Cambridge
Centre
for Alternative
Finance

UNIVERSITY OF CAMBRIDGE
Judge Business School

2ND GLOBAL CRYPTOASSET REGULATORY LANDSCAPE STUDY

Emerging Practices and Early Lessons Learned

With the support of:

UK International Development
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The rise of digital finance and in particular cryptoassets with their volatile market capitalisation estimated at $2.4 trillion in 2024, presents a challenge for regulators. Regulators may wish to protect consumers, avoid currency substitution and capital outflows. Yet the choices regulators face such as banning activity, isolating the sector from traditional finance and the real economy or bringing cryptoasset activities within the regulatory perimeter each present challenges.

Through this report, the Cambridge Centre for Alternative Finance (CCAF) showcases the varied approaches to cryptoasset regulation taken by policymakers around the world highlighting the UK's approach which is grounded in consumer protection and flexible. The report insightful offers case studies from jurisdictions such as Nigeria, the Philippines and Brazil.

The United Kingdom's recently published Digital Development Strategy (2024-2030) underscores our commitment to enabling inclusive, responsible and sustainable financial innovation which can support growth and help finance the Sustainable Development Goals. Good regulatory practice can foster and harness the benefits of financial innovation.

The UK is pleased to continue our partnership with the Cambridge Centre for Alternative Finance including through the Regulatory Knowledge Exchange, recent technical assistance programmes in the Philippines and Pakistan, and on research such as this report. Through these initiatives, we support the responsible adoption of digital financial services which can accelerate sustainable economic development across the globe.

Louise Walker, Deputy Director

Private Sector & Capital Markets Department

Foreign, Commonwealth and Development Office

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs,
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Growing adoption, coupled with significant risks to consumers and in terms of illicit financial flows, calls for a regulatory response to cryptoassets. As part of the Swiss State Secretariat for Economic Affairs' commitment to promoting stable and inclusive economic development in our partner countries, we recognize the critical importance of establishing regulatory frameworks that can both manage risks and support innovation in the rapidly evolving cryptoassets space.

This report provides a comprehensive overview of regulatory strategies, drawing on lessons from a diverse range of countries. It comes at an important time, as a number of jurisdictions, particularly in emerging markets, are working to develop their regulatory frameworks.

Among the case studies that jurisdictions might consider is the approach taken by the Swiss Financial Market Supervisory Authority. This involves classifying cryptoassets according to their function and applying existing frameworks in a technology-neutral approach. By providing legal clarity while maintaining flexibility, Switzerland has fostered a significant cryptoasset ecosystem while ensuring consumer protection, market integrity and financial stability.

We are proud to partner with the Cambridge Centre for Alternative Finance to deliver capacity building programs in Indonesia and Ukraine, as well as this landscape study. We believe it will serve as an important resource for policymakers, regulators, and stakeholders around the world as they address issues related to the cryptoassets regulation.

Franziska Spörri
Head Macroeconomic Support Section
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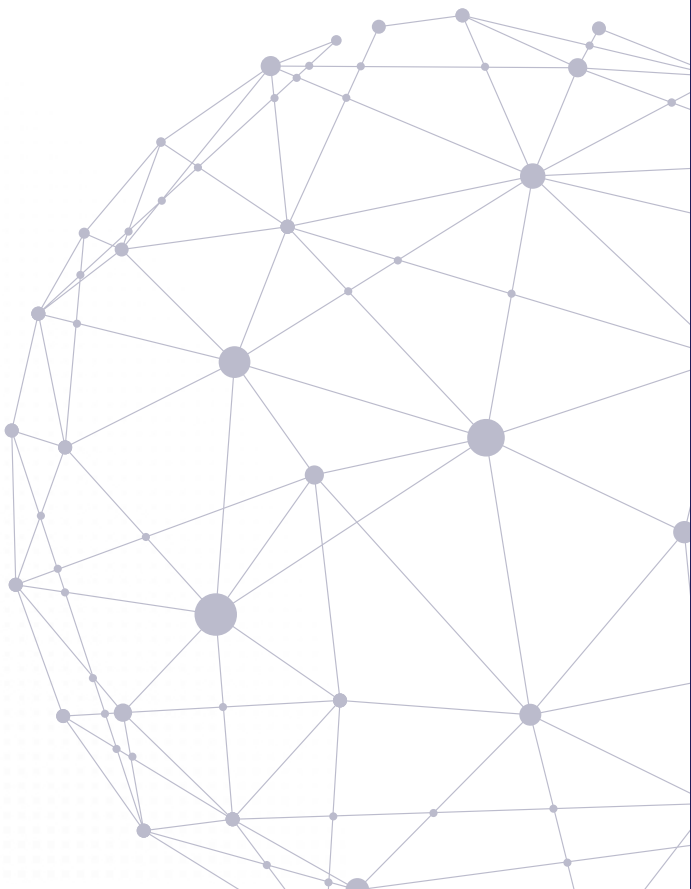

Research Team

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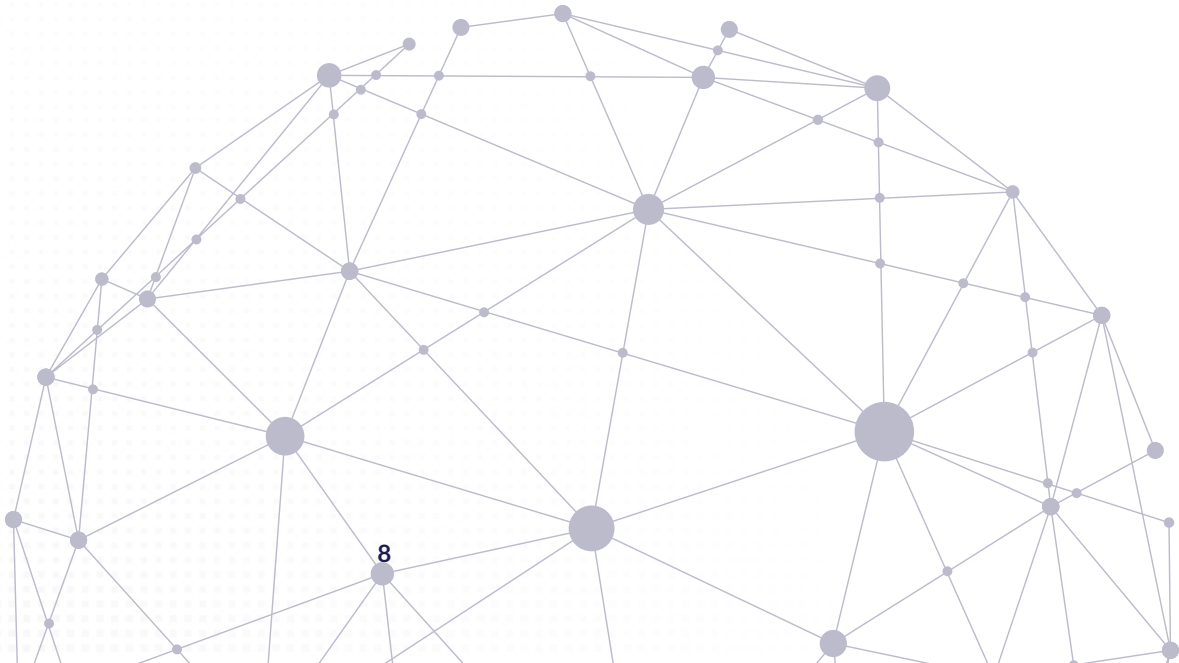
Acronyms

AEs	Advanced Economies
AML	Anti Money Laundering
BIS	Bank of International Settlements
CCAF	Cambridge Centre for Alternative Finance
CDBC	Central Bank Digital Currencies
CDAR	Cambridge Digital Assets for Regulators
CDMD	Cambridge Digital Money Dashboard
CFT	Countering the Financing of Terrorism
CASPs	Cryptoasset Service Providers
DeFi	Decentralised Finance
DAO	Decentralised Autonomous Organisation
DLT	Distributed Ledger Technology
EMDEs	Emerging Markets and Developing Economies
FCDO	UK Foreign, Commonwealth & Development Office
FATF	Financial Action Task Force
FIU	Financial Intelligence Unit
FSB	Financial Stability Board
ICO	Initial Coin Offering
IOSCO	International Organisation of Securities Commissions
IMF	International Monetary Fund
KYC	Know Your Customer
MiCA	Markets in Crypto-Assets Regulation (Regulation (EU) 2023/1114)
NFT	Non-Fungible Token
PoS	Proof-of-Stake
PoW	Proof of Work
SECO	Swiss State Secretariat for Economic Affairs
VASP	Virtual Asset Service Provider



Glossary of Terms

- **Anti Money Laundering (AML):** national and international laws, policies, investigative practices regulations and financial intelligence activities to prevent, detect and report attempts to disguise illegally obtained funds as legitimate revenue.
- **Bitcoin:** (uppercase 'B') is a permissionless, open software protocol and peer-to-peer (P2P) network that enables users to transact online without relying on trusted intermediaries, allowing users to send, store, and receive digital tokens of value without prior approvals; (lowercase 'b') digital tokens that constitute Bitcoin's native cryptocurrency, i.e. 'bitcoin', or BTC.
- **Blockchain:** a decentralised (i.e. no central authority), digital ledger that records transactions across a network of computers, enabling transparency in transaction records and their verification. The digital ledger is composed of a series of blocks, each of which contains a cryptographic hash of the previous block, a timestamp, and transaction data. This creates a chain of blocks that is resistant to modification, as any attempt to alter a previous block would change its hash and be immediately detected by the network. The ledger is maintained collectively by nodes, which work together to validate and add new transactions to the chain.
- **Central Bank Digital Currency (CBDC):** an electronic form of central bank money for individuals and businesses to store value and make payments; a digital form of a national currency representing legal tender, with the liability of the central bank, similar to a physical currency in circulation. CBDCs can be retail (intended to augment or replace physical cash in the economy), wholesale (intended to augment or replace large value intra-firm transfers), or both.
- **Consumer Protection:** a framework of laws, regulations, standards and institutional arrangements that safeguard consumers by ensuring their fair and responsible treatment and representation in the national and global financial marketplace.
- **Countering the Financing of Terrorism (CFT):** a set of laws, regulations, commercial investigative practices and state intelligence activities shared across countries and regions to monitor illicit trade and restrict access to funding and financial services for designated and proscribed entities.
- **Cryptoasset:** an umbrella term for privately issued assets secured by cryptographic or DLT techniques. The term is not intended to convey a legal definition.
- **Cryptoasset Service Provider (CASP):** entity that performs, typically for a fee, one or more activity enabling the use of cryptoassets, including exchange, transfer, safekeeping, administration and provision of financial services in relation to such assets. In some jurisdictions, also known as Virtual Asset Service Provider
- **Decentralised autonomous organisation (DAO):** An internet-based, collaborative organisation that coordinates the actions and decisions of people and distribution of resources, using rules expressed in computer code.
- **Decentralised Finance (DeFi):** an umbrella term for peer-to-peer financial services on public blockchains.
- **Distributed Ledger Technology (DLT):** a permissioned or permissionless synchronised network and protocol (for example, blockchain) enabling the upload, storage and validation of data across multiple locations and digital devices.
- **Governance tokens:** a cryptoasset that confers application specific decision-making authority and may not be transferable.
- **Howey Test:** a legal framework established by the U.S. Supreme Court in S.E.C. v. Howey Co., 328 U.S. 293 (1946), used to determine whether a transaction qualifies as an "investment contract" and is thus subject to regulation under U.S. federal securities laws.
- **Know Your Customer (KYC):** regulatory, compliance and best practice processes implemented by financial and other commercial services institutions to verify the identity of their clients, assess their risk profiles, and monitor their financial activities. Commercial KYC practices have a key role in the prevention of financial

crimes and collective action on anti-money laundering, terrorist financing, and counter-fraud.

- **Non-Fungible Token (NFT):** a digital asset whose uniqueness and ownership can be demonstrated and verified using DLT. Can be used to create a tokenised proof of title to a unique digital version of a cryptoasset (such as images, videos or other digital content) or physical asset (such as paintings, sculptures and other tangible assets).
- **Oracle:** in the context of DLT, a single entity that is trusted to collect, record and disseminate data from various sources and inputs into smart contracts.
- **Payment Token:** a cryptoasset that is used as a means of payment or exchange for goods or services.
- **Proof-of-Stake (PoS):** a type of consensus algorithm used by blockchain networks as an alternative to proof of work (PoW). Instead of using computational resources to solve complex computational puzzles, PoS uses a validator's stake (i.e. the amount of native tokens they pledged) as a measure of their commitment to the network. Validators are chosen to create new blocks and validate transactions based on the respective blockchains' protocol design.
- **Proof-of-Work (PoW):** a consensus algorithm used by blockchain networks to achieve distributed consensus, confirm transactions and produce new blocks to the chain. PoW requires participants in the network to compete to solve a cryptographic puzzle, through brute-forcing via trial-and-error. PoW provides a mechanism to deter malicious actors from attempting to take control of the network. This process is also known as mining.
- **Security token:** an asset represented on a distributed ledger that has the features of securities, i.e. equivalent to a certificate or other financial instrument that has monetary value and can be traded.
- **Self-hosted wallets:** a distributed ledger address that is not controlled by a cryptoasset service provider.
- **Stablecoins:** a cryptoasset that purports to maintain a stable value against another asset or basket of assets, including fiat currencies.
- **Tokenisation:** the process of turning an asset into a token recorded on a blockchain. Such assets can be fungible or non-fungible and can be representations of real-world assets.
- **Total Value Locked:** a representation of the value of cryptoassets locked into a DeFi protocol.
- **Utility token:** a cryptoasset that is exchangeable for specific goods or services.

Executive Summary

Despite the publication of comprehensive recommendations and guidelines by global standard-setting institutions over recent years, the regulation of cryptoasset markets still differs significantly across jurisdictions. This report surveys the fragmented global landscape of cryptoasset regulation. It describes and compares emerging regulatory practices, sets out possible reasons for their convergence and divergence, and draws early lessons from their implementation.

It comes as regulators across the world are stepping up their efforts to regulate the sector, or, in some cases, block cryptoasset activity. Increasing cryptoasset adoption, amid the repeated failures of large ventures and protocols in the cryptoasset ecosystem have made this a priority. International pressure is playing a part, too. The EU Markets in Cryptoassets regulation will apply in full from 2025 and is widely expected to have an impact beyond the borders of the EU, as companies adjust their operations to comply, and other jurisdictions align with the EU. The Financial Stability Board and other global standard-setting bodies have unveiled plans to assess implementation of their recommendations across G20 jurisdictions by the end of 2025.

This comparative study builds on the analysis of key elements of regulatory frameworks in 19 representative jurisdictions. It focuses on rules for issuers and providers of services of cryptoassets, including stablecoins. These are the object of most regulations adopted thus far. Regulatory initiatives relating to the tokenisation of financial instruments and decentralised finance (DeFi), which are at a more premature stage of development, are also discussed in brief.

THE KEY FINDINGS OF THIS STUDY ARE SET OUT BELOW:

- The terms “cryptoasset” and “virtual asset” are the most widely used across jurisdictions, while the terms “virtual currency” and “cryptocurrency” have fallen out of favour. This suggests that at present regulators consider cryptoassets to be more like speculative investments, than a means of payment.
- Definitions of cryptoassets tend to focus on form over substance. To avoid overlapping definitions and classifications, cryptoasset definitions may include exclusion categories or be residual in nature (e.g. financial instruments, even if on distributed ledgers (DLT), are generally excluded).
- Fewer than half of jurisdictions have some form of regulation for cryptoassets. Emerging Markets and Developing Economies (EMDEs) tend to lag in their adoption of regulations.
- A minority of jurisdictions, particularly EMDEs, have introduced bans on cryptoasset activities. Bans seem driven by concerns about currency substitution (i.e. dollarisation) and capital outflows, more than by consumer protection.
- While a limited number of jurisdictions have sought to regulate the sector under existing frameworks, others have (or plan to adjust) existing regulations or introduce bespoke measures. The breadth and depth of adjustments varies according to activity in question and remains an area of divergence.
- Rules on eligibility of cryptoassets to trading vary significantly. Some jurisdictions have “whitelists”, while in others cryptoasset service providers (CASPs) are required to assess each cryptoasset against defined criteria - and be liable for their findings.
- Advanced Economies (AEs), in particular large economies with international currencies, are leading the way in the regulation of stablecoins. As a minimum, regulations are aimed at ensuring stablecoins maintain a stable value and are redeemable. Reserves are one area of divergence.
- On top of governance and prudential requirements, CASPs are subject to rules specific to the services they undertake. Requirements on holding clients’ assets differ. Some jurisdictions prescribe that a given share of cryptoassets be held in cold wallets (i.e. offline).
- Staking remains unregulated, or is regulated as lending, in most jurisdictions. A few jurisdictions have

proposed or introduced bespoke rules and licenses for the provision of staking services, when certain conditions are met.

- To mitigate conflicts of interest, in addition to disclosures, some jurisdictions explicitly ban trading platforms from trading on their own account and are targeting platforms that list their own issued tokens.

- Warnings, including blacklists of non-licensed CASPs, are one of the first tools regulators deploy to protect investors. Advertising restrictions and suitability assessments are less common.

- To enable tokenisation of financial instruments, jurisdictions with mature financial regulations have opened sandboxes or provided guidance and targeted exemptions from existing regulations. Initiatives to regulate DeFi remain embryonic and are focused on enforcing rules on decentralised-in-name-only projects.

Building on the insights, this study sets out below early lessons learned from the analysis. While all jurisdictions can benefit from learning lessons from the varying approaches to cryptoasset regulation, the findings are especially relevant for jurisdictions in EMDEs who are in the process of developing a cryptoasset regulatory frameworks. These typically face more challenges in terms of regulatory resource and capabilities, complexity in regulatory processes.

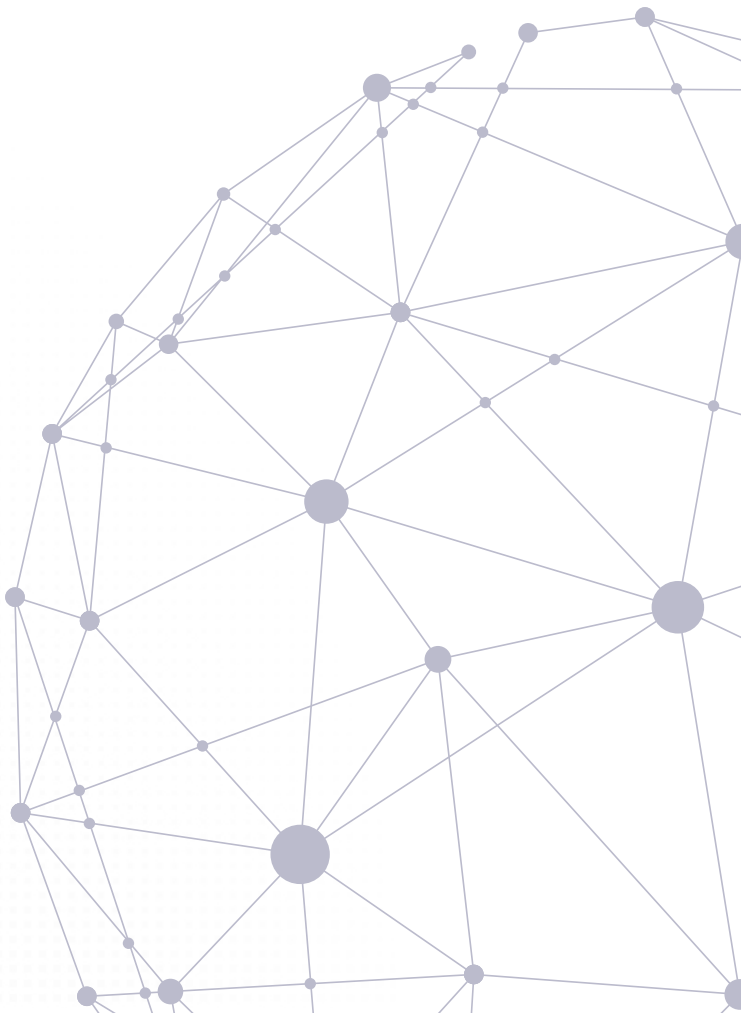
- Classification of cryptoassets is a basic pillar of regulatory frameworks. Delineating between cryptoassets and financial instruments and between different types of cryptoassets, particularly stablecoins, facilitates the division of labour between national supervisory authorities. Alignment on classification is also a condition for international cooperation.

- Lifting restrictions on cryptoassets may need to be done gradually, to preserve macro-economic stability. A combination of tools may be used to achieve this result and licensed CASPs may be required to enforce capital controls.

- Regulators may build on existing AML frameworks to develop more comprehensive regulatory frameworks for CASPs. Rules on governance of CASPs, segregation of client's assets and disclosures may be introduced early on and before rules on market integrity, and novel activities, such as staking.

- Regulatory obligations can be imposed at different points in the process of bringing cryptoassets to markets. Regulators may decide to impose rules on either issuers, persons seeking admission to trading and/or CASPs. They should be considered in combination.

- Localisation requirements, outsourcing restrictions and rules on reverse solicitation may be used to mitigate the risks arising from CASPs operating from offshore. Regulators may also consider intensifying cooperation with foreign counterparts and deference regimes.



Introduction

Financial authorities from across the globe are stepping up their efforts to regulate cryptoassets and related activities. 2023 was characterised by a flurry of activity, with proposals and consultations to bring cryptoassets within the scope of regulation and to introduce comprehensive rules to apply to them. The pace and breadth of regulatory action and innovation since the previous CCAF publications justify a revision and new research on cryptoasset regulatory frameworks (CCAF, 2019b, CCAF, 2020).

Rapid growth in cryptoasset market size[1], rising levels of adoption and the failures of large ventures and protocols in the cryptoasset ecosystem, have laid bare the risks in the sector and placed cryptoasset markets among the most urgent priorities for the attention of regulators (Radhika, et al., 2023, Harrison, 2024). In a 2022 global survey of financial authorities, 57% of respondents considered that consumer risk is high or very high in the field of cryptoassets, double the perceived risk recorded for other fintech verticals (CCAF and World Bank, 2022). Global institutions have warned that slow progress in regulating the sector is increasing the risks that cryptoassets, including stablecoins, will be used in supporting illicit activities (FATF, 2024). Warnings about emerging risks to market integrity and macro and financial stability, including risks associated with the use of stablecoins and the vertical integration of cryptoasset service providers (CASPs), have also gained prominence over the past two years (FSB, 2023a; IMF, 2023a).

These risks are widespread but are more significant in Emerging Market and Developing Economies (EMDEs), particularly in jurisdictions with higher levels of cryptoasset adoption and/or weak macro-economic fundamentals. CGAP, a network of more than 35 development organisations founded in 1995 and hosted at the World Bank, has argued that consumer risks related to cryptoassets are so high in EMDEs that it is "no longer an option" for financial authorities to maintain a "wait and see" approach to regulating cryptoasset markets (Brix-Newbury & Kerse, 2023).

Against this backdrop, global finance standard-setting bodies issued comprehensive policy recommendations on regulating cryptoasset activities and banks' exposures to cryptoassets (Basel Committee, 2022; Basel Committee, 2024; FSB 2023a, FSB 2023b, IOSCO 2023, IMF 2023b). These address consumer protection, market integrity, financial stability and other policy objectives, going beyond the scope of guidelines on anti-money laundering (AML) and countering the financing of terrorism (CFT) adopted by the FATF, which shaped the first wave of cryptoasset regulation by promoting the adoption of AML and CTF regulations in cryptoasset markets (FATF, 2019b, FATF, 2021). These standards are due to be implemented in G20 and other major jurisdictions by the end of 2025.

Despite this push, the global regulatory landscape remains fragmented, likely reflecting disparate policy preferences, institutional constraints of financial authorities across jurisdictions, and different assessments of risks (FATF, 2024; CCAF, 2024c). Persistent issues with classification of cryptoassets and lack of data on cryptoasset activities, especially data on cryptoasset creation, distribution, secondary trading and the profile and behaviour of investors, exacerbate this fragmentation (CCAF, 2019a). While some jurisdictions are moving fast to regulate cryptoassets and related activities, others are lagging or have sought to suppress the market by introducing wide-ranging restrictions. Even among those that regulate cryptoassets, different approaches are taken. This regulatory divergence presents an acute challenge for regulators and supervisors, in a market that is digital and inherently transnational.

This report describes and compares emerging practices in cryptoasset regulation. The analysis focuses on 19 representative jurisdictions and encompasses key dimensions of regulatory frameworks. The objective is to identify areas of convergence and divergence in the implementation of regulatory frameworks. In the conclusion this study indicates, where possible, early lessons for financial authorities, particularly in EMDEs.

RESEARCH SCOPE

There exists no universal definition or taxonomy of cryptoassets. To enable a cross-jurisdiction comparative analysis of regulatory frameworks, this report uses a broad definition of the term: 'cryptoasset' refers to any privately-

[1] The market reached a total capitalisation in excess of USD 3 trillion at the end of 2021, before crashing in 2022 and 2023. On June 11 2024, the market capitalisation was USD 2.45 trillion. Source: (CoinmarketCap, 2024)

issued representation of value or rights that depends on distributed ledger technology (DLT) or a similar technology, including blockchain[2].

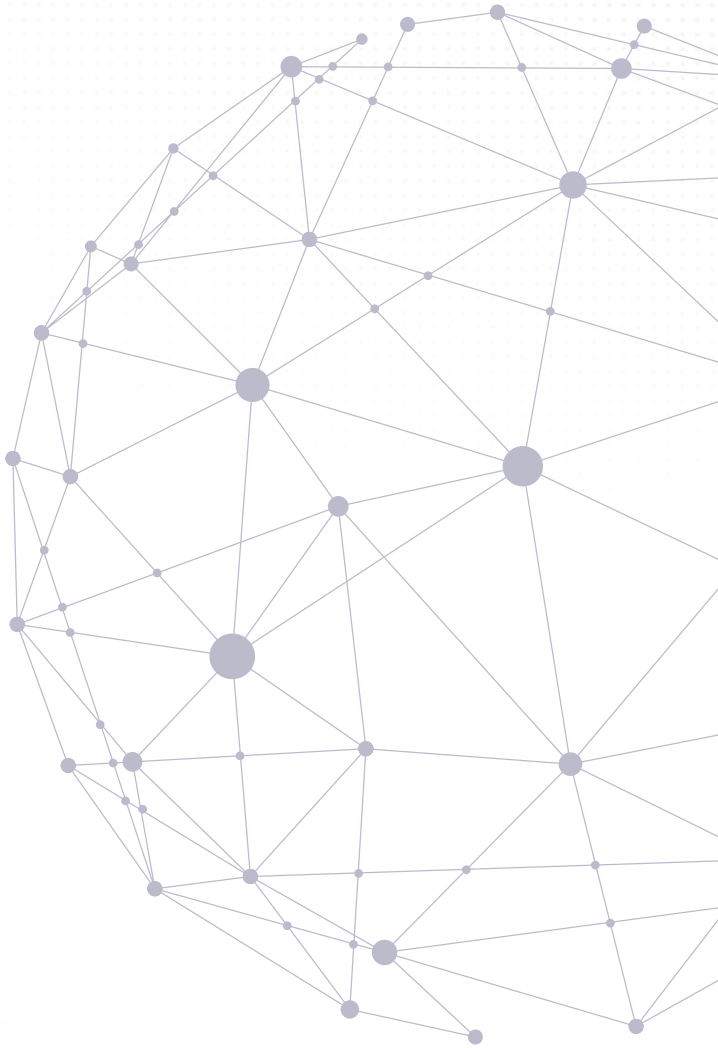
The regulatory frameworks analysed in this report are generally the most specific or bespoke frameworks that apply to cryptoassets and related services, in each jurisdiction. For example, where cryptoassets are subject to either the securities regulatory framework or a bespoke regulatory framework (depending on their characteristics), the focus is on the latter. In most cases this will also be the regulatory framework that applies to the largest cryptoassets, namely BTC and ETH, the native cryptoassets of the Bitcoin and Ethereum blockchains, respectively.

Within scope of the analysis are regulations targeting centralised cryptoassets activities, in particular the issuance and provision of services related to cryptoassets[3]. This is justified by the fact that these are the focus of current regulatory efforts in most jurisdictions. Regulatory measures for community-managed cryptoasset activities and for cryptoasset infrastructure providers, such as miners, node operators and wallet software providers, are either non-existent or nascent in most jurisdictions, therefore they are excluded from the scope[4]. The study covers regulatory initiatives on the tokenisation of financial instruments and on Decentralised Finance (DeFi) in less detail: these will be focus of future research by CCAF.

The study compares several dimensions of regulatory frameworks, starting with the classification of cryptoassets and the general approach to regulating the sector. This is followed by a comparison of rules and requirements on issuance and offering of cryptoassets, including stablecoins, and the licensing framework and comprehensive regulation that applies to cryptoasset service providers. Regulatory measures taken to achieve AML and CFT and consumer protection objectives are covered in dedicated chapters. Jurisdictional case studies and thematic reviews of specific features of the regulations are included throughout this report.

SELECTED JURISDICTIONS

The analysis and case studies in this report cover the regulatory frameworks across 19 jurisdictions, comprising: Australia, Brazil, China, the European Union (EU)[5], Hong Kong, India, Indonesia, Japan, Mexico, Nigeria, Philippines, Singapore, South Africa, South Korea, Switzerland, UK, the USA[6], UAE-VARA[7] (Dubai) and UAE-FSRA[8] (Abu Dhabi).



[2] This is consistent with a broad definition of cryptoassets, which puts the emphasis on the form or technological envelope of the asset (CCAF, 2019b).

[3] In line with the taxonomy developed and used by the BIS (2023a) and FATF (2021).

[4] Chapter 5 sets out and analyse regulatory initiatives on the provision of services related to staking.

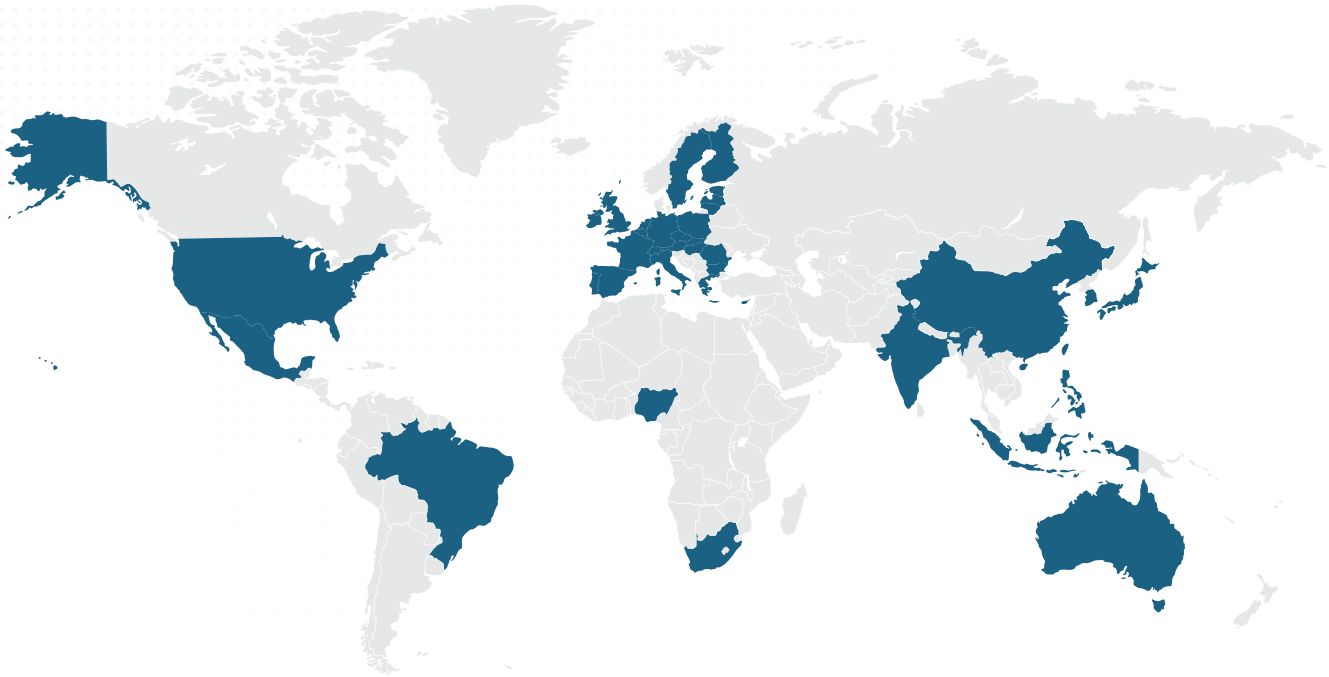
[5] We treat the EU as a single jurisdiction given that the key elements of the regulation are harmonised. Under the EU rule-making process, the European Commission proposes regulation to be negotiated by the EU Member States and the European Parliament. The Commission also has the power to adopt implementing rules, after receiving advice from the European Supervisory Authorities. Both the European Banking Authority (EBA) and the European Securities and Markets Authority (ESMA) have competences on cryptoasset markets. Supervision remains a competence of national authorities, except for the supervision of systemic stablecoins.

