



Capital Flow Management Measures (CFMs) in the Digital Age: Challenges from Crypto Assets

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Key questions



First, why do CFMs remain relevant in the digital age?

Second, how might crypto assets impact the effectiveness of CFMs from a structural and longer-term perspective?

Third, how might the underlying technologies of crypto help policy implementation?

Digitalization of money and finance and capital flows

Capital flows have substantial benefits but pose risks

- More efficient global allocation of resources, greater risk sharing, smoothing consumption, and technology transfer
- Large and volatile capital flows can pose risks to macroeconomic and financial stability

Digitalization of money and finance could affect gross cross-border capital flows

- More efficient market infrastructures
- A reduction in frictions and transaction costs
- Larger flows but potential higher volatility
- Could induce greater currency substitution

CFMs: an important part of the policy toolkit

IMF policies on capital account

- Under Art. VI.3 of the Articles of Agreement, members have broad (but not unlimited) freedom to regulate international capital movements
- Institutional View: a framework for assessments and policy advice for the liberalization and management of capital flows

CFMs: residency based and other measures

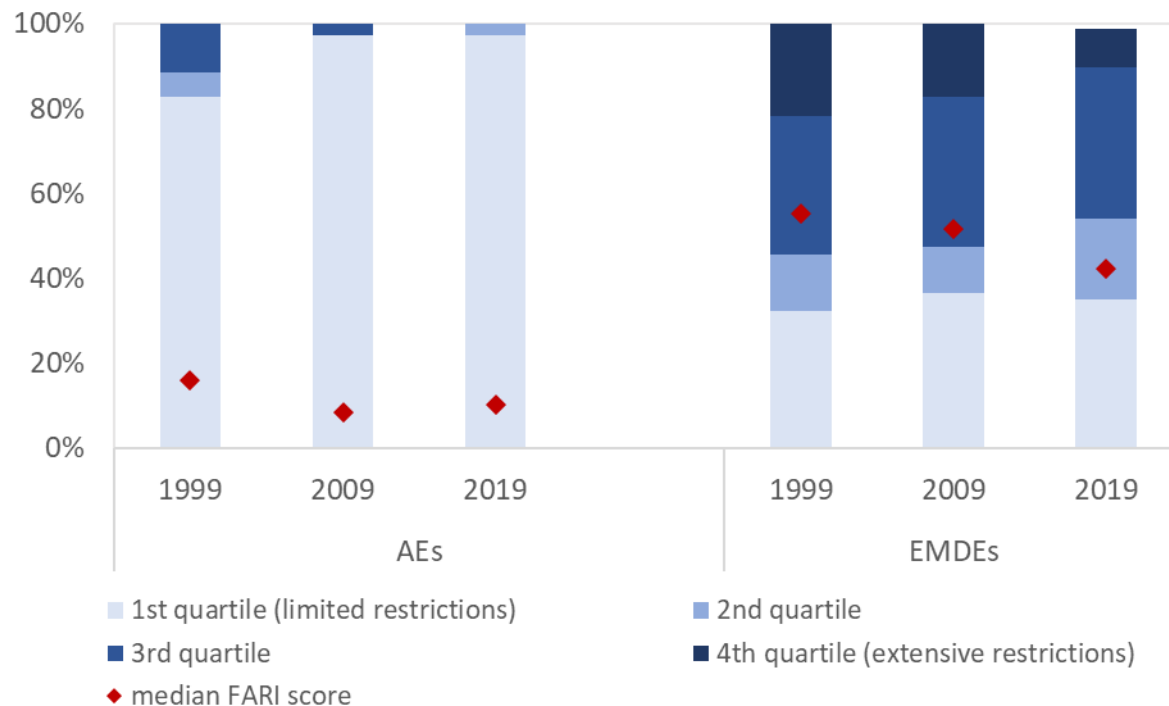
- Measures that discriminate between residents and nonresidents
- Measures that do not discriminate based on residency but nonetheless are designed to limit capital flows

Types of CFMs

- Administrative or price based (authorizations, limits, taxes, holding periods)
- On inflows or on outflows (residents' investments abroad and nonresidents' investments locally)
- Temporarily (e.g., in a capital flow surge) or on a structural basis

Despite significant progress in liberalization, CFMs remain prevalent among IMF member countries

Financial Account Restrictiveness Index (FARI)
by Income Group and Year



Note: Higher values represent more restrictions. AEs = Advanced Economies, EMDEs = Emerging and Developing Economies
Source: Baba and others (forthcoming), authors' calculations.

