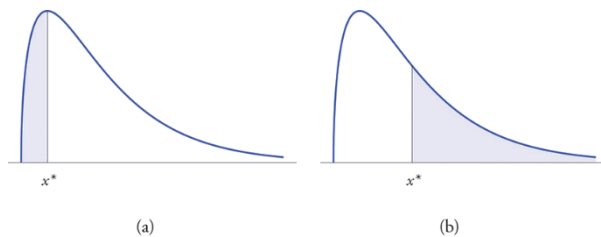
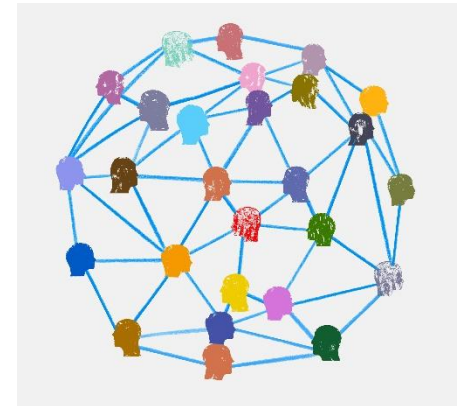
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# Financial stability and AI



**Early rule-based systems** were already important for financial stability: 1987 US stock market crash

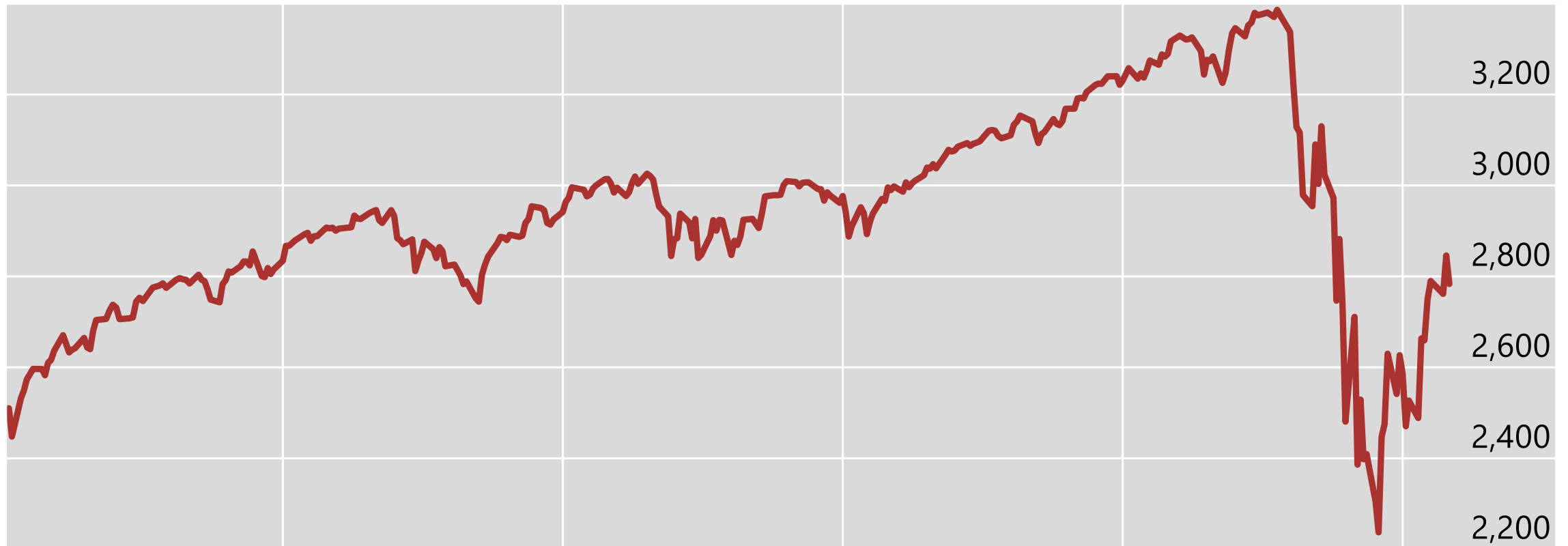
**Machine learning** increases network interconnectedness, data uniformity, model herding.