[6] For the USA, the focus is on regulatory, supervisory and enforcement initiatives at federal level.

[7] VARA is a Dubai financial services regulator established in 2022, responsible for regulating virtual asset-related financial services activities at the emirate level excluding the Dubai International Finance Centre.

[8] FSRA is the financial regulator and supervisor financial services firms that operate within the ADGM, a financial free zone located in the emirate of Abu Dhabi, which is governed by its own rules and regulations, as opposed to civil law on the UAE federal level.

Figure 0.1. 2nd Global Cryptoasset Regulatory Landscape Study - Jurisdictions selected for comparative analysis (N=19)



Twelve of the selected jurisdictions are members of the G20, including the EU. The sample comprises a range of income groups, based on income classifications defined by the World Bank. Eight are EMDEs, of which three are lower-middle income economies and five are upper-middle income economies. The remaining eleven are Advanced Economies (AEs), also known as high-income economies. The sample also considers common law, civil law and mixed legal system jurisdictions, and jurisdictions with regulatory authorities with different policy mandates, including secondary competitiveness objectives.

These jurisdictions have been selected to provide a broad insight into the trends and direction of current regulatory efforts addressing cryptoassets. A key inclusion criterion was evidence of a track record of legislative and regulatory efforts to regulate and supervise cryptoasset activities. Most selected jurisdictions are AEs, as they are leading regulatory reform. While the risk context may be different for EMDEs, there remain observations and lessons to be drawn from the experiences of AEs.

METHODOLOGY

The research presented in this study is based on empirical analysis of regulations affecting cryptoassets, across 19 selected jurisdictions. Questions and indicators have been identified that enable us to characterise each dimension of the regulatory frameworks.

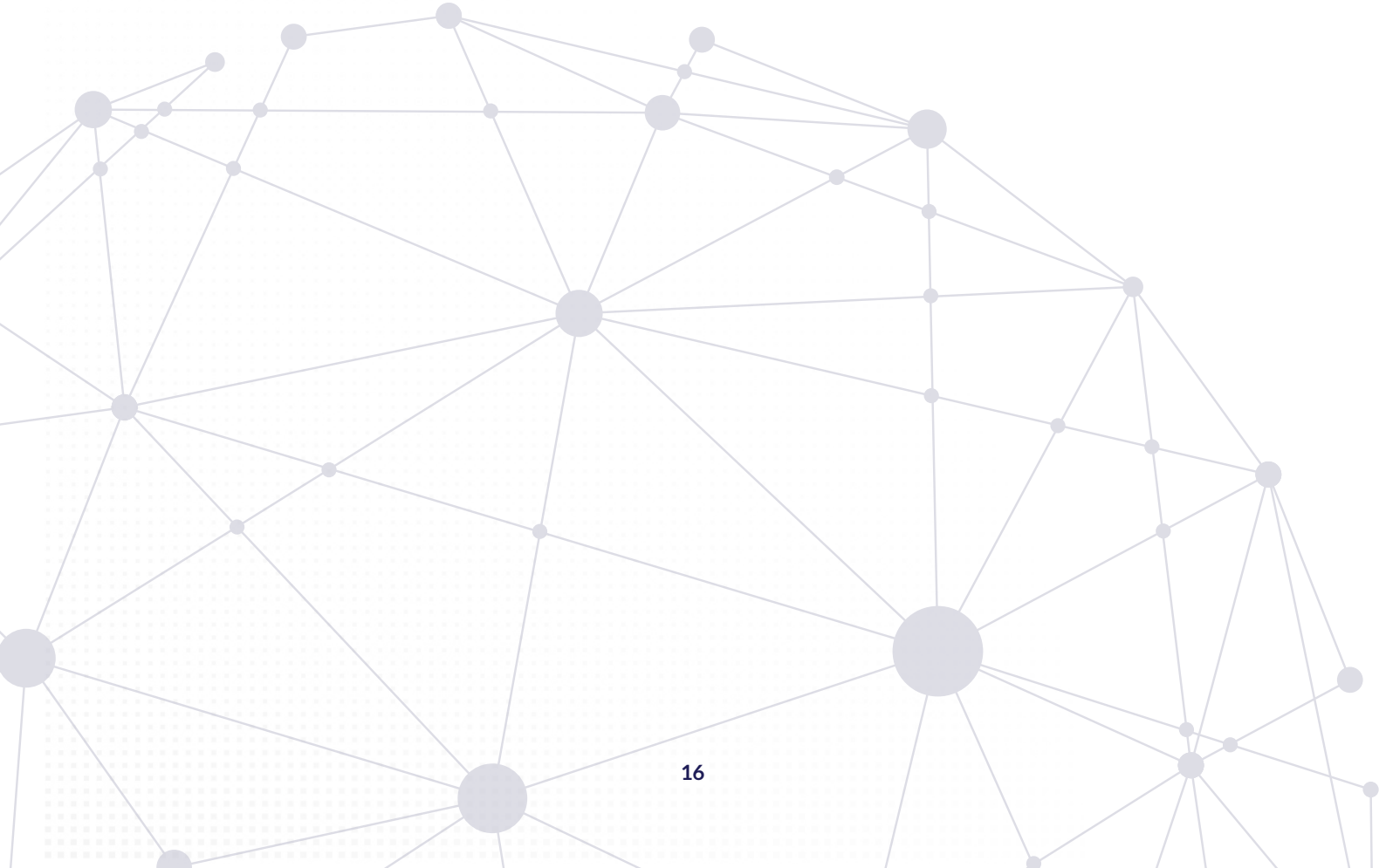
The data was collected primarily via desktop research, between February and May of 2024. Data included primary sources (laws, regulations, directives, guidelines and other sources of regulatory information) and secondary sources (articles, books, and blog posts from authoritative sources). Due to the wide variation in regulatory remit and responsibilities over specific regulatory themes, the organisational unit of comparative study are jurisdictions, not financial regulatory authorities.

The collected data was consolidated into a single dataset to enable comparative analysis (see Appendix for regulatory initiatives in the 19 jurisdictions selected for this report, published separately) by the research team, to draw insights on a range of issues considered in cryptoasset regulation. The report includes in-depth examples, presented as case studies on elements of regulatory frameworks in case study jurisdictions.

As regulatory responses to the opportunities and risks generated by cryptoassets vary, not all jurisdictions are covered in each chapter. Instead, the analysis focuses on subsets of jurisdictions that stand out for the initiatives and measures taken on specific dimensions.

A more limited set of data has been collected for all jurisdictions, worldwide. This data covers areas such as the general approach to regulating of cryptoassets and stablecoins and has been used to provide broader, global insights in this report. It has also been uploaded and visualised in the CCAF Global Regulatory Innovation Dashboard (GRID), an online, interactive resource that presents a visual representation of regulatory frameworks and innovation initiatives, globally (CCAF, 2024c). The dashboard offers actionable insights and data on regulatory innovations to a broad, global audience including regulators, supervisors, policymakers, industry, researchers and individuals.

External experts, familiar with the regulatory environment in specific jurisdictions, were consulted during the preparation and review of this report.



STRUCTURE OF THIS REPORT

The report is divided into four parts that seek to identify the range of practices across different aspects of cryptoasset regulation.

Part I discusses strategies for regulating cryptoassets.

- Chapter 1 focuses on approaches to the legal classification and the taxonomy of cryptoassets.
- Chapter 2 sets out general approaches towards cryptoassets, from implementing bans to enacting bespoke regulations.

Part II introduces the key elements of regulatory frameworks for entities issuing or offering cryptoassets, including stablecoins, and providing related services.

- Chapter 3 compares the rules for issuance, offering, and admission to trading of cryptoassets.
- Chapter 4 compares the regulatory frameworks for issuers of stablecoins, particularly single fiat-referencing stablecoins.
- Chapter 5 compares the regulatory and licensing frameworks for cryptoasset service providers.

Part III focuses on strategies to achieve other cross-cutting policy objectives, which in some cases are addressed through specific regulations.

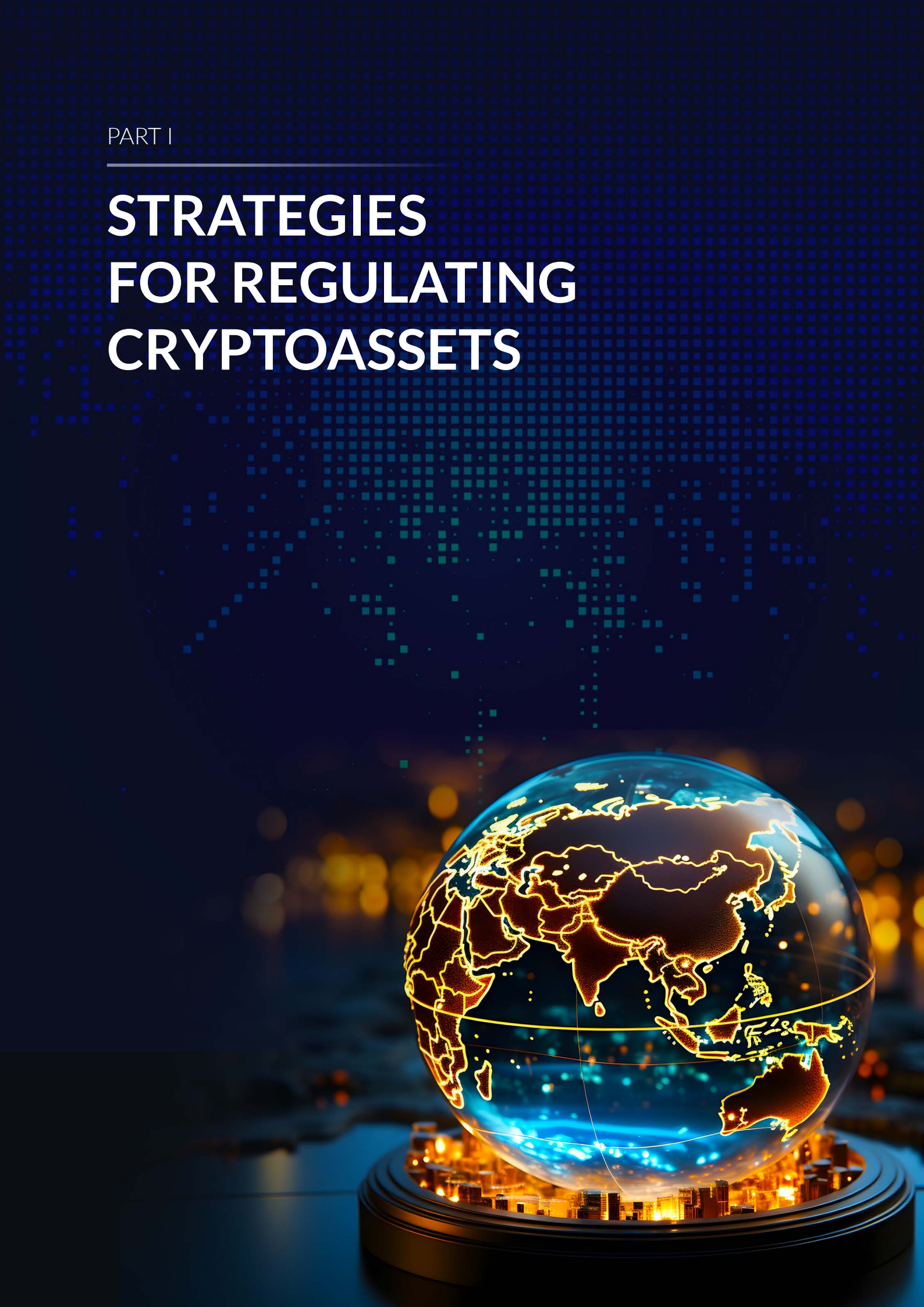
- Chapter 6 focuses on anti-money laundering rules and regulations.
- Chapter 7 compares approaches to protect retail investors, including rules on marketing of cryptoassets and on suitability.

Part IV concludes and draws early lessons from the implementation of regulatory frameworks.

- The report includes two in-brief sections on the regulation of DLT-based financial instruments and decentralised finance.

PART I

STRATEGIES FOR REGULATING CRYPTOASSETS



Chapter 1

TERMINOLOGY, CLASSIFICATION, AND TAXONOMY

Classification is the process of grouping assets in classes or categories according to criteria established in a regulation. The features of cryptoassets pose challenges to financial authorities seeking to define and classify them.

Classification matters as it determines the regulatory framework that apply to issuers and providers of cryptoasset services, particularly whether existing frameworks apply. The persistent uncertainty and divergent approaches to classification goes some way to explain fragmentation in cryptoasset regulation across the world and creates opportunities for arbitrage.

This chapter describes different approaches to the classification of cryptoassets. It sets out how the terms used to refer to cryptoassets have evolved over time and identifies the definitions and taxonomies adopted in the 19 jurisdictions selected for this study. It discusses the trade-offs that underlie different classification approaches with three case studies on the EU, Switzerland and the US.

The chapter concludes that there is still no widely accepted approach to naming, defining and classifying cryptoassets. Several jurisdictions that introduced bespoke frameworks for cryptoassets have sought to define the term broadly enough to capture any assets that are not financial instruments but are transferred digitally.

CONTEXT

TERMINOLOGY OF CRYPTOASSETS IN REGULATION

Financial authorities use many different terms to refer to what are described in this report as 'cryptoassets'. The terms used in official statements by governments, regulators and global financial institutions have evolved significantly over time (CCAF, 2019b). Past research shows that 'Bitcoin' was used widely as an umbrella term for cryptoassets until 2014, after which time the term 'virtual currency' became pervasive. The terms 'virtual asset' and 'cryptoasset' gained prominence after 2017. This shift coincided with an intense phase of investment and crowdfunding in tokens during 2017-18 known as 'Initial Coin Offering (ICO) mania'.

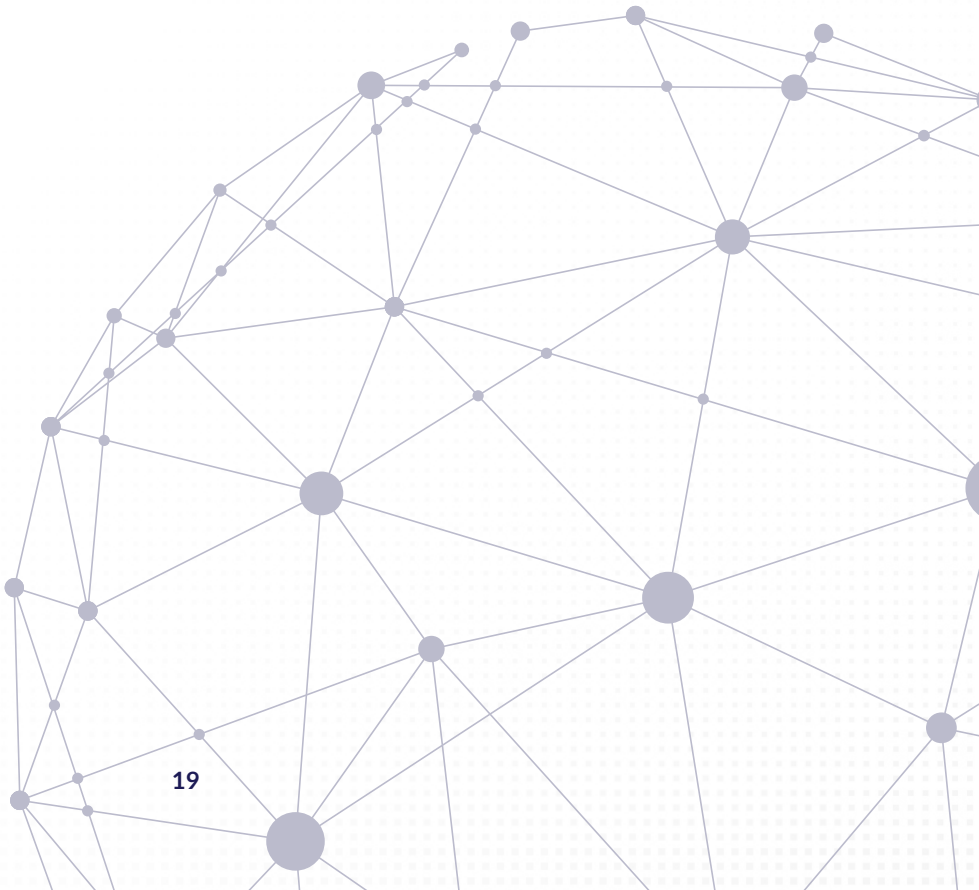
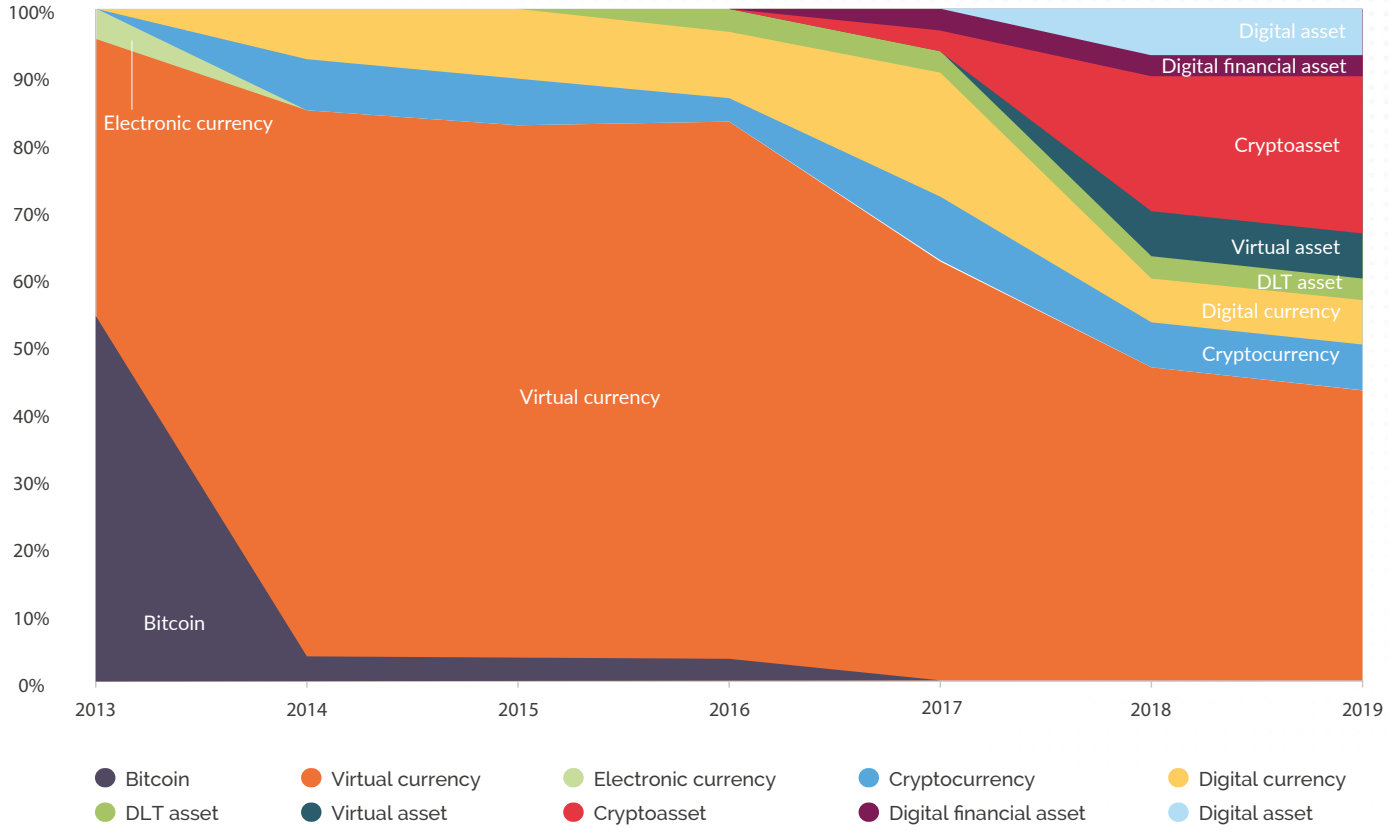


Figure 1.1. Evolution of terminology used by regulators (2013-2019)



Source: CCAF, 2019b; p.35.

The lack of consistency in terminology remains evident today, even among international standard setting bodies. FATF, among the first international bodies to issue guidance on cryptoasset regulation, uses the term "virtual asset"[9] (FATF, 2023c). In contrast, the Financial Stability Board (FSB) issued policy recommendations for regulating "crypto-assets" (FSB, 2023a). IOSCO used the terms "crypto assets" and "digital assets" in its policy recommendations (IOSCO, 2023). The Bank of International Settlements (BIS) and the International Monetary Fund (IMF) have adopted the term "crypto assets" in recent publications, but they have also used alternative terms, notably "digital assets" (BIS, 2023a, IMF, 2023a, IMF 2024a).

APPROACHES TO CLASSIFICATION OF CRYPTOASSETS

There are two polar approaches to the classification of cryptoassets. One approach is to divide and classify cryptoassets according to the economic function they perform, possibly with reference to existing legal categories. The second is to classify them according to technical functions.

In the first approach, three broad categories are typically considered: payment, investment and utility instruments (CCAF, 2019b). By putting the emphasis on economic function, the functional approach aims to ensure technological neutrality and enables regulators to apply, at least in part, existing rules to entities carrying out cryptoasset activities. However, this has three major limitations. First, cryptoassets may slip through the cracks of regulation because they do not fit existing definitions. This may be the case of cryptoassets such as BTC, which have no identifiable issuer – a defining feature of securities. Second, some cryptoassets may fall under more than one category because of their hybrid and evolving nature (ESMA, 2019). For instance, utility tokens may evolve, and start being used like investment assets. This raises questions about which regulatory framework should apply to the assets, or if regulatory obligations should be cumulative. Third, cryptoassets classified within the three categories may have features or perform novel functions

[9] In earlier guidance, FATF used the term virtual currency (FATF, 2014b).

not addressed by the regulation. Native cryptoassets such as bitcoin and ether perform critical functions in the operation of a blockchain (see text box: "Consensus mechanisms").

CONSENSUS MECHANISMS

A consensus mechanism is the protocol or set of rules for the nodes or participants of a distributed network to come into agreement on a single set of data (Bains, 2022).

In centralised systems, the function of validating and clearing transactions is performed by a central authority. In a distributed network there must be a distributed solution or mechanism to achieve consensus on transactions that are validated. In permissionless networks, to overcome the lack of trust between participants, a cost / reward is typically associated to a vote or participation in the validation process. To be effective, this cost / reward must be objectively measurable, difficult (i.e., expensive) to generate, non-forgeable, and easily verifiable by third parties. Cryptoassets native to the blockchain are used to impose a cost / reward.

The two most common consensus mechanisms in permissionless networks are proof-of-work (PoW) and proof-of-stake (PoS).

In a proof-of-work system, participants compete to solve a cryptographic puzzle through brute-forcing via trial-and-error[10]. This imposes a real financial cost on the participant, termed the 'miner', in the form of electricity consumed for the computational process, the cost of the hardware and the secure physical space needed for hardware. Once it finds a valid solution, a miner broadcasts the result and proposes a block that records transactions to other network participants, who can easily verify if the protocol rules have been followed. If they have, the block is added to the chain, and the miner is rewarded with the allocation of native tokens (e.g. bitcoins (BTC), in the case of the Bitcoin blockchain). If they have not (e.g. if the block includes irregular transactions), the block is invalidated, and no reward is paid.

PoS substitutes the resource cost associated with the computationally intensive process of solving a cryptographic puzzle with a requirement to pledge financial resources, in the form of the blockchain's native tokens, as collateral. This is called "staking". In PoS mechanisms, to participate in attesting or proposing new blocks, so-called validators must lock, or "stake", a set number of native tokens, for example ETH, in the case of the Ethereum blockchain). Depending on the protocol design, validators are selected to perform certain services for which they get subsequently rewarded. However, in the case of misbehaviour, a financial penalty is imposed upon the malicious or faulty node, effectively reducing the node's stake. This process is known as "slashing".

[10] An analogy would be guessing a random number, or rolling many dice to arrive at a specific sum.

The second approach is to classify cryptoassets according to the underlying technology and/or their technical attributes. In this approach, cryptoassets are defined and classified according to their digital form, as a new asset class, which is typically subject to a bespoke set of rules. This approach goes some way to ensuring that most cryptoassets are brought inside the regulatory perimeter, but may increase the risk of regulatory arbitrage if bespoke regulations do not ensure equivalent outcomes to existing ones. For example, financial instruments represented on DLT could be classified as cryptoassets and regulated differently from financial instruments issued in traditional financial markets.

Overcoming the shortcomings of each approach requires finding a way to distinguish between cryptoassets that are merely a DLT-based variant of a traditional instrument, from cryptoassets that have unique features. Unique forms justify being classified differently and being subject to tailored or bespoke regulation. Variants can be subject to existing rules, albeit with some additions or adjustments to address risks arising from the use of DLT infrastructure (see In-Brief "The Regulation of DLT-based Financial Instruments").

In 2019, CCAF proposed a list of key dimensions that regulators could use as a reference to assess and classify cryptoassets. These dimensions included counterparty,

reference type, technical function, economic function, rights attached, underlying infrastructure, access and redress. Building on this reference baseline, CCAF proposed a narrow definition of cryptoassets, as assets issued on permissionless networks, that are native to those networks and that play an indispensable role in them, particularly by providing an economic incentive to validating transactions (see text box: "Consensus mechanisms"). This definition would capture assets such as BTC and ETH, i.e. the native cryptoassets of the Bitcoin and Ethereum blockchains, respectively (CCAF, 2019b).

Alternative definitions and classification approaches have been proposed since. They can be described as broad and hybrid, depending on their reach. Defined in wide terms, a cryptoasset encompasses any asset represented on DLT, irrespective of the function of the asset and the type of network, consistent with second classification approach described above (CCAF, 2019b).

Other definitions that use different criteria include a proposal by the Commodity Futures Trading Commission's Global Markets Advisory Council for Digital Asset Markets, which identifies cryptoassets as "assets native to a permissionless network, that grant no rights and that are not redeemable (CFTC, 2024)."

TAXONOMY OF CRYPTOASSETS

In addition to defining cryptoassets, regulators must consider whether to distinguish between different types. Grouped together, the different sub-classes of cryptoassets form a taxonomy. There is no universally accepted taxonomy of cryptoassets, but it is common to distinguish between security tokens, stablecoins, utility tokens, governance tokens and non-fungible tokens (see the Glossary for definitions of these terms as used in this report).

Criteria used to distinguish between cryptoassets can include the mechanism that underpins the asset value, the fungibility of the asset and its use case or function (CFTC, 2024; Adan, 2021). Taxonomies can be even more granular. MSCI, an indices provider, in partnership with Goldman Sachs and Coin Metrics, proposed a framework for classification that divides assets[11] into four classes: digital currencies, blockchain infrastructure, digital asset application, on-chain derivatives (Goldman Sachs, 2022). Another example of a taxonomy is the Token Taxonomy Framework by the Global Blockchain Business Council (InterWork Alliance, 2022).

[11] The MSCI taxonomy covers digital assets in the broadest sense.

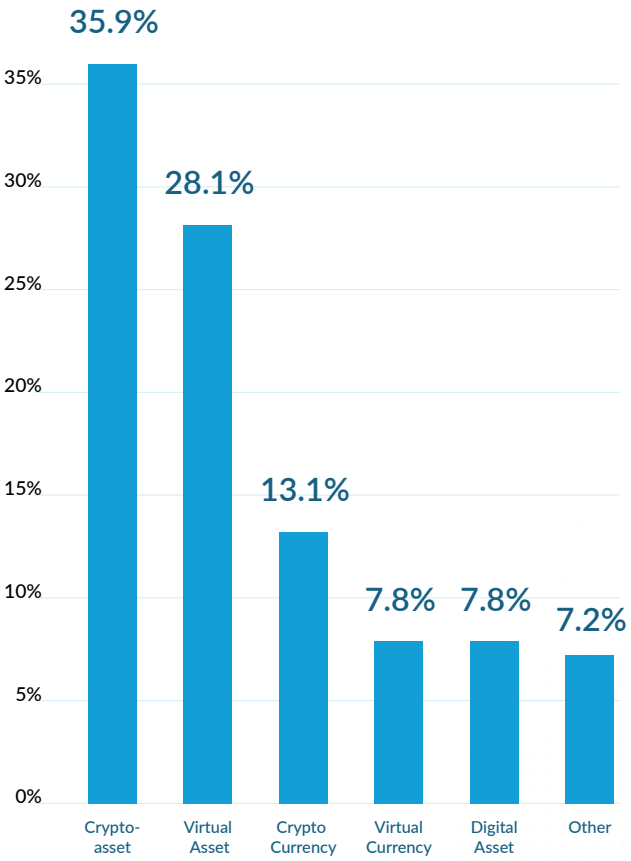
COMPARATIVE ANALYSIS

In this section, the terms used to refer to cryptoassets in all jurisdictions across the world are compared, based on data in the CCAF GRID (CCAF, 2024c). The definitions and taxonomies in the 19 jurisdictions selected for this report are analysed and this section concludes by providing three case studies of jurisdictions that have taken different approaches to classification and regulation.

TERMS AND DEFINITIONS: GLOBAL EVIDENCE

The term "cryptoasset" is the most widely used in regulation in jurisdictions across the world (35.9%), consistent with terminology used by the FSB and IOSCO. It is followed by the term "virtual asset" (28.1%), which is the term used by FATF in its guidelines, and "crypto currency" and "virtual currency" and "digital asset"[12] [13].

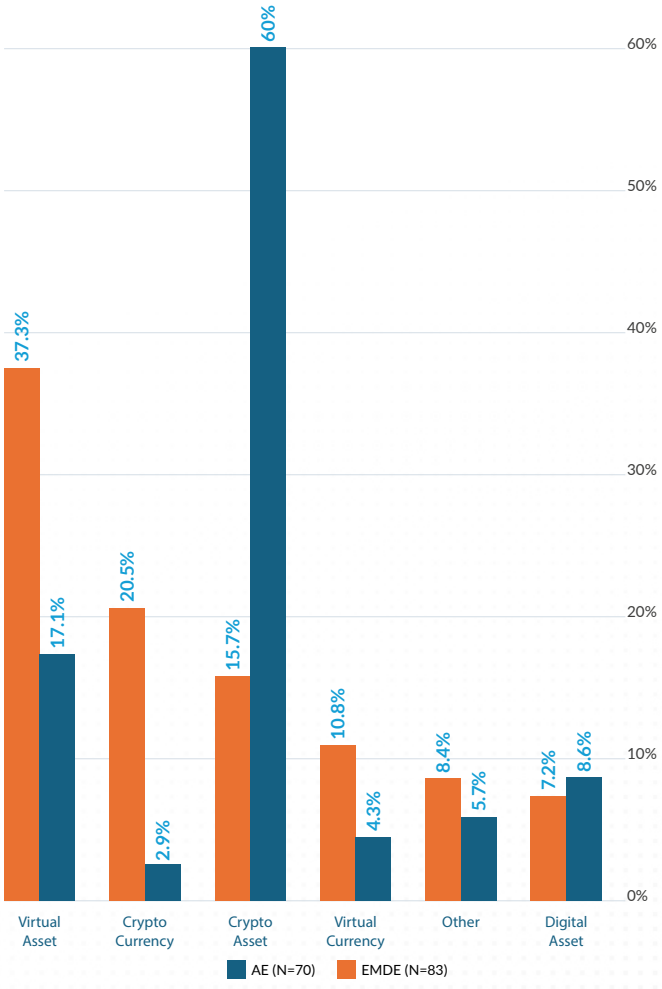
Figure 1.2. Global sample of definitions of crypto currency in digital asset regulation, 2024 (N=153).



