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Introduction

1.1 SUBJECT MATTER: CRYPTOASSETS

At the time of writing, more than 10,000 different cryptoassets are listed on a popular website.[1] The regulatory treatment of cryptoassets has been an area of concern since the launch of Bitcoin in 2009; regulators' activities then accelerated against the background of the crypto bubble of 2018[2] and Facebook's proposal for the creation of Libra in 2019, now renamed 'Diem', a stablecoin project with potentially global reach and dimensions.[3] Attention increased further in response to the 2022–23 Crypto Winter that followed a piling up of malfunctions, hacks, and frauds since 2021 and resulted in prominent systems malfunctioning, billions of US dollars' worth of losses spreading through decentralised finance (DeFi) systems, and eventually the collapse and bankruptcy of several prominent market participants including FTX Trading Ltd. (FTX), Silicon Valley Bank, and Signature Bank.[4]

While a globally uniform definition is lacking, the EU's Market in Crypto-Assets (MiCA)[5] Regulation defines cryptoassets as 'a digital representation of a value or of a right that is able to be transferred and stored electronically using distributed ledger technology [DLT] or similar technology',[6] where a distributed ledger is 'an information repository that keeps records of transactions and that is shared across, and synchronised between, a set of DLT network nodes using a consensus mechanism'.[7] The various nodes together function as one ledger.[8] Coupled

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[1] CoinMarketCap.com, 'Today's Cryptocurrency Prices by Market Cap'. Website https://coinmarketcap.com/ (last accessed on 1 October 2024).

[2] See D. A. Zetzsche, R. P. Buckley, D. W. Arner and L. Föhr, 'The ICO Gold Rush: It's a Scam, It's a Bubble, It's a Super Challenge for Regulators', *Harvard International Law Journal*, 63(2) (2019): 267.

[3] See D. A. Zetzsche, R. P. Buckley and D. W. Arner, 'Regulating Libra', *Oxford Journal of Legal Studies*, 41(1) (2021): 80; D. W. Arner *et al.*, 'Stablecoins: Risks, Potential and Regulation', Working Paper No. 905. Bank for International Settlements (2020). Website www.bis.org/publ/work905.htm (last accessed on 1 October 2024).

[4] See D. A. Zetzsche *et al.*, 'Remaining Regulatory Challenges in Digital Finance and Crypto-Assets after MiCA', Committee on Economic and Monetary Affairs (ECON) (2023). Website http://dx.doi.org/10.2139/ssrn.4487516 (last accessed on 1 October 2024).

[5] Regulation 2023/1114 of the European Parliament and of the Council of 31 May 2023 on Markets in Crypto-Assets, and amending Regulations (EU) No. 1093/2010 and (EU) No. 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937, OJ 2023 No. L150, 9 June 2023.

[6] Article 3(1)(5) of MiCA, Regulation 2023/1114, OJ 2023 No. L150.

[7] Article 3(1)(2) of MiCA.

[8] D. Mills *et al.*, 'Distributed Ledger Technology in Payments, Clearing, and Settlement', Working Paper No. 2016-095. Federal Reserve Board, Finance and Economics Discussion Series (2016), pp. 10–11.

with cryptographic solutions and a blockchain protocol,[9] distributed ledgers may curtail the risk of data manipulation and increase transparency for all ledger participants (nodes), thereby offering a solution to the perennial trust problem with regard to the content of stored data.

This allows for new, disintermediated models of finance (i.e., DeFi)[10] and financial services where the defining element is the type of technology used rather than the economic features of the assets or services itself, which we discuss throughout this book. In particular, Chapter 2 introduces the technical concept, after which Chapters 3 and 4 outline the legal definitions underlying MiCA.

Academics have classified cryptoassets into the following categories:[11]

Currency/payment tokens aim to fulfil the economic purpose of money, which is to serve as a means of exchange, storage of value, and unit of account.[12] While Bitcoin is the most widely known example in this category, many other currency tokens exist, including *stablecoins*, which are designed to keep a stable value against other assets – typically (a basket of) fiat currencies. Meanwhile, central bank digital currencies (CBDCs) are payment tokens issued by central banks that substitute for fiat currency and are characterised by the respective central bank(s) functioning as the issuer.[13] Given their public background, CBDCs are often exempted from cryptoasset regulation, as provided for in Article 2(2)(c) MiCA.

Security/financial/investment tokens are tied to an underlying asset and represent ownership of a share of the overall asset – just like conventional shares and bonds. Hence, they are typically treated by financial regulation as financial instruments.

Utility tokens are the collective term for other fungible tokens that provide some sort of access or right(s) to a company's ecosystem, goods, or services.[14] Examples include a licence to use

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[9] See, for example, P. De Filippi and A. Wright, *Blockchain and the Law: The Rule of Code* (Cambridge, MA: Harvard University Press, 2018), pp. 13–57 (describing blockchains) and 136–40 (arguing that widespread deployment of the blockchain will lead to tech-based business practices that could prompt a loss in importance of centralised authorities, such as government, and urging a more active regulatory approach); M. Finck, *Blockchain Regulation and Governance in Europe* (Cambridge: Cambridge University Press, 2019), pp. 12–14; see also S. Davidson, P. De Filippi and J. Potts, 'Blockchains and the Economic Institutions of Capitalism', *Journal of Institutional Economics*, 14 (4) (2017): 639, 641 (arguing that blockchain technology is a new governance institution that competes with other economic institutions of capitalism, namely, firms, markets, networks, and even governments).

[10] See D. A. Zetzsche, D. W. Arner and R. P. Buckley, 'Decentralized Finance (DeFi)', *Journal of Financial Regulation*, 6(2) (2020): 172–203.

[11] See P. Hacker and C. Thomale, 'Crypto-Securities Regulation: ICOs, Token Sales and Cryptocurrencies under EU Financial Law', *European Company and Financial Law Review*, 15(4) (2018): 645, 652–53; F. Annunziata, 'Speak If You Can: What Are You? An Alternative Approach to the Qualification of Tokens and Initial Coin Offerings', *European Company and Financial Law Review*, 17(2) (2020): 129, 136–37; I. M. Barsan, 'Legal Challenges of Initial Coin Offerings', *Revue trimestrielle de droit financier*, 3 (2017): 54, 62 (identifying only "currency like" and "security like" tokens); P. Maume and M. Fromberger, 'Regulations of Initial Coin Offerings: Reconciling U.S. and E.U. Securities Laws', *Chicago Journal of International Law*, 19 (2019): 548, 558; Zetzsche *et al.*, 'The ICO Gold Rush', 267, 276 (arguing for a functional approach). See also the distinction between 'app tokens' and 'protocol tokens' by J. Rohr and A. Wright, 'Blockchain-Based Token Sales, Initial Coin Offerings, and the Democratization of Public Capital Markets', *Hastings Law Journal*, 70 (2019): 463, 469.

[12] B. Geva, 'Cryptocurrencies and the Evolution of Banking, Money, and Payments', in C. Brummer (ed.), *Cryptoassets: Legal, Regulatory, and Monetary Perspectives* (Oxford: Oxford University Press, 2019), p. 12.