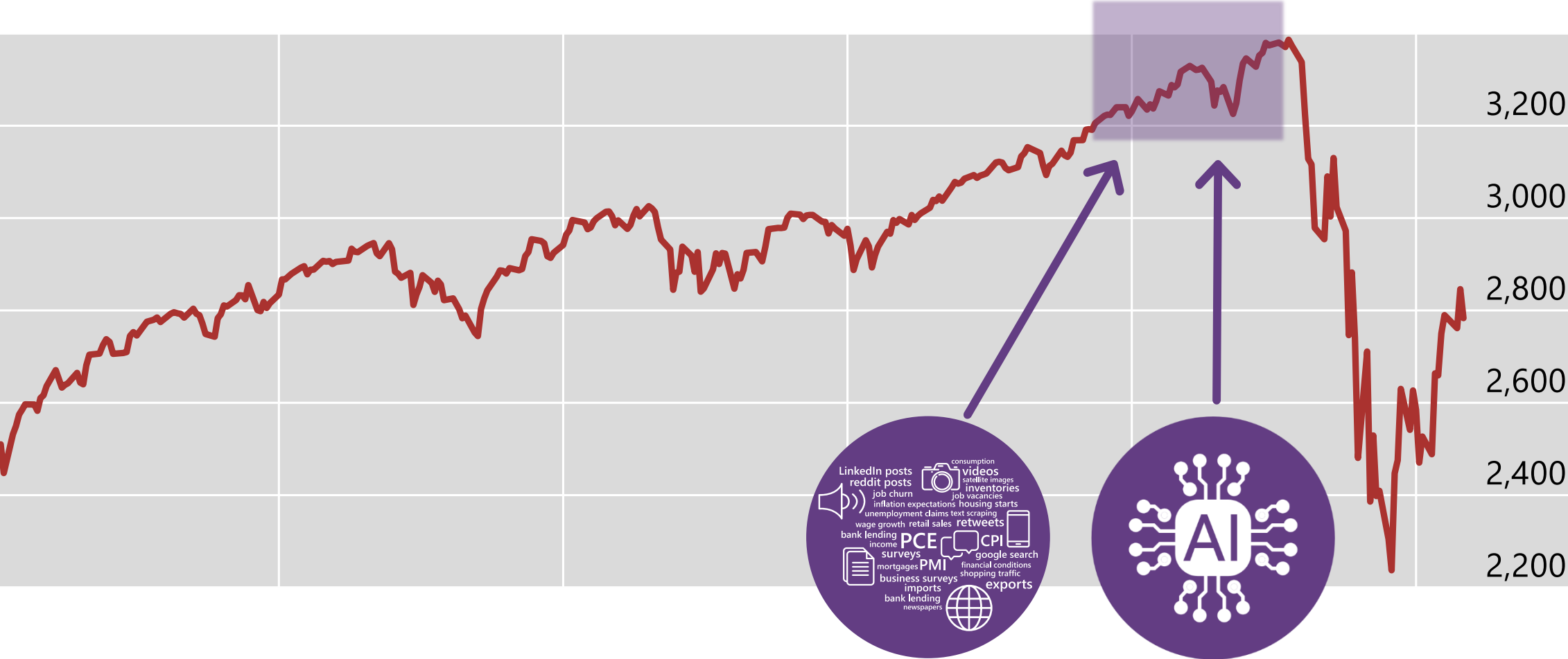
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**Gen AI** leads to the fat tail problem, high levels of market concentration along the AI supply chain, third party dependencies, model, data and algorithmic herding, leading to more uniformity

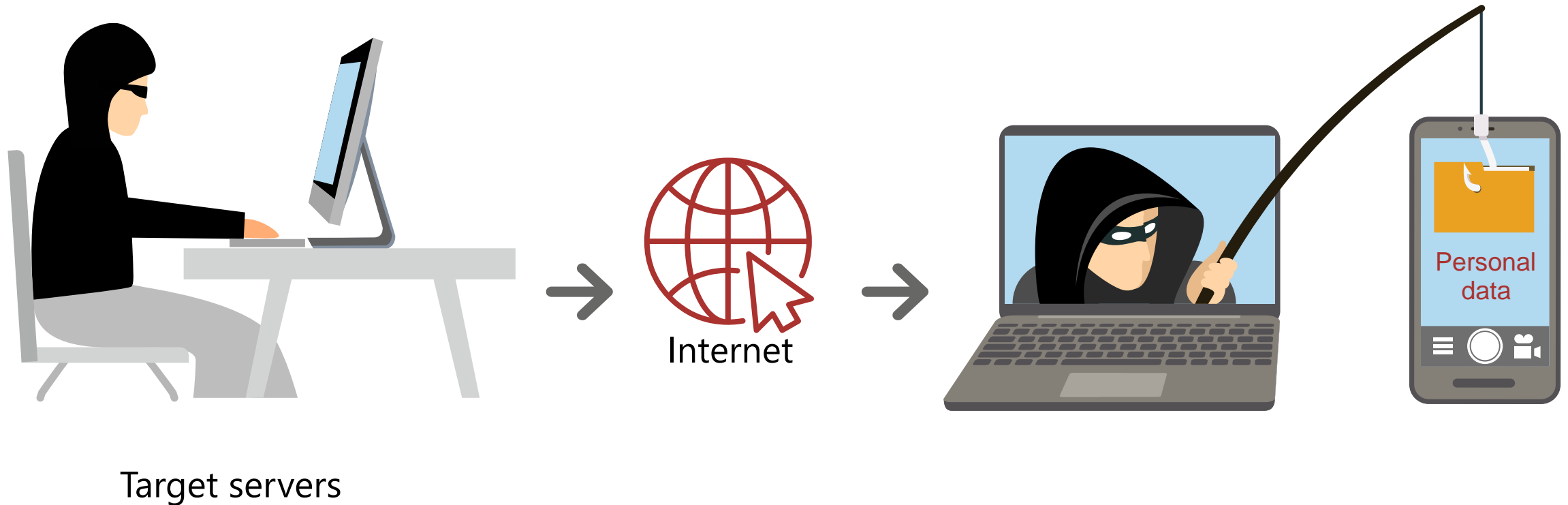
The reliance on the same handful of algorithms could amplify procyclicality and market volatility



