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"Just because something doesn't do what you planned it to do doesn't mean it's useless"

Thomas Edison

I would like to express my sincere gratitude to a number of people for their precious assistance and support during my Ph.D.

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INTRODUCTION

In this thesis we will address the most relevant issues relating to the legal qualification of crypto-assets and the applicable regulatory framework under EU and US securities law.

The purpose of this thesis will be threefold.

First, to provide a snapshot of the situation *de iure condito*: we will therefore discuss the current state of art of the regulation of crypto-assets by examining the regulatory interventions of lawmakers and the positions of the financial authorities.

Second, to identify the most significant issues and regulatory challenges that the growing presence of crypto-assets in capital markets poses for regulators and market participants, and to provide a critical analysis of such issues.

Third, with a *de iure condendo* approach, to propose potential solutions to the open regulatory issues which also contemplate the intervention of lawmakers and financial authorities.

The analysis will be structured as follows. We will first provide in Chapter 1 an overview of the blockchain phenomenon, its main practical applications, and the potential interactions between law and blockchain. The regulatory analysis will then start in Chapter 2 with a discussion on the legal qualification of crypto-assets under EU law, while in Chapter 3 we will try to identify a potential EU regulatory framework applicable to crypto-assets. In Chapters 4 and 5 we will instead discuss the US approach by examining the legal qualification and regulation of crypto-assets under US securities law.

CHAPTER 1

AN OVERVIEW OF BLOCKCHAIN TECHNOLOGY AND ITS POTENTIAL IMPACT ON LEGAL SYSTEMS

1. History and structure of the blockchain

1.1. The genesis of blockchain technology

It was the year 2008 when Satoshi Nakamoto, the fantasy name used by an unknown person (or group of persons), published a white paper, titled "Bitcoin: A Peer-to-Peer Electronic Cash System"[1], that paved the way for a new technological era based on cryptography and decentralization. Since then, the word "blockchain" has been echoing through the walls of the most prominent financial venues and academic institutions.

We can define the blockchain as a "*distributed, shared, encrypted database that serves as an irreversible and incorruptible public repository of information*"[2]. In other words, the blockchain is a public ledger that keeps a chronological record of all the transactions, secured by a strong consensus mechanism and by the immutability of records[3].

Although the first concept of blockchain dates back to 1991[4], the term blockchain (originally block chain) was first used by Satoshi Nakamoto in a text

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[1] S. NAKAMOTO, *Bitcoin: A Peer-to-Peer Electronic Cash System*, available at: https://bitcoin.org/bitcoin.pdf.

[2] A. WRIGHT, P. DE FILIPPI, *Decentralized Blockchain Technology and The Rise of Lex Cryptographia*, (March 10, 2015), 2, available at: http://dx.doi.org/10.2139/ssrn.2580664.

[3] D. PUTHAL, N. MALIK, S. MOHANTY, E. KOUGIANOS, G. DAS, *Everything You Wanted to Know About the Blockchain: Its Promise, Components, Processes, and Problems*, 1, published in: IEEE Consumer Electronics Magazine (Vol. 7, Issue 4, July 2018).

[4] See S. HABER, W. S. STORNETTA, *How to time-stamp a digital document*, in Journal of Cryptology (Vol. 3, No. 2, 99-111, 1991).

string in the original Bitcoin source code: "*Nodes collect new transactions into a block, hash them into a hash tree, and scan through nonce values to make the block's hash satisfy proof-of-work requirements. When they solve the proof-of-work, they broadcast the block to everyone and the block is added to the block chain*"[5]. In the above-mentioned white paper Nakamoto explained his idea of a virtual currency, the Bitcoin, operating in a peer-to-peer network in the absence of any central authority and without any issuance of physical coins (owners only need keys to prove ownership)[6]. On January 3, 2009, Nakamoto released the first Bitcoin software and created the first block of the Bitcoin blockchain, known as the "Genesis block".

So far, Bitcoin remains the first (and most successful) application of the blockchain technology. Nevertheless, Bitcoin was just the spark that triggered the blockchain revolution: as we will see, dozens of practical applications of blockchain technology are currently studied and developed, from the financial industry to governmental services.

Even though the aim of this thesis is not to provide an in-depth analysis of the technical aspects of this new technology (we leave this duty in the hands of computer engineers and IT experts), it is worth providing a brief description of the structure and operation of the blockchain in order to better understand the underlying legal issues that will be addressed in the following chapters.

1.2. Centralized Ledgers vs Distributed Ledgers

The fundamental feature of blockchain technology is the use of distributed ledgers instead of the classic centralized ledgers. Before the invention of the

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[5] S. NAKAMOTO, *The original Bitcoin source code*, available at https://github.com/bitcoin/bitcoin/blob/master/src/primitives/block.h.