[13] See Committee on Payments and Market Infrastructures and Markets Committee, 'Central Bank Digital Currencies', Papers No. 174, Bank for International Settlements (2018). Website www.bis.org/cpmi/publ/d174.htm (last accessed on 1 October 2024).

[14] The term is now defined in Article 3(1)(9) MiCA as 'a type of crypto-asset that is only intended to provide access to a good or a service supplied by its issuer'.

a software program (i.e., a usage token) or membership in a community (i.e., a community token).

Beyond these three broad categories, non-fungible tokens (NFTs) represent a unique personalised digital item such as digital art, audio, videos, or items in video games.

We discuss the classification of cryptoassets in the context of EU financial law as well as MiCA's scope in Chapters 3 and 4 of this book.

1.2 OPPORTUNITIES ASSOCIATED WITH CRYPTOASSETS

1.2.1 *Opportunities for Issuers*

1.2.1.1 *Access to Finance*

With digitalising of the process of issuing and transferring financial assets, cryptoassets may be instrumental in streamlining capital-raising processes for companies and enhancing competition among financial intermediaries, effectively offering small and medium-sized enterprises (SMEs) the option to raise money from the public in ways that were only available to large companies in the past.[15] Framed in political jargon, one may coin this phenomenon as the 'democratisation of finance'. Yet, the issuance of tokens is no panacea: discounts of up to 50 per cent are often offered to early lead investors, and issuers now increasingly also realise that they must engage legal and other professional advisors in the process.[16]

1.2.1.2 *New Types of Investors*

Traditionally, SMEs often rely on venture capital (VC) firms for funding. This is a challenge for many companies because VCs frequently have strict criteria for what companies to invest in and typically force investor-friendly terms upon them.[17] Further, in some regions, VC funds are small, prompting the need to tap into foreign institutional VC funds with their own expectations (for instance, a listing at a US exchange in case an initial public offering (IPO) takes place in the future of the company). Hence, the option of issuing tokens instead now offers companies an alternative source of capital,[18] which also provides some leverage in negotiations with VCs. Through borderless online sales, tokens also offer access to global capital without the typical legal and business hurdles encountered in conventional VC financing.[19]

1.2.2 *Opportunities for Investors*

1.2.2.1 *Access to Capital Markets*

Just as companies get access to new types of investors, retail investors also gain access to investment opportunities in highly innovative businesses usually not accessible to these investor classes, given that VC investing tends to be reserved for institutional investors and high-net-worth individuals. Hence, retail investors can access a global pool of investment opportunities with potentially higher returns (and higher risk) than they would in the conventional capital markets.

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[15] See Zetzsche *et al.*, 'The ICO Gold Rush', 267, 304; ESMA, 'Advice: Initial Coin Offerings and Crypto-Assets', ESMA50–157-1391 (2019). Website www.esma.europa.eu/document/advice-initial-coin-offerings-and-crypto-assets (last accessed on 1 October 2024). The concept of token offerings is further discussed in Chapter 2.
[16] See W. A. Kaal, 'Digital Asset Market Evolution', *Journal of Corporation Law*, 46(4) (2021): 909, 919.
[17] For details, see P. A. Gompers and J. Lerner, *The Venture Capital Cycle*, 2nd ed. (MIT Press, 2014).
[18] See Kaal, 'Digital Asset Market Evolution', 909, 919.
[19] See Kaal, 'Digital Asset Market Evolution', 909, 919.

1.2.2.2 *Enhanced Trust, Transparency, and Liquidity*

Conventional, centralised ledgers require that market participants trust an intermediary to manage the ledger of rights to and transactions of assets. Modern well-functioning markets have established institutions that have earned a high level of trust, including central counter-parties,[20] but such markets are often not available to SMEs and their investors. Now, however, they can reap many of the same benefits through DLT and the trading of tokens on crypto exchanges, which provide liquidity to investors in early-stage companies.[21]

Furthermore, even the well-functioning capital markets of today still come with an ever-present risk of financial default, human error, crime, and external (cyber) attacks. Here, cryptoassets, launched via DLT, potentially offer transparency to ledger participants. This transparency then fosters trust among ledger participants. For instance, by providing indisputable proof of ownership, cryptoassets solve the 'double-spending problem' because the buyer can be assured that they will receive the asset and that nobody else has claims to the same asset.[22]

1.2.2.3 *Freeing Collateral through Shorter Settlement Times*

Just as cryptocurrencies can be swiftly transferred, DLT financial market infrastructures may reduce settlement times from the typical T+1 days – in some markets even T+3 days – to nearer T+0.[23] This could reduce counterparty risk;[24] in turn, less collateral would be necessary during the settlement period.[25] On the other hand, it is also argued that 'most current settlement cycles are not long because of technological limitations but because of banks' back-office processes, legal arrangements, and liquidity management practices'.[26] Sometimes, parties need time to make available their liquid assets required for the transaction.[27]

1.2.3 *Opportunities for the Financial System*

1.2.3.1 *Cost Savings from Disintermediation*

Conventional financial market infrastructures rely on a central securities depository (CSD) that holds a master copy of the centralised ledger, while intermediaries having an account with the CSD hold partial copies of the master copy. These CSD account-holding intermediaries then function as a centralised ledger for other sub-level intermediaries that have access only to these

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[20] See Zetzsche *et al.*, 'Decentralized Finance', 172–203.

[21] See Kaal, 'Digital Asset Market Evolution', 909, 918.

[22] See Zetzsche *et al.*, 'Decentralized Finance', 172–203; W. A. Kaal and S. Evans, 'Blockchain-Based Securities Offerings', *UC Davies Business Law Journal*, 20(1) (2020): 89, 98–99.

[23] For example, by streamlining reconciliation and reducing the number of intermediaries. See M. Bech *et al.*, 'On the Future of Securities Settlement', *Bank for International Settlements Quarterly Review* (March 2020), pp. 67 and 75.

[24] See Bech *et al.*, 'On the Future of Securities Settlement', pp. 67 and 75.

[25] However, the cost of overnight collateral for settlement is small relative to the total cost of trade processing. See M. Mainelli and A. Milne, 'The Impact and Potential of Blockchain on the Securities Transaction Lifecycle', Working Paper No. 2015-007. SWIFT Institute (2016), p. 28.

[26] E. Benos, R. Garratt and P. Gurrola-Perez, 'The Economics of Distributed Ledger Technology for Securities Settlement', *Ledger*, 4 (2019): 121, 130.