Source: CCAF, 2024c.

A closer look shows notable differences in the terms used in AEs and EMDEs. In EMDEs, the term "virtual asset" is the most widely used (37.3%), well ahead of "cryptoassets" (15.7%). This is likely explained by the lag in the regulatory process among EMDEs, where the focus may be on addressing AML/CFT risk. In contrast, AEs, which are more advanced in developing comprehensive regulations and licensing frameworks, are more likely to use the term "cryptoasset" (60%). The terms "virtual currency" and "crypto currency" are also relatively more common in EMDEs. One possible explanation is the perceived risk that cryptoassets are used as an alternative means of payment or store of value to official currencies in jurisdictions with weak macro-economic fundamentals.

Figure 1.3. Global sample of definitions of crypto currency in digital asset regulations among AEs and EMDEs, 2024



Source: CCAF, 2024c.

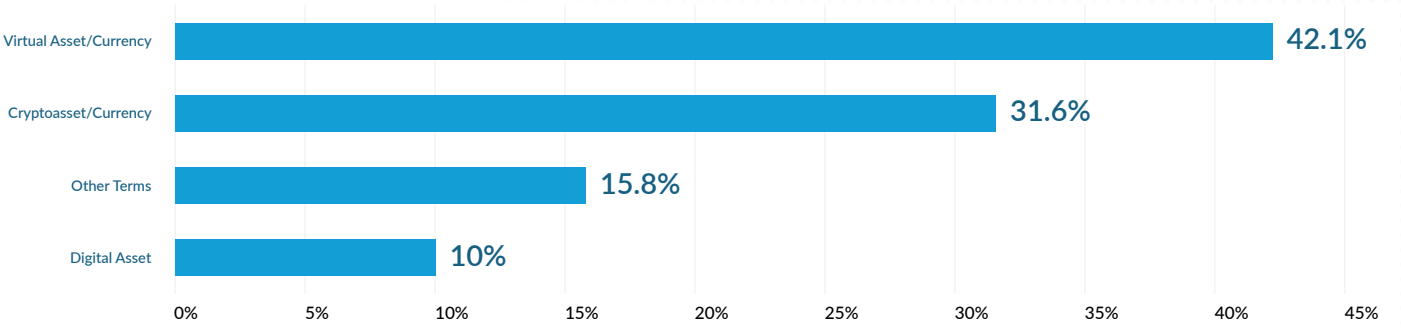
[12] This analysis is based on the analysis of regulatory texts, meaning that jurisdictions that have yet to make proposals to regulate cryptoassets may not be captured.

[13] Where more than one term is used, the most specific term that is used to designate Bitcoin and ETH, the largest cryptoassets, as measured by their supply and value is included.

TERMS AND DEFINITIONS: SELECTED JURISDICTIONS

In the 19 jurisdictions selected for this report, "virtual asset" or "virtual currency" are the terms most used, ahead of the "cryptoasset" or "crypto currency".

Figure 1.4. Terms used by selected jurisdictions (N=19)



Even when the same terms are used, definitions often differ. Table 1.1 lists and compare the definitions used by regulators in the 19 selected jurisdictions.

Table 1.1. Detailed list of terms and definitions in 19 jurisdictions selected for this report

LIST OF TERMS AND DEFINITIONS	
AUSTRALIA: DIGITAL ASSET.	• A digital asset is a token and the entitlements it grants a holder. A token is a record in a token-based system. It means a digital token with the characteristics of a physical token it could be defined as a crypto token. (Commonwealth of Australia, Treasury 2023a).
BRAZIL: VIRTUAL ASSET.	• A virtual asset means the digital representation of value that may be negotiated or transferred electronically and utilized for payments or for investment purposes. From such definition are excluded national and foreign currencies, electronic currency, instruments which confer its owner access to specified products or services; and representations of assets which are already regulated, such as securities (Banco Central do Brasil, 2024).
CHINA: VIRTUAL CURRENCY.	• Virtual currencies do not have the same legal status as legal tender. Bitcoin, Ethereum, Tether, and other virtual currencies have the following distinguishing features: not being issued by monetary authorities, relying on cryptography and distributed ledger and similar technologies, and existing in digital forms (The People's Bank of China, 2021).
EUROPEAN UNION: CRYPTO-ASSET.	• A "crypto-asset" is digital representation of a value or of a right that is able to be transferred and stored electronically using distributed ledger technology or similar technology (European Union, 2023b).

HONG KONG: VIRTUAL ASSET.	• A "virtual asset" is a cryptographically secured digital representation of value that: a) is expressed as a unit of account or a store of economic value; b) that is either used, or is intended to be used, as a medium of exchange accepted by the public for payment for goods or services, the discharge of a debt, or for investment, or that provides rights, eligibility or access to vote on the management, administration or governance of the affairs in connection with, or to vote on any change of the terms of any arrangement applicable to, any cryptographically secured digital representation of value; c) and that can be transferred, stored or traded electronically (The government of Hong Kong Special Administrative Region, 2022).
INDIA: VIRTUAL DIGITAL ASSET.	• A virtual digital asset is any information, code, number or token not being Indian or foreign currency, and generated through cryptographic means or others (Republic of India, 2023).
INDONESIA: CRYPTOASSET.	• A cryptoasset is an intangible commodity under digital form, which relies on cryptography, information technology networks and distributed ledgers (Republic of Indonesia, 2021).
JAPAN: CRYPTOASSET.	• A cryptoasset is: 1) a proprietary value that may be used to pay an unspecified person the price of any goods purchased or borrowed or any services provided and which may be a) sold to or purchased from an unspecified person (provided that recorded on electronic devices or other objects by electronic means excluding currency denominated assets (such as Japanese Yen or US Dollar); and b) that may be transferred using an electronic data processing system; or 2) proprietary value that may be exchanged reciprocally for proprietary value with an unspecified person and that may be transferred using an electronic data processing system (Arora, 2020; FSA, 2022).
MEXICO: VIRTUAL ASSET.	• Virtual assets are an electronically recorded representation of value used by the public as a means of payment for all legal acts and whose transfer can only be carried out through electronic means. Under no circumstances any other asset denominated in local currency or in foreign currency shall be understood as a virtual asset (Government of Mexico, 2018; amended 2021).
NIGERIA: DIGITAL ASSET.	• Digital Asset means a digital token that represents assets such as a debt or equity claim on the issuer (Securities and Exchange Commission, Nigeria, 2022).
PHILIPPINES: VIRTUAL ASSET.	• A virtual asset is any type of digital-unit that can be digitally traded, or transferred, and can be used for payment or investment purposes. It can be defined as a "property", "proceeds", "funds", "funds or other assets", and other "corresponding value". It is used as a medium of exchange or a form of digitally stored value created by agreement within the community of VA users (Handagama, 2023).

SINGAPORE: DIGITAL PAYMENT TOKEN.	• A digital payment token is any digital representation of value (other than an excluded digital representation of value) that: a) is expressed as a unit, b) is not denominated in any currency, and is not pegged by its issuer to any currency, c) is, or is intended to be, a medium of exchange accepted by the public, or a section of the public, as payment for goods or services or for the discharge of a debt, d) can be transferred, stored or traded electronically; and e) satisfies such other characteristics as the Authority may prescribe. (Republic of Singapore, 2019).
SOUTH AFRICA: CRYPTOASSET.	• A cryptoasset is: 1) a digital representation of value which is not issued by a central bank, but may be traded, transferred, or stored electronically for purposes of payment, investment, and other uses, which applies cryptography techniques, b) applies cryptographic techniques, 3) uses distributed ledger technology (FSCA, 2022).
SOUTH KOREA: VIRTUAL ASSET.	• A virtual asset is an electronic certificate (including all associated rights) that has economic value and that can be traded or transferred electronically. The following are excluded: electronic certificates which cannot be exchanged for monetary value, products used in game products, electronic prepayments, electronically registered stocks, electronic bills, electronic bills of lading, digital currencies issued by the Bank of Korea, or others which may be added. (FSC, 2023b).
SWITZERLAND: PAYMENT TOKENS.	• Swiss law does not define the terms crypto or virtual currency. In a guidance on initial coin offers issued in 2018, the Swiss Financial Market Supervisory Authority proposed a taxonomy of cryptoassets, including payment tokens, utility tokens and asset tokens. Payment tokens are considered synonymous with cryptocurrencies and have no further functions or links to other development projects. Tokens may in some cases only develop the necessary functionality and become accepted as a means of payment over a period of time (FINMA, 2018). Other terms are used to refer to cryptoassets in other pieces of legislation or regulation. In the Banking Act, the term "crypto-based asset" is used. In the AML Ordinance, the term "virtual currency" is used.
UAE-VARA: VIRTUAL ASSET.	• A virtual asset is a digital representation of value that may be digitally traded, transferred, or used as an exchange or payment tool, or for investment purposes. This includes Virtual Tokens, and any digital representation of any other value as determined by VARA (VARA, 2022a).
UAE- FSRA: VIRTUAL ASSET.	• A virtual asset means a digital representation of value that can be digitally traded and functions as a medium of exchange; and/or a unit of account; and/or a store of value, but does not have legal tender status in any jurisdiction. A Virtual Asset is neither issued nor guaranteed by any jurisdiction, and fulfils the above functions only by agreement within the community of users of the Virtual Asset; and is distinguished from Fiat Currency and E-money (ADGM, 2023).
UK: CRYPTOASSET.	• A cryptoasset is a cryptographically secured digital representation of value or contractual rights that uses a form of distributed ledger technology and can be transferred, stored, or traded electronically (UK Government, 2024).
USA: CRYPTOCURRENCY.	• The term "cryptocurrencies" refers to a digital asset, which may be a medium of exchange, for which generation or ownership records are supported through a distributed ledger technology that relies on cryptography, such as a blockchain (U.S Government, 2022).

The definitions set out above are wide in scope, implying that regulators are intent on bringing cryptoassets within the regulatory perimeter.

Furthermore, all definitions include elements relating to the digital form of the asset and the use of DLT technology (e.g. EU, South Africa), which may result in overlapping definitions (see next section). To avoid this problem, some definitions include exclusion categories (e.g. South Korea) or a residual approach is taken (e.g. EU – see Case Study 1.1: EU – Residual asset class). In a minority of cases, elements of the definition that pertain to the substance or purpose of the asset are included (e.g. Singapore, UAE-ADGM).

TAXONOMY OF CRYPTOASSETS

There is variation in how regulators classify cryptoassets of different types. Cryptoasset taxonomies are more encompassing in jurisdictions that have licensing frameworks for CASPs and comprehensive regulations (e.g. EU, Hong Kong) than in jurisdictions that are behind in the regulatory process.

Regulators in the selected 19 jurisdictions differentiate cryptoassets that have the features of financial instruments, including securities, from other cryptoassets. The former are sometimes referred to as security tokens and are subject to the same regulation as issuers of financial instruments and securities not recorded on the DLT, with or without adjustments (see In-Brief, "The regulation of DLT financial instruments").

To mitigate the risk of misclassification and regulatory arbitrage, regulators in Brazil, the EU and South Korea published guidance on classifying cryptoassets that meet the definition of securities or financial instruments (Government of Brazil, 2022, ESMA, 2024, South Korea Financial Services Commission, 2023b). Hong Kong's Securities and Futures Commission (SFC) has noted that the terms and features of cryptoassets can evolve over time with non-security tokens changing to security tokens and vice-versa, adding that it would be "prudent" for service providers to apply for licenses relating to both classes of assets (Securities and Futures Commission, 2023b).

A common taxonomy subcategory is cryptoassets backed by other assets, sometimes referred to as stablecoins. Stablecoins – their definition, classification and applicable regulations – are discussed in detail in Chapter 4.

In addition to the categories of security tokens and stablecoins, several of the selected jurisdictions recognise other sub-categories, including utility tokens, non-fungible tokens (NFTs) and, to a lesser extent, governance tokens. In the EU, Switzerland, UAE-FSRA, UAE-VARA and the UK, utility tokens and NFTs are omitted in the scope of regulations that apply to other cryptoassets, but with significant nuances. For example, the Swiss Financial Market Supervisory Authority (FINMA) has determined that the issue of utility tokens does not require supervisory approval if digital access to an application or service is fully functional at the time the tokens are issued. In the UK, the exemption applies only if the cryptoassets are not used in financial market activities. NFTs are most likely to be included in regulatory frameworks if they behave like securities (FINMA, 2022b) – for example, if they are fractionalised by a third-party, securitised, and their constituent parts are sold to users with the promise of a revenue stream.

CONCLUSION

Definition and classification of cryptoassets is among the major challenges for financial authorities seeking to effectively regulate the sector. Our analysis confirms this remains an area of divergence, but is also an area where practices remain in flux.

The terms "virtual asset" and "cryptoasset" are the most widely used by regulators across the world. The term "cryptoasset" is prevalent in AEs and jurisdictions that are more advanced in their regulatory process, especially in jurisdictions that have adopted comprehensive and bespoke regulatory frameworks. "Virtual asset" is the term most widely used in EMDEs, consistent with the terminology used by the FATF. Terms such as "virtual" or "crypto-currency" are also used in many EMDEs, which implies cryptoassets are (still) perceived as a competitor to official currencies.

Most financial authorities seek to distinguish between cryptoassets that are only a blockchain-based variant of regulated, traditional financial instruments, and cryptoassets that have unique features and do not meet existing definitions. All jurisdictions selected in this report regulate as financial instruments, including securities, all cryptoassets that have the features of financial instruments. However, there is no single approach to delineate between the two. A range of criteria can be used, including whether the asset grants any rights, whether the asset is redeemable and whether the asset has an issuer.

In a bid to overcome the definition challenge and future-proof their regulations, some jurisdictions take a residual approach to defining cryptoassets. This is, in part, the approach of the EU, which classifies as cryptoassets those assets that are represented on DLT and do not meet the definition of financial instruments.

Regulations often make a distinction between different sub-classes of cryptoassets. Criteria to distinguish between them include, for example, the mechanism that underpins the asset value, the fungibility of the asset and its use case or function. Where sub-classes are identified (e.g. NFTs) the objective is often to exclude them from the scope of the regulation.

Clear classification and taxonomies reduce the scope of regulatory arbitrage and should facilitate cooperation between financial authorities within a jurisdiction and at international level. Where clarity is lacking, supervision and enforcement may be less effective, and innovation could be challenged (see Case Study 1.3 - US – 'Regulation by enforcement'). The development of a clear approach to the classification of cryptoassets is likely to be an important initial step for regulators devising a regulation for cryptoasset markets.

CASE STUDIES

The three case studies below – on the EU, Switzerland and the US – illustrate different approaches to classification of cryptoassets. The relative advantages and disadvantages of each approach and speculate about the possible reasons for divergence is discussed.

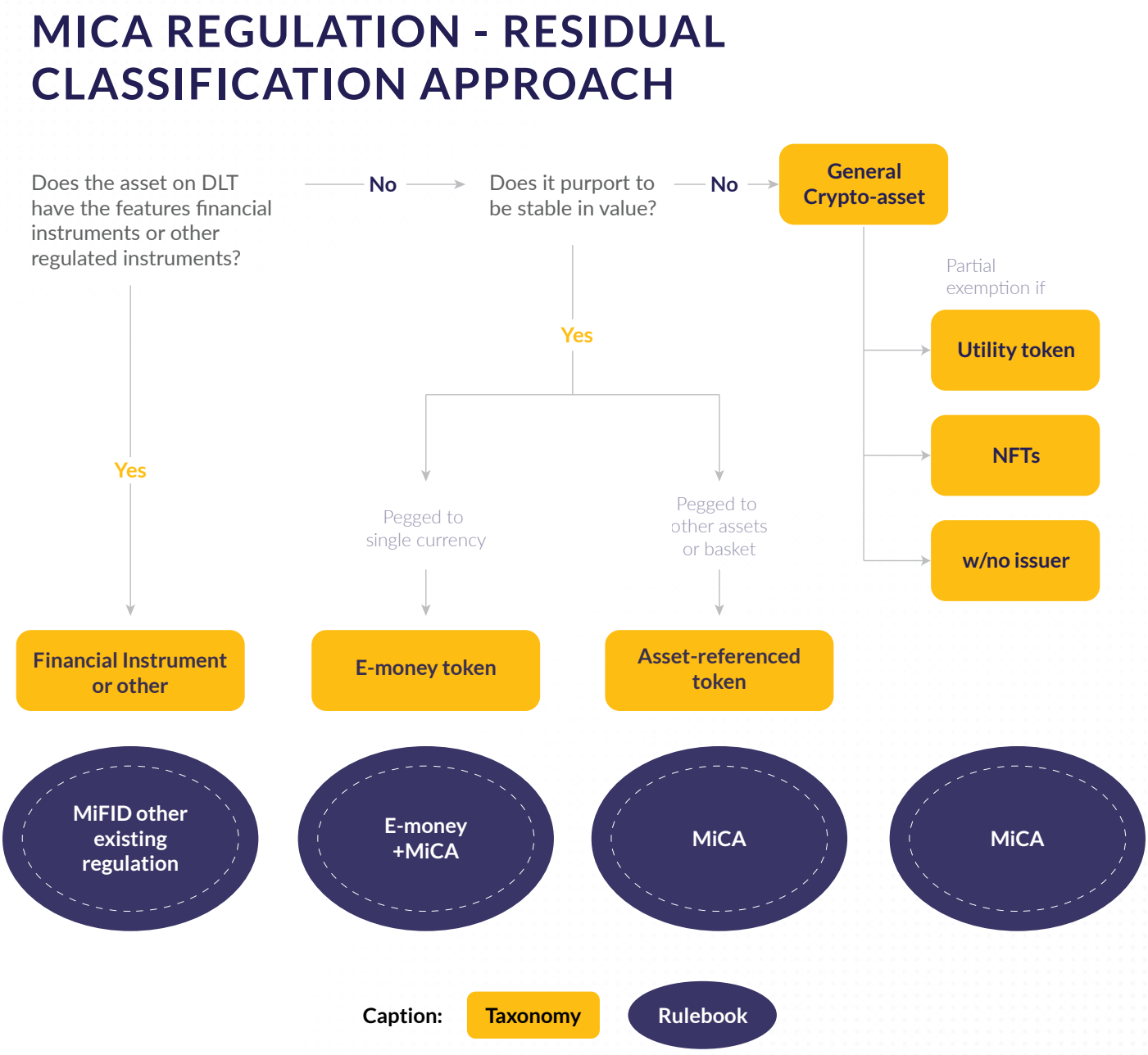
Case Study 1.1: EU – Residual asset class

The Markets in Cryptoassets (MiCA) regulation, adopted in 2023 (European Union, 2023b), is a framework for the issuance and offering, and the provision of services related to cryptoassets. It is a bespoke regulation that introduces new definitions and categories of assets, but builds on and is, to some extent, consistent with other EU financial regulations. The objective is to close legal gaps and ensure all cryptoassets are covered in EU law.

MiCA defines cryptoasset as 'digital representation of a value or of a right that can be transferred and stored electronically using distributed ledger technology or similar technology'. This term casts the net wide. But the regulation only applies to cryptoassets that do meet other existing definitions for financial assets and are, therefore, not regulated under existing frameworks. For example, security tokens and tokenised financial instruments are regulated under MiFID II / MiFIR. In this sense, MiCA is akin to a regulation of last resort or a residual regulation, that performs the role of a safety net regulation by capturing assets that slip through the gaps of other regulations. The exceptions to this rule are utility tokens and NFTs, which are not deemed as financial assets and for which there are specific exemptions from MiCA.

MiCA introduces and defines two subcategories of cryptoassets: asset-referenced tokens (ARTs), which aim to stabilise their value by referencing another value or right, or combination thereof, including one or several official currencies; and e-money tokens (EMTs), which aim to stabilise their value by referencing a single-fiat currency. The approach taken towards these two sub-categories of cryptoasset is different. ARTs are subject to bespoke rules set out in MiCA (suggesting rule makers considered it a new asset class). EMTs, on the other hand, are subject to the rules for e-money, supplemented by some MiCA provisions around disclosures and reserve assets.

Figure 1.5. Box Case study 1.1



Case Study 1.2: Switzerland – Technology neutrality

Switzerland claims to take a principle-based, technology-neutral approach to the regulation of cryptoasset markets. Swiss law does not clearly define the terms cryptoasset, cryptocurrency or virtual currency. Instead of creating a bespoke framework for cryptoassets, FINMA issued guidelines in 2018 about how to classify cryptoassets (in particular, ICOs) and the rules that apply to them (FINMA, 2018). The Swiss Federal Act on the Adaptation of Federal Law to Developments in Distributed Electronic Register Technology, known as the "DLT Act", was adopted in 2020 and entered into force in August 2021. The Act provided further clarity, principally by adapting ten existing federal laws, increasing legal certainty in the event of bankruptcy and enabling the introduction of uncertificated securities on a blockchain (Swiss Confederation, 2020).

Under the Swiss approach, cryptoassets can be classified as either asset tokens, payment tokens or utility tokens, with different regulatory frameworks being applied to each. Asset tokens fall under existing securities definition, being subject to financial market regulations, including those relating to prospectus and securities trading. Payment tokens are subject to rules applied to virtual currencies and AML requirements. Custody and trading activities with payment tokens may require a banking or fintech licence. Utility tokens are not considered securities if they abide by certain requirements and are deemed to represent access to digital services or application (Haeberli, et al, 2024).

Switzerland claims "its innovation-friendly framework conditions and legal certainty have allowed a dynamic Swiss blockchain ecosystvem to evolve" within its territory (Swiss Federal Department of Finance, n.d).

Case study 1.3: US – 'Regulation by enforcement'

US federal authorities classify cryptoassets and related activities under existing categories and impose existing regulations on them. However, the remit between different authorities is contested.

The Securities and Exchanges Commission (SEC) published in 2019 a framework to identify cryptoassets that classify as investment contracts (SEC, 2019). Since then, SEC officials have expressed the view that most cryptoassets (referred to as "digital assets") may be classified as securities (i.e. meet the Howey Test requirements, which means it accounts for (i) investment of money, (ii) in a common enterprise, (iii) with reasonable expectation of profits derived from efforts of others)[14] (Devnani, 2023) and it has taken enforcement action against issuers and cryptoasset service providers. This has been described as a 'regulation by enforcement' approach (Brummer, et al, 2023).

Alongside the SEC, the Commodities Futures Trading Commission has asserted its power over cryptoassets that it considers to be commodities. In 2015, it defined bitcoin and other virtual currencies as commodities under the US Commodity Exchange Act. In March, the CFTC Digital Assets Market Subcommittee proposed a comprehensive taxonomy and classification approach for "digital assets" (CFTC, 2024).

Against this backdrop, the White House issued the "Executive Order on Ensuring Responsible Development of Digital Assets", calling for coordination in regulatory effort between US agencies to avoid gaps in enforcement. In addition, a few bills have been tabled in Congress covering the classification of cryptoassets. Until clarity is provided, a case-by-case analysis will be required to classify cryptoassets. The US approach has fuelled uncertainty in the market and regulators are widely blamed for hindering innovation (U.S. Government, 2022; Global Blockchain Business Council and Value Verse 2024).

[14]However, as courts made clear in Audet v. Fraser, not all digital assets need to satisfy the Howey Test requirements to be deemed securities, which creates uncertainty for market participants (Devnani, 2023).

IN BRIEF:

THE REGULATION OF DLT-BASED FINANCIAL INSTRUMENTS

DLT-based financial instruments are digital representations of assets that meet the definition of financial instruments, including securities. They can be either a DLT representation of a security that is issued and is held in custody off-chain, or be issued natively and exist only on the DLT. The former are commonly referred to as "tokenised securities", as they involve a process of "tokenisation"[15]. The latter are known as "security tokens" (AFME, 2023).

Over the past few years market participants have shown increasing interest in the tokenisation of securities[16]. Some of the exploratory projects have been driven by small, venture-capital backed crypto companies, but large financial firms such as JPMorgan[17] and Franklin Templeton[18] have also supported some initiatives. The market value of tokenised assets on permissionless blockchains was estimated at $2.15 billion as of May 2023 (Carapella, et al., 2023) and it is expected to increase to $4trn by 2030 (Citi, 2023).

Tokenisation has potential to improve the operations of financial markets, with DLT becoming a complementary infrastructure that can provide a variety of benefits from reducing costs and improving operational efficiencies, to broadening investor access, increasing security and transparency and unlocking innovation through programmability and composability[19]. However, tokenisation may have negative implications for financial stability (Carapella, et al., 2023).

Uncertainty about how existing legislation and regulation would apply to DLT-based financial instruments is often blamed for slowing down the adoption of DLT infrastructure in traditional financial markets. Legal obstacles may arise from property[20] and securities laws, consumer protection laws and registration requirements, among others (European Commission, 2024). On the other hand, obstacles of a regulatory nature are often related to the classification of instruments and requirements for trading and post-trading (i.e. settlement) processes, including requirements to involve intermediaries (AFME, 2023).

To enable experimentation and adoption of DLT, regulators in a few jurisdictions have offered legal and regulatory guidance and clarifications. Some are exploring exemptions and making targeted amendments to existing rules, including through sandboxes.

Below the initiatives in a select group of jurisdictions are described.

- The EU has launched a DLT Pilot regime. This is equivalent to an EU-wide sandbox that exempts trading venues and depositories from some of the MiFID requirements when trading and settling transactions in cryptoassets that classify as financial instruments (European Union, 2022). At the time of writing, only four DLT market infrastructures have applied to the regime, and none has been authorised yet. Against this backdrop, EU authorities are considering introducing changes to the regime to increase its attractiveness (ESMA, 2024).

- Hong Kong's securities regulator has published circulars providing guidance on issuance of tokenized securities and to intermediaries engaging in tokenized securities-related activities. The Securities and Futures Commission considers tokenized securities to be traditional securities under a tokenized "package" (SFC, 2023b).

- Switzerland introduced the concept of "uncertificated register security" in 2021. A "uncertificated register security" does not require a regulated institution, such as a securities firm or central securities depository, to be created or transferred. Instead, it is subject to a "registration agreement" via a ledger-based register

[15] Chapter 4 briefly covers the tokenisation of bank deposits, which have some features like stablecoins. This Annex focuses on securities only.

[16] The tokenisation of other real-world assets, including real estate holds significant promise, but progress in this area has been slower.

[17] See: Tokenized Collateral Network (Onyx, 2024).

[18] See: Franklin Templeton, (2023).

[19] Programmability means that assets can be in-built rules, including about their transferability. Composability means that different smart contracts can be bundled together, like "money Lego".

[20] There often a need for additional clarity over property rights and the link between the underlying asset and the token that represents it.

that must follow some conditions. Furthermore, a new license was created for DLT trading systems (Swiss Confederation, 2020).

- The UK's Financial Services and Markets Act 2023 granted powers to the UK Treasury to create a Digital Securities Sandbox (DSS) for notary, maintenance and settlement services, as well as the operation of a trading venue. The DSS opened for applications at the end of September 2024. In parallel, the UK's Investment Association, an investment manager trade body, responding to a call from HM Government, has issued a "Blueprint for Implementation" for fund tokenization under a "staged approach", kicking-off with a baseline model that can be used within existing legal and regulatory frameworks and progressing to more advanced stages (Bank of England and FCA, 2024; The Investment Association, 2023).

Chapter 2

TO BAN, TO ISOLATE, OR REGULATE?

Financial authorities can choose between different approaches to mitigate risks and foster innovation associated with cryptoassets. These range from the introduction of bans or restrictions on the use and / provision of services with cryptoassets, to the implementation of enabling regulations.

This chapter compares the regulatory approaches taken in jurisdictions across the world, before zooming in on the 19 jurisdictions selected for this report. It shows that cryptoasset activities remain unregulated or are banned in a significant number of EMDEs. This contrasts with AEs that are moving ahead with clarifying the regulatory treatment or introducing tailored rules for the sector.

To assess the benefits and challenges and drawbacks of different approaches the chapter includes two case studies, on Nigeria and UAE-FSRA.

CONTEXT

POLICY OBJECTIVES

Authorities in charge of regulating financial services need to weigh different, sometimes conflicting objectives. Rules must be designed to ensure consumer and investor protection, promote market integrity, mitigate the risk of financial crime and preserve financial stability and monetary control. At the same time, some regulators have an objective to not stifle financial innovation and to promote competitiveness, which are often secondary to other objectives. This balancing act has proven especially challenging in the case of cryptoassets (CCAF, 2019b).

While cryptoassets and providers of related services perform functions and activities that often resemble those in traditional finance, the underlying technology, the novel features of the assets and structure of the market create new risks or exacerbate existing ones. At the same time, they have potential benefits. For example, by enabling peer-to-peer trading without identification, permissionless blockchains may increase AML risks, while potentially improving financial inclusion. DLT also creates new operational risks (e.g. hard forks, 51% attacks in permissionless blockchains[21]), but they have the potential to improve efficiencies in trading and settlement processes (BIS, 2017).

REGULATORY APPROACHES

The option of taking no action and leaving the cryptoasset market unregulated has lost support over the years. The size of the market, the harm caused to consumers and investors and the financial stability risks have made a "wait-and-see" approach - often favoured in the context of financial innovations - increasingly untenable (Cecchetti and Schoenholtz, 2022; World Bank, 2020; FATF, 2024a).

This leaves three broad approaches for regulators: 1) ban some or all activities (e.g. outlaw transactions or certain activities, particularly crypto mining, given the energy costs); 2) isolate the sector from traditional finance and from the real economy (e.g. through punitive capital requirements on banks holding cryptoassets); or 3) bring cryptoasset activities within the regulatory perimeter (FATF, 2024a; BIS, 2023). Barring the case of a full ban on cryptoasset activities, these options are not mutually exclusive and can be combined. Furthermore, the overall regulatory strategy and exact way the different approaches are adopted and/or combined can evolve over time.

Aquilina et. al (2023a) have proposed a framework for choosing the appropriate approach. They argue that bans should be used sparingly and only when the harms caused by cryptoasset activities are deemed extremely high and affect others (e.g. "cryptoization", when cryptoassets, including stablecoins denominated in foreign currencies, substitute the official currency and threaten its stability). These are also the circumstances in which bans may prove more challenging to implement (see Case Study 2.1). Isolation strategies should be part of interventions aimed at ensuring that banks or other traditional financial players are insulated from the volatility in cryptoasset markets or justified by the objective of preserving their reputation and further mitigating AML risk. Finally, regulation should

[21] A fork happens when the blockchain's protocol (i.e. basic set of rules) are changed, leading to the creation of a parallel, new blockchain. A 51% attack is when an individual or group of individuals who have sufficient control over the network abuse their position to alter transactions in the system, for example by spending the same cryptoasset twice.

be imposed on entities undertaking cryptoasset activities that replicate traditional financial services activities that are currently regulated.

The thrust of this assessment is shared by other global institutions. The FATF and IMF have both argued that blanket bans of cryptoasset activities can be costly because they stifle innovation and are hard to enforce in the long run, as individuals find ways to circumvent the ban (FATF, 2024a). Any restrictions should be targeted, temporary, and justified to manage specific risks and buy time to stabilise macro-economic conditions and develop and implement of regulatory frameworks (IMF, 2023b).

Other studies have highlighted the spillover effects of bans and restrictions between jurisdictions. The IMF has shown how, following a ban in People's Republic of China, cryptoasset activities, in particular mining activities, have moved to neighbouring countries, namely Laos and Kazakhstan (IMF, 2023c; IMF, 2024b).

EXISTING, RETROFITTED AND BESPOKE REGULATION

Jurisdictions that opt to regulate cryptoassets can choose among three options (CCAF, 2019b):

1. Existing regulation: application of existing laws or regulations to cryptoasset activities. Clarification on the applicability of existing legal instruments (e.g. securities laws, banking and payment regulation) typically comes from regulatory guidance.

2. Retrofitted regulation: amendment of existing laws or regulations to include one or more cryptoasset activity. A retrofitted regulation expands the scope of an existing law or regulation to cover certain cryptoasset activities explicitly.