- More than 90 percent of IMF members had CFMs in place at the end of 2019.
- Of those, almost half had only limited restrictions, while 21 countries had extensive restrictions in place.
- Restriction intensity is higher in developing countries, followed by emerging market economies; advanced economies have largely liberalized their capital accounts.

A key feature of CFMs: transactions need to be verified ex-ante, usually by regulated financial intermediaries (FIs)*



Credit: Getty Images/iStockphoto

FX laws and regulations stipulate the conditions to buy FX and transfer abroad

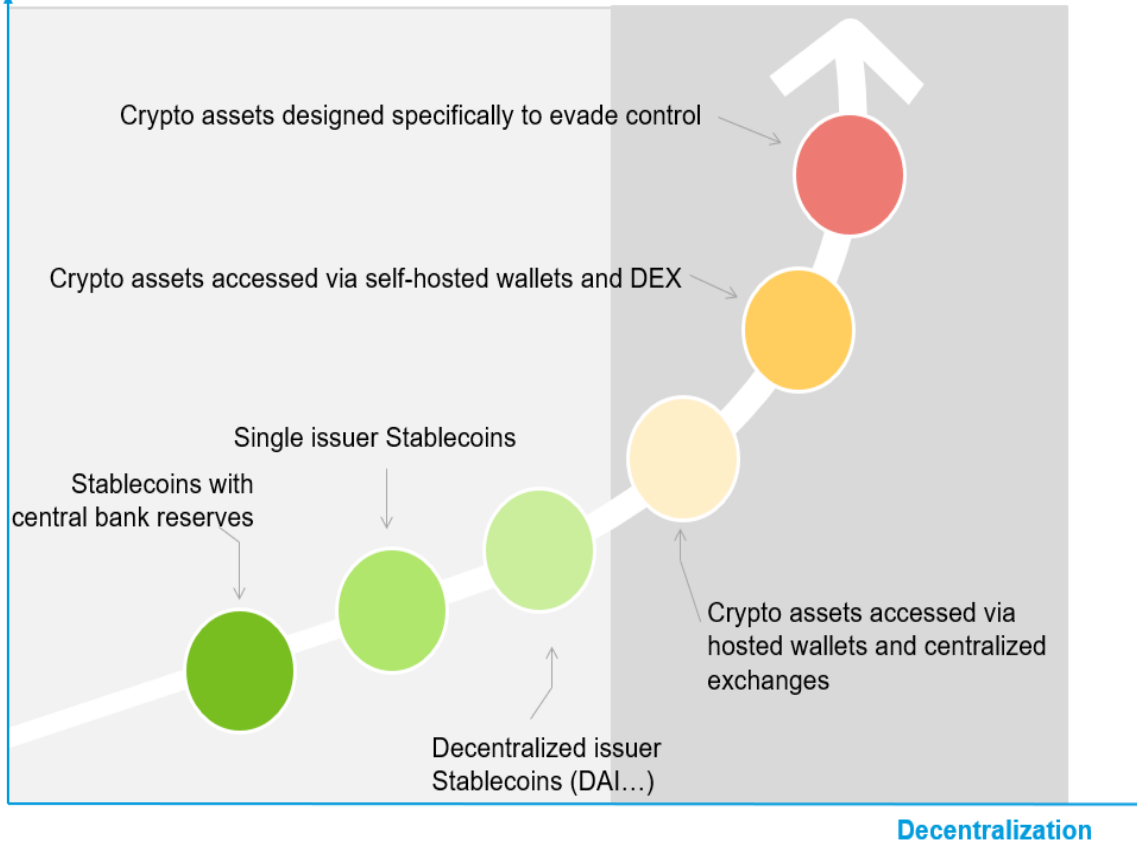
FIs verify, often ex-ante, counterparties and purpose of FX purchases and transfers, and that FX is used for stipulated purposes.