[27] Some proposed DLTs offer differentiated settlement times for different customers. See H. Van Steenis *et al.*, 'Blockchain in Banking: Disruptive Threat or Tool?' Morgan Stanley Global Insight (2016), p. 7; Mainelli and Milne, 'The Impact and Potential of Blockchain', p. 27.

intermediaries.[28] This 'hub and spoke' system requires regular reconciliation between the various ledgers. A synchronised and shared ledger potentially enables automatic clearing, settlement, and recording of transactions without intermediaries in one step.[29] If DLT-induced transparency ensures that the same transaction information is available to everyone, clearing agents,[30] reconciliation, and back-up systems across multiple ledgers will become superfluous.[31] However, unless DLT enables netting – the practice of balancing accounts following multiple trades before clearing only the net amount owed between market participants – automated clearing would miss out on significant liquidity savings.[32]

1.2.3.2 *Enhanced Cybersecurity*

DLT has the potential to improve cybersecurity because it enables other nodes to continue operations even if one or more of the nodes are compromised. For instance, if there are n nodes (instead of one concentrated ledger) and e describes the effort necessary to compromise any single server, all other conditions being equal (safety per server, etc.), the effort needed to manipulate all of the linked servers will be $n \times e$ rather than $1 \times e$. However, despite its overall resilience, DLT is also vulnerable to certain types of attacks because it relies on a number of (potentially weak) links. For example, data are often generated by just two entities, buyer and seller, so individual trades are exposed to cyberattacks at these dual points of failures.[33] Similarly, distributed denial-of-service attacks have at times brought Bitcoin mining to a halt.[34]

1.2.3.3 *Decentralisation as a Goal in Itself?*

Many cryptoasset proponents see decentralisation as a goal in its own right, setting out to create a financial system beyond the realms of regulators and central banks.[35] This is part of a broader political agenda characterised by distrust in central institutions, including the sovereign. For example, while conventional money supply has increased through monetary policy interventions (i.e., low interest rates and bond purchases by central banks, known as 'quantitative easing') in the aftermath of the 2007–8 financial crisis and the COVID-19 pandemic, creating a potentially substantial inflationary pressure, Bitcoin supply is predetermined by algorithms and cannot be influenced by any central authority. Similarly, control over the settlement of fiat currency transactions has increasingly been used as a policy tool, most notably as part of

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[28] See Mills *et al.*, 'Distributed Ledger Technology', pp. 6–7.

[29] Optimistic estimates see the cost savings potential at USD 20 billion annually, while estimates assuming increasing efficiencies in traditional systems result in no savings at all. See M. Belinky *et al.*, 'The FinTech 2.0 Paper: Rebooting Financial Services', Santander InnoVentures, Oliver Wyman, Anthemis Group (2015), p. 15.

[30] Benos *et al.*, 'The Economics of Distributed Ledger Technology', 121, 130.

[31] Benos *et al.*, 'The Economics of Distributed Ledger Technology', 121, 129–30.

[32] For example, the Depository Trust and Clearing Corporation (DTCC) is currently able to reduce the volume of trades for final settlement through netting by approximately 97 per cent. See Mainelli and Milne, 'The Impact and Potential of Blockchain'; J. Chapman *et al.*, 'Project Jasper: Are Distributed Wholesale Payment Systems Feasible Yet?' *Bank of Canada Financial System Review* (2017), p. 130. Website www.bankofcanada.ca/wp-content/uploads/2017/05/fsr-june-2017-chapman.pdf (last accessed on 1 October 2024).

[33] See D. A. Zetzsche, R. P. Buckley and D. W. Arner, 'The Distributed Liability of Distributed Ledgers: Legal Risks of Blockchain', *University of Illinois Law Review*, 4 (2018): 1361, 1377.

[34] See Zetzsche *et al.*, 'The Distributed Liability of Distributed Ledgers', 1361, 1380–81.

[35] See Zetzsche *et al.*, 'Decentralized Finance', 172–203; Kaal, 'Digital Asset Market Evolution', 909, 912; S. Nakamoto, 'Bitcoin: A Peer-to-Peer Electronic Cash System'. Website https://bitcoin.org/bitcoin.pdf (last accessed on 1 October 2024).

American foreign policy.[36] Such developments have led certain people to demand a more decentralised global financial system, which cryptoassets could help to facilitate.

1.3 CHALLENGES ASSOCIATED WITH CRYPTOASSETS

1.3.1 *Information Asymmetry*

While information asymmetry is prevalent in all financial investments to some degree, the highly innovative cryptoasset markets are characterised by an *enhanced* degree of information asymmetry between, on the one hand, issuers and service providers, which possess the most knowledge about the financial assets they offer, and, on the other, the clients and investors that provide the funds for cryptoassets. Basic documentation is often misleading or completely lacking in cryptoasset offerings,[37] and it is difficult for investors to verify if the underlying computer code is compatible with the promises made by the issuer. Illustratively, some token offerings have been unmasked as scams and Ponzi schemes.[38]

1.3.2 *Legal Uncertainty*

EU financial law has evolved into multiple pieces of legislation, each with limited scope and applying to different types of financial assets and service providers. The emergence of cryptoassets raises the question of whether and to what extent this existing legislation applies to cryptoassets as a new type of financial asset. The answer depends on the definitions of existing financial products which were not drafted with cryptoassets in mind. This serves, for instance, as background for the discussion on whether stablecoins qualify as financial instruments, transferable securities, derivatives, collective investment schemes, units of account, e-money, commodities, or deposits, or more than one of these simultaneously.[39]

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[36] See, for example, *The Economist*, 'America's Aggressive Use of Sanctions Endangers the Dollar's Reign' (18 January 2020). Website www.economist.com/briefing/2020/01/18/americas-aggressive-use-of-sanctions-endangers-the-dollars-reign?utm_medium = cpc.adword.pd&utm_source = google&ppccampaignID = 18151738051&ppcadID = &utm_campaign = a.22brand_pmax&utm_content = conversion.direct-response.anonymous&gad_source = 1&gclid = EAIaIQobChMIjrOEkrTjhwMVCQqiAx0fQxDGEAAYASAAEgKQb_D_BwE&gclsrc = aw.ds (last accessed on 1 October 2024); For a detailed analysis see D. W. Arner, R. P. Buckley, D. A. Zetzsche, and A. N. Didenko, 'Monetary Hegemony, Technological Evolution and the International Monetary System', *Boston University Journal of International law*, 42 (2024) (in press).

[37] See Zetzsche *et al.*, 'The ICO Gold Rush', 267, 287.

[38] See, e.g., Munchee Inc., 'Securities Act of 1933, Release No. 10445', U.S. Securities and Exchange Commission (2017). Website https://perma.cc/ET52-T99G (last accessed on 1 October 2024); U.S. Securities and Exchange Commission, 'SEC Exposes Two Initial Coin Offerings Purportedly Backed by Real Estate and Diamonds', Press Release (2017). Website https://perma.cc/4GJW-QSWU (last accessed on 1 October 2024); U.S. Securities and Exchange Commission, 'SEC Emergency Action Halts ICO Scam', Press Release (2017). Website https://perma.cc/SG8A-YXRY (last accessed on 1 October 2024); Swiss Financial Market Supervisory Authority ('FINMA'), 'FINMA Closes Down Coin Providers and Issues Warning about Fake Cryptocurrencies', Press Release (2017). Website https://perma.cc/B8TD-TW7N (last accessed on 1 October 2024). Cf. Bitcoin Exchange Guide News Team, 'Top 5 Biggest 2018 ICO Scams, Ponzi Schemes, Crypto Thefts & Hacks So Far Bitcoin Exchange Guide' (2018). Website https://perma.cc/UPY4-FT8M (last accessed on 1 October 2024); A. Tomasicchio, 'Top 5 Cryptocurrency Scams', Bitcoin Chaser (2023). Website https://bitcoinchaser.com/top-5-cryptocurrency-scams (last accessed on 1 October 2024).