3. Bespoke regulation: new law or regulation enacted or issued specifically to regulate cryptoasset activities. A bespoke regulation establishes a separate legal framework applicable only to cryptoasset activities.

In choosing among these options, regulators face trade-offs between speed of delivery, consistency of financial regulations and suitability of rules. In many instances, different options can also be combined. For example, it is possible to apply retrofit AML regulations to include cryptoasset activities within scope, while creating a bespoke regulation and licensing framework for cryptoasset related services.

In its 2019 report, CCAF compared the approaches in 108 jurisdictions. The research showed that the retrofitted regulation approach prevailed in countries with higher volumes of cryptoasset activities. This approach offered a relatively quick solution to bring regulatory clarity in comparison with the lengthy development of a bespoke regulatory framework. In contrast, jurisdictions with less cryptoasset activity generally opted to rely on existing regulations, or leave such activities unregulated.

SCOPE OF REGULATION

Initial efforts to regulate and supervise cryptoassets stemmed from the FATF policy recommendations and were narrow in scope (FATF, 2019b). They typically required CASPs to be regulated for AML / CFT purposes, licenced or registered, and subject to effective systems for monitoring or supervision.

Over time, some jurisdictions have gone further and gradually introduced comprehensive regulatory and licensing frameworks, akin to securities regulations, including rules on governance, fitness and propriety of management, capital and liquidity, disclosures, conflicts of interest, market integrity, data (BIS, 2023). This broadening of the scope of national regulations has gone in parallel with the publication of wide-ranging policy recommendations by other standard-setting bodies, namely the FSB and IOSCO (see Chapter 5).

Previous research suggests that the features of local markets, capacity and mandate of regulators (e.g. competitiveness mandate), and political institutions and preferences (e.g. rules or principles-based) are factors that influence the choice of regulatory approach (CCAF and World Bank, 2022).

Comparative analysis

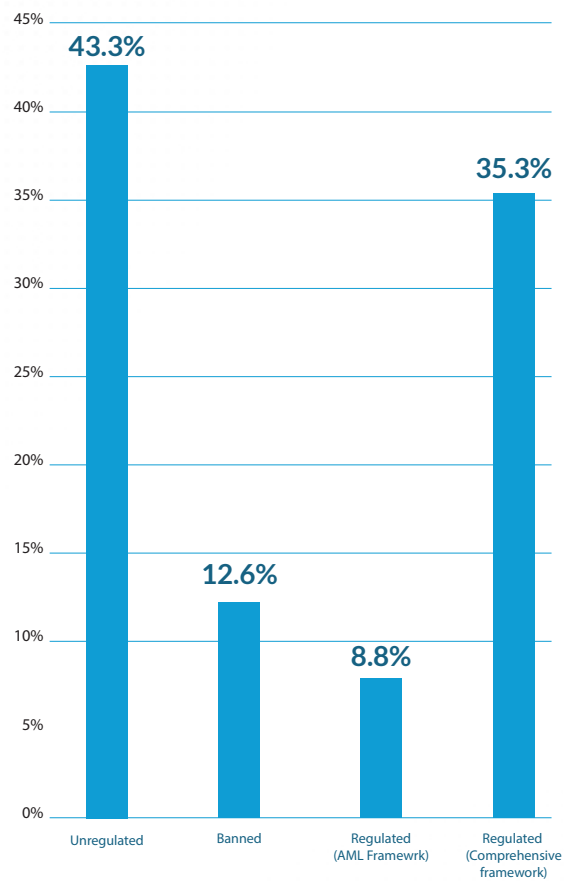
In this section the approach to cryptoassets taken by financial authorities across the world is compared, before focusing on the 19 jurisdictions selected for this report. The section identifies and characterises jurisdictions that have introduced bans and or other restrictive measures, and jurisdictions that have introduced regulations for the sector. This section also classifies the type and scope of those regulations.

APPROACH TO CRYPTOASSETS – GLOBAL EVIDENCE

This section has divided jurisdictions into four groups, according to whether they either leave crypto activities unregulated, ban them or regulate them[22]. Jurisdictions that regulate cryptoassets were further divided into two groups, namely those that have introduced AML frameworks and those that have introduced comprehensive regulations and licensing frameworks[23].

Figure 2.2. shows cryptoasset activities remain unregulated in 43.3% of jurisdictions. They are regulated in 44.1% and are banned in the remaining 12.6%. Jurisdictions that have opted to regulate cryptoasset activities overwhelmingly introduced comprehensive regulations and licensing frameworks (35.3%), compared to those that have regulations focused only on AML (8.8%).

Figure 2.1. Global approaches to cryptoasset regulation, (N=215).



Source: CCAF, 2024c.

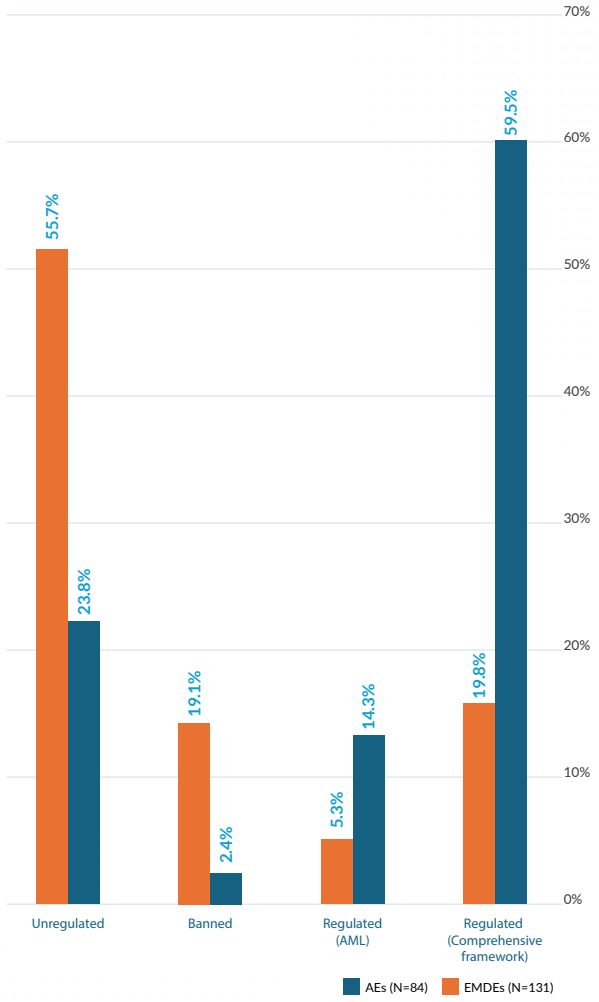
This study notes significant differences in the approaches taken by AEs and EMDEs. Cryptoasset activities are subject to comprehensive regulation and licensing frameworks in 59.5% of AE jurisdictions and subject to an AML framework in 14.3%. In addition, in 23.8% of AEs jurisdictions entities undertaking cryptoasset activities remain unregulated. Banning is only prevalent in 2.4% of AE jurisdictions.

In contrast, 55.7% of EMDE jurisdictions have yet to propose or implement regulation for cryptoasset activities. In 5.3% and 19.8% of EMDE jurisdictions, cryptoasset activities are subject to an AML and comprehensive framework, respectively. There is a substantial percentage of jurisdictions (19.1%) where cryptoasset activities are banned, or there are restrictions in place. Macro-economic stability (especially in the case of bans), together with the lack of resources and capacity to regulate the sector, offer possible explanations for these results.

[22] There is no category for jurisdictions that seek to isolate cryptoasset activities, as isolation measures often go together with either bans or regulation. Unregulated a jurisdictions are those that have not banned cryptoassets nor have they introduced a registration or licensing framework for CASPs, even if one with a limited AML focus.

[23] Comprehensive regulation and licensing framework' are defined as frameworks that go beyond AML/CFT. These jurisdictions form a diverse group. Some have minimal regulations focusing on governance and licensing of a few select activities, while others have licensing requirements and rules on consumer protection, market integrity and financial stability.

Figure 2.2. Approaches to cryptoasset regulation, AEs and EMDEs.



Source: CCAF, 2024c.

APPROACH TO CRYPTOASSETS – SELECTED JURISDICTIONS

A closer analysis of the 19 selected jurisdictions provides further information about the rationale for differences in approach (see Figure 2.4).

China and Nigeria are the only two jurisdictions among the group of 19 jurisdictions selected for this report that have introduced a direct or indirect ban on cryptoasset activities. These can be classified as partial bans, not a full ban (i.e. a prohibition on individuals to engage in any transactions in any form, including on a peer-to-peer basis). China has in place a series of restrictive measures, such as prohibition of ICOs and prohibition of exchanges acting as central counterparties. In Nigeria, the bulk of the restrictions were imposed on banks and designed to limit their ability to serve cryptoasset service providers or individuals (see case study 2.1. "Nigeria: The Challenge of (de-)banning crypto"). Both China and Nigeria rank high in terms of crypto adoption worldwide, which may suggest that the effectiveness of the restrictive measures is limited (Chainalysis, 2023).

The remaining jurisdictions regulate cryptoassets and related activities, but to varying extents. In India and Mexico, large parts of the market remain de facto unregulated and financial authorities have yet to take material steps to change that.

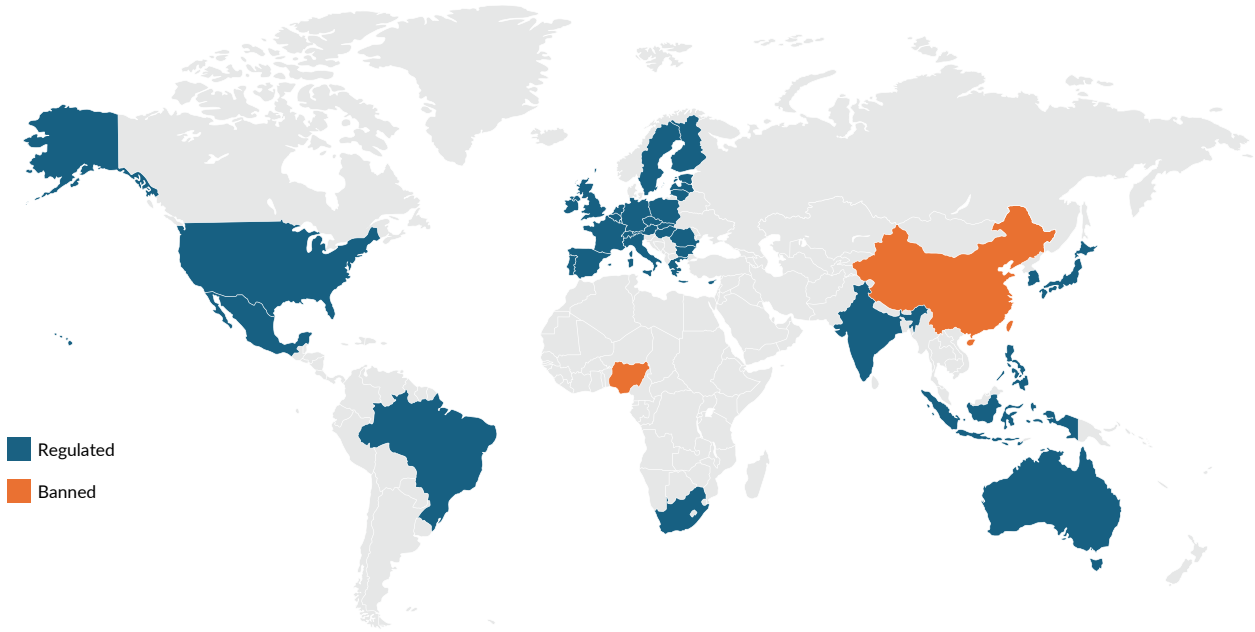
In India, banks were initially banned from engaging in crypto activities, but this rule was removed following a court judgement in 2020 (Smita, et al., 2024). At present, cryptoasset service providers must register with and report information to the Financial Intelligence Unit (FIU). The authorities have committed to develop a regulatory framework, but the process has been repeatedly delayed (Amitoj, 2023). In Mexico, banks and financial technology companies are subject to rules, but non-financial companies are allowed to provide exchange and/or custody services related to virtual assets, provided they do not engage in fundraising activities or keep the custody of their clients' resources in local or foreign currency. In both jurisdictions, crypto is subject to tax rules (CMS, 2024).

Financial authorities in the remaining jurisdictions have, as a minimum, published their proposals to regulate the sector for consultation, or enforced existing rules (e.g. US). Jurisdictions that opted for regulating cryptoassets form a heterogenous group, in terms of the pace of their regulatory activity.

Six jurisdictions, including both upper-middle and high-income economies such as Australia, Brazil, Indonesia, South Africa and, to a lesser extent, the UK, are at the early stages of introducing regulation (i.e. "preparatory stage"). The US can also be included in this group, given continuing uncertainties about how cryptoassets will be regulated.

Four jurisdictions, namely Hong Kong, Philippines, Singapore and South Korea, are gradually formalising bespoke cryptoassets regulations, or expanding the scope or supplementing existing regulations. The remaining five jurisdictions are in the implementation stage. They have comprehensive rules, including a licensing regime in force. These include the EU, Japan, Switzerland, the UAE-FSRA and UAE-VARA.

Figure 2.3. Approaches to regulate cryptoassets (N=19).



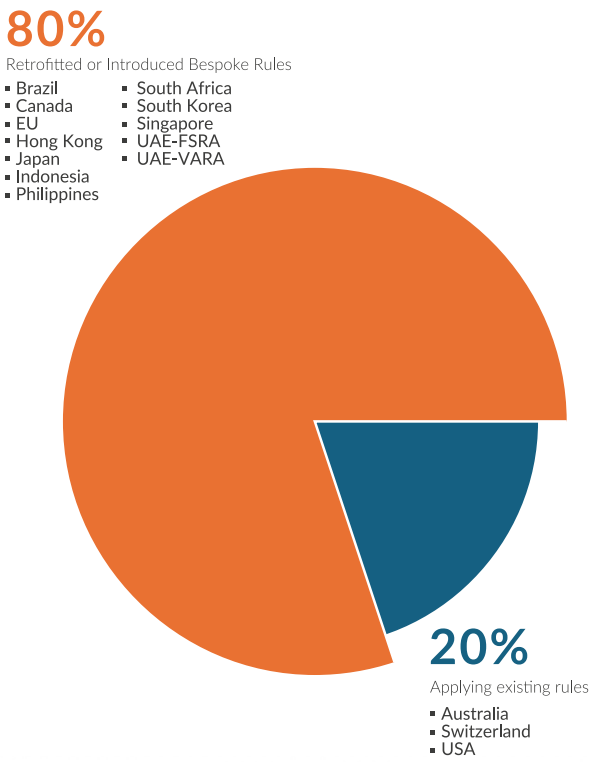
Different factors may contribute to explain the variation in pace of regulatory activity. The UAE-FSRA and UAE-VARA have innovation mandates and regulation is seen as playing an enabling role for new products and services getting to market. Pre-empting the fragmentation of the single market was a key motivation for the EU to move ahead of others (see Case Study 1.1: "EU – A regulation of last resort").

TYPE AND SCOPE OF REGULATION

There is significant variation in the type and scope of cryptoasset regulations. Australia, Switzerland and the USA are applying existing rules, but in the case of Switzerland this is supported by extensive guidance.

The remaining jurisdictions have either retrofitted existing regulatory regimes, or introduced tailored rules. The dividing line between the two is vague and some jurisdictions have combined both elements (see Figure 2.4).

Figure 2.4. Application of regulations on cryptoassets (N= 14)



In the UK, existing legislation is being amended to make way for new, tailored regulations. Hong Kong and Singapore have amended existing laws and regulations, but both have created bespoke licensing frameworks for cryptoasset service providers. At the other end of the spectrum, the EU, UAE-FSRA and UAE-VARA have passed bespoke laws or regulations. However, these rules may be closely aligned with existing regulations.

In terms of scope, jurisdictions where scope is more limited, such as Australia, tend to have frameworks that focus on areas such as AML and CFT and/or custody of cryptoassets. The EU, Japan and the UK have, or are aiming at, comprehensive regulatory and licensing frameworks, covering aspects such as consumer protection, market integrity, and prudential requirements. All jurisdictions analysed, including the most advanced in the process, are expected to continue to gradually amend and expand their regulations, for example by including new services as regulated activities, such as staking (see Chapter 5).

Conclusion

Across the world, cryptoassets are being gradually brought inside the regulatory perimeter, consistent with latest recommendations from global standard-setting bodies. The option of leaving cryptoassets unregulated seems to be becoming less and less common, even if it is still the case in almost half of jurisdictions, mainly in the EMDEs.

A significant number of EMDEs jurisdictions prohibit the use or provision of services related to cryptoassets. The bans seem to be more often justified by monetary and financial stability policy objectives, including the protection of fiat currencies, than by efforts to ensure consumer or investor protections. The effectiveness of bans and the ability of supervisors to effectively implement them remains under question. But the transition away from restrictive frameworks can also present enormous challenges, as evidenced by the experience of Nigeria.

While an increasing number of jurisdictions are taking action to regulate the cryptoasset market, they are moving at different speeds. No single factor is likely to fully explain variability. The type of regulatory framework, application of existing regulation, retrofitting or bespoke regulation and scope of regulation vary significantly between jurisdictions, but there is a general trend towards tailoring rules for cryptoassets and expanding areas covered from AML and custody to trading, market integrity and others.

In the next chapters, the key elements of comprehensive regulatory regimes are investigated in further detail.

Case studies

To illustrate the different approaches to addressing risks in cryptoassets, case studies are presented on Nigeria, which has banned cryptoassets, and ADGM-FSRA, which introduced a comprehensive regulatory framework for cryptoassets early on.

Case study 2.1. Nigeria: The Challenge of (de-)banning crypto

Nigeria is the largest and fastest growing crypto economy in Sub-Saharan Africa and it is second in the world, after India, in terms of adoption, according to data provider Chainalysis (2023).

As is the case with many EMDEs, widespread adoption is driven by macro-economic challenges. High rates of inflation and repeated episodes of currency devaluation provide an incentive for individuals to seek alternatives to the official currency, the Naira, to store value. Limited access to banking services and high cost of remittances are regularly mentioned as other drivers of adoption (Chainalysis, 2023).

Cryptoassets have become widely used despite the active efforts of regulators to restrict them. In 2021, the Central Bank of Nigeria (CBN) prohibited banks and other financial institutions from dealing in or supporting crypto transactions (CBN, 2021). More importantly, banks were also instructed to identify individuals or entities that transact in cryptoassets, or operate crypto exchanges, and close their accounts. The central bank cited explicit concerns about money laundering and terrorism financing, but monetary policy and consumer protection considerations probably also influenced the decision (Adedipe, 2022).

The policy had the effect of de facto banning cryptoasset activities, by restricting the ability of users to move money from the traditional financial sector and the real economy into the crypto ecosystem (i.e. 'on-ramp'). However, levels of adoption indicate that the effectiveness of the restrictions may have been limited. The ban has also become increasingly politicised and was one of the topics of discussion during the Nigerian 2023 presidential campaign, piling pressure on financial authorities to course correct.

In 2022, the Nigerian Securities and Exchanges Commission signalled the need for a different approach with a proposal for regulating the issuance, offering and custody of virtual assets (SEC, 2022). Late in 2023, the Central Bank of Nigeria (CBN) lifted the ban with the issuance of guidelines that set out how banks and financial institutions could open accounts, provide designated settlement accounts and settlement services and act as channels for foreign exchange inflows and trade for licensed firms transacting in cryptoassets. Banks were still barred from holding and transacting cryptoassets themselves, which means the policy of containment remained in place. In justifying the shift, the CBN pointed to current trends globally that have shown that "there is need to regulate the activities of VASPs which include cryptocurrencies and cryptoassets" (CBN, 2023). The removal of the restrictions on the provision of bank accounts to crypto service providers was initially described as the end of a ban on crypto (Reuters, 2023). In retrospect, it is best understood as a step in an ongoing recalibration of the policy stance, which tries to balance conflicting policy objectives, such as monetary sovereignty and financial stability and the attraction of foreign capital.

In early 2024, as the Naira fell sharply in value, Nigerian authorities introduced other measures intended to restrict the ability of population to hold and transact cryptoassets. In February, the Nigerian Communications Commission ordered telecoms companies to restrict consumer access to the websites of crypto exchanges (Osae-Brown, 2024). On the back of that, Nigerian authorities accused Binance of contributing to the decline of Naira, ordered Binance to pay a USD 10bn fine and requested data on the 100 top users in the country (FT, 2024). Top Binance executives have also been detained, prompting condemnation from US lawmakers (Orjinmo, 2024). In March, the SEC sharply increased supervision fees on crypto exchanges, prompting industry stakeholders to argue that the intention of the policy was to extinguish local trading (Handagama, 2024). In May, the SEC announced their

intention to introduce rules that require peer-to-peer exchanges to delist the Naira (Onu, 2024).

In parallel to the restrictive actions affecting cryptoassets, the central bank has launched a central bank digital currency (CBDC) and has taken actions to encourage its take-up. Nigeria was one of the first countries to issue its CBDC, in 2021 (eNaira, 2024). The E-Naira is a two-tier account-based CBDC, with an offline option since 2023 (Ozili, 2023).

The experience of Nigeria points to the challenge of implementing a ban on cryptoasset activities, as well as the challenge of transitioning away from the it, where there are strong incentives for the population to to seek alternatives stores of value to official currencies. Nigeria also demonstrates how authorities make use of different policy levers to limit activity, from restricting the provision of bank accounts to restricting access to websites, to banning peer-to-peer trading altogether.

Case study 2.2. Abu Dhabi Global Market (ADGM)-Financial Services Regulatory Authority: A first mover with a competition mandate

The Abu Dhabi Global Market (ADGM) is one of two Financial Free Zones located in the United Arab Emirates, alongside the Dubai International Financial Centre (DIFC). Financial Free Zones are exempt from federal civil and commercial laws, and therefore have their own governing authorities, regulations, and legal frameworks. The ADGM's financial regulator is the Financial Services Regulatory Authority (FSRA) and the ADGM Courts directly apply English Common Law to the jurisdiction's firms.

In 2018 the ADGM FSRA introduced a bespoke framework for the "regulation of spot virtual asset activities, including those undertaken by multilateral trading facilities, brokers, custodians, asset managers and other capital market intermediaries". It was one of the first jurisdictions to do so, in response to "global demand from industry players" (ADGM 2023).

To obtain and maintain a license, firms must satisfy the general requirements to undertake a specific regulated activity and have additional measures in place to mitigate risks related to anti-money laundering (e.g. the Travel Rule), safe custody of client assets, technology governance, investor suitability and risk disclosures, and market abuse. Firms must comply with both the Virtual Asset Framework and the respective Regulated Activity framework applicable to all authorised entities.

The FSRA's taxonomy distinguishes between five categories of Digital Assets (ADGM, 2023). It regulates the following four:

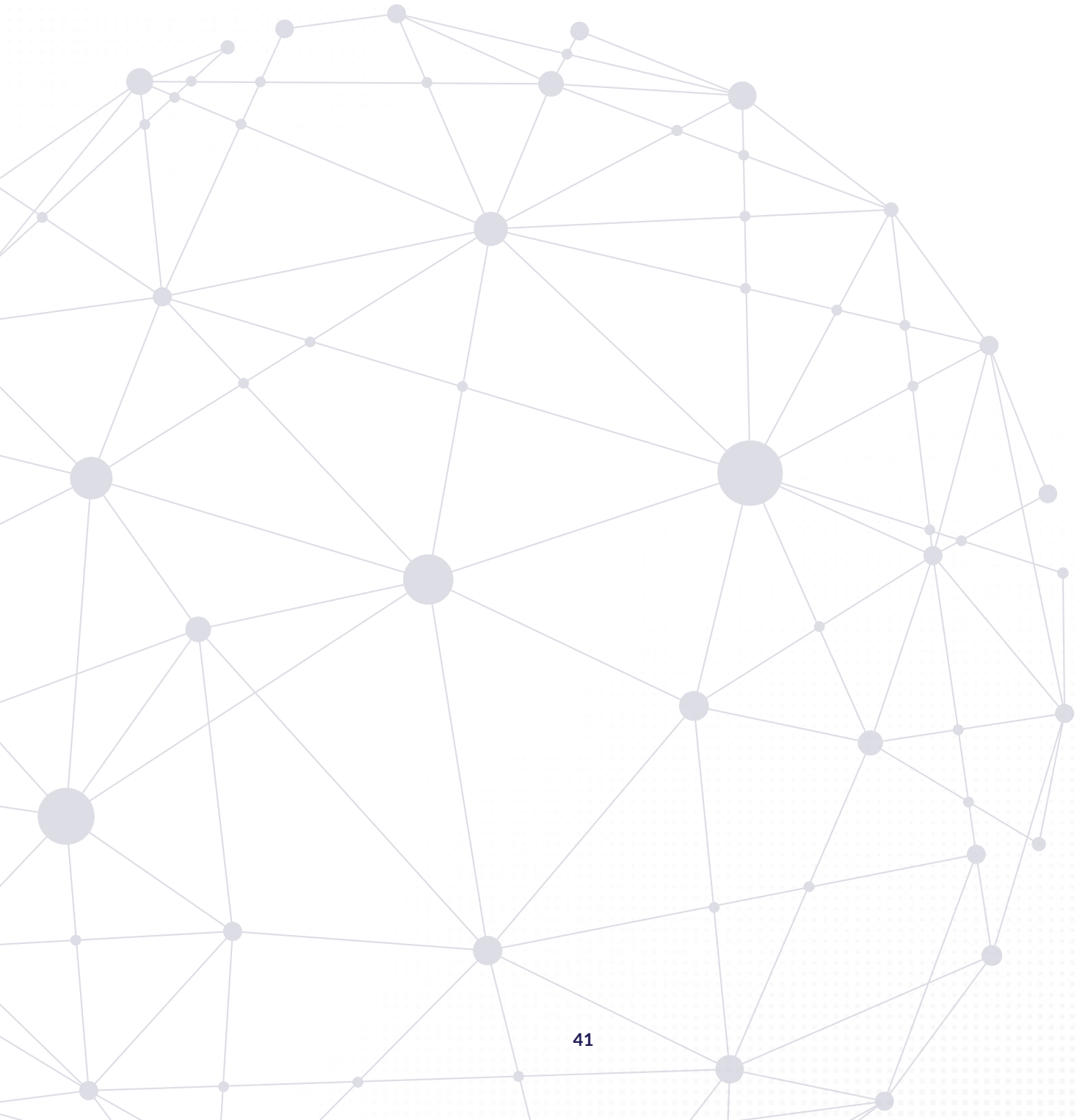
- Virtual Assets refer to non-fiat virtual currencies, also known as cryptocurrencies, such as Bitcoin and Ethereum and are treated as commodities. The FSRA maintains a list of Accepted Virtual Assets exchanges and intermediaries are permitted to use.
- Digital Securities are virtual tokens with the characteristics of a Security and are regulated as such, regardless of their tokenised form.
- Fiat Tokens are stablecoins whose value is fully backed by underlying fiat currencies. These are treated as a digital representation of that Fiat Currency and firms must obtain a license for the regulated activity of Providing Money Services to use them as a payment instrument.
- Derivatives & Collective Investment Funds of Virtual Assets are regulated as Specified Investments.

The fifth category, Other Digital Assets, is an umbrella term for virtual assets that do not exhibit the characteristics of a financial instrument, and therefore would not require FSRA oversight. These include utility tokens and non-fungible tokens.

Since the introduction of the Virtual Asset Framework, the FSRA has made amendments to respond to market developments, such as issuing clarifications on the trading of NFTs. The FSRA has recently proposed a regulation for Fiat-Referenced Tokens (FRTs), stablecoins backed by high quality liquid assets and is assessing an update to its

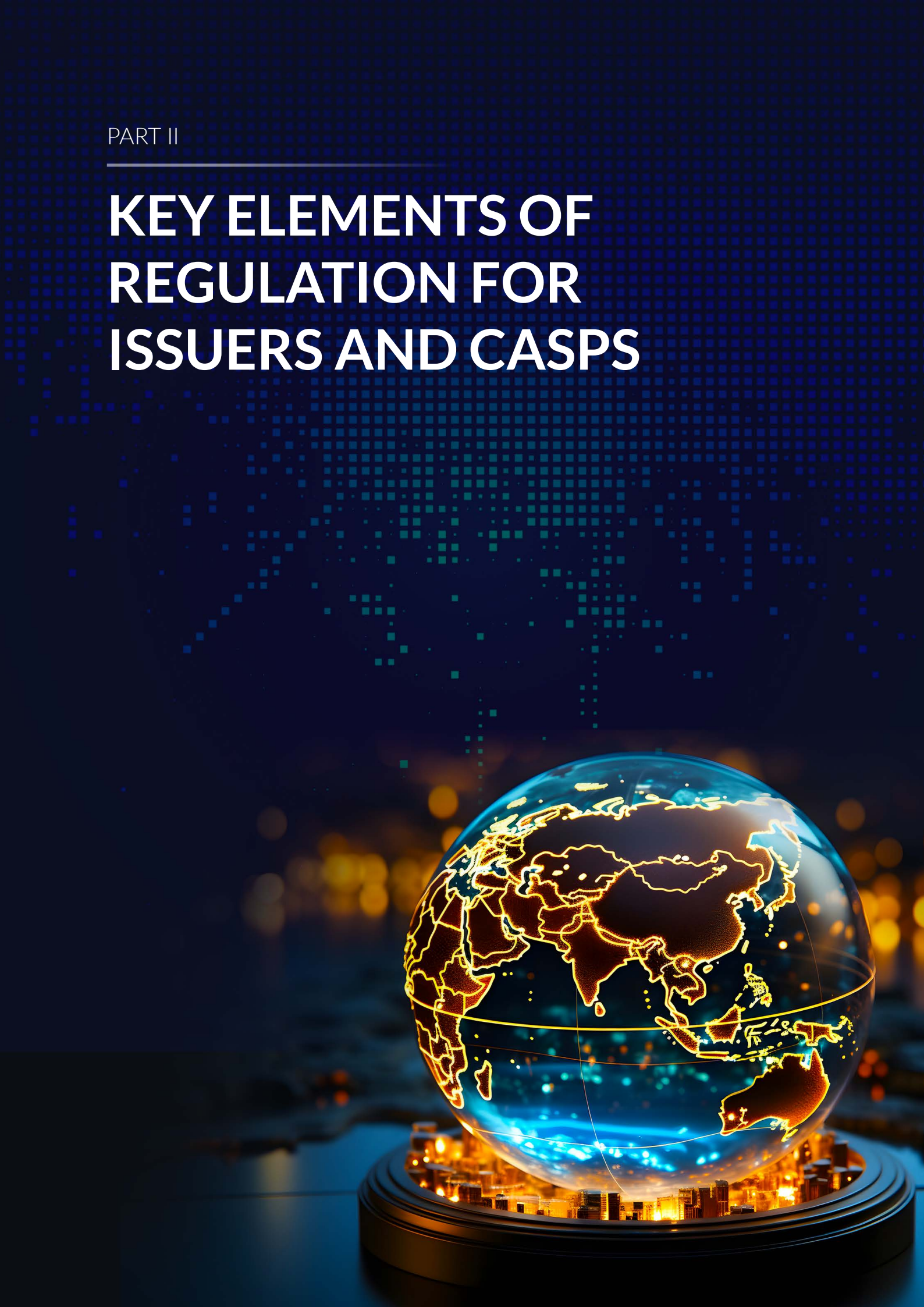
Venture Capital Fund Manager framework to allow funds to hold tokens rather than equity positions in portfolio companies (ADGM, 2024a). Additionally, following up on a discussion paper on Decentralised Finance (DeFi) in 2022, the FSRA is admitting DeFi firms into its regulatory sandbox, to prepare the ground for the introduction of a regime for Web3 activities (ADGM, 2024b).

Virtual asset regulation should be understood as part of broader and highly coordinated effort to diversify Abu Dhabi's economy away from reliance on fossil fuels (Government of Abu Dhabi, 2008). Recently, the UAE's advantageous tax regime has encouraged many cryptoasset firms to set up in the country. In 2022 the Emirate of Dubai passed a Virtual Asset Regulation Law as a means of establishing its own regulator, the Virtual Asset Regulatory Authority (VARA). The Emirate of Ras Al-Khaimah launched the Ras Al-Khaimah Digital Assets Oasis (RAKDAO) in 2023.