# But AI could also be harnessed for more effective financial stability monitoring

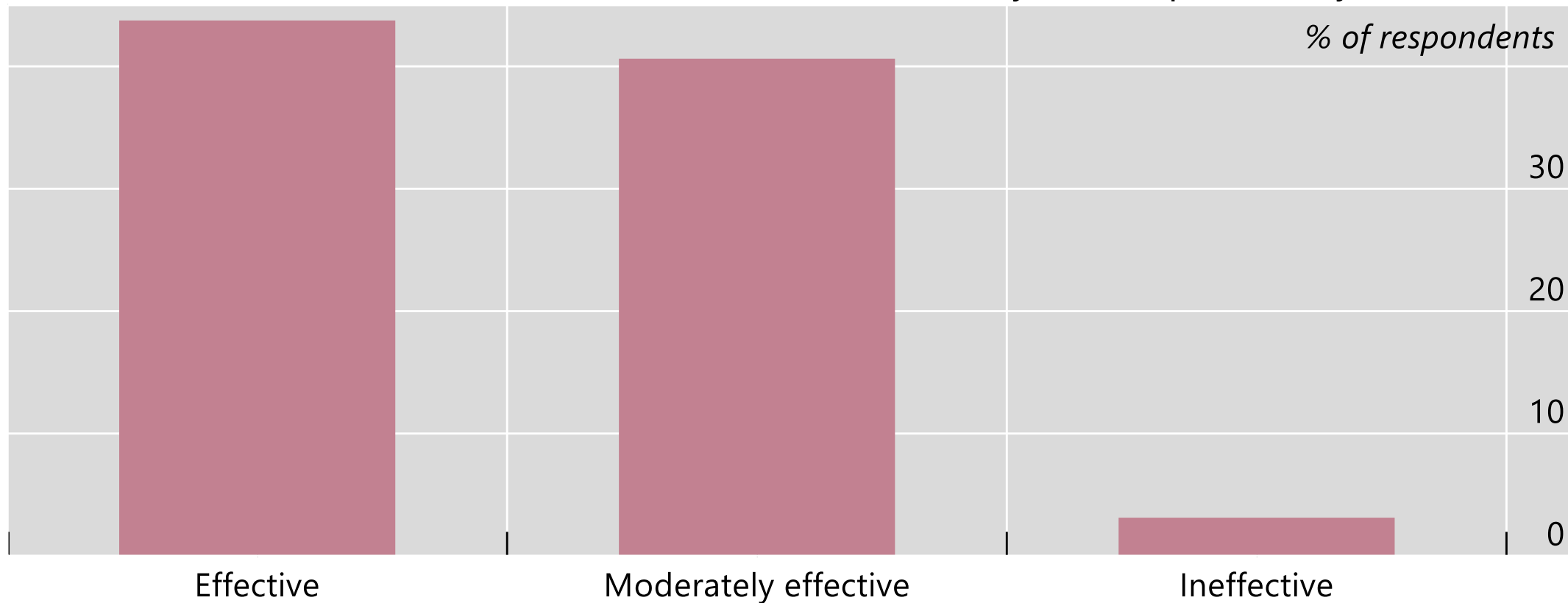


The adoption of AI could increase the risk of cyber attacks and introduce altogether new sources of cyber risk



But here again, just as AI increases cyber risks, it can also be harnessed by cyber defenders

Central banks see more benefits than risks in AI to identify and respond to cyber threats



Aldasoro, I, S Doerr, L Gambacorta, S Notra, T Oliviero and D Whyte (2025): "Generative artificial intelligence and cybersecurity in central banking", *Journal of Financial Regulation*, vol 11, no 1, April.

The background features a large red triangle pointing downwards on the left side, and a grey shape that resembles a wide, shallow triangle or a trapezoid extending from the bottom left towards the right side.

## **Part II**

# Stablecoin growth and policy challenges

# Stablecoin growth: policy challenges and approaches

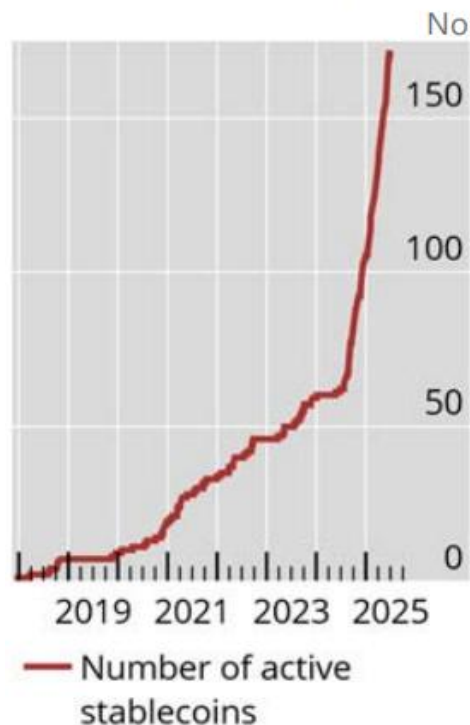
- Cryptoasset tokens that circulate on public permissionless blockchains and strive to maintain a stable value relative to a reference asset
  - Most pegged to the USD, promising one dollar for each stablecoin on demand, much like other forms of money or money-like claims (eg bank deposits or MMF shares)
  - Major stablecoin issuers back their tokens primarily with fiat-denominated short-term assets such as Treasuries, repurchase agreements and bank deposits
- Rising market capitalisation and increasing interconnections with the traditional financial system have reached a stage where potential spillovers can no longer be ruled out
- Many jurisdictions are (thinking of) enacting/updating regulation, building on high-level principles (eg FSB (2023), CPM-IOSCO (2022), BCBS (2024))
- The rest of this short talk: take stock of market, highlight key risks and challenges for policy