[39] See V. Burilov, 'Regulation of Crypto Tokens and Initial Coin Offerings in the EU', *European Journal of Comparative Law and Governance*, 6(2) (2019): 146 (arguing that EU regulators shall first ensure legal certainty by defining the scope of tokenised financial instruments).

1.3.3 *Regulatory Arbitrage*

Legal uncertainty, combined with deviations in how EU directives are implemented into national law, leads to divergence in the enforcement of EU financial law across Member States. This again results in a significant risk of regulatory arbitrage, where issuers and service providers seek out the most favourable and possibly laxest regulatory environment for their purposes, potentially at the expense of effective financial supervision and enforcement.

1.3.4 *Innovators as Intermediaries*

As is the case in other FinTech domains, many leading participants operating in the cryptoasset space tend to be newly established innovators. Consequently, they typically lack capital buffers, experience, and any reputation or track record. This makes it difficult for regulators to assess the real risks involved and to focus the attention of law enforcement on the riskiest sub-domains of the cryptoasset space.

1.3.5 *Ledger and Data Governance*

Given that DLT relies on algorithms and a potentially large number of nodes, questions arise as to who is practically and legally accountable for its operations. At least from a practical perspective, such problems may not be immediately apparent, but DLT often relies on code that is constantly rewritten to improve performance and security.[40] Therefore, over time, fewer and fewer experts will understand the structure, leading to an increased risk of coding errors.[41] At the same time, the standardisation and automation inherent to DeFi mean that any coding error may spread and affect the entire system more easily as compared to centralised finance (CeFi).[42] Such operational risks further pose the question of legal accountability. Moreover, if the servers are located in different jurisdictions with no central entity, there is also uncertainty as to which laws apply and which courts could rightfully assert jurisdiction.[43]

In addition, there are data governance and privacy concerns, given that DLT relies on data storage across multiple nodes, so each node operator has access to data stored on the ledger.[44] This arouses new worries over data privacy, insider trading, and market abuse.[45] Because DLT is supposed to be immutable, there are also concerns over how to change falsified information, for instance, in response to a court decision that requires the title to an asset to be updated on the ledger.

1.3.6 *Illegal Activities*

Due to the anonymity enabled by identity verification through cryptographic keys, cryptoassets have, since their infancy, been widely used to facilitate illegal activities.[46] This includes the

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[40] See A. Walch, 'The Bitcoin Blockchain as Financial Market Infrastructure: A Consideration of Operational Risk', *New York University Journal of Legislation and Public Policy*, 18 (2015): 837, 865–67.

[41] Zetzsche *et al.*, 'The Distributed Liability of Distributed Ledgers', 1361, 1381; Q. DuPont and B. Maurer, 'Ledgers and Law in the Blockchain', *King's Review* (23 June 2015). Website www.kingsreview.co.uk/essays/ledgers-and-law-in-the-blockchain (last accessed on 1 October 2024).

[42] See ESMA, 'The Distributed Ledger Technology Applied to Securities Markets' (2017), para. 36.

[43] See P. Athanassiou, 'Impact of Digital Innovation on the Processing of Electronic Payments and Contracting: An Overview of Legal Risks, Legal', Working Paper Series No. 37, 16. European Central Bank (2017), pp. 30–31.

[44] For example, the DLT supporting Bitcoin stores all data except the identity of the owners, which requires a private key.

[45] See Zetzsche *et al.*, 'The Distributed Liability of Distributed Ledgers', 1361, 1375.

[46] S. Foley, J. R. Karlsen and T. J. Putnins, 'Sex, Drugs, and Bitcoin: How Much Illegal Activity Is Financed through Cryptocurrencies?', *Review of Financial Studies*, (2018): 26. Website http://dx.doi.org/10.2139/ssrn.3102645 (last accessed on 1 October 2024).

transacting of illegal goods and services (e.g., weapons, drugs, and counterfeit documents, typically through 'darknet' marketplaces online), money laundering, evasion of capital controls, ransomware attacks, and theft.[47] Furthermore, the cryptographic keys may themselves be obtained through fraudulent behaviour, theft, or otherwise, while there is currently no satisfactory system for recovering or replacing such keys.[48]

1.4 REGULATORY OBJECTIVES

MiCA, the Pilot Regulation (PilotR), the Digital Operational Resilience Act (DORA), and the revised Transfer of Funds Regulation (TFR) adopted in the context of the Digital Finance Strategy 2020 (DFS 2020) policy agenda[49] pursue six objectives which reflect, all in all, the regulatory objectives of all EU financial regulations.[50]

1.4.1 *Legal Certainty through Technology Neutrality*

First and foremost, the DFS 2020 aims to enhance legal certainty for three reasons. First, legal certainty reduces regulatory arbitrage. Second, legal certainty may be useful in related domains such as valuation for tax purposes, identification of ownership for Anti-money Laundering (AML) purposes, and the application of data protection rules (i.e., General Data Protection Regulation, GDPR). Third, legal certainty reduces transaction costs and thus enhances the efficiency of the European Single Market (see Section 1.4.6). The DFS 2020 thus seeks to establish a 'future-proof' legal framework, which is 'technology-neutral' by addressing the underlying realities of financial products and services rather than the use of a specific technology.[51] While we approve of technology neutrality as a general approach, it does not, however, solve the underlying problem of determining which pieces of EU financial law apply to which types of cryptoassets (cf. Chapter 4 on MiCA's scope).

1.4.2 *Consumer and Investor Protection*

The DFS 2020 sets out to ensure that 'prospective retail holders of cryptoassets should be informed of the characteristics, functions and risks of the cryptoassets that they intend to purchase',[52] by requiring extensive disclosures. Yet, some commentators argue that this purpose could have been achieved more effectively by expanding the scope of the mostly stricter existing EU financial legislation to cover cryptoassets. Less fundamental concerns surround the possibility that tech-savvy crypto-investors may anyway be more inclined to seek information elsewhere than in legal disclosure documents, while issuers face strong market incentives to provide information.[53]

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[47] R. Houben and A. Snyers, 'Crypto-Assets: Key Developments, Regulatory Concerns and Responses', Committee on Economic and Monetary Affairs (ECON) (2020).

[48] See Benos *et al.*, 'The Economics of Distributed Ledger Technology', 121, 132–33.

[49] See European Commission, 'Communication on a Digital Finance Strategy for the EU', COM (2020) 591 Final.

[50] See MiCA Regulation Proposal, Explanatory Memorandum, COM (2020) 593 Final, pp. 2 and 3; PilotR Regulation Proposal, Explanatory Memorandum, COM (2020) 594 Final, p. 2.