PART II

KEY ELEMENTS OF REGULATION FOR ISSUERS AND CASPS



Chapter 3

ISSUANCE, ADMISSION TO TRADING, DISCLOSURES

After defining the concept of cryptoasset and setting out the general approach to regulating cryptoasset markets, financial authorities must identify entities that should be subject to regulation because of the activities they conduct.

The focus of this chapter is on the issuance of cryptoassets (i.e. a term that comprises both the creation and initial distribution of cryptoassets) and their admission to trading. This chapter discusses how the issuance and admission to trading of cryptoassets differ from financial instruments, including securities, and what requirements may be imposed on actors involved in these activities, particularly disclosure requirements. The regulatory frameworks in seven jurisdictions are then compared.

It is concluded that the admission to trading is a trigger of regulatory obligations in all jurisdictions. Furthermore, there is significant divergence on the criteria for determining the eligibility of assets. It is also shown that there is a link between eligibility requirements and required disclosures.

Context

CREATION, DISTRIBUTION AND ADMISSION TO TRADING

It is common to draw a parallel between the issuance of cryptoassets and of securities. Despite the similarities, they differ in several ways, including the actors involved and the steps of the process (CCAF, 2019b).

Cryptoassets can be created by any actor with access to the data layer of a DLT system and that follows the specific rules of the system. These actors can be registered corporations, or an informal association or individual in an open-source community, who is not legally incorporated.

Cryptoassets are typically created through one of three mechanisms:

1. an entity creates all assets in one batch as a one-time event;
2. tokens are created on a continuous basis according to a transparent, pre-specified procedure specified in the protocol that governs the network or application ruleset; or
3. a hybrid process, where an entity creates a specific proportion of the asset final supply and the remainder are created over time.

Once created, there are various means for offering and distributing cryptoassets. If the assets are created in one batch, they can be sold before the network becomes operational, either in a pre-token sale or an 'initial coin offering' (ICO)[24]. If they are created on a continuous basis, assets are allocated to agents that perform a function (e.g. validation) as specified in a protocol, as with ETH in the Ethereum blockchain. Newly-issued assets can also be 'airdropped' to existing asset holders, or distributed following a fork in the network.

[24] Alternative terms used include Initial Token Offering (ITO) and Initial Dex Offering (IDO).

Table 3.1: Overview of token initial distribution models

Model	Description	Access restrictions	Development stage
Pre-token sale	Private round offering of pre-mined token units, often at substantial discounts. The network/application may not be operational yet. Examples include Telegram and Kin.	Generally restricted to accredited investors.	Network or application is generally not operational yet; tokens are often non-transferable and have lockup periods.
Token sale/ Initial Coin Offering (ICO)	Public (or private) offering of pre-mined token units. The network/application may not be operational yet. Examples include Tezos and Bancor.	Can be open to the public or restricted to certain investor types.	Network/application generally not operational yet; tokens may be transferable.
Mining	Newly-minted units are distributed ad-hoc to agents (e.g. miners, stakers, bakers) that satisfy the necessary conditions specified by the protocol (e.g. find a valid proof-of-work). Examples include bitcoin and litecoin.	Dependent on network/ application settings and permission levels.	Network/application is live and operational.
Airdrop	New token units are distributed to holders of an existing other token, generally under specific conditions. Examples include Stellar, Lumen and Decred.	Prospective holders need to be in possession of the other token before the airdrop.	Network/application may be operational.
Fork	A new token is created as a result of an incompatible rule change in the underlying DLT system that causes the network to split. Existing token holders receive the new token on a 1-1 basis. Examples include Ethereum Classic (2016) and Bitcoin Cash (2017).	Prospective holders need to be in possession of the other token before the fork.	Network/application is operational.

Source: CCAF, 2019b; p.24.

After distribution, cryptoassets can be traded, exchanged or transferred in secondary markets. Cryptoasset secondary markets can take two main forms: the underlying DLT systems in which the assets are recorded, which enable peer-to-peer transfers and exchanges with other assets recorded in the network; and exchange or trading platforms, which are marketplaces that offer off-chain transfer and exchange services, like those that exist in traditional financial markets.

REGULATORY TRIGGERS

The specific features of cryptoassets, their hybrid and evolving nature, and the way they are created and traded may make it challenging to apply some elements of securities regulations to them. Different definitions of securities and financial instruments across jurisdictions further complicate enforcement efforts (see Chapter 1). A major issue is the point at which regulatory obligations apply.

In traditional markets, regulatory obligations apply at the point when an asset is offered to the public and distributed[25]. Where cryptoassets have an identifiable issuer that make an offer to the public, including through an ICO, regulators may be able to impose rules on the entity making the offer. When there is either no issuer, as with bitcoin, or offering, or when the issuer is identifiable and is not a legal person, this is not an option, and financial authorities must look further downstream for a trigger for regulatory obligations.

The main alternative is the point at which assets are admitted to trading at a (centralised) trading platform at the initiative of either the issuer, another person or the platform itself. It is also possible to consider the point at which a centralised entity provides services related to the cryptoasset, such as custody or broker-dealer services. In these cases, regulatory obligations can be imposed on the trading platform or intermediaries, instead of the issuer (IOSCO, 2023).

ELIGIBILITY AND DISCLOSURES

Rules on issuance and/or admission to trading are intended to address the risk that issuers cause undue harm to consumers and investors, including financial crimes, and ensure that they have access to comprehensive and clear information. They should also ensure that any promises made upon the sale of the cryptoasset can be fulfilled (BIS, 2023a; IOSCO, 2023). Depending on the policy preferences and capacity of supervisors, these objectives can be achieved through different regulatory measures.

One option is to list upfront which cryptoassets are eligible and/or ineligible to be distributed, accepted into trading[26] and/or used in the provision of services. The power to choose may lie with supervisory authorities or one independent entity. The decision may apply specifically to an entity that seeks authorisation or be valid for the market as whole. Alternatively, the responsibility to identify eligible cryptoassets may be delegated to CASPs. In this case, each CASP must conduct its own assessment and due diligence on each asset and be liable for it. The regulation may spell out the criteria for the assessment.

The assessment of eligibility is typically supplemented or replaced by requirements on the disclosure of information. The regulation may be prescriptive about the information that has to be made public and how frequent disclosures should be. Both the FSB and IOSCO recommendations cover the information that should be disclosed (IOSCO, 2023; FSB, 2023a). It typically includes a description of the cryptoasset, information about their ownership and control, their issuer, business and management team (where there is one).

[25] The creation of the asset per se is typically not regulated, though it is subject to company law in most jurisdictions.

[26] There is a partial overlap on the requirements on the admission to trading, which focus on the asset, and the listing requirements, which focus on the processes and policy of trading venues for selecting those assets. We discuss the latter in Chapter 5.

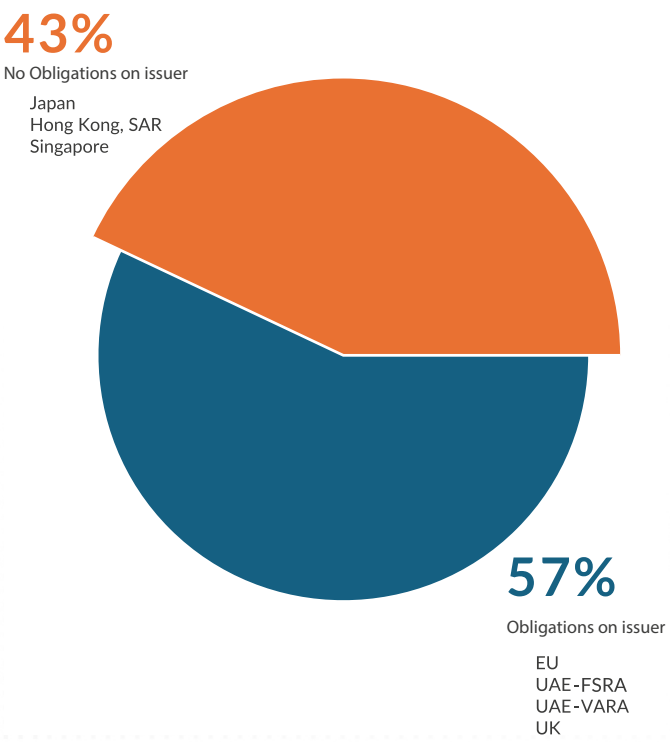
Comparative analysis

In this section, the regulatory frameworks on issuance, admission to trading and disclosure in seven jurisdictions are disscussed: the EU, Hong Kong, Japan, Singapore, the UK, UAE-FSRA and UAE-VARA. These have developed comprehensive regulatory frameworks for cryptoassets[27]. The section compares the scope and objective of the rules, describe the criteria for admission to trading and the specific rules on disclosures and outline issues related to liability arising from making the disclosures.

OBLIGATIONS ON ISSUERS

57% of the jurisdictions analysed impose rules on issuers. As discussed above, where there are rules for issuers, regulatory obligations are imposed either on the persons that offer the cryptoasset on behalf of the issuer, seek admission to trading or provide other services. Rules on CASPs are covered in more detail in Chapter 5.

Figure 3.1: Obligations on issuer (N=7).

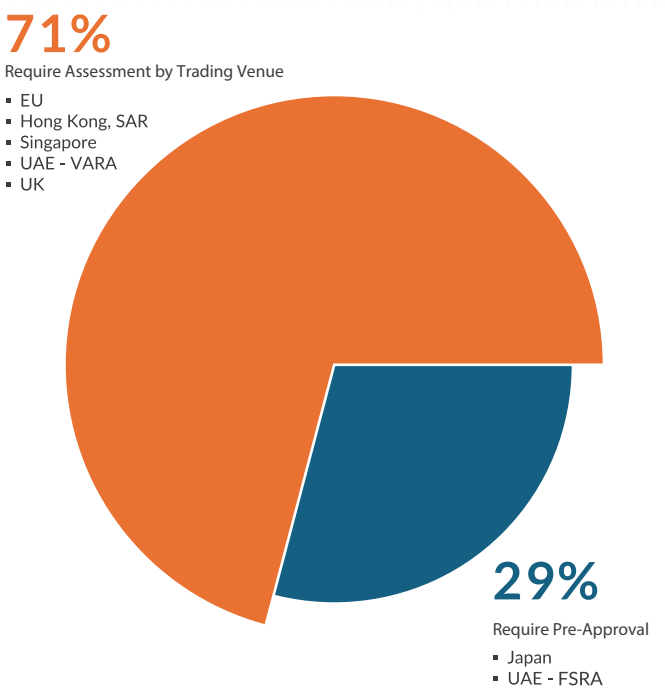


The EU, the UK and UAE-FSRA and UAE-VARA impose requirements, including disclosure requirements, on issuers of cryptoassets, where the issuer is identifiable. At the same time, all jurisdictions recognise that assets can be listed at the initiative of a trading platform, in which case the regulatory obligations may apply. By contrast, Japan, Hong Kong, and Singapore only regulate CASPs, including trading platforms. Cryptoassets offered to the public that classify as securities are subject to securities rules in those jurisdictions.

ELIGIBILITY OF TOKENS

The process and rules vary for identifying cryptoassets that can be admitted to trading and / or used in providing services. There are two models: pre-approval by the regulator or designated authority, and assessment by the platform accepting the cryptoasset into trading.

Figure 3.2: Rules for identifying cryptoassets to be admitted to a trading platform (N=7).



In two of the selected jurisdictions – Japan and the UAE-FSRA – service providers must obtain an approval from either the regulator or a self-regulatory organisation (SRO) before admitting a cryptoasset to trading.

In the UAE-FSRA, the power to approve the use of a cryptoasset lies with the financial regulator. The decision is taken at the request of the service provider, and it is only valid for the requestee. Furthermore, cryptoassets are accepted only as a 'token on a rail' (i.e. the authorisation is limited to the assets recorded in one specific blockchain and are not valid if the tokens are bridged to other

[27] The UK has yet to adopt the regulation but has provided significant detail in its response to a consultation by HM Treasury on the future financial services, regulatory regime for cryptoassets (HMT 2023c).

blockchains). The FSRA considers several criteria in its assessment, such as market capitalisation, cybersecurity and market demand, when taking its decision. Eligibility applies to all services, not just exchanges, meaning brokers would not be able to intermediate transactions with non-eligible cryptoassets.

In Japan, trading platforms must conduct an internal assessment of a cryptoasset they intend to list and submit it to the appreciation of a self-regulatory organisation – the Japan Virtual and Cryptoassets Exchange Association (JVCEA). There are some exemptions to this rule. For instance, some cryptoassets that are deemed to be widely used are cleared for use by authorised service providers (i.e. a 'green list').

In the other five jurisdictions, the exchange is responsible for determining whether a specific cryptoasset is eligible. The criteria and conditions for assessing the eligibility of a cryptoasset are set out in the text of the regulations, but to various levels of detail, depending on the jurisdiction[28].

Hong Kong sets out a non-exhaustive list of criteria that should be considered by the platform before it admits a cryptoasset to trading, including the background of the management or development team of the asset or any of its known key members, and the supply, demand, maturity, and liquidity of the asset. Supplementary criteria must be met before a cryptoasset is listed on a platform with retail clients, namely that the cryptoasset should have been included in a minimum of two acceptable indices, issued by at least two different index providers (see Chapter 7).

At the other end of the spectrum, Singapore, the UK and UAE-VARA refrain from prescribing a set of common evaluation criteria, and instead focus on disclosures and the listing process. Platforms are required to conduct due diligence on the cryptoassets at the point of admission and on an ongoing basis. The EU takes a similar approach but requires the publication of a white paper, in addition to the requirement for platforms to act according to the interests of clients and conduct due diligence. In the UAE-VARA, the supervisor has the power to blacklist specific cryptoassets. Both the EU and UAE-VARA explicitly ban the admission to trading of cryptoassets with in-built anonymisation features (sometimes referred to as privacy coins), in line with FATF recommendations.

DISCLOSURES

Issuers or persons seeking admission of cryptoassets to trading are subject to disclosure requirements in all the selected jurisdictions. They typically include information on:

1. the issuer/offeror;
2. the project to be carried out with the capital raised;
3. the offer to the public of cryptoassets;
4. the rights and obligations attached to the cryptoassets;
5. the underlying technology used for such cryptoassets.

There are some differences in how prescriptive different jurisdictions are. The UK has ruled out prescribing disclosure requirements but is considering the possibility of mandating a centralised body (i.e. an industry association) to coordinate this effort, with oversight from the regulator, to ensure consistency across the industry. Disclosures obligations may be adjusted to the type of client (i.e. retail vs professional). The EU requires the publication of a white paper and provides a template for it. In addition to the items referred above, the white paper should include information on the principal adverse impacts on the climate and other environment-related adverse impacts of the consensus mechanism used (see text box: Sustainability disclosures).

[28] This chapter focus on restrictions on assets that may be admitted to trading. We discuss the broader requirements for listing policies in Chapter 5.

SUSTAINABILITY DISCLOSURES

The environmental implications of the operation of blockchain have been moving up the regulatory agenda, especially as the increase in adoption and price of bitcoin has had a commensurate effect on energy demand. The CCAF conducted research in this area, which led to the publication of Cambridge Blockchain Network Sustainability Index. The Index provides estimates of the energy use and greenhouse gas emissions of the Bitcoin and the Ethereum blockchains (CCAF, 2024a).

The EU is the first jurisdiction to require the publication of sustainability information on cryptoassets – consistent with its agenda on sustainable finance. The UK is also considering this option. Recognising the importance of global coordination, the UK has committed to drive the discussion on sustainability disclosures in cryptoassets in international standard-setting bodies, such as IOSCO (HM Treasury, 2023c).

Under the EU's MiCA regulation (EU, 2023b), issuers of cryptoassets and service providers are required to publish information on adverse impacts of cryptoassets on climate and other environmental concerns, from as early as January 2025. The indicators should take into consideration the various types of consensus mechanisms used to validate transactions in cryptoassets and their incentive structures. The information must be included in the white paper and be made available by cryptoasset service providers on their websites and updated annually.

Disclosure requirements were not included in the original proposal, but were introduced later, during the legislative negotiations, as concerns mounted about the sustainability of the sector. Some political groups in the European Parliament had pushed for a ban on the offering of cryptoassets that rely on proof-of-work consensus mechanisms, such as Bitcoin. Disclosures were seen as a compromise solution, which could create an incentive for the use of alternative consensus mechanisms, namely Proof-of-Stake. The evolution of Ethereum was identified as an example to follow and support by EU authorities (Sinclair, 2022).

The European Securities and Markets Authority (ESMA) set out exact rules on the content, methodologies, and presentation of the information to be disclosed. In addition to key indicators on overall energy consumption, on energy intensity of the validation of transactions and on greenhouse gas (GHG) emissions derived from direct and indirect energy use, mandatory sustainability indicators include the quantitative metrics on use of non-renewable energy sources, GHG intensity, the generation of hazardous waste and of waste from electrical and electronic equipment and a description of the impact on natural resources of the use of equipment by DLT network nodes (ESMA, 2023b). Furthermore, there are a series of optional indicators that are considered more complex to assess, including other indirect GHG emissions (scope 3), such as upstream emissions linked to the purchase of equipment by the DLT network nodes or downstream emissions related to waste management.

EU authorities have recognised the challenge of gathering data especially in the short term. Considering this, compliance could be on a best effort basis and where data is lacking, issuers and service providers can rely on estimates.

CENTRAL DATABASE

The EU and the UK plan to keep the white papers for the admission and disclosure documents in a centralised database. In all the other jurisdictions analysed, disclosures will be published by the issuer and made available by the platform where the cryptoassets are traded.

LIABILITY

Liability regimes for disclosure are specific to each jurisdiction and appear to be inspired by the securities regime. In the UK, there has been an intense discussion about the liability of exchanges that admit cryptoassets into trading at their own initiative, including for cryptoassets with no identifiable issuer (HM Treasury, 2023c). While platforms would be able to use public information, they would be expected to disclose it and show they have done an

appropriate level of due diligence. Where trading platforms have not managed to obtain sufficient information from the issuer, cryptoassets may have to be delisted.

Conclusion

Cryptoassets can differ significantly from securities in the way they are created, distributed and traded in secondary markets. They may not have an identifiable issuer or an entity that controls them and may not be issued and offered to public, but instead be allocated to individuals as rewards upon the performance of validation tasks. In these circumstances, the admission to trading and or provision of services related to assets is the first available trigger for regulatory obligations.

While some jurisdictions have requirements on issuers, all the selected jurisdictions have introduced rules that apply at the point of admission to trading of cryptoassets. The approaches taken range from giving the regulator or an independent entity responsibility for approving the asset, to requiring the exchange to make its own assessment of the cryptoasset, following rules prescribed to different levels of detail in the regulation. As a minimum, eligibility rules tend to be devised to prevent scams and fraud, and identify assets with anonymisation features that can be used to facilitate illicit activities. A track-record of trading and the depth of liquidity are other criteria often considered.

Disclosure requirements and liability are closely linked to the admission to trading process and rules. The evidence suggests that jurisdictions that impose restrictions on assets eligible for trading have less prescriptive disclosure requirements. Conversely, jurisdictions that defer to exchanges to decide which assets should be accepted into trading tend to be more prescriptive and demanding about the content of disclosures and the publicity given to white papers. Furthermore, they tend to have tighter liability rules for issuers or platforms that take the initiative to list tokens.

By restricting the assets that can be admitted to trading and imposing disclosure requirements, regulators can go some way to achieve their policy objectives, in particular the objectives of consumer protection. Given that cryptoassets are, in most cases, issued in no particular jurisdiction and are traded across the globe, disclosure requirements is an area for regulatory alignment and supervisory cooperation.

Chapter 4

STABLECOINS

Stablecoins are a distinct subset of cryptoassets. As the name suggests, they are designed to keep a stable value against other assets, including fiat currencies. They are more likely to be used in payments and pose distinct risks to financial stability and monetary sovereignty compared with other cryptoassets. Financial authorities devising rules for cryptoasset markets have made them a priority.

This chapter begins with a discussion of the concept and taxonomy of stablecoins, their use cases, the risks they pose, and the global regulatory standards to address them. This is followed by a comparative analysis of the regulation in the subset of jurisdictions that have introduced bespoke rules for the fiat-referencing stablecoins and a series of case studies.

The chapter concludes by discussing reasons behind areas of convergence and divergence in regulatory frameworks for stablecoins.

Context

DEFINITION

The term 'stablecoin' is commonly used to refer to a cryptoasset that seeks to maintain a stable value relative to another asset or basket of assets. Stablecoins can be considered a private money-like instrument on DLT (CCAF, 2024b). This broad definition captures tokens with different designs and features, which can be given different legal terms and classifications.

Most stablecoins in circulation, and the two largest stablecoins by wide margin, reference a single fiat currency, namely the US dollar[29]. Stablecoins that reference a basket of currencies[30] or other assets, such as gold, are less common and much smaller in size (CCAF, 2024b)[31].

The majority of fiat-referencing stablecoins derive stability from the assets backing them, often referred to as reserve assets[32]. These may be traditional financial assets (e.g. government bonds), commodities (e.g. gold) or cryptoassets (e.g. BTC) and may be subject to different reserve custody arrangements. A minority of stablecoins in circulation are unbacked and seek to stabilise value by adjusting supply relative to another cryptoasset, which is part of the stablecoin arrangement. The adjustment process is automated and reliant on algorithms. For this reason, they are known as algorithmic stablecoins[33].

USE CASES

Stablecoins emerged as a response to frictions between the fiat and cryptoasset systems. Refusal by some banks to service the cryptoasset intermediaries and facilitate investments in cryptoassets, mostly over compliance concerns, led some exchanges to begin issuing synthetic fiat currency in the form of tokens on permissionless blockchains, to serve their clients (BIS, 2023b).

A major use case today for stablecoins is to support crypto trading, a fact that explains their high velocity[34] compared with other cryptoassets. They are a bridge that facilitates exchanges between two cryptoassets and a shield from volatility (i.e. a hedge against falling markets). They also serve as collateral for DeFi applications, including liquidity pools (Mitsu, et al., 2022). Furthermore, there is some evidence that stablecoins are being used as a tool for sanctions evasion, circumvention of capital controls and a hedge against currency devaluation in EMDEs, particularly economies with weak macro-economic fundamentals (FSB, 2024). They have also been used for remittances, donations and electronic humanitarian aid cash-based transfers (CCAF, 2023; Cambridge Digital Assets Programme, 2023; Chainalysis, 2024a).

[29] Stablecoins denominated in US dollars represent more than 99% of the total in circulation. The two largest stablecoins, USDT and USDC, account for 72% and 21% of the market, respectively (CCAF, 2024b).

[30] One example is the original Libra proposal by Facebook (Diem, 2022).

[31] Wrapped tokens, which are cryptoassets that represent cryptoassets issued natively on a different blockchain, may also meet the legal definition of stablecoins in some jurisdictions. For example, they may be categorised as asset-referenced tokens in the EU.

[32] Depending on the design of the stablecoin and the obligations of the issuer, the backing assets may be more aptly described as collateral.

[33] The collapse of TerraUSD in 2022 has exposed the challenge of ensuring stability in value through the operation of algorithms.

[34] A measure of the rate at which the average unit of a monetary form is exchanged within an economy.

Stablecoins have the potential to develop into a currency system running on alternative rails, offering users a new way – possibly faster, cheaper and with more technological possibilities than traditional forms of money – to move money around and make payments. Given the nature of DLT, stablecoins could be especially impactful in cross-border transactions, including by reducing cross-border payment frictions associated with correspondent banking (Adams, et al., 2023; BIS, 2023a).

Two years after Meta (formerly Facebook) shelved its stablecoin project under pressure from regulators[35], traditional financial institutions, such as Société Générale - Forge, have started exploring their use as a wholesale and even retail digital settlement asset. Payment services like Visa and Paypal have also announced plans to integrate stablecoins in their networks (BIS, 2019; Visa, 2020; Paypal, 2024).

RISKS

The exponential increase in use and the breadth of potential use cases has further intensified the perceived risks associated with the stablecoins, making them a renewed priority for many central banks and regulators.

The primary risk with stablecoins is related to the ability of the issuer to meet redemptions by holders. This hinges on the stabilisation mechanism and, in the case of asset-backed stablecoins, on the quantity, quality and liquidity of the reserve assets and how they are managed (Catalini and Gortari, 2021). Badly designed stabilisation mechanisms are more likely to de-peg, causing consumer and investor harm and creating potential risks to financial stability (e.g. through fire sales of reserve assets).

As a new form of private money, which has the potential to compete with bank deposits and, even central bank money, stablecoins can also pose risks to the banking system through credit disintermediation, and threaten to hinder monetary control and sovereignty, for instance if they create a new unit of account or facilitate access to a foreign currency (Mitsu, et al., 2022; Charles-Enguerrand, 2024; Liao & Caramichael, 2022). It is also fair to note that stablecoins are often backed, at least in part, by either commercial bank deposits and/or central bank reserves, to achieve stability.

Other risks in stablecoins are inherent to the use of DLT (Massad, 2024). These range from AML/CFT risk to operational and technological risks (e.g. inability to reverse transactions, forks, etc), which can impede the flow and processing of transactions, including payments.

GLOBAL STANDARDS

International institutions have sought to promote consistency in the regulation of stablecoins and incentivise supervisory cooperation and data sharing.

In 2023, the FSB updated its recommendations on the Regulation, Supervision and Oversight of Global Stablecoin Arrangements (FSB, 2023b). While targeting global arrangements, the recommendations provide a reference framework for the regulation of stablecoins. Despite this, stablecoin regulation varies significantly across jurisdictions (BIS, 2024).

In 2022, the BIS Committee on Payments and Market Infrastructures (CPMI) and IOSCO published guidance on the application of the Principles for Financial Market Infrastructures (PFMI) to systemically important stablecoin arrangements, including the entities integral to such arrangements (BIS, 2023).

IOSCO's policy recommendations for Crypto and Digital Assets Markets also apply to stablecoins. Where further risks are presented by stablecoins, supplementary guidance is issued, including on custody of reserves (IOSCO, 2023).

[35] Facebook shook the world in 2019 with the proposal to launch a stablecoin backed by a basket of official currencies, named Libra. Its stated objective was to make international transactions faster, cheaper and more inclusive, expanding access to the unbanked across the world. The prospect of Facebook's two billion users making payments using a new unit account outside of the traditional banking rails was met with scepticism by financial authorities, who were concerned about the risks Libra posed to the stability of the financial and monetary system. Bowing to political pressure, in December 2020, Facebook scaled down its plan: the stablecoin would refer to a single, official currency. To emphasise the shift, Facebook also changed the stablecoin name to DIEM, which means 'Day' in Latin. The revision was not enough to appease governments and central banks and, eventually, Facebook ditched the project.

FSB Recommendations on Regulation, Supervision and Oversight of Global Stablecoin Arrangements

The original FSB recommendations on the regulation, supervision and oversight of global stablecoins arrangements were issued in 2020 (FSB, 2020). The FSB updated the recommendations in 2023, to take account of developments in cryptoasset markets (FSB, 2023a).

Global stablecoins have three defining features, according to the FSB: the existence of a stabilisation mechanism; their usability as a means of payment or store of value; their potential reach and adoption across multiple jurisdictions. The latter is what distinguish global stablecoins from other stablecoins.

The FSB considers that the emergence of global stablecoins may challenge the comprehensiveness and effectiveness of existing regulatory frameworks and oversight. Its recommendations are intended to address the financial risks they pose, both at domestic and international level.

The recommendations cover governance aspects, risk management, data governance, stabilisation mechanism, redemption rights, disclosures, recovery and resolution, and supervisory cooperation - among others. In a separate report on the Financial Stability Implications of Multifunction Crypto-asset Intermediaries, the FSB argued that the adverse confidence effects among stablecoin issuers could be propagated to conglomerates that they are part of, creating risks to financial stability (FSB, 2023f).

Comparative analysis

In this section, the stablecoin regulatory frameworks in seven jurisdictions are analysed: the EU, Hong Kong, Japan, Singapore, UAE-FSRA, UAE-VARA, and the UK[36]. The focus is on the regulation of stablecoins referencing fiat currencies and backed by traditional financial assets held in custody. A comparison is undertaken of the scope of the regulations, terminology, licensing requirements, rules on redemptions, reserves (i.e. composition, segregation), remuneration, and measures to mitigate cross-border risks.

STAGE OF DEVELOPMENT OF THE REGULATION

All the selected jurisdictions have regulations for fiat-referencing stablecoins, but the rule-making process is in different stages of maturity. Rules are already in force in the EU, Japan, UAE-FSRA and UAE-VARA, while in Hong Kong, Singapore and UK they are being finalised, or have yet to come into force.

Stablecoin regulation interacts with rules for CASPs, particularly rules on cryptoasset trading platforms. Despite that, the two sets of rules aren't always introduced in parallel. Jurisdictions such as the EU, the UK, and Japan[37] have frontloaded stablecoin regulation, to some extent. In contrast, Singapore, Hong Kong are developing rules for stablecoins on the back of, or alongside, regulatory frameworks for CASPs.

TERMINOLOGY

Jurisdictions use a plethora of terms to refer to single fiat-referencing stablecoins.

[36] All seven jurisdictions are in the process of developing, or have already introduced, regulation or clarifying guidance on the application of existing frameworks for single fiat-referencing, asset-backed stablecoin issuers. All are high-income economies. Australia, South Korea, and the US are further behind. Most lower-middle income and upper-middle income economies have yet to set out their plans (e.g. Brazil, Indonesia, Nigeria), or are at an early stage in the process (e.g. South Africa) of regulating stablecoins.

[37] Together with China and the US, these are the jurisdictions with the largest global reserve currencies.

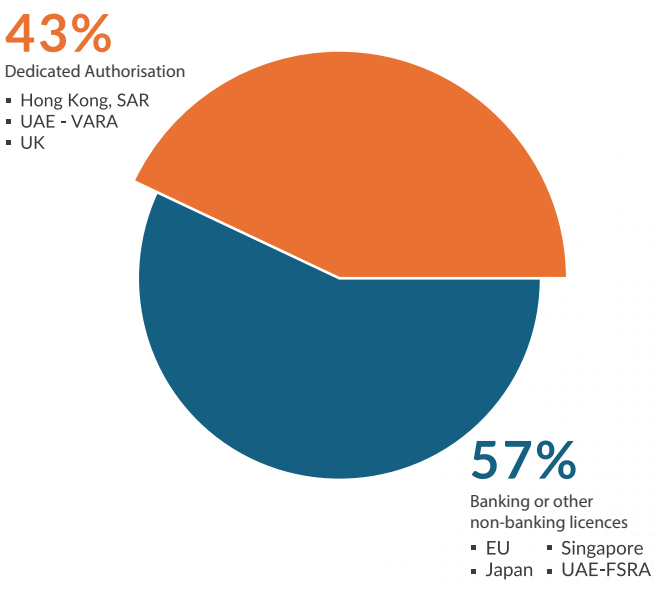
Table 4.1: Terms used by selected jurisdictions to refer to singe fiat referencing stablecoins

Jurisdiction	Term Used
EU	E-money token
Hong Kong	Fiat-referenced stablecoin
Japan	Digital-money type stablecoin
Singapore	MAS-regulated stablecoin
UAE-FSRA (ADGM)	Fiat token
UAE–VARA	Fiat-referenced stablecoins
United Kingdom	Fiat-backed stablecoin

AUTHORISATION

Across all seven of the jurisdictions analysed, issuers of stablecoins are required to be authorised. In most of the analysed cases, issuers can be licensed as either banks or other non-bank financial institutions, particularly e-money institutions[38].

Figure 4.1: How stablecoins are required to be authorised (N=7)



There are some differences between jurisdictions, though. For instance, in Japan trust companies are also allowed to issue stablecoins. In Hong Kong, the UK and UAE-VARA a specific stablecoin license is required. This is in part intended to clearly distinguish between stablecoins and bank deposits made available on DLT (see case study 4.2 "Japan – The many shades of tokenised money").

REDEMPTION

Issuers are required to provide a redemption right to holders and disclose the terms of redemption upfront in all selected jurisdictions. Redemption must be done at par value.

There are a range of approaches toward fees that could be charged upon redemption and the timing for redemption. In the EU and UAE-VARA, redemption must be free of charge, while in the UK it must be reflective of the cost of redemption. This has implications for business models, among other commercial considerations. The EU and Hong Kong have a general requirement for timely redemption, whereas the UK and UAE-VARA require redemption within one business day, UAE-FRSA allows for two days and Singapore allows for five business days.