# Remarkable growth, amid concentration and overwhelming USD dominance

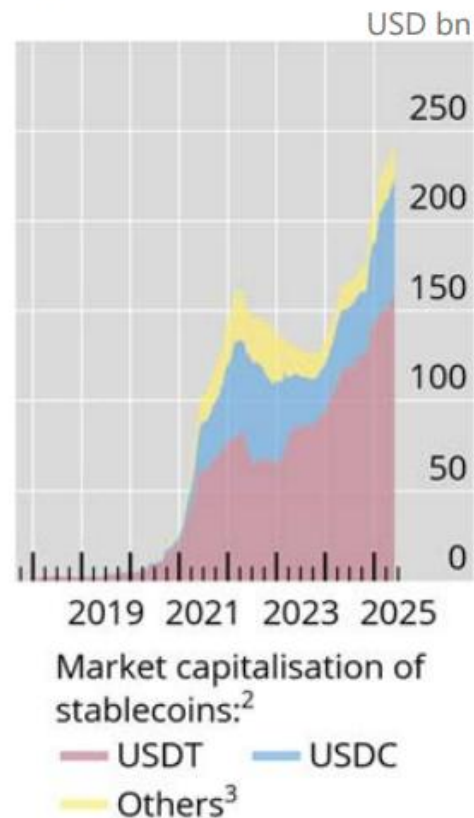
Stablecoins continue to grow

Graph 1

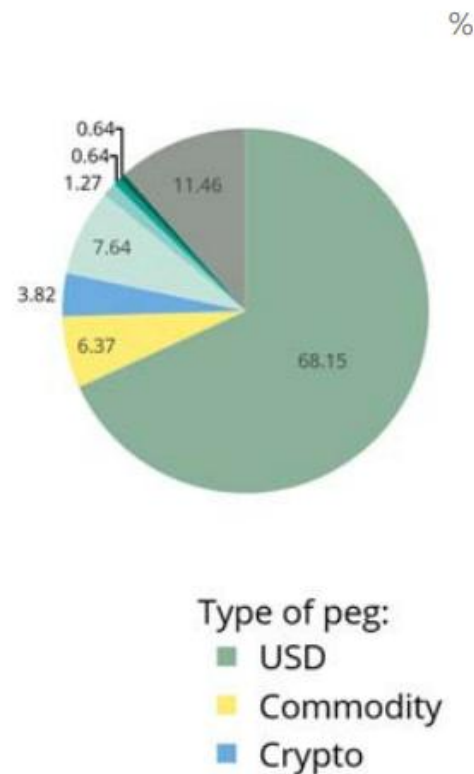
A. The number of stablecoins is soaring...<sup>1</sup>



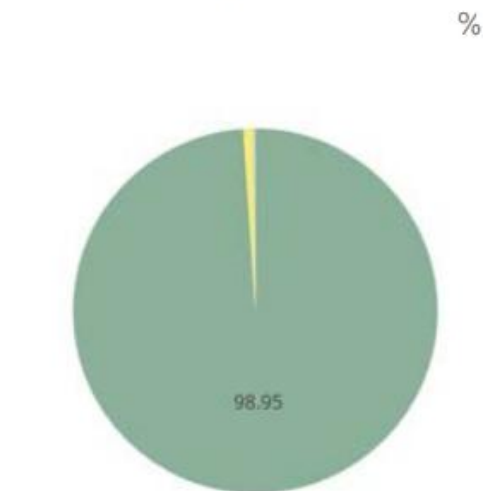
B. ...and so is their market cap, amid concentration



C. Most stablecoins are USD-denominated<sup>4</sup>



D. Dollar is even stronger in market capitalisation<sup>4</sup>



Source: Aldasoro, Aquilina, Lewrick and Lim (2025): "Stablecoin growth – policy challenges and approaches", *BIS Bulletin*, no 108.