Authorities monitor compliance ex post and sanction violations

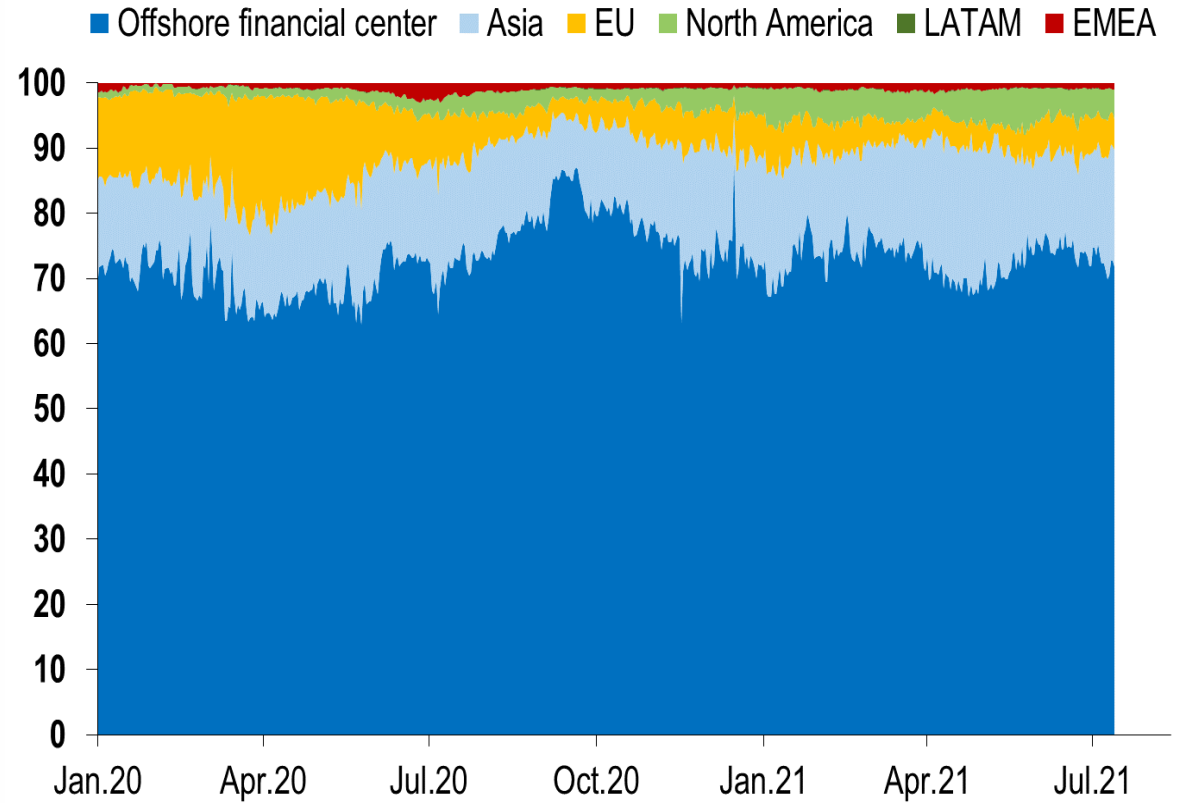
* examples: banks, brokers, and FX bureaus

How crypto assets challenge CFM implementation

Difficulty to Regulate



Trading Activity of Exchanges, By Registration (Percent share)



How crypto assets *design features* create a CFM challenge

Design features:

Borderless, decentralized architecture

Challenge:

Infrastructure distributed across jurisdictions; some cases involve no service provider

Possible solutions but implementation may be difficult:

Compliance can be in principle enforced at trading platform or wallet provider level

Complex layering

Country 1: Bitcoin
↓
Country 2: Zcash
↓
Country 3: Ether, then fiat

CFMs with some adjustments can be applied in theory on on-ramp and off-ramp to fiat

Pseudonymity

Identities and residency of crypto asset holders not easily known

FATF and CFM rules apply to service providers who are held responsible for compliance

The growth of decentralized finance: CFM challenges

Decentralized Finance (DeFi):

Financial services



Lend, borrow funds from others, speculate on price movements on a range of assets using derivatives, or earn interest in savings-like accounts

automated by open-source software and smart contracts

Crypto assets are often deposited into accounts controlled by smart contracts, and the identities of owners are not easily known

with no need for intermediaries (banks, brokerages or centralized exchanges...)

Unclear how stakeholders in the stablecoin arrangements can be held responsible to conduct Customer Due Diligence on a smart contract or enforce other regulations

Fragmentation in regulatory frameworks presents challenges but enforcement is a bigger problem

The legal status of crypto assets is not clear in many countries; existing laws and regulations on FX and CFMs may not adequately capture them

Identifying and locating entities that can be held responsible for CFM compliance, monitoring them, and enforcing cross-border measures, could be difficult

Pseudonymity of crypto asset holders increases the difficulties of determining the residency of transacting parties and the applicable laws

Strategies to preserve CFM effectiveness (I)

Establish legal and regulatory clarity

- Clarify the legal and regulatory frameworks and develop a consistent taxonomy
- Align regulatory requirements and mandates with use cases of crypto assets
- Ensure that laws and regulations for FX and CFM cover crypto assets

Establish regulatory framework for persons and entities engaged in crypto services

- Stipulate capital and liquidity requirements and limits on exposure to crypto assets
- Articulate licensing criteria and reporting requirements; consider how to apply them to DeFi stakeholders
- Designate authorities responsible for licensing and oversight
- Set up coordination mechanisms among regulatory agencies
- Implement FATF standards on AML/CFT

Strategies to preserve CFM effectiveness (II)

Establish international collaborative arrangements

- Adapt regulatory cooperation protocols (e.g., MoUs and supervisory colleges) to help implement CFMs relating to crypto assets