[51] See, for example, Recital para. 9 of MiCA.

[52] Recital para. 24 of MiCA.

[53] See G. Ferrarini and P. Giudici, 'Digital Offerings and Mandatory Disclosure: A Market-Based Critique of MiCA', in E. Avgouleas and H. Marjosola (eds.), *Digital Finance in Europe: Law, Regulation and Governance* (Berlin, Boston: De Gruyter, 2022), pp. 87–207.

1.4.3 *Financial Stability*

While at the time of MiCA's adoption, EU legislators believed the threat to financial stability posed by cryptoassets to be low,[54] the potential for the emergence of global stablecoins – with Facebook's Diem being the most notable example – has since raised serious concerns.[55] In addition, the large losses suffered through scandals, frauds, and malfunctions during the Crypto Winter prompted negative spillover effects into the regulated financial sector.[56]

The DFS 2020 recognises the risks created by stablecoins 'which aim to stabilise their price by linking their value to a specific asset or a basket of assets' if characterised by a large customer base, high market capitalisation, and/or a large number of transactions. These features 'could raise additional challenges to financial stability, monetary policy transmission or monetary sovereignty'.[57] Moreover, if the share of cryptoassets in financial markets grows, the network character of DLT may also pose risks to financial stability from a 'too connected to fail' perspective.[58] For instance, if many smart contracts self-execute in response to an event, this could trigger contagion and adverse feedback loops.[59] In fact, as was vividly shown in the Terra/Luna stablecoin system, with the largest operational loss ever experienced in finance to date amounting to USD 50 billion in a couple of days,[60] frauds, hacks, and reliance on external data sources can all create these adverse feedback loops.

1.4.4 *Market Integrity*

Legislation seeking to enhance market integrity aims at establishing markets free from illicit behaviour, such as insider trading and market manipulation.[61] It intends to ensure that markets, overall, serve society rather than individuals by excluding profits from illegal activities. The DFS 2020 addresses this matter from three different angles.

First, since the extensive rules of the Market Abuse Regulation (MAR) (EU) No. 596/2014 could be overly burdensome for the typically small companies involved in crypto-markets and some concepts rely on the corporate hierarchy absent in some crypto ecosystems, Title VI MiCA provides tailor-made legislation to counter market abuse and insider trading. Second, the revised TFR (see Section 1.5.1 and Chapter 14) seeks to abolish anonymous cryptoasset transactions in

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[54] See Recital para. 5 of MiCA.

[55] Financial Stability Board, 'Regulation, Supervision and Oversight of "Global Stablecoin" Arrangements' (2020), p. 13. Website www.fsb.org/2020/10/regulation-supervision-and-oversight-of-global-stablecoin-arrangements/ (last accessed on 1 October 2024); International Organisation of Securities Commission, 'Global Stablecoin Initiatives, OR01/2020' (2020), p. 17. Website www.iosco.org/library/pubdocs/pdf/IOSCOPD650.pdf (last accessed 1 October 2024); International Monetary Fund, 'Global Financial Stability Report' (2021), p. 44. Website www.imf.org/-/media/Files/Publications/GFSR/2021/October/English/text.ashx (last accessed on 1 October 2024).

[56] Cf. Zetzsche *et al.*, 'Remaining Regulatory Challenges in Digital Finance'.

[57] Recital para. 59 of MiCA.

[58] See Recital para. 3 of DORA, Regulation 2022/2554, OJ 2022 No. L333; R. P. Buckley, D. W. Arner, D. A. Zetzsche and E. Selga, 'Techrisk', *Singapore Journal of Legal Studies*, (2020): 35; Zetzsche *et al.*, 'Decentralized Finance', 172–203.

[59] See Committee on Payments and Market Infrastructures, 'Distributed Ledger Technology in Payment, Clearing and Settlement, No. 157', Bank for International Settlements (2017), p. 13.

[60] H. Uhlig, 'A Luna-tic Stablecoin Crash', Working Paper No. 2022-95. Becker Friedman Institute for Economics, University of Chicago (2022). Website http://dx.doi.org/10.2139/ssrn.4163038 (last accessed on 1 October 2024).

[61] See N. Moloney, E. Ferran and J. Payne (eds.), *The Oxford Handbook of Financial Regulation* (Oxford: Oxford University Press, 2015), p. 634.

an effort to counter a range of criminal activities. Finally, DORA[62] (see Chapter 15) is aimed at digital operational resilience, which is 'vital for ensuring financial stability and market integrity in the digital age'.[63]

1.4.5 *Innovation and Competition*

Legal uncertainty, together with high transaction and regulatory costs, could undermine efforts to use cryptoassets for digital innovation.[64] Following more recent approaches observed among regulators worldwide,[65] the DFS 2020 also seeks to enhance innovation and competition. Adopting this approach, the EU legislation finds itself in a conflict between ensuring low barriers for (new and innovative) companies to enter the market and at the same time forming regulation indispensable for other policy objectives, including consumer protection and financial stability. The DFS 2020 aims to support innovation and fair competition while ensuring a high level of consumer protection and market integrity in cryptoasset markets. An example of this balancing act is provided by virtue of the disclosure (whitepaper) rules in Title II MiCA, which are generally lighter than their Prospectus Regulation equivalents (see Chapter 5), and at the same time forego any product regulation which Titles III and IV MiCA foresee for asset-referenced tokens (ARTs) and e-money tokens (EMTs). Another example is PilotR's so-called 'sandbox' approach where EU legislators have created a controlled space with temporary derogations from existing rules to facilitate innovation while giving regulators an opportunity to learn (see Chapter 12).

1.4.6 *Efficiency of the European Single Market*

MiCA, PilotR, DORA, and the revised TFR have all been adopted as regulations (rather than directives) based on Article 114 TFEU, emphasising the harmonisation perspective.[66] The harmonisation of legislation and enforcement is a precondition for a well-functioning cross-border European Single Market, in general,[67] and, in particular, for a 'passport' regime based on the jurisdiction of the national competent authority (NCA) in the home Member State of the issuer or service provider. In turn, both MiCA and PilotR have established a 'passport' regime and an elaborate system for coordinated enforcement across NCAs, organised by the European Banking Authority (EBA) and the European Securities and Markets Authority (ESMA). This is part of the general EU agenda of increasing market efficiency

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[62] Regulation (EU) 2022/2554 of the European Parliament and of the Council of 14 December 2022 on digital operational resilience for the financial sector and amending Regulations (EC) No. 1060/2009, (EU) No. 648/2012, (EU) No. 600/2014, (EU) No. 909/2014, and (EU) 2016/1011, OJ No. L333, 27 December 2022, pp. 1–79.

[63] Recital para. 8 of DORA.

[64] See Recital para. 5 of MiCA.

[65] See R. P. Buckley, D. W. Arner, R. Veidt and D. A. Zetzsche, 'Building Fintech Ecosystems: Regulatory Sandboxes, Innovation Hubs and Beyond', *Washington University Journal of Law and Policy*, 61 (2020): 55; D. A. Zetzsche, R. P. Buckley, D. W. Arner and J. N. Barberis., 'Regulating a Revolution: From Regulatory Sandboxes to Smart Regulation', *Fordham Journal of Corporate and Financial Law*, 23 (2017): 31.