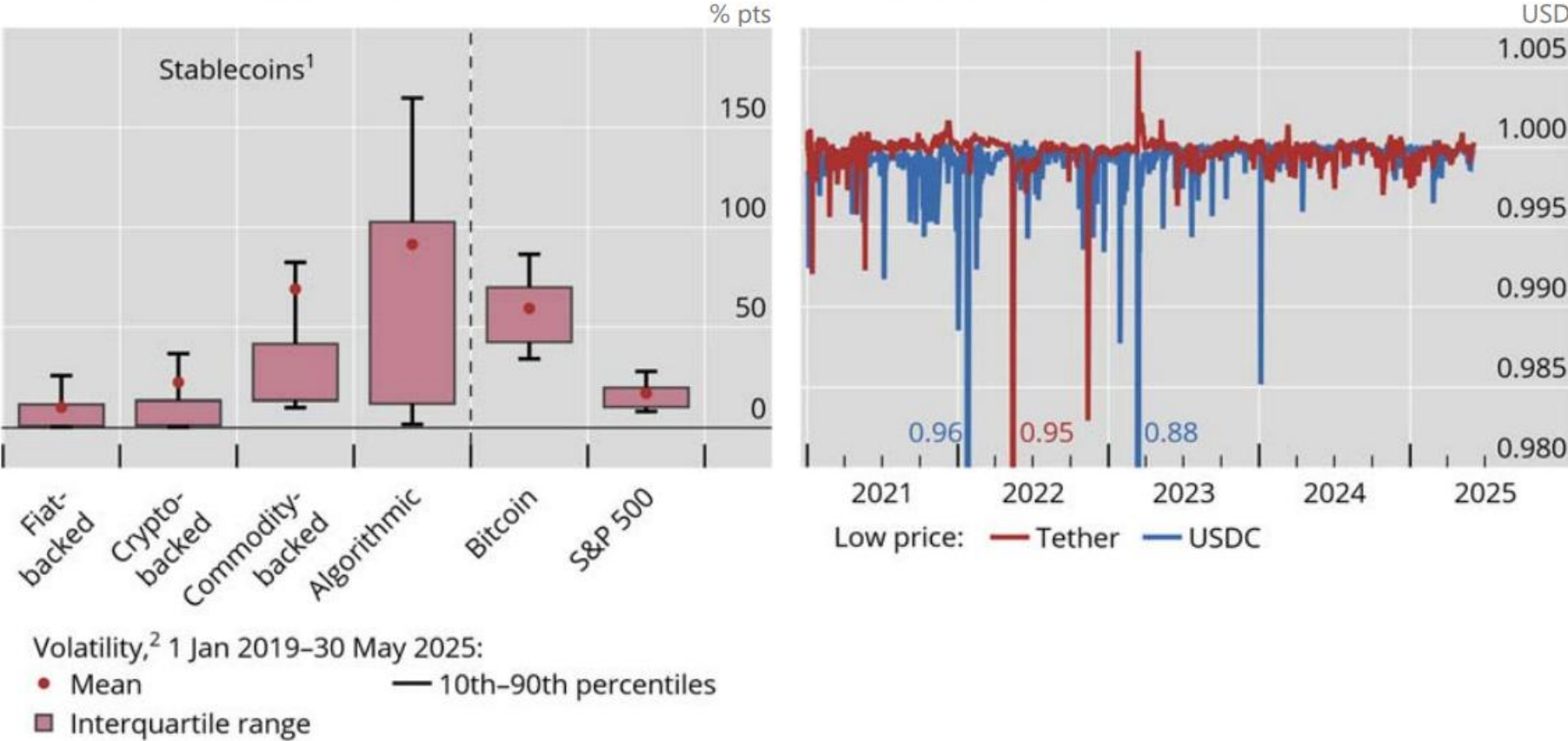
# Despite their promise of par convertibility, they have failed and remain volatile

Volatility and peg deviations of stablecoins

Graph 2

A. Fiat-backing reduces, but does not eliminate, price volatility in secondary markets

B. Frequent deviations from par even for the least volatile stablecoins



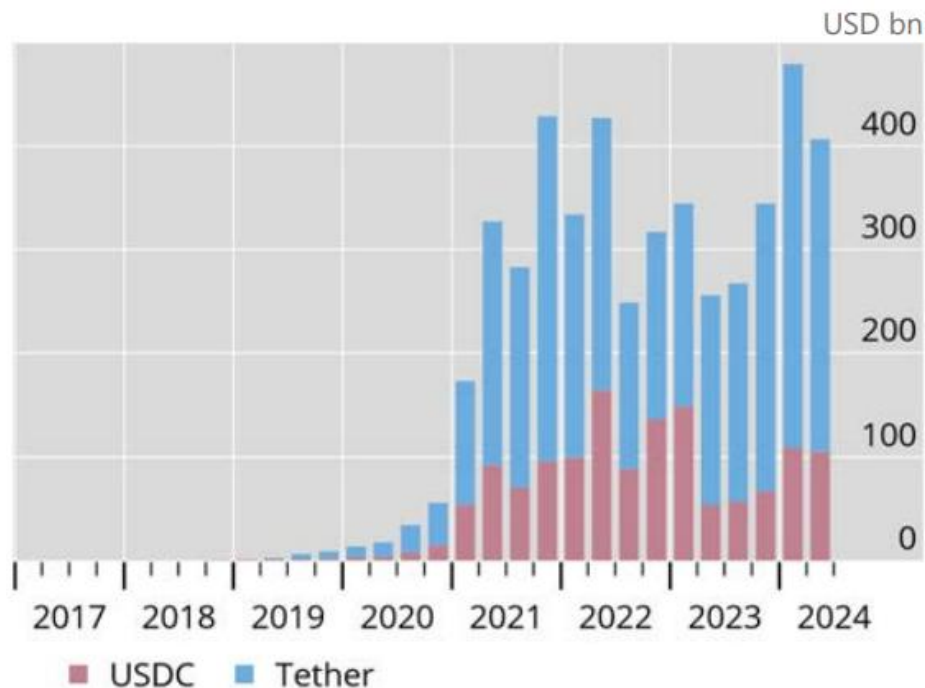
Source: Aldasoro, Aquilina, Lewrick and Lim (2025): "Stablecoin growth – policy challenges and approaches", *BIS Bulletin*, no 108.