Close data gaps

- Enhance availability, quality, consistency and comparability of data

Advance big-data based regtech & suptech

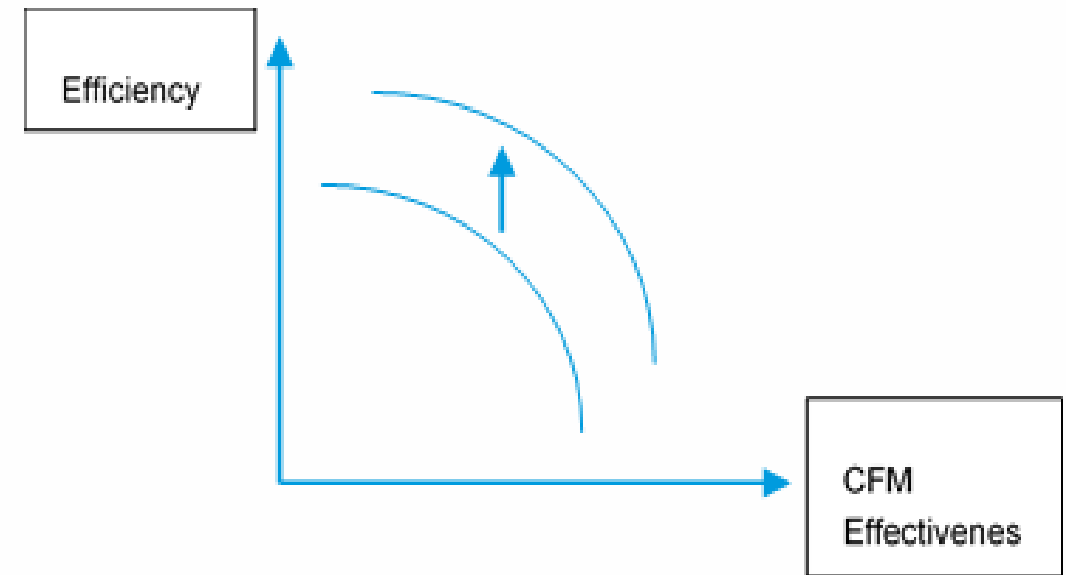
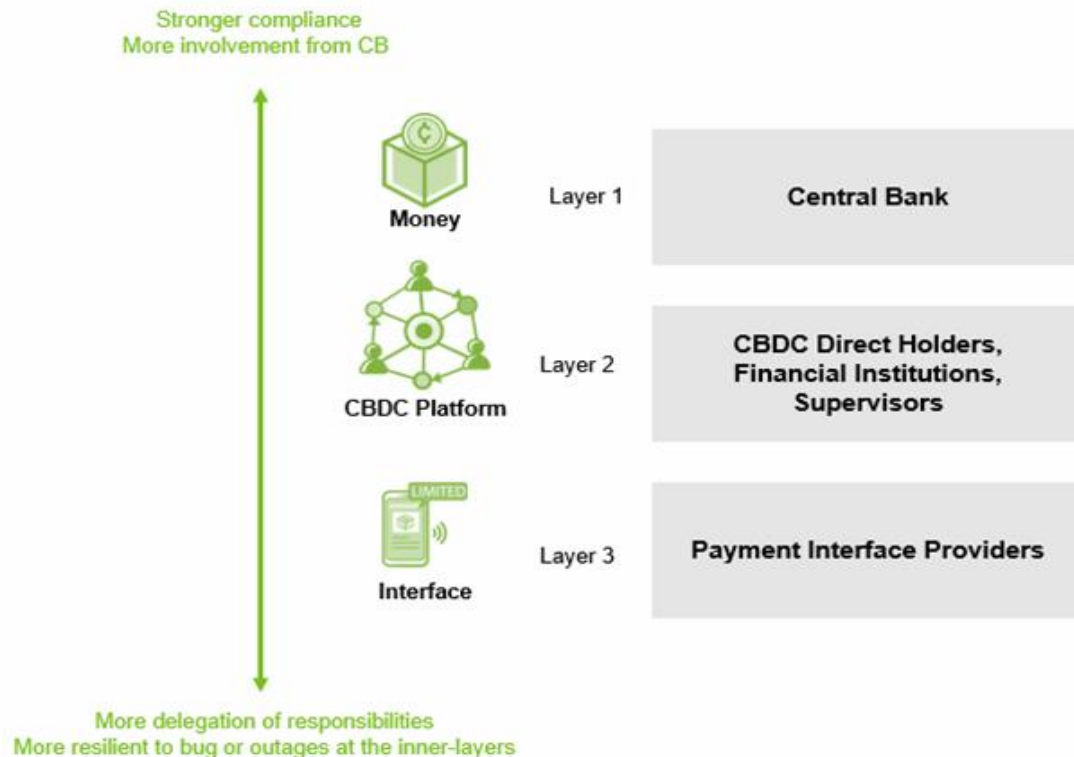
- Adapt and tailor the capabilities to the specifics of CFMs
- Enhance blockchain analysis
- Develop anomaly models and red flag indicators for CFM purposes

CBDC and CFM implementation

In principle, technological advances make it possible to embed some CFMs in the design of CBDCs through features of programmable money

Some CFMs can be potentially coded as an algorithm in the design of CBDC, for example, using “smart contracts”

This points to the possibility of maintaining effectiveness of CFM implementation while improving efficiency of cross-border payments



Summary

- **CFMs remain an important part of the policy toolkit in the digital age**
- **Crypto assets could challenge the effectiveness of CFM implementation; a multi-pronged strategy is needed**
- **The public sector can leverage the underlying technologies of crypto assets for the public good**
- **Some CFMs can be embedded in CBDC design, but international cooperation is essential**