[66] See MiCA Regulation Proposal, Explanatory Memorandum, COM (2020) 593 Final, p. 5; PilotR Regulation Proposal, Explanatory Memorandum, COM (2020) 594 Final, p. 2; Recital paras. 11 and 105 of DORA.

[67] Cf. M. Lehmann, 'National Blockchain Laws as a Threat to Capital Markets Integration', *Uniform Law Review*, 95 (2021): 148–79.

within the European Single Market by enhancing market liquidity and depth while intensifying cross-border competition.

1.5 LEGISLATIVE HISTORY

1.5.1 *The EU's AML/CTF Legislation*

At the EU level, the first legislative step observed with regard to cryptoassets was the EBA's recommendations in 2014 to bring virtual currency-to-fiat exchanges and providers of virtual currency custodian wallet services into the scope of the Anti-Money Laundering Directive (AMLD) in order to mitigate the risks of money laundering and terrorist financing.[68] These recommendations were ultimately passed into law as part of the AMLD5 with 10 January 2020 set as the implementation deadline.[69] Hence, virtual currency-to-fiat exchanges and virtual currency custodian wallet services are since part of the AMLD's scope,[70] and Member States have a specific duty to ensure that the respective service providers are registered.[71]

Following the AML/Counter-Terrorism Financing (CTF) Action Plan of 7 May 2020,[72] four legislative acts were proposed on 20 July 2021.

Among the legislative acts, the revision of the TFR was adopted in April 2023 together with MiCA. It expands the entities covered by the previous TFR to cover cryptoassets, effectively enabling the tracing of cryptoasset transfers and thus ensuring alignment with Financial Action Task Force (FATF) recommendations and inhibiting the provision and custody of anonymous cryptoasset wallets.

The three remaining regulatory projects came into force in July 2024: (1) the EU's 'Single Rulebook' Regulation[73] harmonises rules on conducting due diligence on customers, transparency of beneficial owners, and the use of anonymous instruments such as cryptoassets, came into force in July 2024; (2) the AMLD6[74] provides national rules on supervision and financial intelligence units (FIUs), as well as on the access of competent authorities to information, such as beneficial ownership registers and assets stored in free zones; (3) the regulation establishing the European Anti-money Laundering Authority (AMLA)[75] equips the AMLA with supervisory and investigative powers to ensure compliance with AML/CTF requirements and shall ensure that the AMLA becomes the focus point of EU AML/CTF activities. We discuss the EU's AML/CTF crypto initiatives in Chapter 14.

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[68] EBA, 'Opinion on "Virtual Currencies"', EBA/Op/2014/08 (2014).

[69] See Article 1(3)(g) and (h), cf. Article 3(18) and (19) of AMLD, Directive 2015/849, OJ 2015 No. L141.

[70] Article 1(3)(g) and (h), cf. Article 3(18) and (19) of AMLD.

[71] Article 47(1) of AMLD.

[72] European Commission, 'Communication from the Commission on an Action Plan for a Comprehensive Union Policy on Preventing Money Laundering and Terrorist Financing', C (2020) 2800 Final.

[73] See Regulation (EU) 2024/1624 of the European Parliament and of the Council of 31 May 2024 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, OJ L, 2024/1624, 19.6.2024.

[74] See Directive (EU) 2024/1640 of the European Parliament and of the Council of 31 May 2024 on the mechanisms to be put in place by Member States for the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, amending Directive (EU) 2019/1937, and amending and repealing Directive (EU) 2015/849, OJ L, 2024/1640, 19.6.2024.

[75] See Regulation (EU) 2024/1620 of the European Parliament and of the Council of 31 May 2024 establishing the Authority for Anti-Money Laundering and Countering the Financing of Terrorism and amending Regulations (EU) No 1093/2010, (EU) No 1094/2010 and (EU) No 1095/2010, OJ L, 2024/1620, 19.6.2024.

1.5.2 *The EU's FinTech Action Plan (2018)*

Running parallel with the revisions to the AML/CTF legislation, the European Commission launched the EU's FinTech Action Plan on 8 March 2018.[76] As part of this plan, the Commission instructed the European financial supervisory authorities (namely, the EBA, the European Insurance and Occupational Pensions Authority (EIOPA), and the ESMA) both to examine the applicability of EU financial law to cryptoassets and to provide guidance on best practices for regulatory sandboxes. This laid the groundwork for what would later become MiCA and PilotR, respectively.

Notably, in their reports on cryptoassets that were published on 9 January 2019, both the ESMA and the EBA emphasised that cryptoassets posed non-negligible consumer protection, operational resilience, and market integrity risks.[77] Furthermore, the ESMA noted that many cryptoassets would qualify neither as financial instruments nor as e-money and, hence, fall outside the boundaries of EU financial law altogether.[78] In response, the ESMA suggested a bespoke regulatory regime for cryptoassets and outlined a scope similar to what would later become MiCA.[79]

1.5.3 *The EU's Digital Finance Package (2020)*

The launch of Facebook's stablecoin Diem (formerly Libra), together with the experience gleaned from the AMLD5, led the European Commission to take a broader approach to the future development of digital finance and innovation in the EU, which on 24 September 2020 resulted in the new Digital Finance Package,[80] which comprised the DFS 2020 and a renewal of the retail payments strategy, in an effort to 'boost Europe's competitiveness and innovation in the financial sector, paving the way for Europe to become a global standard-setter'.[81]

The DFS 2020 presented three legislative proposals on cryptoassets and digital operational resilience: MiCA, PilotR and DORA. Together, these legislative acts filled the identified gaps in EU law with respect to cryptoassets: MiCA establishes a financial law framework for cryptoassets that were not already covered by existing EU financial law; PilotR creates a regulatory sandbox to facilitate innovation in DLT market infrastructures; and DORA puts in place a digital operational resilience regime to ensure that the necessary safeguards are in place to mitigate cyberattacks and other risks.

It is worth noting that the EU's regulatory approach stands out from attempts by other regulators globally, in the sense that it is both elaborate and explicitly seeks to promote innovation. In comparison, some regulators have imposed outright bans on cryptoassets or

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[76] European Commission, 'Communication on a FinTech Action Plan: For a More Competitive and Innovative European Financial Sector', COM (2018) 109 Final.

[77] EBA, 'Report with Advice for the European Commission on Crypto-Assets' (2019), para. 71, p. 29; ESMA, 'Advice – Initial Coin Offerings and Crypto-Assets', para. 178.

[78] ESMA, 'Advice – Initial Coin Offerings and Crypto-Assets', para. 179.

[79] ESMA, 'Advice – Initial Coin Offerings and Crypto-Assets', paras. 182–87.

[80] Directorate-General for Financial Stability, Financial Services and Capital Markets Union, 'Communication on the Digital Finance Package', European Commission (2020). Website https://ec.europa.eu/info/publications/200924-digital-finance-proposals_en (last accessed on 1 October 2024).