# Challenges to monetary sovereignty, capital and FX regulations

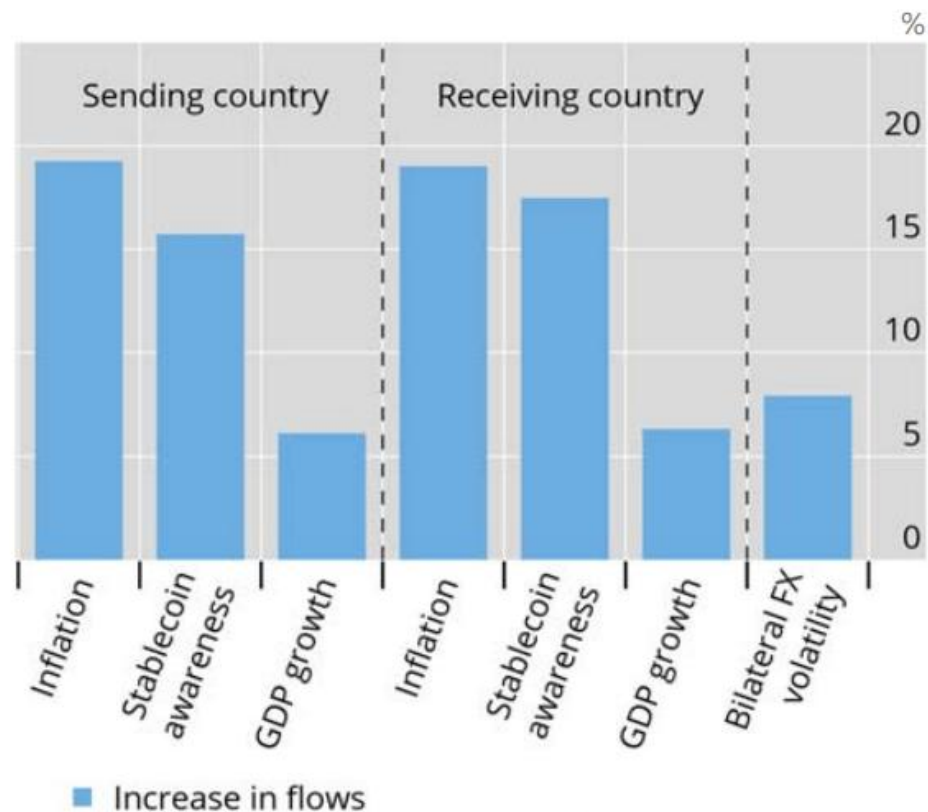
Cross-border use of stablecoins has been rising, reflecting a mix of drivers

Graph 3

A. Cross-border stablecoin flows are back on the rise



B. Country-level drivers of cross-border stablecoin flows<sup>1</sup>



<sup>1</sup> Estimated increase in bilateral cross-border tether flows for sending and receiving countries that experience high inflation (ie top quartile of a large sample of countries from 2017 to 2024), GDP growth, stablecoin awareness or bilateral exchange rate (FX) volatility.

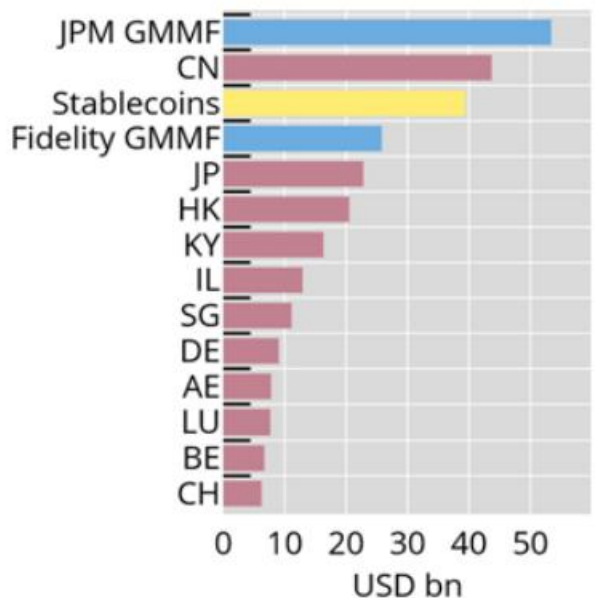
Source: Aldasoro, Aquilina, Lewrick and Lim (2025): "Stablecoin growth – policy challenges and approaches", *BIS Bulletin*, no 108.