RESERVES

Rules on the reserves (e.g. investment, liquidity, and custody) and capital requirements are determined, to an extent, by the license obtained and build on existing regulatory frameworks. In Japan and the EU, banks can issue stablecoins partially backed by reserves (i.e. fractional reserves), while being subject to banking capital and liquidity requirements. Singapore takes the same approach but prevents banks from calling them stablecoins. The UK is encouraging banks to separate the issuance of stablecoins from deposit-taking activities, employing distinct and non-conflicting branding.

In all jurisdictions, non-bank issuers are required to cover the outstanding liability in full, with highly liquid and low-risk reserve assets. The exact composition of reserve requirements varies. Where it is specified in the regulation, it typically includes bank deposits and sovereign bonds (e.g. in the EU, issuers must have 30% – or 60% in the case of significant stablecoins – in deposits in EU credit

[38] When issued by banks against their balance sheet (i.e. fractional reserves), tokens linked to fiat currency can be designated as either tokenised deposits or deposit tokens. The countries with dedicated authorisation are the EU, Hong Kong, UAE–VARA, UK, while Japan. Singapore and UAE-FSRA require a banking or other existing non-banking licence.

institutions). Furthermore, in all jurisdictions, reserves must be segregated from corporate accounts and often they must be divided between several custodians to mitigate concentration risk (in the EU, no more than 10% of the reserves should be kept in the same bank). Singapore explicitly allows some reserves to be held overseas, but it requires the custodians of those reserves to be highly rated and to have a regulated branch in Singapore.

REMUNERATION

The EU, the UK and UAE-VARA explicitly ban issuers from passing on the interest on reserves to the holders of stablecoins. Returns on the investment of reserves thus become a source of revenue for issuers and a critical part of the business model.

The prohibition of interest payment also distinguishes stablecoins from bank deposits. Together with the requirement for issuers to keep part of the reserves in deposits, it is one measure that is intended to reduce the risk of credit disintermediation through an increase in the cost of funding for banks.

In contrast with the other jurisdictions, the UAE-FSRA has proposed to allow issuers to distribute income from the reserves – but issuers would not be able to promote the stablecoin as an investment or savings product.

SYSTEMIC STABLECOINS

Both the EU and the UK impose heightened requirements on fiat-referencing stablecoins that are deemed significant, even if they differ on the criteria to identify them. In the EU, these criteria are set out in the regulation, while in the UK they have yet to be defined[39]. Hong Kong and Singapore also have discretionary power to increase regulatory requirements for stablecoins on a risk basis.

Additional requirements range from heightened capital and liquidity requirements to restrictions on use. The UK is considering requiring issuers of stablecoins used in systemic payment systems and related services to back them fully with central bank reserves. Issuers would not be allowed to charge fees upon redemption.

STABLECOINS ISSUED OVERSEAS

A range of approaches and measures towards stablecoins issued overseas and offered in the jurisdiction have been adopted or are being explored.

Japan has an equivalence regime for stablecoin issuers. On the other side of the spectrum, the EU requires issuance and offering to be done from an EU entity, and reserves to be localised, in part. Singapore will not ban foreign stablecoins, but these will not be eligible for the label of "MAS regulated stablecoins" (see case study 4.3 "Singapore – A 'seal of quality' for onshore issuers"). The UK is exploring an in-between approach, where an authorised 'payment arranger' would be required to assess and approve the issuer of a stablecoin from overseas before it can be used as a means of payment in the UK.

USE IN PAYMENTS

Policy discussions on whether payment service providers can deal with stablecoins available on permissionless blockchains, and the constraints they should they be subject to, are at an early stage. For example, Japan requires issuers to engage in enhanced monitoring of blockchains for suspicious transactions and to have the capability to freeze or seize stablecoins. The Bank of England (BOE) has argued that the use of stablecoins on permissionless blockchains may not even be compatible with the requirement for an entity responsible for the end-to-end management of risks in stablecoin transactions (Bank of England, 2023). The upcoming EU AML regulation requires issuers to take measures to reduce the risk of stablecoins being used in illicit activities.

OTHER STABLECOINS

Regulatory approaches to stablecoins that are not referencing a single fiat currency vary significantly. The EU, Hong Kong and the UK have rules for multi-currency referencing stablecoins. Most jurisdictions are expected to treat crypto-backed stablecoins as other cryptoassets, but regulators in the EU and Japan have clarified that issuers must not make claims of stability in the white paper and promotional materials. Hong Kong has indicated that it will not authorise the issuance of algorithmic stablecoins, while in most other jurisdictions they should be subject to the rules that apply to other cryptoassets.

[39] The regulation would only apply to sterling-denominated stablecoins. Issuers would be subject to the regulation and oversight of the Bank of England, instead of the Financial Conduct Authority.

Conclusion

Stablecoin regulation has emerged as a priority for regulators in some high-income economies, and those with strong reserve currencies. Institutional capacity to develop and enforce rules and the priority given to protecting monetary sovereignty and credit intermediation may largely explain this trend.

Stablecoin regulations are broadly aligned in the scope, objectives, and key elements. Single fiat-referencing, financial asset-backed stablecoins, which are more likely to be used in payments, are the object of regulations in all the selected jurisdictions. As a rule, the regulations introduce a licensing regime for issuers, which can be banks or non-banking financial institutions, in particular e-money institutions. In a minority of jurisdictions, dedicated licenses are required.

The requirements imposed vary according to the type of issuer, but in most cases include a redemption right at par and rules on the size, composition (e.g. low risk and liquidity, despite national differences) and management of the reserves (e.g. segregation). Together, these should go some way to address the risk of de-pegging.

Some jurisdictions clearly distinguish stablecoins from other forms of private money, particularly bank deposits, which can also be tokenised. The prohibition of passing on interest from the reserves to the holders of the coin is one example of how that is achieved. Returns on the investment of reserve become the source of revenue for issuers. Together with the requirement for issuers to keep part of the reserves in bank deposits, these measures can reduce the risk of credit disintermediation.

Despite efforts to coordinate regulatory activities at a global level, the cross-border dimension of regulation remains underdeveloped. Most jurisdictions are introducing constraints on the use of stablecoins issued overseas, with Japan being the only jurisdiction that has implemented an equivalence regime. This could lead to fragmentation of the market. The use of stablecoins in payments, in particular of stablecoins made available on permissionless blockchains, is an issue moving to the top of the agenda of regulators.

Case studies

The three case studies 4.1 to 4.3, analys EU measures to protect monetary sovereignty, investigate how the regulation in Japan differentiates between stablecoins and other forms of private money and discuss the voluntary nature of Singapore stablecoin regulation.

Case study 4.1. EU – Euro-biased

EU rules for stablecoins are set out in the Markets in Cryptoassets (MiCA) regulation have been in effect since June 2024. Initial discussions on MiCA were dominated by concerns about the risks of Libra and other global stablecoins and their impact on monetary sovereignty. This resulted in strict measures to protect financial stability and monetary sovereignty and an implicit bias in favour of stablecoins denominated in the official currency (in this case, the Euro), which has no parallel in other jurisdiction.

MiCA distinguishes between stablecoins that reference a single fiat-currency, which are designated as e-money tokens (EMTs), and stablecoins backed by a basket of assets, which are designated as asset-referenced tokens (ARTs). Issuers of EMTs denominated in non-EU currencies and ARTs are subject to two major restrictions.

First, the European Central Bank or the central bank of a Member State with a currency other than the Euro has the power to reject or revoke the authorisation given to an issuer of an ART that is deemed to pose risks to monetary sovereignty. The risks would materialise if an ART, which represents an alternative unit of account, is widely used.

Second, issuers are required to stop issuance of ARTs and non-Euro EMTs and present a plan to reduce their use as a means of exchange, when the number and volume of transactions exceed one million transactions and €200 million daily.

These two restrictions are reinforced by the requirement for the issuer of a stablecoin to be authorised in the EU, and rules requiring the localisation of reserves, including in the form of bank deposits. Together these rules present a challenge to overseas stablecoin issuers, particularly the issuers of dollar-denominated stablecoins, which dominate the market. Likely in part in response to this, some market participants have introduced Euro-denominated stablecoins - for example, Circle introduced the EURC (Circle, 2024).

Case Study 4.2. Japan – The many shades of tokenised money

Japan introduced rules for issuance and intermediation of stablecoins in June 2022, and the rules have applied since June 2023. This was the third regulatory reform focusing on cryptoassets, after the reforms of 2016 and 2019, which targeted the broader crypto ecosystem.

Stablecoin rules are focused on digital-money type stablecoins, i.e. stablecoins that are backed by assets denominated in fiat currency. Issuers must be licensed as a bank, fund transfer service provider, or trust company. The reserve and exact redemption requirements are determined by the type of license obtained, providing a clear delineation between the emerging forms of digital money.

Banks can issue stablecoins by tokenising their liabilities, in which case they will be subject to existing banking rules (i.e. fractional reserves, bank liquidity and capital requirements). Holders of the stablecoin are protected up to a value of 10 million JPY by the deposit insurance, in the same manner as conventional bank deposits. Fund transfer service providers issue digital money-type stablecoins as claims on outstanding obligations. The obligations must be secured through either money deposits with official depositories, bank guarantees or entrusted safe assets, such as bank deposits and government bonds. Trust companies may issue stablecoins as trust beneficiary rights. They are required to hold all the trusted assets in the form of bank deposits in Japan, or in overseas banks with a branch in Japan, in the case of foreign currency.

In addition to the rules for issuers, which are focused on preserving the stability of value, Japan requires intermediaries of digital-money type stablecoins to be licensed and comply with the requirements that apply to services related to other cryptoassets. Regulated services include the buying, selling, exchanging, and intermediating of stablecoins, custody and transferring stablecoins on behalf of the issuer.

Case Study 4.3 Singapore – A 'seal of quality' for onshore issuers

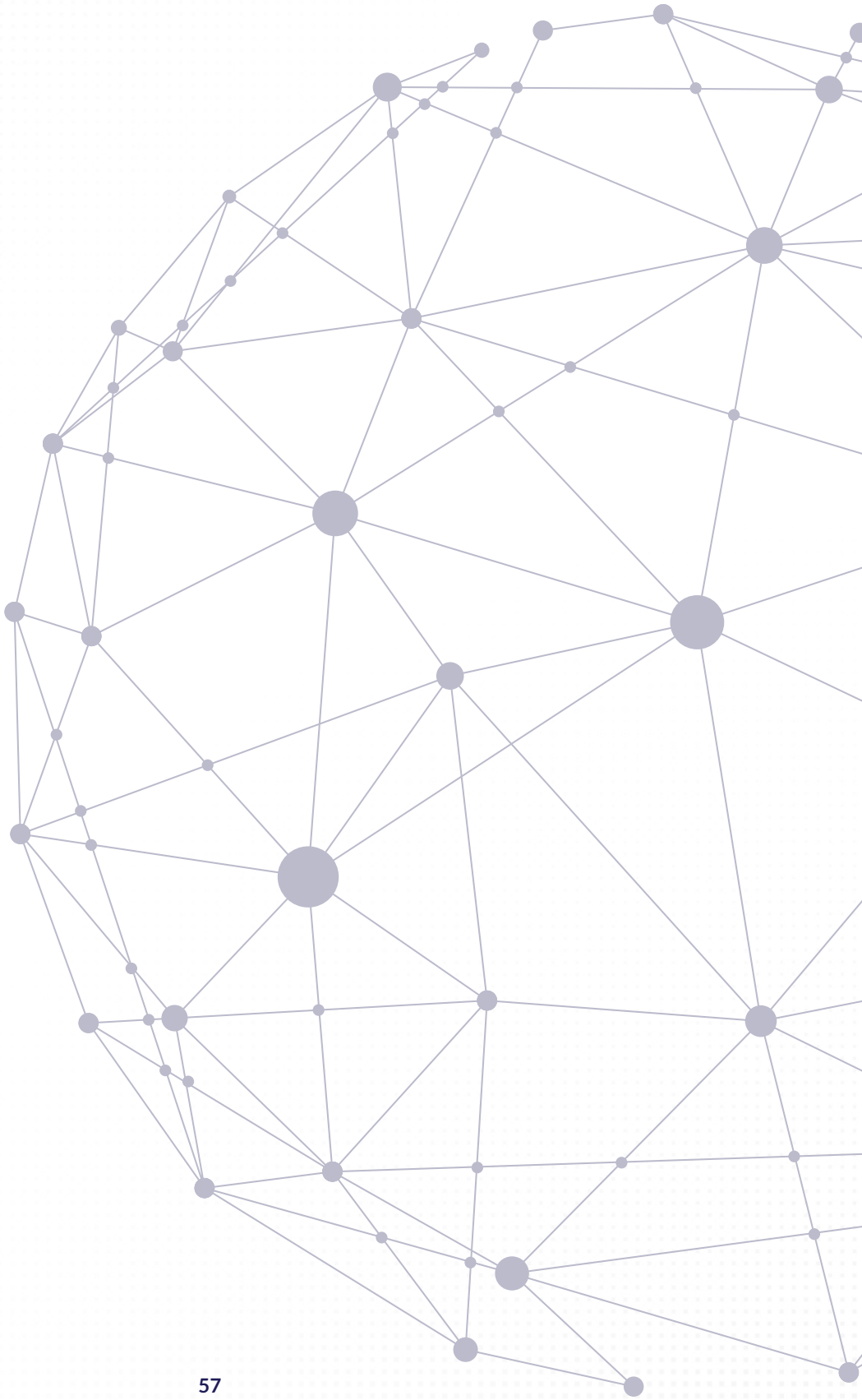
The Monetary Authority of Singapore (MAS) set out the key features of the upcoming framework for stablecoin issuance in August 2023. The proposals provide an example of how a small, open economy can mitigate risks and provide a clear framework for entities issuing stablecoins onshore, while refraining from banning offshore stablecoins.

The proposed stablecoin regulation will apply to single currency stablecoins pegged to the Singapore or any other G10 currency that are issued in Singapore[40]. Stablecoins issued outside of Singapore and those denominated in other currencies will not be disallowed, but they will be regulated as other cryptoassets and cannot be marketed as 'MAS-regulated stablecoins'. With this measure, the regulator hopes to turn the label into a 'seal of quality' that reassures investors. It must be noted that the MAS already imposes strict limits on the provision of cryptoasset-related services to retail users, and this limits the consumer risks associated with foreign stablecoins.

Under the upcoming regulation, issuers will not be allowed to issue the same stablecoin from other

[40] The G10 currencies are the Australian Dollar, British Pound Sterling, Canadian Dollar, Euro, Japanese Yen, New Zealand Dollar, Norwegian Krone, Swedish Krona, Swiss Franc and the United States Dollar.

jurisdictions in parallel to those issued in Singapore. The regulator has considered the possibility of introducing an equivalence arrangement to enable multijurisdictional issuance but ruled it out due to the nascent state of stablecoin regulations globally. This decision may be reviewed at a later stage.



Chapter 5

CRYPTOASSET SERVICE PROVIDERS

Cryptoasset Service Providers[41] (CASPs) are centralised entities that perform one or more activities related to cryptoassets, including exchange, transfer and safekeeping. They play a critical role in enabling cryptoasset markets and are an entry point to regulation.

This chapter begins by defining the concept of CASPs and sets out the range of services provided and the risks they pose. This is followed by a brief description of the scope of the regulations for CASPs and of the evolving global standards in this area. The second section compares the regulatory frameworks of a subset of jurisdictions along several dimensions, including the services subject to authorisation, service-specific requirements and rules on conflicts of interest. The chapter discusses in some detail the regulation of staking, and localisation requirements and their implications, rules on reverse solicitation and the challenges of supervising cryptoasset activities.

This chapter concludes that regulatory and licensing frameworks have been gradually increasing in scope, covering more services and addressing additional risks, including market integrity. There remain several areas of divergence, such as requirements for custodians. Divergence is also evident in areas where requirements are being fleshed out, including on conflicts of interest and localisation requirements.

Context

ENTRY POINT TO REGULATION

CASPs are the object of most initiatives to regulate cryptoasset markets. As they are centralised, they offer a hook or entry point for regulation and supervision, consistent with the "regulatory apparatus" built for traditional finance (Quintenz, 2018). In other words, CASPs can be required to obtain an authorisation to operate and may be subject to regulatory obligations. CASPs are a focus for regulators owing to their outsized importance and critical role in cryptoasset markets. They provide the on/off-ramps into the cryptoasset ecosystem, enabling consumers and investors to convert cryptoassets into fiat and vice-versa, and provide secure gateways for non-technical users to interact with blockchains. A very large share of the trading activity goes through them[42]. The growth in activity in cryptoasset markets is related to the increase of the spread and use of CASPs.

More than the cryptoassets themselves, CASPs have been blamed for harm caused to consumers and investors in cryptoassets (OECD, 2022b; Bank of England, 2022). Well-known examples of CASP collapse, such as FTX, highlighted to financial authorities the need to supervise and regulate CASPs to protect consumers (Harrison, 2024). Furthermore, the IMF considers that the regulation and supervision of CASPs is an important foundation for data collection, effective capital flow measures, and fiscal and tax policies (IMF, 2024a).

CRYPTOASSET SERVICES

CASPs encompass a wide range of activities from operating a market to providing intermediation services (e.g., trading as a principal or an agent, custody, etc). CASPs may also provide payment, borrowing/lending and staking, and investment services.

Below, some of the most common services provided are described.

- **Exchange:** Trading platforms that provide cryptoasset transfer and exchange services.
- **Broker-dealer:** Entities that act as intermediaries between buyer and seller for a commission or trade on their own account.
- **Custody:** Entities that safeguard cryptoassets, or private keys that give access to the assets on behalf of another individual or entity.

41 They are often collectively referred as Centralised Finance, or CeFi (Sirio, et al., 2021). The umbrella term is construed in opposition to Decentralised Finance (DeFi). While DeFi records transactions on the blockchain, CeFi relies on the private ledgers of intermediaries. In this sense, CeFi negates some of the potential benefits of DLT (e.g. direct custody, resilience), but it offsets some of its disadvantages (e.g. increased efficiency, convenience - and, arguably, safety).

42 The monthly decentralized exchange volume divided by centralized exchange volume has been consistently below the 10% mark (The Block, 2024).

- **Payments and Remittances:** Entities involved in the execution of payment transactions and remittances with payment tokens and stablecoins.
- **Portfolio Management and Advisory Services**: Entities managing portfolios in accordance with mandates given by clients. or offering investment advice.
- **Lending and Borrowing Services:** Entities that allow investors to lend or borrow crypto assets against interest.
- **Staking:** Agents performing operations for validating transactions in a proof-of-stake framework. This involves blocking native tokens on smart contracts to participate in the validation process and earn rewards for that service.
- **Mining:** Agents performing specific operations for processing transactions in a proof-of-work blockchain.

Most of these activities are similar in nature to those undertaken by traditional financial firms for fiat currency and traditional financial assets. In a few cases, such as staking and mining, they are novel and specific to cryptoassets (CCAF, 2019a).

RISKS

The nature of the risks associated with cryptoasset activities is similar to risks in traditional finance, but some of the novel features of cryptoassets can mitigate or increase them. A case in point is the operational and cybersecurity risks that cryptoasset custodians are exposed to. Risks to market integrity are also elevated by reliance on global liquidity pools, and that trading happens both on- and off-chain (HM Treasury, 2023a). It has been argued that risks in cryptoasset markets are further increased by severe deficiencies in governance, risk management and handling of customer funds by CASPs, and their reliance on leverage, liquidity and maturity mismatches (Aquilina, et. al 2023a; IOSCO, 2023).

Financial authorities have also expressed concerns about providers that concentrate functions and activities, which have been kept separate in traditional finance. CASPs are often organised as so-called multi-function cryptoasset intermediaries (MCIs), which may pose increased risks of conflicts of interest (FSB, 2023c).

Supervision of cryptoasset activities – challenges and solutions

Once a service provider has obtained a license, it falls under the scope of supervision. This consists of the oversight of firms and individuals to ensure on-going compliance with the regulatory framework, in a consistent manner. Supervision has two important complementary functions: to address qualitative matters that are difficult to specify through regulation, including culture; and to deal with continuous innovation, filling the void in the absence or lack of clarity in the rules.

The process of supervision of CASPs does not fundamentally differ from that of traditional financial services providers. Supervisors conduct periodic reviews of all licensed firms, utilising conventional tools, data gathering and regulatory returns, intelligence and adverse media checks, and firm visits. The intensity of supervision should be proportional to the risks a given firm poses and the nature of its activities. In the event of breaches and misconduct, financial authorities must have powers to take enforcement action, which can include public warnings, suspension or revocation of a license and issuance of fines and penalties.

Supervisors of entities undertaking cryptoasset activities do face specific challenges, which arise from the disruptive nature of the technology and the features of the market and market participants. These include poor governance practices (e.g. conflicts of interest) to the cross-border or even borderless nature of cryptoasset activities. Overcoming these challenges takes a combination of actions or measures, including in resourcing, supervisory tools and cross-border cooperation:

- Supervision units ought to be adequately resourced, with enough individuals in place to oversee licensed firms, and, importantly, the technical knowledge to effectively supervise them. Past surveys of regulators have identified lack of capacity and resources as one of the factors hindering effective supervision of fintech activities, including with cryptoassets (CCAF and World Bank, 2022).

- In addition to conventional tools and reports, supervisors can make use of novel, complementary tools to supervise crypto-asset markets, including on-chain transaction monitoring and analytics tools (see Chapter 6; Cambridge SupTech Lab, 2023). Novel models of supervision, namely embedded supervision (see In Brief "The Regulation of DeFi), may prove effective at regulating the decentralised and disintermediated activities.

- As discussed, CASPs combine activities in novel ways, their operations spread across jurisdictions and they often lack single point of entry for regulation. Supervisory authorities are compelled to cooperate more closely and share more information than with other financial activities, and yet are challenged in this aim by lack of or inconsistency in national regulations. A re-imagining of the models of "international cooperation" is arguably required (McCaul, 2023). Both the FSB and IOSCO have devoted a significant part of their recommendations to supervisory cooperation and information-sharing agreements.

GLOBAL STANDARDS

As discussed in Chapter 2, the scope of regulatory frameworks has widened over time. After an initial focus on AML and illicit finance, an increasing number and type of jurisdictions are introducing comprehensive frameworks to address a wider set of risks, with a particular focus on preventing or mitigating harm to investors and/or consumers, in line with securities regulations.

The adoption of policy recommendations by the FSB (2023a) and the IOSCO (2023) is expected to give fresh impetus to this trend, particularly in the G20 jurisdictions. They are comprehensive in scope, and largely targeted at CASPs (see Text box, FSB and IOSCO recommendations on cryptoasset markets). The policy recommendations should also help to promote consistency in regulation and enhance cooperation between supervisors.

FSB and IOSCO recommendations on cryptoasset markets

The Financial Stability Board (FSB) and the International Organization of Securities Commissions (IOSCO) are international standard-setting bodies for finance.

The FSB focuses on monitoring and making recommendations to the global financial system, aiming to promote international financial stability. IOSCO aims to develop, implement and promote adherence to internationally recognized standards for securities regulation. It brings together more than 130 supervisors, covering 95% of the world's securities markets.

In 2023, both entities issued policy recommendations for digital and cryptoasset activities. Recommendations provided by both entities are broad in scope and cover activities throughout the life-cycle of digital assets.

The FSB issued a report on "Regulation, Supervision and Oversight of Crypto-Asset Activities and Markets" – alongside a separate report focusing on global stablecoin arrangements, which is discussed in Chapter 4 (FSB, 2020). They cover regulatory powers and tools, the general regulatory framework, cross-border cooperation, governance, risk management, data collection, disclosures, financial stability risks and multi-function service providers.

IOSCO's recommendations on crypto and digital asset markets (IOSCO, 2023) are focused on addressing risks to investor protection and market integrity. The recommendations focus on six areas: conflicts of interest arising out of vertical integration of activities and functions; market manipulation, insider trading and fraud; custody and client asset protection; cross-border risks and regulatory cooperation; operational and technological risk; and retail distribution.

Separately, IOSCO published a report with policy recommendations to address market integrity and investor protection risks related to Decentralised Finance (IOSCO, 2023).

Conflicts of interest arising from the vertical concentration of activities and functions are among the areas covered in significant detail by the FSB and IOSCO. CASPs often provide a combination of products, services, and functions, around the operation of a trading platform. While most of these activities and their combinations can also be found in traditional finance, they are not provided by the same entity, or are only provided under significant restrictions or controls to prevent conflicts of interest. The FSB has recommended that national authorities develop rules around conflicts of interest, including, as appropriate, disclosure requirements and requirements on separation of functions (FSB, 2023a).

Comparative analysis

Given the wide range and scope of regulatory initiatives affecting CASPs, this chapter focuses on the comparison of specific aspects of tailored or bespoke regulatory and licensing frameworks in a subset of jurisdictions, namely the EU, Japan, Hong Kong, Singapore, South Korea, Switzerland, UAE-FSRA, UAE-VARA and the UK. These jurisdictions have introduced or are in the process of introducing licensing regimes, covering a range of services.

AUTHORISATION

All the selected jurisdictions have or are in the process of introducing an authorisation regime for CASPs. Authorisation entails a license application that is specific to cryptoassets, except for Switzerland where existing license frameworks apply[43]. In Japan, the authorisation takes the form of a registration, but is akin to a license. In the EU, authorised banks and other financial institutions are either exempt from obtaining an additional bespoke cryptoasset licenses or benefit from streamlined authorisation processes. Hong Kong recommends that CASPs obtain licenses for both the provision of services related to securities and futures, and to cryptoassets, given that the terms and features of cryptoassets can evolve over time (see Chapter 1).

[43] In Switzerland, there is only one bespoke licence for trading facilities for DLT securities.

LIST OF SERVICES

The list of services subject to authorisation is consistent across jurisdictions. Exchanges, broker-dealers, custodians and portfolio managers are subject to bespoke licensing requirements in every jurisdiction except for Switzerland, which applies existing regulations to these services, and Hong Kong, in the case of custodians.

Existing rules and authorisation requirements apply to payment services providers in most jurisdictions. In the case of payment services, it is important to distinguish between unbacked cryptoassets and stablecoins. In the UK and the EU, some stablecoins may be subject to heightened requirements when used in payments (see Chapter 4).

The provision of lending and borrowing services is also subject to existing authorisation requirements in all jurisdictions, except for the UK, which is considering introducing a bespoke licence for entities operating a cryptoasset lending platform. In Singapore, cryptoasset lending services are banned for retail investors.

Table 5.1: Services subject to authorisation, per jurisdiction

	Exchange services	Broker-dealer services	Custody services	Advisory / portfolio management services	Payments / Remittances	Lending / borrowing	Staking	Mining
EU	License	License	License	License	No license or possible application of existing licenses	No license or possible application of existing licenses	No license or possible application of existing licenses	No license or possible application of existing licenses
Japan	License	License	License	License	No license or possible application of existing licenses	No license or possible application of existing licenses	No license or possible application of existing licenses	No license or possible application of existing licenses
Hong-Kong	License	License	No license or possible application of existing licenses	No license or possible application of existing licenses	No license or possible application of existing licenses	No license or possible application of existing licenses	No license or possible application of existing licenses	No license or possible application of existing licenses
Singapore	License	License	License	License	No license or possible application of existing licenses	No license or possible application of existing licenses	No license or possible application of existing licenses	No license or possible application of existing licenses
South Korea	License	License	License	License	No license or possible application of existing licenses	No license or possible application of existing licenses	No license or possible application of existing licenses	No license or possible application of existing licenses
Switzerland	No license or possible application of existing licenses	No license or possible application of existing licenses	No license or possible application of existing licenses	No license or possible application of existing licenses	No license or possible application of existing licenses	No license or possible application of existing licenses	No license or possible application of existing licenses	No license or possible application of existing licenses
UAE-FSRA	License	License	License	License	License	No license or possible application of existing licenses	No license or possible application of existing licenses	No license or possible application of existing licenses
UAE-VARA	License	License	License	License	No license or possible application of existing licenses	License	License	No license or possible application of existing licenses
UK	License	License	License	License	License	License	License	No license or possible application of existing licenses

Staking services

There is no single definition of 'staking'. The term is loosely used as an umbrella to refer to an array of investment activities with cryptoassets to generate passive income (e.g. yield farming, liquidity mining). However, staking could be more appropriately defined narrowly as the process of blocking native tokens on smart contracts in PoS consensus mechanism blockchains to participate in the validation process and earn rewards for that service.

Staking activity has been driven by the emergence of PoS blockchains (e.g. Cardano, Solana) and it accelerated with the adoption of a PoS consensus mechanism by the Ethereum blockchain in 2022 (Good, 2023). Some financial authorities have moved to clarify the regulatory treatment of staking and to determine which rules, if any, should apply to them. Below, the approaches of the EU, Singapore, Switzerland, UAE-VARA and the UK to regulating staking services[44] are set out.

Risks in staking services can be divided into two groups (i) risks related with the governance and operation of the PoS blockchain (e.g. withdrawal constraints, deletion of locked tokens when validator behaves improperly); and (ii) risks related to the role of service providers (e.g. control of private keys by the intermediary, segregation of assets and polling of client assets).

While broadly converging on the identification of risks, regulators in the five jurisdictions analysed have taken divergent approaches towards regulating staking.

Singapore has banned licensed CASPs from offering staking services to retail clients, as this activity is already offered by cryptoasset lending services. Despite recognising the differences in risks of staking and lending, the Monetary Authority of Singapore (MAS) stated that the probability of the risks materialising, and the quantum of risks does not fundamentally differ (MAS, 2023a). Professional clients can access staking services.

On the other side of the spectrum, UAE-VARA has introduced an ancillary license for the provision of staking as a platform. For the staking service to be permitted, some conditions must be met, including that staking must be provided by an authorised custodian and there should be no pooling of clients' assets (VARA, 2022a, VARA, 2022b).

The UK is considering the possibility of carving out staking activities from existing regulations, including rules for collective investment schemes (HM Treasury, 2023a; HM Treasury, 2023b). In the EU, providers of staking services, which take control of cryptoassets, must be licensed as custodians.

Switzerland has issued guidance on the application of the existing legislation to staking services (FINMA, 2023). Licensed institutions that can meet strict conditions implying segregation of assets will be exempt from banking capital requirements. Unlicensed participants that are staking assets on behalf of clients will not be required to obtain a banking license, provided some conditions are met. This is a temporary approach and is expected to change over time.

[44] Non-intermediated staking where an investor retains control of the asset and operates the validation nodes independently are outside of the regulatory perimeter.

ENTITY AND ACTIVITY-SPECIFIC REQUIREMENTS

All the bespoke regulatory frameworks in the subset of jurisdictions analysed include measures to address conduct risks (e.g. market abuse) and prudential risks (e.g. governance, capital). Other risks, including risks related to data and cybersecurity, are typically covered by non-specific cryptoasset regulations.

Market abuse – a term that refers to abusive behaviour by market participants, including insider trading and market manipulation, that undermines the integrity of markets – is emerging as one of the areas of priority for regulators. The specific features and structure of cryptoasset markets, including the validation process and the fragmentation of liquidity, make it difficult to achieve the integrity of the market to the same degree as in traditional markets, and strengthen the case for tailored rules (e.g. criteria for non-public information to become public) to support market integrity.

Where market integrity rules were not included in the original frameworks, as is the case of Singapore and South

Korea, they have been recently added or are in the process of being added (MAS, 2023a, MAS, 2023b). Regulators in the EU and UK have also published consultations (HM Treasury, 2023a; ESMA, 2024a; ESMA2024b) on the matter.

In addition to the general requirements that apply to all providers of cryptoasset activities, regulatory frameworks include tailored chapters and requirements for the provision of specific services. A significant focus of regulators is on the activities of trading platforms and custodians, the requirements for which are covered below.

TRADING PLATFORMS

Despite the wide variation in the level of detail of the rules, trading platforms in all selected jurisdictions are required to have transparent operating rules and procedures to ensure their orderly functioning and to reduce risks of market abuse. Market abuse rules are often targeted at trading platforms, including the monitoring of trading, and reporting of suspicious transactions that happen outside of the trading venue.