[81] European Commission, 'Digital Finance Package: Commission Sets Out New, Ambitious Approach to Encourage Responsible Innovation to Benefit Consumers and Businesses', Press Release (2020). Website https://ec.europa.eu/commission/presscorner/detail/en/IP_20_1684 (last accessed on 1 October 2024).

statements of disapproval (e.g., China[82] and South Korea[83]), others have issued general warning notices (e.g., NCAs in various EU Member States,[84] the Singapore MAS[85] as well as initially, the U.S. Securities and Exchange Commission (SEC)[86] with litigation[87] leading to a court-induced turn-around on 10 January 2024[88]), while some have instilled supportive and light regulatory regimes (e.g., Liechtenstein,[89] Switzerland[90] and Singapore[91]).

1.6 REGULATORY TECHNIQUES

MiCA, PilotR, DORA, and the revised TFR, with accompanying L2 and L3 legislation, are built on a set of distinct regulatory techniques.

1.6.1 *New and Better Definitions*

Because there has been extensive legal uncertainty related to whether some cryptoassets qualify under the different parts of EU financial law,[92] the DFS 2020 promises better definitions and that 'interpretative guidance on the application of existing rules will improve regulatory clarity, enabling the financial sector to reap efficiency gains through wider use of distributed ledger technology (DLT) in capital markets, while continuing to respect the safety and security rules and maintaining a high level of user protection'.[93]

This interpretative guidance is needed, and MiCA introduces a new legal taxonomy for cryptoassets. First, by explicitly excluding from its scope cryptoassets that qualify under existing

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[82] See L. Y. Chen and J. Lee, 'Bitcoin Tumbles as PBOC Declares Initial Coin Offerings Illegal', Bloomberg (2017). Website www.bloomberg.com/news/articles/2017-09-04/china-central-bank-says-initial-coin-offerings-are-illegal (last accessed on 1 October 2024).

[83] See Y. Nakamura and S. Kim, 'Cryptocurrencies Drop as South Korea Bans ICOs, Margin Trading', Bloomberg (2017). Website www.bloomberg.com/news/articles/2017-09-29/cryptocurrencies-drop-as-south-korea-bans-icos-margin-trading (last accessed on 1 October 2024).

[84] See AFM, 'AFM waarschuwt voor grote risico's bij Initial Coin Offerings' (2017). Website https://perma.cc/JE4R-ZWXW (last accessed on 1 October 2024); Federal Financial Supervisory Authority ('BaFin'), 'Consumer Warning: The Risks of Initial Coin Offerings' (2017). Website https://perma.cc/JM49-XZEN (last accessed on 1 October 2024); Financial Conduct Authority ('FCA'), 'Consumer Warning about the Risks of Initial Coin Offerings' (2017). Website https://perma.cc/Y69C-SLLB (last accessed on 1 October 2024).

[85] See Monetary Authority of Singapore, 'MAS Clarifies Regulatory Position on the Offer of Digital Tokens in Singapore', Media Release (2017). Website https://perma.cc/W9KS-BLX6 (last accessed on 1 October 2024).

[86] See U.S. Securities and Exchange Commission, 'SEC Statement Urging Caution around Celebrity Backed ICOs', Public Statement (2017). Website https://perma.cc/2Q69-KJ73 (last accessed on 1 October 2024) (demanding compliance with US disclosure rules).

[87] At the time of writing, more than 100 cases are either taken to court or settled by the SEC. Website www.sec.gov/securities-topics/crypto-assets (last accessed on 1 October 2024).

[88] See U.S. Securities and Exchange Commission, Release No. 34-99306, January 10, 2024 re the listing of Grayscale Bitcoin Trust at NASDAQ.

[89] See Gesetz vom 3. Oktober 2019 über Token und VT-Dienstleister (Token- und VT-Dienstleister-Gesetz; TVTG), LGBl. 2019.301.

[90] See FINMA, 'Regulatory Treatment of Initial Coin Offerings' (2017). Website https://perma.cc/VB7B-L259 (last accessed on 1 October2024).

[91] See S. Supaat, 'Reply to Parliamentary Question on the Prevalence Use of Cryptocurrency in Singapore and Measures to Regulate Cryptocurrency and Initial Coin Offerings', Notice Paper No. 869. Monetary Authority of Singapore (2017). Website https://perma.cc/W9KS-BLX6 (last accessed on 1 October 2024). For more on ICOs in Asia, see D. W. Arner *et al.*, 'Cryptocurrencies, Blockchain and ICOs: Policy and Regulatory Challenges of Distributed Ledger Technology and Digital Assets in Asia', in C. Brummer (ed.), *Cryptoassets: Legal, Regulatory, and Monetary Perspectives* (Oxford: Oxford University Press, 2019).

[92] See Sections 1.3.2 and 1.3.3, with further details in Chapter 4.

[93] European Commission, 'Communication on a Digital Finance Strategy for the EU', p. 9.

EU financial law,[94] MiCA implicitly reaffirms that investment tokens do indeed typically qualify under the existing legislation. Then, within its scope, MiCA differentiates between cryptoassets that reference the value of an underlying asset and those that do not. Roughly put, if the reference value is one fiat currency that is legal tender, the cryptoassets qualify as EMTs, while if the reference value is several fiat currencies, commodities, and/or other cryptoassets, then the cryptoassets in question qualify as ARTs. Finally, if there is no reference value, the cryptoassets simply qualify as tokens that are neither EMTs nor ARTs, which de facto mostly comprise utility tokens given that investment tokens are already excluded from MiCA's scope. The details of this taxonomy and its challenges are laid out in Chapter 4.

The ESMA and the EBA have released interpretative guidance for MiCA.[95] Yet, as explained further in Chapter 4, the initial guidance remains vague. This is expected until a substantial number of cryptoassets have been classified by NCAs assisted by the opinions of the ESMA and the EBA, on which basis the initial guidance will be reshaped and made more granular. Until then, the challenge of legal classification under the existing EU financial law is likely to persist for some years even after MiCA has come into force.

1.6.2 *An Extended Authorisation Regime*

MiCA imposes an authorisation requirement on issuers of ARTs and EMTs; only issuers of 'other tokens than ARTs and EMTs' in the scope of Title II MiCA do not require authorisation. For ARTs, Title III MiCA provides a bespoke authorisation regime; Article 17 MiCA allows for some easing of the requirements to authorised credit institutions. Meanwhile, Title IV MiCA for EMTs is modelled on the E-money Directive (EMD) and requires authorisation as a credit institution or electronic money institution to issue EMTs. These requirements are discussed in Chapter 6.

In addition, Title V MiCA imposes a bespoke authorisation regime on in-scope cryptoasset service providers (CASPs), which we discuss in Chapter 7.