# They can also affect the markets where they invest their reserves

Stablecoins' effects on safe asset markets and reaction to monetary policy

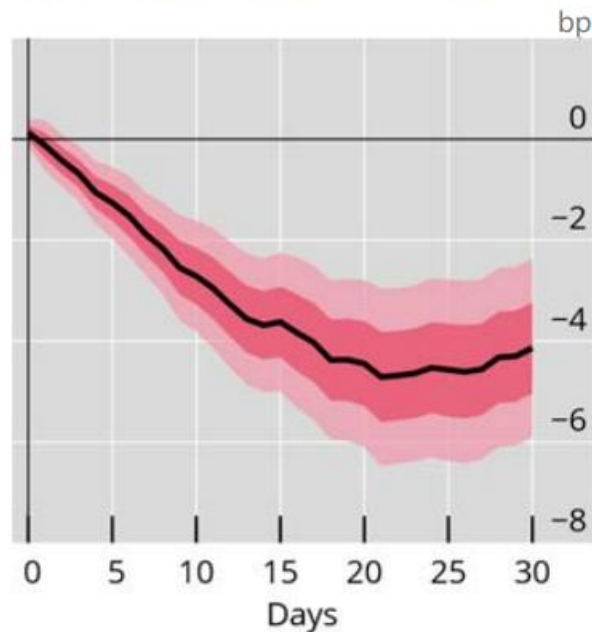
Graph 4

A. Stablecoins among top buyers of T-bills in 2024, on par with MMFs<sup>1</sup>



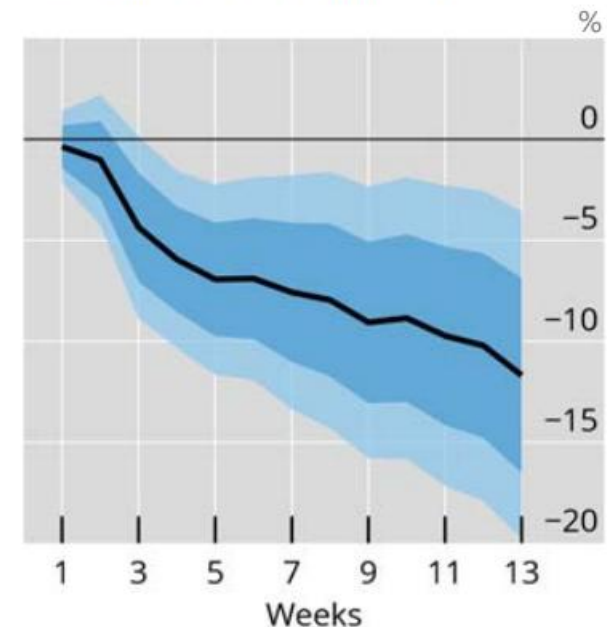
Purchase of T-bills by:  
■ Jurisdictions  
■ GMMFs  
■ Stablecoins

B. Stablecoin inflows can put downward pressure on T-bill yields<sup>2</sup>



Three-month T-bill yield response:  
— Estimate  
■ 68% confidence interval  
■ 95% confidence interval

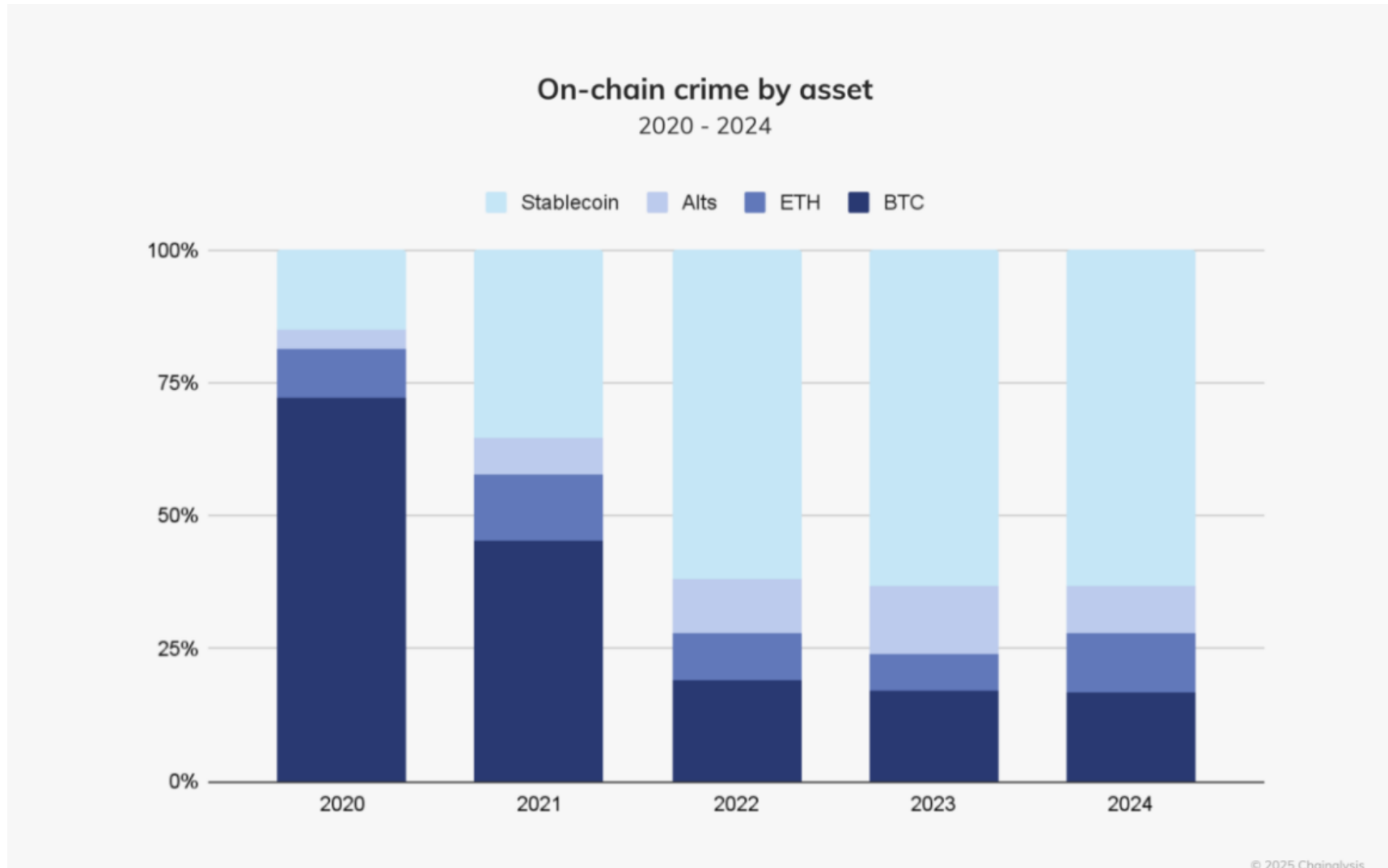
C. Stablecoin market cap declines with tighter monetary policy<sup>3</sup>



Stablecoin index response:  
— Estimate  
■ 90% confidence interval

Source: Aldasoro, Aquilina, Lewrick and Lim (2025): "Stablecoin growth – policy challenges and approaches", *BIS Bulletin*, no 108.