Requirements on listing[45] vary significantly. As a rule, trading platforms need to perform some form of due diligence (including ongoing due diligence) on the assets before listing them. They also need to disclose their listing policies and fees and comply with strict governance rules. As discussed below, in several jurisdictions under analysis, there are specific provisions on conflicts of interest within groups.

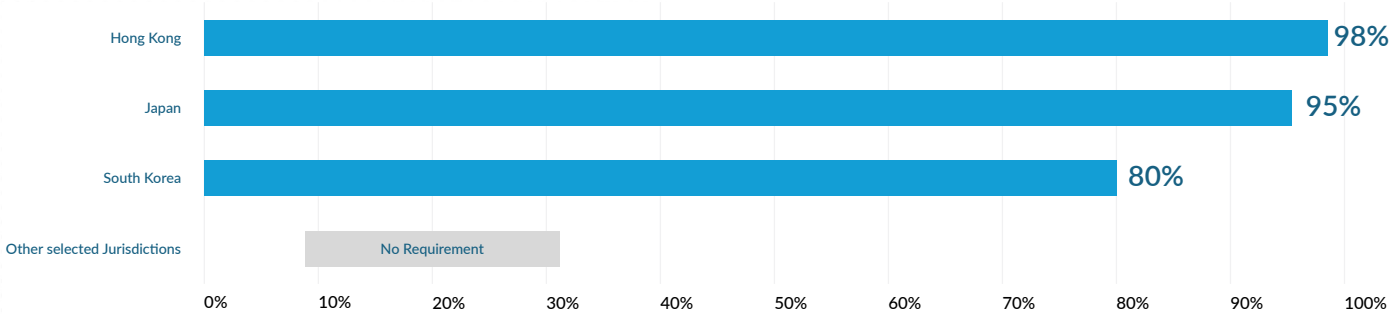
CUSTODIANS

All jurisdictions analysed in this chapter require custodians to safeguard clients' assets and not co-mingle them with their own funds. In most cases, it is specified that these should be segregated, but the exact meaning of segregation depends on insolvency frameworks, which are specific to each jurisdiction.

There are other areas of divergence. Most jurisdictions allow for clients' assets to be kept in omnibus wallets and do not prescribe a technology or way of securing the assets. Japan, Hong Kong and South Korea are notable exceptions, as they explicitly require custodians or multilateral trading platforms holding cryptoassets on behalf of their clients to keep a percentage of cryptoassets in cold or physical wallets.

[45] The report in Chapter 3 discusses the rules on the offering to the public and on the eligibility of cryptoassets handled by any cryptoasset service provider. In this chapter, this report considers rules on listing policies.

Figure 5.1: Percentage of cryptoassets that must be kept in cold or physical wallets in selected jurisdictions.



CONFLICTS OF INTEREST

All jurisdictions include rules on conflicts of interest. In some cases, there are specific references on managing the risks arising from vertical integration, but the level of detail (e.g. identification of what combination of activities constitutes a conflict of interest and of the remedies to address those) varies.

Figure 5.2. Conflicts of interest and the regulatory frameworks of the EU, Singapore and Hong Kong

The EU explicitly bans crypto-asset service providers from operating a trading platform for cryptoassets from **dealing on own account** on their platform, unless for the purposes of **matched principal trading.**

Singapore is considering a ban on trading on own account, plus an explicit ban on the **admission into trading of self-issued tokens.**

In Hong Kong, platform operators cannot engage in **private trading or marketing activities.**

The EU explicitly bans trading platforms from dealing on own account on their platform, unless for the purposes of matched principal trading. Singapore and the UK are considering a similar restriction alongside a ban on the admission into trading of self-issued tokens. In Hong Kong, platform operators cannot engage in private trading or marketing activities.

LOCALISATION REQUIREMENTS AND REVERSE SOLICITATION

For some regulators and supervisors, the ability of CASPs to operate or perform critical functions from other jurisdictions is a concern. Several jurisdictions analysed in this chapter have explicit requirements on legal form and place of incorporation, and outsourcing restrictions.

The EU requires service providers to be located within its territory and to have obtained a license. In Japan, service providers must be either licensed as stock companies or be licensed in a foreign jurisdiction and have a subsidiary or branch in Japan. The UK is considering the possibility of allowing foreign companies with a branch in the UK to service retail clients in its market.

Location policy is closely linked with the conditions for overseas market access, particularly access to global liquidity pools. Even when they have local entities, most crypto exchanges route trades through global parent exchanges (HM Treasury, 2023a; HM Treasury 2023b; IOSCO, 2023). Three of the jurisdictions under analysis in this chapter have clearly set out their views on this issue.

In South Korea, trading platforms must not facilitate the trade or exchange of cryptoassets between their customers and customers of other platforms, including foreign platforms under the same group, unless some conditions are met. First, the counterparty must be licensed or registered under an equivalent AML framework. Second, the platform must collect and record information on the counterparties of transactions and submit them to the Korean Financial Intelligence Unit.

The UK Government is considering options to enable intermediaries to access global liquidity pools under specific circumstances (e.g. when platforms are based in jurisdictions that are aligned with global standards) and on a temporary basis. Intermediaries would be, in any case, barred from providing services relating to cryptoassets that do not have a disclosure document lodged with the regulator. In the EU, ESMA issued a non-binding opinion that restricts the ability of entities to operate as brokers in the EU, while channelling transactions to an offshore exchange within the same group.

In parallel with the introduction of localisation requirements, regulators in the EU and the UK, are tightening the so-called reverse solicitation regimes for cryptoassets (see text box: EU requirements on reverse solicitation).

The issues of overseas market access and reverse solicitation are often discussed in the context of equivalence or deference regimes, which remain under-developed in cryptoasset markets[46].

Conclusion

CASPs have been the primary focus of financial authorities because they are an entry point or hook for regulation and supervision and provide the bridge between the cryptoasset and fiat systems. Registration frameworks, focused on AML, are gradually being replaced by more comprehensive regulatory and licensing regimes, similar in scope with securities regulations.

Most bespoke regulations cover exchange, trading and custody services, while payments and lending services are subject to existing regulatory frameworks. Staking is one service that is associated with the novel features of cryptoassets and DLT. There is a discussion about whether the provision of staking related services should be covered by existing regulations and licensing frameworks on investment and lending (e.g. collective investments). A few jurisdictions have opted to introduce an ancillary license or clarified the application of existing rules for staking service providers.

Requirements in areas such as governance apply to all CASPs, but specific obligations are often imposed on market operators and custodians. Rules on segregation of assets are broadly aligned across jurisdictions. There are also areas of divergence, such as the requirements to hold a given proportion of assets in cold wallets. Rules on conflicts of interest is another fast-moving area, and of diverging approaches. Many jurisdictions explicitly ban trading platforms from trading on own account, while others are also cracking down on platforms that list their own issued tokens.

Tackling the risks posed by CASPs operating globally is also a priority for regulators. In parallel to strengthening cross-border cooperation, some jurisdictions are introducing localisation requirements and tightening reverse solicitation rules. With a few exceptions, there are no equivalence or regulatory deference regimes. Regulators and supervisors may need to consider developing these regimes in the future.

Case studies

In the case study below, the EU's requirements on reverse solicitation in the provision of services related to cryptoassets are analysed.

Case study 5.1: EU requirements on reverse solicitation

A key challenge for implementing and enforcing rules on cryptoasset activities is jurisdictional boundaries. Cryptoasset trading platforms and other service providers often present themselves as operating in a borderless ecosystem, setting up operations in foreign jurisdictions and taking an ambivalent approach to compliance (IOSCO, 2023). However, regulators' powers do not extend beyond national borders.

Global standard-setting bodies have sought to mitigate this risk by pushing for consistency and alignment of regulation, including the legal classification of activities, and strengthening cross-border cooperation and information-sharing among authorities in different jurisdictions, for example through the establishment of colleges of supervisors for the largest companies.

In parallel, there is evidence that regulators – particularly in large and advanced economies – are tightening up regulations to restrict the cross-border provision of services to residents by foreign companies. A case in point is the EU, which is proposing to narrowly define the exemption of reverse solicitation for CASPs.

While technically an exemption, reverse solicitation is best understood as a prohibition for foreign companies to solicit clients established or situated in the home jurisdiction, unless the service was requested at the own exclusive initiative of the client. This exemption is presented in regulations covering a range of services and its exact implementation differs.

The EU has issued guidelines on how national supervisors across the EU should apply reverse solicitation in the cryptoasset markets (ESMA, 2023a).

[46] An example of equivalence is explained in terms of the UK announcing equivalence decisions for the EU and the European economic area states (UK Parliament, 2020).

It proposes that the concept of solicitation be construed "in the widest possible way", to include banner advertisements, sponsorship deals and solicitation by any kind of affiliates, such as influencers and other celebrities. It adds that the existence of a website in a language of the EU that is not in the sphere of international finance would be seen as a strong indication that a third-country firm is soliciting clients established or located in the EU.

Among other restrictions, the EU also limits the ability of foreign companies to market related services or activities of the same type having been originally solicited by a client, unless they are offered in the context of the original transaction.

IN-BRIEF:

THE REGULATION OF DEFI

The term Decentralised Finance (DeFi) describes services in cryptoasset markets that aim to replicate some functions of the traditional financial system, while disintermediating their provision and decentralising their governance (Rossi, 2023; FSB, 2023d; ACPR 2023). This is achieved by employing public, decentralised blockchains and smart contracts that are composable, interoperable, and open source (Schuler, et al., 2023). The absence of a custodian (i.e. investors who hold the cryptoassets themselves) is another feature of DeFi.

The DeFi ecosystem is small, but has the potential to grow rapidly. The origins of DeFi can be traced back to 2017 – the first significant service being MakerDAO, which combined stablecoin, decentralised governance and lending protocols. Bancor, Uniswap v1 and others gradually followed. DeFi gained momentum in 2020, in a period that became known as the "summer of DeFi" (Ferreira, 2024). DeFi use cases remain limited to a few activities, particularly speculative activities, with little connection to the real economy. Lending, decentralised exchanges and, to a lesser extent, asset management services are prevalent (Bank of England, 2022). The Total Value Locked47 (TVL), a proxy of the size of the ecosystem, reached $178 billion at the end of 2021. In August 2024 it stood at $81 billion (DefiLlama, 2024).

The benefits and risks of DeFi are closely associated with those of decentralisation. DeFi services have the potential to improve security and resilience, foster financial inclusion and competition and provide more transparent, fairer infrastructure than centralised systems. At the same time, DeFi faces scalability problems and cybersecurity vulnerabilities and can amplify volatility and financial shocks (e.g. through liquidation triggers). Permissionless access and pseudonymity increase AML / CFT risk.

These risks are compounded by the challenge of regulating and overseeing DeFi. While DeFi performs mostly equivalent economic functions to centralised finance, the use of decentralised technology and automated protocols means there may not be an entity that can be held accountable and subject to regulation. Furthermore, unlike legal contracts, smart contracts used to facilitate DeFi transactions may not be legally enforceable (HKIMFR, 2024).

[47] TVL represents the amount of cryptoassets deposited in DeFi protocols.

Regulators have been discussing options to address these challenges. The first is to challenge the claim to decentralisation of DeFi protocols or seek to re-centralise DeFi. This requires distinguishing between the neutral infrastructure and DLT services that are de facto centralised and/or custodial and can therefore be regulated in a traditional way (Sirio, et al., 2021; Anker-Sørensen & Dirk, 2021). The latter can also be described as on-chain centralised infrastructure (Schuler, et al., 2023), or "decentralised-in-name-only" (FATF, 2024a). How to measure (de)centralisation remains a subject of discussion among regulators, industry participants and academics (see text box: The Cambridge DeFi Navigator).

The Cambridge DeFi Navigator

The Cambridge DeFi Navigator aims to demystify DeFi for industry participants, regulators and the public by providing a comprehensive DeFi taxonomy following traditional finance ISO standards, granular data sets from DeFi data providers and intuitive, interactive visualisations (CCAF, upcoming).

CCAF has developed an Ethereum protocol ecosystem map outlining the top 200 protocols by TVL and their respective activities. These protocols currently account for around 98% of the total TVL on Ethereum. A Gini Coefficient metric is provided to gauge how evenly distributed tokens are within protocols. It shows that almost every protocol in the Defi ecosystem today exhibits an extremely uneven distribution of tokens amongst holders, putting control of the network in the hands of a few large participants.

The tool also includes a custody spectrum to classify protocols, shedding light on the variety of custodial arrangements that exists with thin the DeFi space. This goes against widely held assumptions that non-custodial arrangements are pervasive in the DeFi space.

Where there is effective decentralisation and automation of on-chain protocols and contracts, regulators can target the interfaces and gateways into DeFi, particularly the user-facing off-chain applications and oracles in upper layers

of the DeFi stack[48] (Roukny, 2022; Rettig, et al.,2024). One variation of this approach is captured by the mantra 'regulate Web3 Apps, not the protocols' (Jennings, 2023), which borrows from the language and experience of the internet, including with email: providers of email services are regulated, but the Simple Mail Transfer Protocol (SMTP) communication protocol that underpins it is not.

By imposing requirements on interfaces, regulators effectively control the access points, and indirectly prescribe some of the features of the underlying infrastructure and restrict the access to it to non-expert users, who may lack the necessary understanding to interact directly with smart contracts. Finally, there are potentially novel forms of supervision, which take advantage of the features of DeFi and the underlying DLT. A case in point is embedded supervision, which refers to a framework that enables compliance to be automatically monitored by reading the market's ledger. Embedded supervision has the potential to improve supervisory outcomes and reduce the burden on firms to collect, verify and deliver data (Auer, 2019).

In parallel with discussions on regulating DeFi activities, policymakers in some jurisdictions have been working on frameworks to give a legal personality to Decentralised Autonomous Organisations (DAOs), which can then be subject to requirements. DAOs are a new kind of internet-based collaborative organisation that coordinate people and resources using rules expressed in computer code.

STANDARDS AND REGULATORY INITIATIVES

Global standard-setting bodies have been increasingly active in this space, with the publication of studies and analyses, along with recommendations on the regulation of DeFi.

The FATF was the front-runner. Already in 2021, FATF clarified how the AML/CFT guidance applies to peer-to-peer networks, including DeFi projects (FATF, 2021). In 2023, both IOSCO and the FSB have also issued reports on DeFi (IOSCO, 2023; FSB, 2024). Despite their different focus, these global bodies have converged on the recommendation to identify DeFi entry points for regulation, assess risks and step-up cooperation at international level.

Regulatory initiatives at jurisdictional level with a focus on DeFi remain embryonic. The preliminary results from the ongoing development of the CCAF's GRID tool suggest that most regulatory initiatives to date are concentrated in jurisdictions that are relatively advanced in the implementation of regulatory frameworks for centralised cryptoasset services (CCAF, 2024c). They have typically taken the form of studies or analytical papers and risk assessments and, to a lesser extent, enforcement actions. Only in a few cases have regulators issued bespoke rules or provided guidance on the requirements applicable to DeFi protocols, particularly to DAOs decentralised exchanges or introduced sandboxes.

Some AEs are stepping up efforts to identify actors and operators that exert sufficient control over self-identified DeFi protocols. According to a survey by the FATF, nine out of 39 AEs have identified DeFi entities that qualify as CASPs[49] (FATF, 2024a). In two of those jurisdictions, authorities have registered or licensed entities as service providers and in another five they have taken supervisory or enforcement action against DeFi entities. The same FATF survey has revealed that a few jurisdictions have started exploring novel forms of supervision to address risks in Defi, including those related to money laundering.

Below the initiatives in a select group of jurisdictions are decribed.

The EU has decided to leave cryptoasset services provided in a "fully decentralised manner" outside of the scope of the MiCA regulation. The regulation does not elaborate on the concept, leaving it to the interpretation of national supervisors. The Danish Financial Services Authority has moved ahead of others in providing guidance on the matter, proposing a two-fold assessment which looks at both technical decentralisation and decentralised governance (DFSA, 2024). In addition, MiCA requires the European Commission to report on developments in cryptoasset markets, including DeFi, by the end of 2024. The report may include recommendations on regulatory reform. To prepare for this, the Commission has requested two studies on information asymmetries in DeFi (Roukny, 2022) and embedded supervision (European Commission, 2022). At national level, the French Autorité de Contrôle Prudentiel et de Résolution (ACPR) has conducted a consultation on the subject and discussed possible solutions for the sector, including certification and voluntary registration of protocols (ACPR, 2023).

[48] DeFi uses a multi-layered architecture. The layers build on each other and form a stack. While there are different representations of the DeFi stack, it is common to represent five layers: settlement, asset, protocol, application and aggregation. For more details, see Schär, (2021).

[49] 'VASPs', in the original.

In 2023 the UAE-ADGM adopted the DLT Foundations Regulations (ADGM, 2023), a regulatory framework for the creation and operation of specialised foundations for DLT and DAOs. It is an attempt to bring DAOs within the regulatory perimeter (i.e. re-centralisation) allowing the regulator to impose requirements on them. Under the rules, founders of DLT Foundations are required to submit a charter to a designated registrar and are subject to governance and reporting obligations.

The UK Government has ruled out introducing specific regulation for DeFi at this stage, noting this would be premature and ineffective (UK Treasury, 2023a). Instead, it committed to engage in international discussions on an appropriate framework. The UK Law Commission is considering issues related to DAOs, including how they can be characterised, to inform future law innovations (Law Commission, 2024)

Several US authorities have taken enforcement measures against certain DeFi services, identifying entities or individuals responsible for their operation. Arguably, the most high-profile case was a sanction imposed by the US Treasury Office of Foreign Assets Control on Tornado Cash over AML/CFT issues (US Treasury, 2022). The CFTC took enforcement against the founders of bZeroX, a protocol that offers commodity transactions (CFTC, 2022). Recently, the SEC has consulted on a proposal to expand the concept of exchanges subject to securities laws to explicitly include DeFi systems (SEC, 2023). The SEC is leading IOSCO's workstream on DeFi products and services, which may issue global standards and recommendations in this area.

Consistent with its approach for cryptoassets, Swiss regulators have communicated the intention to apply the principles of "substance over form" and "same risks, same rules" to DeFi (FINMA 2022a).

PART III

STRATEGIES TO ACHIEVE OTHER POLICY OBJECTIVES

Chapter 6

ANTI-MONEY LAUNDERING AND COMBATING THE FINANCING OF TERRORISM

The growth of cryptoassets markets has prompted a reassessment across many jurisdictions of the prevailing Anti-Money Laundering (AML) and Combating the Financing of Terrorism (CFT) regulatory frameworks. These frameworks, initially tailored for traditional banking systems, now also seek to grapple with the multifaceted challenges introduced by innovative features of cryptoassets and DLT.

This chapter discusses the issues that authorities are considering for adapting AML/CFT regulatory frameworks to the distinct attributes of cryptoassets, emphasising the assessment of regulatory effectiveness and pinpointing prevalent gaps. For many jurisdictions, adapting existing AML/CFT regulatory for cryptoassets was the first step to bring them within the regulatory perimeter. The stimulus for such action has been the recommendations of the FATF.

In the second part, there is a comparison of regulatory frameworks across a subset of jurisdictions. It concludes that despite significant progress in adoption of rules, a substantial challenge remains in the lack of uniformity, enforcement capacity and the continuous adaption to technological and market developments.

Context

AML/CFT RISKS

Cryptoassets present new risks to AML/CFT that are complex and multidimensional. Illicit addresses sent $22.2bn worth of cryptoassets in 2023, down from $31.5bn in 2022 (Chainalysis, 2024b).

There are AML/CFT risks that relate to privacy or anonymity. Cryptoassets have the potential offer a greater level of privacy and/or even anonymity than other financial assets. This poses significant challenges in tracing illicit financial flows and identifying the parties involved in transactions. The decentralised nature of cryptoassets enables peer-to-peer exchanges, bypassing regulated financial institutions that traditionally implement AML/CFT measures. In the absence of intermediaries, it is challenging for regulators to enforce against breaches of rules.

This problem is compounded by the pseudonymity that characterises exchanges on public blockchains. Whilst transactions are recorded and visible on blockchains for everyone to see and it is possible to link all the transactions by an individual, the real identity of the individual is often unknown. The ability to obscure the identities of the parties involved in transactions, conflicts with the application of Know Your Customer (KYC) and Customer Identification Procedures (CIP), which are critical to oversight and enforcement efforts for AML/CFT. The problems created by identity obfuscation are compounded by using mixers, tumblers and privacy wallets which mix up transactions, further hindering traceability (FATF, 2021).

There are also AML/CFT risks linked to the digital nature of cryptoassets, which allow for quick and seamless transactions that happen across borders and challenge national regulatory oversight. This lack of oversight by can be compounded by inconsistencies of regulatory frameworks, both within and between jurisdictions, along with lack of cooperation and information-sharing arrangements between regulatory authorities.

In addition to the above challenges, the pace at which digital asset technologies develop often exceeds that of regulatory responses, creating gaps that may be exploited by malicious actors.

GLOBAL STANDARDS FOR AML/CFT

Mitigating the risk that cryptoassets are used in illicit activities has been the priority for regulators. In most jurisdictions, AML/CFT rules were introduced before any comprehensive licensing and regulatory frameworks for cryptoassets. Such AML/CFT frameworks provided a basis for more comprehensive regulations.

Regulators have been developing and refining their approaches to ensure that AML/CFT measures effectively

address the risks posed by crypto assets. This includes efforts to standardise regulatory practices to prevent the exploitation of jurisdictional discrepancies that could facilitate financial crimes (Packin & Volovelsky, 2023).

FATF has played an instrumental role in shaping regulatory frameworks around the world, thereby influencing the compliance strategies that service providers must adopt. In 2015, FATF issued guidance for a risk-based approach to "virtual currencies", which underscored the necessity for international cooperation to effectively manage cryptoassets in implementing FATF recommendations (FATF, 2015). The guidance has been repeatedly updated and expanded over the past nine years (FATF, 2023).

In 2019, FATF issued an interpretative note of Recommendation 15 to clarify how the requirements should apply in relation to "Virtual Assets and Service Providers", known as VASPs[50] (FATF, 2019b). Recommendation 15 emphasises the need for robust customer due diligence, effective transaction monitoring, diligent record-keeping, and stringent reporting obligations within the cryptoasset sector. These requirements were further enhanced by guidance issued in 2021. The guidance expanded the scope of guidelines directed at CASPs (FATF, 2021). It provides examples of risk indicators that should specifically be considered in a cryptoasset context, with an emphasis on factors that would further obfuscate transactions or inhibit the ability of CASPs to identify their customers.

The travel rule, which is formalised under Recommendation 16 of the FATF, mandates that service providers and financial institutions involved in cryptoasset transfers must collect and share specific personal information about the originators and beneficiaries of transactions. This information includes the names, account numbers, and addresses of both parties (FATF, 2022). The aim is to ensure that personal data "travels" with each transaction, enhancing transparency and enabling the tracking of potentially illicit activities. The rule applies to cryptoasset transfers exceeding a threshold of USD/EUR 1,000, but even smaller transactions require basic information collection.

SUPERVISORY TOOLS

Financial authorities aiming to implement effective AML/CFT policies for cryptoassets must continuously adapt supervision arrangements to keep pace with technological advancements. The integration of advanced technologies, such as blockchain analytics, is markedly transforming the landscape of financial regulation. Blockchain analytics provide regulators and CASPs with tools to monitor and analyse cryptoasset transactions in real time, significantly enhancing their ability to detect and prevent illicit activities (Dillenberger, et al., 2019).

Blockchain analytics tools are essential for deciphering the complex, pseudonymous nature of crypto transactions. The FATF recognises the increasing role of such technologies in the regulatory landscape and encourages their adoption for enhanced supervision and enforcement (FATF, 2023; FATF, 2024a).

Blockchain analytics tools enable the continuous monitoring of transactions, helping to ensure compliance with AML/CFT regulations. These tools allow CASPs and regulatory authorities to:

- identify and analyse transaction patterns that may indicate suspicious activity;
- conduct real-time monitoring of cryptoasset transactions to detect potential ML/TF risks; and
- facilitate compliance with the Travel Rule by enabling the secure exchange of required information between CASPs (Coelho et al., 2021).

The Bank for International Settlements (BIS) also emphasises the importance of integrating these technologies into regulatory frameworks, noting that they provide critical capabilities for managing the financial stability risks associated with crypto assets (Coelho et al., 2021).

[50] As discussed in Chapter 1, FATF uses the term virtual asset, instead of crypto asset. Conversely, it uses the term virtual asset service provider, instead of crypto asset service provider, as has been done in this report.

Comparative analysis

This section characterises AML/CFT regulatory frameworks for cryptoassets in a subset of jurisdictions, namely Australia, Brazil, the EU, Hong Kong, Indonesia, Japan, Nigeria, the Philippines, South Africa, the UK and the US. There are two main dimensions considered: the enactment of legislation requiring CASPs to be registered or licensed and apply AML/CFT measures; and the enactment of the travel rule. The table below summarises the information.

Table 6.1: Implementation of FATF recommendations

	Adopted registration or licensing regime	Registered or licensed CASP in practice	Implemented the travel rule
Australia	Yes	Yes	No
Brazil	Yes	No	In progress
EU	Yes	Yes	Yes
Hong Kong	Yes	Yes	Yes
Indonesia	Yes	Yes	Yes
Japan	Yes	Yes	Yes
Nigeria	Yes	In progress	Yes
Philippines	Yes	Yes	Yes
South Africa	Yes	Yes	No
UK	Yes	Yes	Yes
US	Yes	Yes	Yes

Source: FATF, 2024a.

AML REGISTRATION OR LICENSE AND RELATED REQUIREMENTS

All jurisdictions analysed in this chapter have introduced legislation or regulation requiring CASPs to register or obtain a license to operate and to comply with AML/CFT measures, but there are important differences and nuances in the strategies and approaches adopted and the exact requirements imposed.

In Australia, CASPs deemed to offer financial serves are subject to authorisation requirements and must comply with financial advice and conflicted remuneration provisions under the Corporations Act.

Brazil has yet to finalise specific regulations for CASPs. This leaves the market vulnerable to money laundering and financial crimes due to inadequate oversight.

Canada's approach to regulating virtual assets includes amendments to its AML/CFT legislation to cover entities engaged in commercial activities with "virtual currencies", treating them as money service businesses (MSBs). This classification requires businesses to register with the FINTRAC, implement compliance programmes, verify the identity of their customers, and report suspicious transactions. This regulatory framework aims to mitigate the risks associated with cryptoassets while supporting innovation in the sector. The reasoning was that "virtual currency ATMs" are increasingly utilised to launder money derived from a variety of criminal activities, including fraud, human trafficking, and cybercrimes (FINTRAC, 2024). The ease and pseudo-anonymity provided by these machines allow for the rapid transfer of funds across borders, complicating the efforts of regulatory bodies to trace and intercept illicit financial flows. This challenge is exacerbated by the high concentration of these ATMs in major Canadian urban centres, where they are frequently exploited for the placement and layering stages of money laundering (FINTRAC, 2024).

In the EU, the 5th Anti-Money Laundering Directive (AMLD5) lays down foundational regulations requiring all CASPs to register and adhere to stringent AML/CFT requirements (EU, 2015, consolidated 2021). MiCA will replace the current AML registration with a licensing framework by the end of 2024. AML/CFT requirements will be gradually tightened over the next few years through different pieces of regulation. The European Banking Authority (EBA) has issued guidelines that address the use of advanced analytics tools in the AML/CFT (EBA, 2024).

Japan announced in 2023 its plans to reinforce AML/CFT rules. Under the Payments Services Act, cryptoasset trading platforms are required to register with the Financial Services Agency (FSA) and follow traditional AML/CFT responsibilities, including robust KYC processes and the maintenance of comprehensive transaction records. Furthermore, the Act on Prevention of Transfer of Criminal Proceeds requires CASPs to implement enhanced due diligence, particularly when higher risks are identified, and to report suspicious transactions promptly to the authorities.

Hong Kong's Anti-Money Laundering and Counter-Terrorist Financing Ordinance (AMLO) requires all trading platforms to obtain a license to operate or market to the Hong Kong public. The regulation requires KYC procedures and continuous monitoring of transactions to identify and mitigate potential risks. Moreover, newly established guidelines stipulate internal controls and corporate governance, ensuring that CASPs operate with integrity and transparency (SFC, 2023b; Hawkins & Fong, 2023).

Following a sectoral ML/TF risk assessment conducted in 2019, Indonesia introduced regulations that included licensing requirements for cryptoasset physical merchants and mandated adherence to AML/CFT program requirements (e.g. transaction monitoring and enhanced due diligence for high-risk customers).

Despite having mechanisms such as the Money Laundering (Prevention and Prohibition) Act (MLPPA), which mandates enhanced measures for managing and mitigating higher risks identified in the financial sector, Nigeria struggles with the practical implementation of these regulations. The country has identified CASPs as high risk, but is still developing guidelines on detecting and reporting suspicious transactions. Furthermore, Nigeria has shown limited progress in proactively identifying unregistered entities engaging in CASP activities, and the application of appropriate sanctions has been inconsistent.

The Philippines mandates AML/CFT measures, including stringent customer due diligence and transaction monitoring, utilising blockchain analytics to bolster the monitoring and reporting of suspicious transactions. Despite these measures, the country is included in the jurisdictions under Increased Monitoring by FATF in 2024, which suggests there could be failures in the effective implementation of the rules.

South Africa has recently categorised crypto assets as financial products, subjecting service providers to rigorous AML/CFT obligations under the Financial Advisory and Intermediary Services Act

The UK has in place an AML registration regime for CASPs. In January 2020, the UK Treasury established a temporary registration regime for crypto-asset firms. After a few delays, the registration deadline was set for March 2022, but some companies were given more time to register (FCA, 2020). The registration regime is expected be replaced by a more comprehensive regulatory and licensing framework, which the government is consulting on. Under the Bank Secrecy Act (BSA), CASPs in the US are subject to KYC and Enhanced Due Diligence (EDD) protocols.

TRAVEL RULE

The implementation of the FATF Travel Rule is advancing at different rates across jurisdictions.

Australia is progressing with reforms that will extend the Travel Rule to CASPs and remittance service providers (Herbert Smith Freehills, 2024).

Brazil is currently in the process of implementing the Travel Rule. Indonesia, despite having the rules in place, has not fully enforced the Travel Rule.

All other jurisdictions under analysis, including Canada, Japan, Singapore, Hong Kong, the UK and the US, have implemented the Travel Rule, albeit with some differences. For example, Japan has set a $3,000 threshold for cryptocurrency transactions under the Travel Rule, while Singapore uses a threshold of SGD 1,500. The EU mandates compliance from zero in specific cases, reflecting stringent regulatory standards (FATF, 2024a).