1.6.3 *A Risk-Adjusted Disclosure Regime*

MiCA aims to strike a balance between risk mitigation and the promotion of digital innovation through a simplified disclosure (whitepaper) regime, as compared to the prospectus regime under the Prospectus Regulation. MiCA's disclosure requirements are tailor-made for EMTs, ARTs, and 'other cryptoassets', respectively. Notably, issuers of other in-scope cryptoassets are under no requirement for pre-approval of the whitepaper, and requirements on the content and form of cryptoasset whitepapers are also differentiated for utility tokens, EMTs, and ARTs, respectively. These rules are covered in more detail in Chapter 5.

1.6.4 *Detailed Operating Conditions*

MiCA, PilotR, and DORA establish a set of operating conditions for the entities that fall under their scope which are covered in more detail throughout this book.

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94 See Article 2(4) of MiCA.
95 See ESMA, 'Markets in Crypto-Assets Regulation'. Website www.esma.europa.eu/esmas-activities/digital-finance-and-innovation/markets-crypto-assets-regulation-mica (last accessed on 1 October 2024).

Here too, Title II MiCA takes a risk-based approach with a limited set of obligations for issuers of other in-scope cryptoassets and a more comprehensive set of rules for ART issuers in Title III, including a regulatory regime for own funds and reserve assets. For EMT issuers, MiCA largely relies on the operating conditions laid down in EMD, while for issuers of ARTs and EMTs that qualify as 'significant', a stricter regime applies, as laid down in Title III, Chapter 5 and Title IV, Chapter 2 MiCA. Finally, Title V MiCA includes a separate set of detailed operating conditions for CASPs.

In line with the regulatory sandbox concept, PilotR offers a scheme of exemptions and requirements. The regulatory technique here is the same for both multi-lateral trading facilities (MTFs) and securities settlement systems (SSSs).[96] For MTFs, the Markets in Financial Instruments Directive (MiFID) and Markets in Financial Instruments Regulation (MiFIR) apply, while for SSSs, the Central Securities Depository Regulation (CSDR) applies, unless the operator (a) has requested and been granted an exemption from certain provisions, (b) complies with a set of general obligations to set the rules and meet minimum standards for DLT market infrastructure operations, and (c) adheres to a set of conditions and, at the discretion of the NCA, additional compensatory measures.

Finally, DORA is in its entirety a set of detailed operating conditions for financial entities, including cryptoasset issuers and service providers.[97] These operating conditions span the entire digital operational resilience space, including information and communication technology (ICT) risk management; incident management, classification, and reporting; digital operational resilience testing; managing of ICT third-party risk; and information-sharing arrangements.[98]

1.6.5 *PilotR: The Regulatory Sandbox and 'Business Plan Approach'*

DLT and crypto-assets constitute a new space where many important questions can be answered only through trial and error. Hence, PilotR foresees a regulatory sandbox approach for the European Single Market, offering firms a set of exemptions from EU financial law that allow them to test DLT in certain activities related to trading and settlement, while regulators also gain experience in DLT market infrastructures.[99] Since its first adoption for financial services by the UK's Financial Conduct Authority,[100] the regulatory sandbox concept has been applied in more than seventy-three countries.[101] Prior to PilotR's inception, several EU Member States had adopted various regulatory approaches for experimentation, yet concerns over deviations from mandatory EU financial law that put the main privilege of EU membership (i.e., the 'EU Passport') at risk limited the space for doing so. Hence, the PilotR constitutes a recognition of the need to take action at EU level.

Moreover, the PilotR is characterised by an innovative 'business plan approach' whereby the DLT operator itself defines 'the rules under which the DLT market infrastructures and their operators are to operate, including the legal terms defining the rights, obligations, responsibilities and liabilities of operators of DLT market infrastructures, as well as those of the

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[96] See Articles 4–6 of PilotR, Regulation 2022/858, OJ 2022 No. L151.
[97] See Article 2(1)(f) of DORA.
[98] See Chapters II–VI of DORA, respectively. See Chapter 15 on details of DORA.
[99] See Recital para. 6 of PilotR, Proposal 2020/0267.
[100] Fca.org.uk, 'Regulatory Sandbox' (2022). Website www.fca.org.uk/firms/innovation/regulatory-sandbox (last accessed on 1 October 2024).
[101] For an updated list of running sandboxes as of November 2020, see The World Bank, 'Global Experiences from Regulatory Sandboxes' (2020). Website https://documents.worldbank.org/en/publication/documents-reports/documentdetail/912001605241080935/global-experiences-from-regulatory-sandboxes (last accessed on 1 October 2024).

members, participants, issuers and clients using their DLT market infrastructure'.[102] This marks a substantial departure from the status quo where financial market law tends to define the role of each type of intermediary, and each of them is explicitly accountable for their activities as defined by their intermediary activity or entity status. Through this business plan approach, PilotR promotes innovation while demanding business-specific risk mitigation through carefully managed self-regulation, avoiding one-size-fits-all approaches. (We discuss the PilotR in Chapter 12.)

1.6.6 *An EU 'Passport' Regime*

The most valuable privilege of the European Single Market in financial services is the right to operate across borders. Hence, both MiCA and PilotR entail an EU 'Passport' regime based on the jurisdiction of the NCA in the home Member State of the issuer or service provider. Specifically, if issuers of utility tokens comply with MiCA, they can offer such tokens to the public and seek admission to trading 'throughout the Union'.[103] Similarly, authorisation for issuers of ARTs and CASPs is also valid for the entire EU[104] (issuers of EMTs must be authorised as a credit institution or e-money institution and that authorisation comes with an EU Passport). Finally, a specific permission under PilotR to operate DLT market infrastructures is valid throughout the Union for up to six years,[105] meaning that the operator is granted a time-bound EU Passport.

1.6.7 *Supervisory Cooperation and ESMA/EBA Coordination*

Given the objective of harmonisation across the European Single Market, MiCA, PilotR, and DORA provide a framework for supervisory cooperation, where NCAs are provided supervisory powers under a collaborative process coordinated by the ESMA and the EBA (and in the case of DORA, the EIOPA as well).[106] For instance, before an NCA can make a decision, there are processes to follow for the collection of advice from NCAs in other Member States and the so-called 'non-binding opinions' of the ESMA and the EBA, as well as sometimes the European Central Bank (ECB) and central banks in Member States.[107] To promote consistent enforcement across the European Single Market, there are also rules on the publishing of NCAs' decisions on official websites.[108] Finally, for ARTs and EMTs that are classified as 'significant', Title III, Chapter 5 and Title IV, Chapter 2 MiCA transfer supervisory authority from NCAs to the EBA. We discuss supervisory matters in Chapter 11.

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[102] Article 7(1) and (2) of PilotR.
[103] Article 11(1) of MiCA.
[104] Articles 16(3) and 59(7) of MiCA.
[105] Articles 8(11) and 9(11) of PilotR for DLT MTFs and DLT SSSs, respectively.
[106] See Title VII of MiCA and Articles 8(5–8) and 9(5–8) of PilotR.
[107] See, for example, Articles 20(5) and 120(2) and Recital para. 45 of MiCA; and Articles 8(7), 9(7), and 10(8) of PilotR.
[108] See Article 114 of MiCA.