# Stablecoins account for an increasing proportion of crypto crime



© 2025 Chainalysis

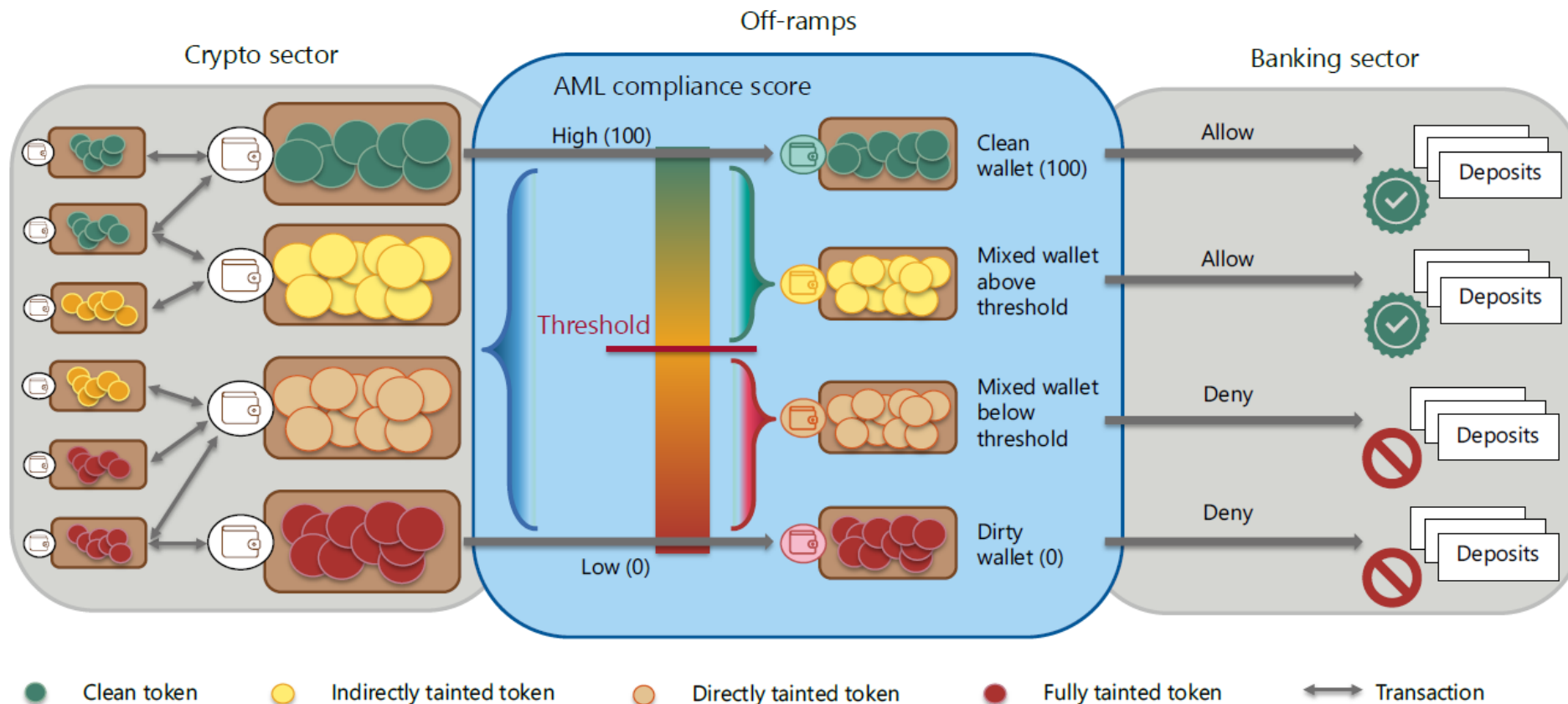
Chainalysis Financial Crime report, February 2025

<https://www.chainalysis.com/blog/2025-crypto-crime-report-introduction/>

# An approach: use provenance and history of coins/wallets to construct AML scores

An AML compliance score using transaction history and token provenance

Graph 1



Indirectly tainted token = indirectly associated with addresses on the deny list through intermediary addresses or multi-step transactions; directly tainted token = directly linked to addresses on the deny list.

Source: Aldasoro, Frost, Lim, Perez-Cruz and Shin (2025): "An approach to anti-money laundering compliance for cryptoassets", *BIS Bulletin*, no 111.

## Policy discussion

- As promises to deliver a dollar on demand, they raise the important question of whether that promise should be backstopped and, if so, who should do that
  - History suggests that promises to pay are always tested and often fail (Aldasoro et al (2024))
- They transact seamlessly across the globe on permissionless blockchains amid regulatory frameworks that are often confined to jurisdictional borders
  - Not clear whether the “same risks, same regulation” principle applies
- A bespoke framework for stablecoins should reflect their multifaceted nature while building on the regulatory experience from traditional finance
  - Need not imply a reduction in regulatory stringency, on the contrary more may be necessary
  - International cooperation will be crucial, given ease with which they move across borders
  - The principle of technological neutrality in regulation should not be compromised

Thank you for your attention!

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## Further reading (AI)

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