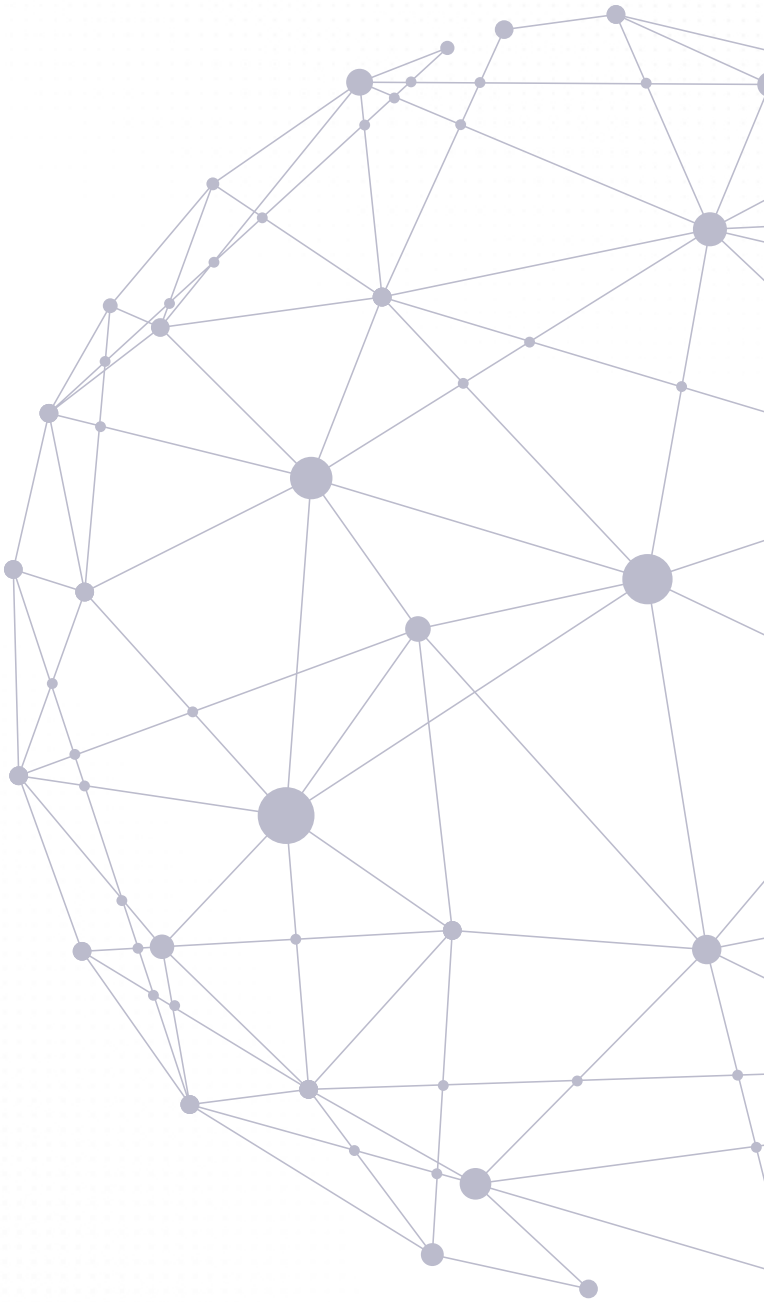
Even when the Travel Rule is implemented, enforcement remains inconsistent. The FATF reports that less than a third of jurisdictions with the Travel Rule in place have taken supervisory actions against non-compliant VASPs (FATF, 2024a). This highlights the global challenges in achieving uniform compliance, especially in allowing for technological and jurisdictional complexities. Meanwhile, industry increasingly calls for technological solutions to aid compliance with the Travel Rule, addressing issues of interoperability and data security (FATF, 2023). These solutions are important to ensure that CASPs can efficiently and securely transmit required information about transaction originators and beneficiaries, enhancing global financial transparency and security.

There is some evidence that jurisdictions are incorporating advanced technological tools, such as blockchain analytics, into their regulatory frameworks. This illustrates the need for continuous adaption of regulatory frameworks in the face of technological innovation and market developments.

The enforcement of the FATF Travel Rule serves as an example of the challenges in achieving regulatory alignment across borders. While some jurisdictions have adopted and enforced these regulations robustly, some others lag, either due to technological constraints or regulatory inertia. This inconsistency threatens to hinder effective international cooperation, thus undermining cooperative efforts to secure the global financial system.

Conclusion

The comparative analysis shows that regulators have made addressing AML/CFT risks in cryptoassets a priority. All the jurisdictions under analysis have introduced (as a minimum) a registration framework covering a spectrum of cryptoasset activities. Lower-middle and upper-middle income economies like Brazil and Nigeria, although making strides toward regulatory structures, still grapple with the formulation of specific rules and the implementation of existing FATF guidelines.



Chapter 7

CONSUMER WARNINGS, FINANCIAL PROMOTIONS, RESTRICTIONS ON RETAIL ACCESS

Following concerns over the use of crypto in AML/CFT, mitigating consumer risks has become a major objective of regulators. This chapter discusses measures introduced to protect consumers or retail investors.

The chapter first sets out the specific risks that cryptoassets pose to retail investors and reviews the recommendations from global institutions, particularly IOSCO. There follows a comparison of the bespoke regulatory initiatives to protect cryptoasset retail investors across a subset of jurisdictions. The chapter identifies convergent and divergent practices in four areas: consumer warnings, financial education, financial promotions and retail access restrictions. The comparative analysis is complemented by two case studies.

We conclude that while being a priority for regulators, this is one area of policy where practices differ the most among the nineteen selected jurisdictions. This is consistent with observations in traditional finance and reflects different policy preferences.

Context

CRYPTO RISKS TO RETAIL INVESTORS

Financial consumer protection refers to the laws, regulations, and other measures generally designed to ensure the fair and responsible treatment of financial consumers in their purchase and use of financial products and services, and their dealings with financial services providers (OECD, 2022b).

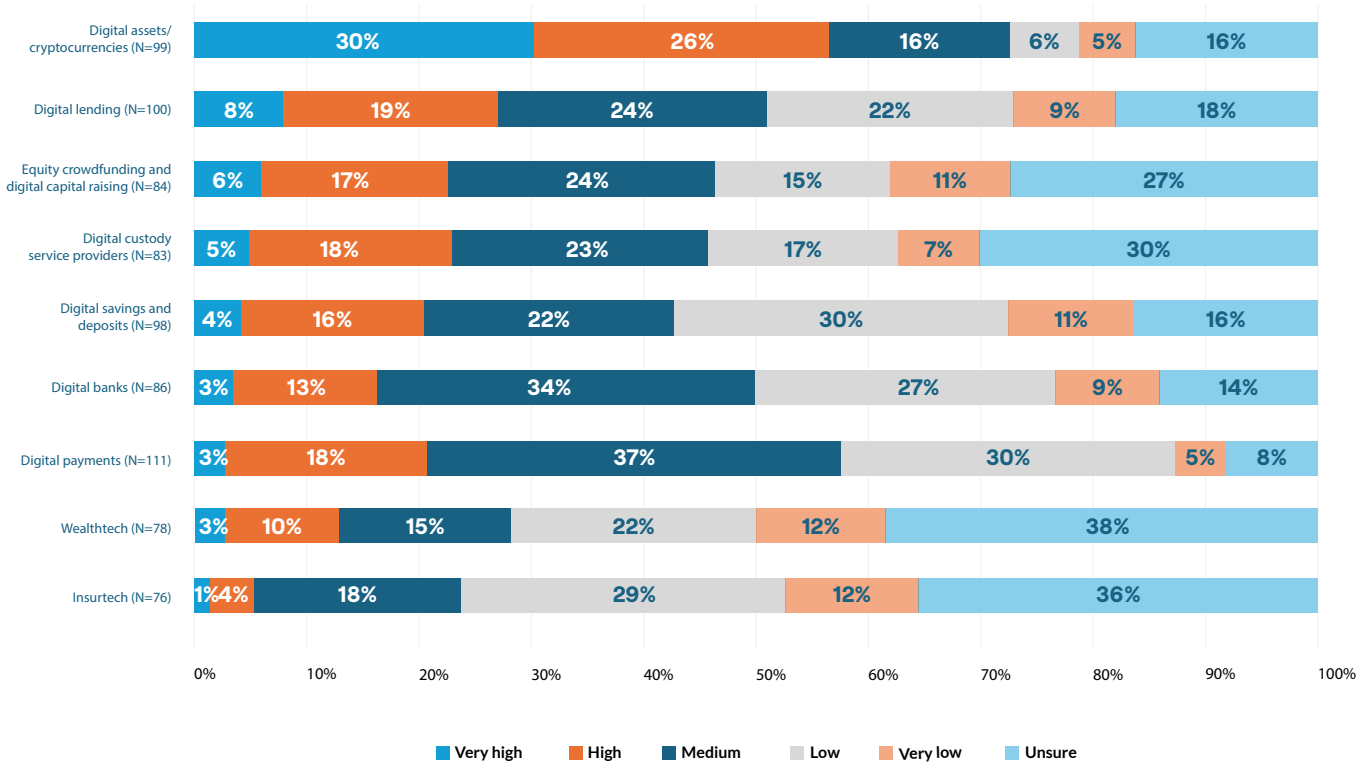
Effective financial consumer protection regimes are intended to ensure that users of financial products and services can make well-informed decisions. It also supports financial authorities' wider aims of increasing financial stability, financial integrity, and financial inclusion (World Bank, 2021).

Risks to retail investors can change and, in some instances, increase with digitalisation and financial innovation. This can be attributed to several factors: data gaps that prevent proper assessment and monitoring on the part of regulators; new business models, services, and products that are difficult for consumers to accurately assess; unclear regulatory remits that increase the risk of fraud and create issues related to product unsuitability; and activities outside the perimeter which remain unregulated (CCAF and World Bank, 2022). Risks related to fintech in terms of consumer and investor protection have been identified into four broad risk types: fraud, data misuse, lack of transparency, and inadequate redress mechanisms (CGAP, 2022).

Cryptoasset related activities stand out for the risks they pose. Despite going mainstream, investors may buy cryptoassets without fully understanding the risks involved. Cryptoassets are highly volatile, and retail investors can be misled into speculative gains (EBA, 2018). Retail investors are an especially vulnerable group that face the majority of information asymmetry (Denk, 2024). Sophisticated criminals target less educated, poor, and elderly populations through promises or guarantees of high returns. Cryptoasset adverts targeting the youth, particularly on social media, have been found to exploit sentiments such as fear of missing out, and prompting behaviour like those of people engaged in gambling (Brix-Newbury & Kerse, 2023). Risks are aggravated by the absence of intermediaries or adequate governance, and the absence of recourse for losses (IMF, 2023b).

The heightened perception of risk is widely shared among regulators. In a global survey of financial authorities in 2022, 57% of respondents considered that consumer risk is high or very high in the field of cryptoassets, double that recorded for any other fintech vertical (CCAF and World Bank, 2022). Therefore, regulators have sought to ensure that cryptoasset regulation can ensure relative safety of individuals who use their services, creating additional regulatory frameworks to protect them.

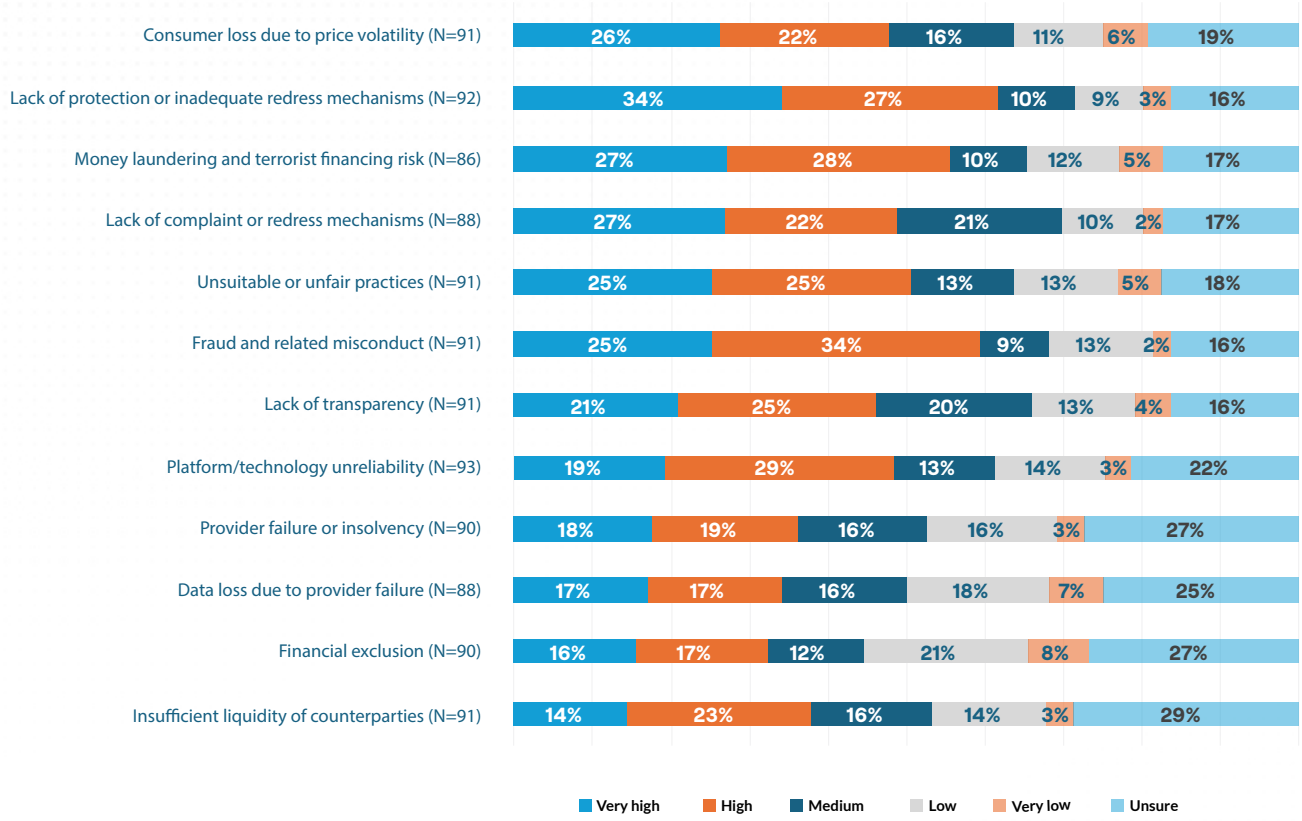
Figure 7.1: Perceptions of Consumer risk level by fintech vertical, 2022.



Source: CCAF and World Bank, 2022.

In the same survey, regulators considered that the risk of consumer losses due to price volatility was the major source of consumer risk from cryptoassets, as shown in Figure 7.2.

Figure 7.2: Perceived severity of consumer risk in digital assets/ cryptocurrencies, 2022.



Source: CCAF and World Bank, 2022.

Alongside concerns about the use of cryptoassets in AML/CFT (see the previous chapter), the perception of heightened consumer and retail investor risk has been one of the major drivers of regulatory action in this space. CGAP, a network of development organisations, argued that consumer risks are so high in EMDEs that it is "no longer an option" for financial authorities to maintain a "wait and see" approach to regulating crypto markets (Brix-Newbury & Kerse, 2023).

CONSUMER PROTECTION MEASURES

To ensure retail investors are protected from harm, regulators can choose between several initiatives and measures. Public warnings are often the first type of response (BIS, 2023)[51]. Warnings can focus on specific types of cryptoassets (e.g. NFTs), explain their features or alert investors to the risks. Other possible measures include rules on disclosures related to the assets and services provided and redress mechanisms (see chapters 3 and 5), rules on advertising and restrictions on retail access.

The IMF has recommended that in addition to ad-hoc warnings, regulators should clearly and continuously communicate their approach to cryptoassets, and highlight the main risks and challenges (IMF, 2023c). Communications, including the lists of non-authorised exchanges, should be done through online media outlets to reach users most likely to engage with cryptoassets (IMF, 2024b).

IOSCO recommended that promotions of cryptoassets should be appropriate to retail investors, i.e. they must be accurate and not misleading and designed to promote a clear understanding by retail clients of the relevant risks around the cryptoasset or service they are buying (IOSCO, 2023). Rules on promotions must apply irrespective of the channel used (i.e. traditional, online or social media) and the digital engagement practice (e.g. gamification, digital nudging).

[51] This is despite evidence that disclosures may not always be effective and, in a few instances, may be detrimental to consumers (ASIC, AMF, 2019).

Furthermore, IOSCO recommended that CASPs have appropriate onboarding policies, which should involve suitability or appropriateness assessments of clients or potential clients[52]. These assessments should not mislead clients into believing that they understand the operations of cryptoasset markets and are immune to the risks in cryptoassets.

FINANCIAL EDUCATION

Protection measures for consumers and retail investors can be supported by financial education initiatives (World Bank, 2021). Financial education may help consumers and retail investors understand financial services and products, and make informed decisions (World Bank, 2023). Regulators surveyed in the 3rd World Bank-CCAF report identified consumer education as the most prevalent response to fintech-related consumer risks (CCAF and World Bank, 2022).

Financial education is arguably more important in cryptoassets given its potential to broaden access to financial services, but also enhance understanding of the increased risks associated with it.

The design of effective crypto education campaigns has been a subject of significant debate. In 2020, IOSCO issued a report outlining best practices for educating retail investors about the risks arising from cryptoassets (IOSCO, 2020). The report covered four main areas. First, the development of educational content. Recommendations included that materials which may contain warnings should be easily understandable and may use real life use-cases and testimonials. Second, informing the public about unlicensed and fraudulent firms, which can take the form of blacklists. Third, using a variety of communication channels, including social media. Fourth, forging partnerships to develop and disseminate education materials.

Comparative analysis

This section analyses the measures and initiatives taken in a subset of seven of the selected jurisdictions: EU, Hong Kong, Nigeria, Philippines, Singapore, South Africa and the UK, with an emphasis on their efforts to protect retail investors.

These jurisdictions have been compared across four areas: the use of consumer warnings; financial education; rules on advertising or financial promotions; and restrictions on the provision of services to retail investors, including appropriateness or suitability requirements.

CONSUMER WARNINGS

Financial authorities in all the selected jurisdictions have issued warnings to consumers about the risks in cryptoasset investments, including the risk of fraud and losses arising from the fall in value of investments.

In many cases, the warnings preceded regulation, but there are also instances where they were issued alongside the introduction of regulation. For instance, the Philippines published a warning in 2014, years before introducing regulation. The EU warned consumers in 2018, 2019, 2021 and again in 2023, at the time when the EU cryptoasset regulation was being implemented.

In at least two cases, financial authorities advised consumers to check whether the CASPs they are interacting with are authorised in the jurisdiction. The regulator in Hong Kong advised investors to check against list of suspicious CASPs (see case study: "Hong Kong – Retail restrictions"). In a few cases, such as Nigeria and the Philippines, financial authorities have referred to some CASPs by name (e.g. Binance).

FINANCIAL EDUCATION

Alongside the warnings, authorities in all the selected jurisdictions have taken initiatives to promote financial literacy. Some initiatives are part of broader financial literacy campaigns, others are focused on cryptoassets. For instance, Hong Kong, which has a specific body in charge of financial education or literacy, has a dedicated page on cryptoassets. In the EU, initiatives are part of a broader programmes on financial literacy.

Cryptoasset education initiatives can take different forms. In the Philippines, the regulator has published a Q&A on cryptoassets (Central Bank of Philippines, n.d.). Hong Kong makes use of testimonials (IFEC, 2024). In South Africa, financial authorities have stepped their interventions following the designation of cryptoassets as financial assets in 2022 (FSCA, 2022a). South Africa has a long

[52] The purpose of appropriateness and suitability tests is to assess the investor's knowledge and experience, its financial position and objectives before selling products or services or making a recommendation about them.

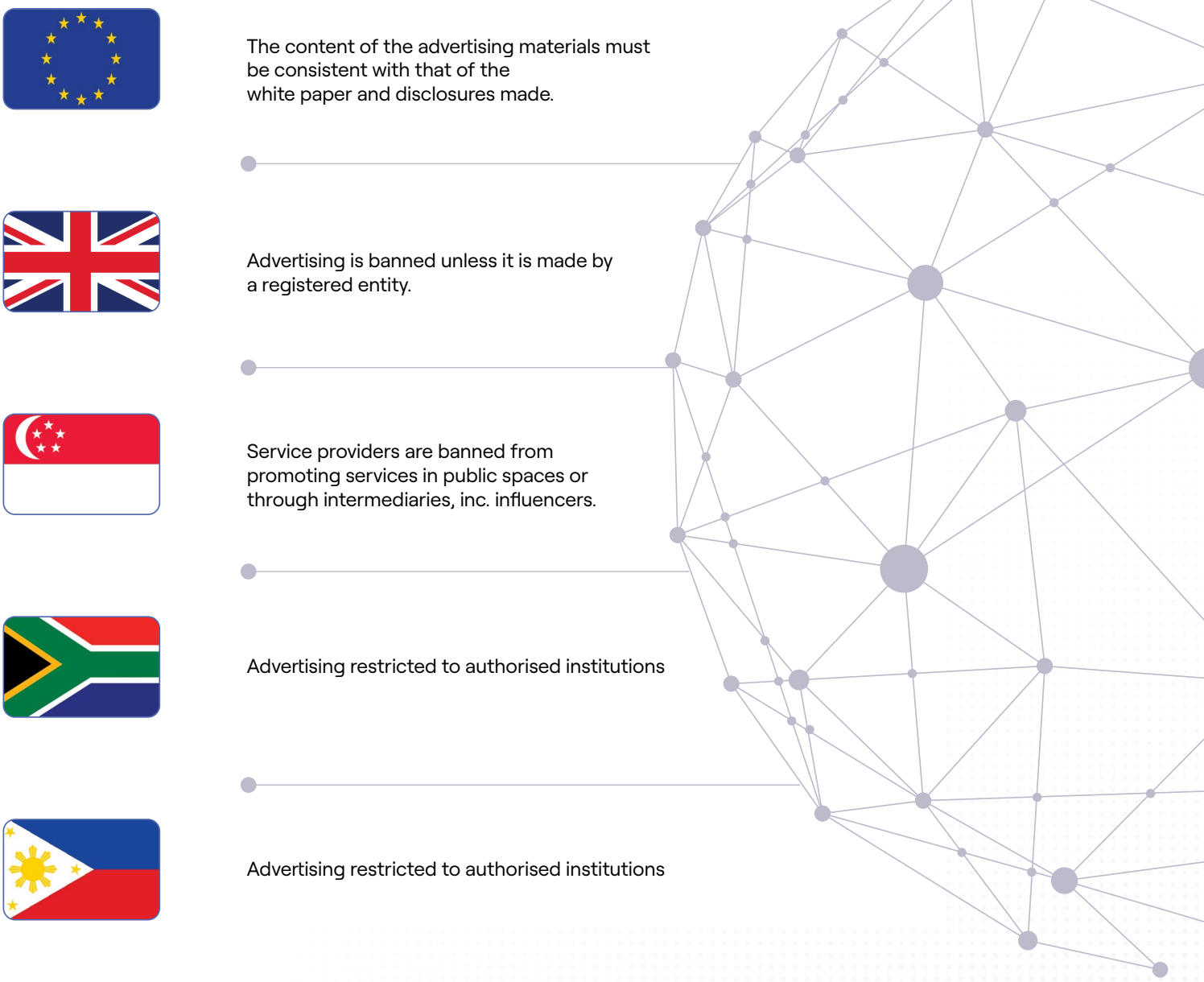
tradition of relying on the private sector to deliver financial literacy campaigns (Sibanda & Sibanda, 2016).

ADVERTISING RESTRICTIONS

In all the seven jurisdictions, there are provisions requiring that advertising materials on cryptoassets and related services are not misleading. In the EU, the content of the advertising materials must be consistent with that of the cryptoasset white paper and disclosures. It is worth noting that these provisions apply at EU level, and Member States are permitted to have more restrictive policies in place. A case in point is Spain where CASPs are required to notify the supervisor before launching mass advertising campaigns (CNMV, 2022).

Three jurisdictions, namely the Philippines, South Africa and the UK, have banned advertising unless it is made by a registered or authorised entity or approved by an authorised entity (see case study: UK – Financial Promotions Regime). Singapore stands out as the jurisdiction with the most restrictive advertising regime. It has banned CASPs from promoting their services in public spaces or through intermediaries, including social media influencers. Marketing is now limited to providers' official corporate websites and mobile applications.

Figure 7.3. Examples of advertising restrictions in selected juristictions



RESTRICTIONS ON THE PROVISION OF SERVICES TO RETAIL INVESTORS

The requirement on service providers to determine what products and services are suitable or appropriate for their clients, given their knowledge or financial circumstances, varies significantly. Not only are there differences between jurisdictions, but the exact requirements depend on the service and product in question. For example, in the EU a suitability assessment is required of companies offering advisory services and portfolio management of cryptoassets, but not on trading venues and broker-dealers. The UK has signalled the intention to differentiate between clients when introducing appropriateness test requirements but has yet to flesh out the rules. Singapore has introduced restrictions on offering incentives for clients to trade. In contrast, Hong Kong stands out as a jurisdiction that imposes strict requirements around the provision of services to retail investors. These requirements were introduced as part of a reform of the regulatory framework and replace a previous ban on retail access to crypto services (see case study: "Hong Kong – Retail Restrictions").

Conclusion

The widespread perception of heightened consumer risk in cryptoassets has been a major driver of regulatory action, both in AEs and EMDEs. However, this is also one area of divergence in regulatory practices.

Cryptoassets pose a range of risks to retail investors and can materialise in financial losses through uninformed investment or even fraud. Most regulators have taken a combination of measures to mitigate them. Consumer warnings and financial education initiatives are widely used. One of the advantages of warnings is that they can be issued even before the introduction of any regulatory framework. Rules on promotions and advertising are also common. In some jurisdictions, advertising is outlawed unless it is conducted by an authorised institution. In others, there are more significant restrictions on the contents and channels that can be used.

The most restrictive measure to protect retail investors is arguably of introduction of appropriateness or suitability assessment requirements on service providers. This is also the one area where this study finds more variation in regulatory practices.

Case studies

The case studies below illustrate the application of different measures to protect retail investors in two jurisdictions. The first focuses on the introduction of a promotions' regime for cryptoassets in the UK. The second describes how Hong Kong authorities combined different measures to achieve the objective of mitigating the risks to retail investors, after lifting a ban.

Case Study 7.1: The UK financial promotions regime

A financial promotion is an inducement or invitation to engage in an investment activity. In the UK, it is a criminal offence to communicate a financial promotion that is capable of having effect in the UK unless made by a registered or authorised firm. The financial promotions regime is intended to ensure advertising is fair, transparent and non-misleading, thus mitigating the risk of harm when consumers invest in financial assets.

Cryptoassets were brought within the scope of the financial promotions' regime from 8 October 2023 (HM Treasury, 2023a). Implementation details were specified in a policy statement (FCA, 2023).

The regime covers all promotions that can have an effect in the UK, including adverts that target UK investors from abroad. Promotions to investment professionals and high-net worth entities are exempt, but other exemptions such as that for self-certified sophisticated investors are not available for cryptoasset financial promotions.

In addition to the general conduct rules for financial promotions, companies making promotions of cryptoassets are subject to specific requirements, such as a prescribed form of risk warning and a ban on inducements (e.g. referral bonus schemes) (Crown et al., 2023).

Direct offer financial promotions, which specify a means of response to the promotion (e.g. where the promotion material includes a link to buy the service), are also subject to heightened requirements, including cooling-off periods for new clients, client categorisation requirements, and appropriateness assessments.

Licensed financial services firms and registered CASPs are allowed to make financial promotions (the latter on a temporary basis, until they obtain a license under the forthcoming regime). Unregistered companies are banned from making promotions unless these are made on their behalf by an authorised firm or are approved by an authorised firm.

Case study 7.2: Hong Kong – Retail restrictions

A financial promotion is an inducement or invitation to Hong Kong stands out among other jurisdictions for the evolution of its policy on retail access to cryptoasset markets. Under the opt-in license regime, which came into force in 2018, trading platforms operating in the jurisdiction were allowed to serve only institutional and qualified corporate professional investors. The Securities and Futures Commission (SFC) took the view that restricting retail access was justified, despite the guardrails and investor protection rules that applied to licensed market operators.

This restrictive approach was the subject of intense debate. Critics pointed out that, combined with the optional license, the strict restriction on retail access was pushing retail investors to unregulated exchanges where they did not benefit from the same levels of protection. The case for restrictions on retail access was weakened over time by entry into cryptoasset markets of institutional players and after the SFC authorised retail access to some crypto-linked derivative products and virtual asset future exchange traded funds, thus giving them indirect access to the market.

Against this backdrop, in 2023, the SFC lifted the ban on retail access, as part of a broader reform of the regulatory framework that included a mandatory licensing requirement for trading platforms and additional safeguards for retail investors.

Under the new regime, trading platforms are required, during the onboarding of investors, to assess the knowledge and risk profile of each client to determine whether services are appropriate. Furthermore, they should limit the client's exposure to cryptoassets, with reference to the client's financial situation and personal circumstances. In response to feedback from the industry, the SFC stated that, "as most virtual assets are high risk, they are only suitable for clients who have high risk tolerance" (SFC, 2023b, page 6).

The appropriateness assessment is supported by other measures, particularly the heightened listing requirements for trading platforms serving retail investors. As discussed in chapter 5, retail investors can only trade cryptoassets that have high levels of liquidity. By high liquidity, the regulator means that the cryptoasset must feature in at least two "acceptable indices" issued by at least two separate and independent index providers. The other measure was the requirement for non-licensed virtual asset platforms to close business by the end of 2024 and publication of a list of suspicious trading platforms and harmful products. At the time of writing, the blacklist had 29 entries (SFC, 2024).

PART IV:

LESSONS LEARNED AND REFLECTIONS ON FUTURE RESEARCH

CONCLUSION

Driven by the rapid growth of the market and heightened concerns about the risks to investors, cryptoassets and related activities are being gradually brought within regulatory perimeters across the world. The issuance of comprehensive standards and recommendations by global standard-setting bodies, along with planned reviews on their implementation, are intended to ensure consistency in this process.

Despite this concerted push, jurisdictions are taking different approaches to implement global standards and moving at different speeds to regulate the sector. EMDEs, where the case for regulation can be stronger, are lagging AEs in the implementation of these global standards. They are also more likely to introduce partial or full prohibitions on the use and provision of activities related to cryptoassets. This is probably due to a combination of factors, from lack of resources and knowledge to macro-economic instability.

Jurisdictions pressing ahead with regulating the sector recognise the novel and specific features of cryptoassets, but there remains significant divergence in how cryptoassets are defined and classified and exact details of the regulations. Some jurisdictions have sought to provide guidance on the application of existing regulations or retrofitted them, while others have introduced comprehensive, bespoke regimes.

This report described different approaches for regulating cryptoassets, and compared key elements of regulatory frameworks, consistent with global standards. The insights are set out in the conclusion section of each chapter. Below, early lessons learned from this analysis are set out. While all jurisdictions can benefit from learning lessons from the varying approaches to cryptoasset regulation, the findings are especially relevant for EMDE jurisdictions in the process of developing a cryptoasset regulatory frameworks. These jurisdictions typically face more challenges in terms of regulatory resource and capabilities, and complexity in regulatory processes.

- Classification of cryptoassets is a basic pillar of regulatory frameworks. Delineating between cryptoassets and financial instruments and between different types of cryptoassets, namely stablecoins, facilitates the division of remit and responsibilities between national supervisory authorities. Alignment on classification is also a condition for international cooperation.

- Lifting restrictions on cryptoassets may need to be done gradually, to preserve macro-economic stability. A combination of tools may be used to achieve this result and licensed CASPs may be required to enforce capital controls.

- Regulators may build on existing AML frameworks to develop more comprehensive regulatory frameworks for CASPs. Rules on governance of CASPs, segregation of clients' assets and disclosures may be introduced early on and prioritised ahead of rules on market integrity and novel activities, such as staking.

- Regulatory obligations can be imposed at different points in the process of bringing cryptoassets to markets. Regulators may decide to impose rules on either issuers, persons seeking admission to trading and/or CASPs. They should be considered in combination.

- Localisation requirements, outsourcing restrictions and rules on reverse solicitation may be used to mitigate the risks arising from CASPs operating from offshore. Regulators may also consider intensifying cooperation with foreign counterparts and deference regimes.

REFLECTIONS ON FUTURE RESEARCH

There are a few areas that are addressed only briefly in this report. First is the regulation of tokenised financial instruments. While assets with the features of securities remain subject to securities regulation, these regulations will need adjusting to enable the effective use and oversight of DLT in securities markets. Property rights, requirements concerning the involvement of intermediaries in trading processes and the definition of settlement as they are currently drafted in legislation and regulation may be incompatible with DLT infrastructure, particularly in the case of permissionless blockchains. Some jurisdictions have clarified the application of existing rules to tokenised securities and launched sandboxes and other initiatives to support innovation in this space. The next step will be learning lessons from those experiences and translating them into regulatory reforms, as appropriate.

Second is the regulation of DeFi. The focus of existing cryptoasset regulations is on centralised entities, particularly those entities that hold clients' money or assets and that either organise or make markets. However, financial authorities are already confronted with the question of

whether to broaden the regulatory perimeter to include software providers that create the interfaces necessary for investors to trade on a peer-to-peer basis, as well as decentralised exchanges.

Third is the delineation in regulation of emerging forms of digital money, or money-like instruments, and the use of permissionless blockchains as infrastructure for payments. Stablecoin regulations have for most part focused on ensuring stability in value and redemption at par. Regulators and central banks are turning their attention to the regulation of tokenised deposits and the development of central bank digital currencies.

The CCAF will continue to monitor regulatory developments and look forward to contributing to advancing research on these subjects.

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