[6] A. M. ANTONOPOULOS, *Mastering Bitcoin – Programming the Open Blockchain*, O'Reilly (2017), 1.

blockchain, a central authority was always needed to validate transactions, such authority being usually a bank or a central government keeping ledgers and managing wealth movements[7]. This centralized system contributed to a strong concentration of power among a handful of authorities and to the consolidation of markets, often at the expense of individuals.

With the advent of Internet, we have witnessed a democratization of markets that led to the development of more flexible online organizations governed by their own set of rules[8]. However, the centralized system survived, and governments and large companies even increased their market power by taking advantage of the immense business potential of Internet[9].

The turning point that shook the foundations of a system based on centralized authorities was the invention of the blockchain. "*We have proposed a system for electronic transactions without relying on trust*", we read at the end of Nakamoto's celebrated paper[10].

The aim of the blockchain is in fact to remove the need for a trusted third party to guarantee a transaction[11], as it relies on a distributed architecture where the role of centralized authorities, such as banks and governments, is reduced to zero. Indeed, it is not a surprise that the factor that contributed the most to the success of the blockchain is the crisis of trust in government, business, and the media. Many recent surveys show a massive decrease of trust extending across

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[7] See A. WRIGHT, P. DE FILIPPI, *supra* note 2, 18.

[8] *Id.*

[9] See generally Y. BENKLER, *The Wealth of Networks – How Social Production Transforms Markets and Freedom*, Yale University Press (2006).

[10] S. NAKAMOTO, *supra* note **Error! Bookmark not defined.**, 8.

[11] M. PILKINGTON, *Blockchain Technology: Principles and Applications* (September 18, 2015), in *Research Handbook on Digital Transformations*, edited by F. X. OLLEROS, M. ZHEGU, Edward Elgar Publishing (2016), available at: https://ssrn.com/abstract=2662660.

all categories of institutions[12], including government, the media, corporations, and NGOs[13]. For instance, the Organization for Economic Co-operation and Development (OECD), in a 2015 survey[14], reported that only 43% of citizens trust their government, and the 2017 Edelman Trust Barometer[15] finds that only 15% of the general population believes the present system is working (while 53% do not and 32% are uncertain). In addition, the relentless development of the information technology industry, the massive digitalization of services, and the global nature of connectivity provided further impulse to decentralization[16].

All the above-described factors led to a lessened trust in centralized ledgers and, more broadly, in vertical systems based on the intermediation of a trusted central authority, that in turn opened the door to an increased interest in distributed ledgers and in a more horizontal diffusion of authority (where the source of legitimacy are the individuals themselves)[17]. A distributed ledger is, indeed, a database that is consensually shared and synchronized across multiple locations, without the need of any entity acting as a central trusted authority. It can be described as a ledger of transactions maintained in decentralized form

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[12] For a US-based analysis of trust see, *ex multis*, M. DIMOCK, *How America Changed During Barack Obama's Presidency*, Pew Research Center (January 10, 2017), available at https://www.pewresearch.org/2017/01/10/how-america-changed-during-barack-obamas-presidency/; R. ELVING, *Poll: 1 in 5 Americans Trust the Government*, NPR.org (November 23, 2015), available at https://www.npr.org/2015/11/23/457063796/poll-only-1-in-5-americans-say-they-trust-the-government?t=1564424291276.

[13] K. WERBACH, *The Blockchain and the New Architecture of Trust*, MIT Press (2018), 18.

[14] Available at https://www.oecd.org/gov/trust-in-government.htm.

[15] The Executive Summary of the 2017 Edelman Trust Barometer is available at https://www.edelman.de/fileadmin/user_upload/Studien/2017_Edelman_Trust_Barometer_Executive_Summary.pdf.

[16] M. ATZORI, *Blockchain Technology and Decentralized Governance: Is the State Still Necessary?* (December 1, 2015), 14, available at: http://dx.doi.org/10.2139/ssrn.2709713.

[17] *Id.*, 7.

across different locations and people, where all the stored information is encrypted and can be accessed using keys and cryptographic signatures[18].

For the first time in history, everyone can now perform transactions at global level through encrypted peer-to-peer procedures without the intermediation of third parties[19]. Before the advent of the blockchain, it was impossible for a group of unrelated individuals in a distributed computer system to confirm that an event occurred without relying on a central authority to verify that no one has tampered with the data[20]. In computer science, this was commonly referred to as the "Byzantine Generals Problem". It describes a scenario where three or more divisions of the Byzantine army surround an enemy city with the aim of conquering it; each division is independently controlled by a general, and all the generals need to plan a common strategy in order to attack the city. The generals can only communicate through a messenger, and there is a traitor that is trying to prevent the generals from reaching an agreement. The generals need to find a solution reflecting at least the majority view, but in the absence of a central trusted authority they can only rely on the messages they directly see. In such a scenario, no solution will work unless more of two-thirds of the generals are loyal, hence no solution can work with only three generals and the presence of a traitor[21].

The solution adopted by blockchain technology is probabilistic: as we will see in paragraph 1.6 below, the blockchain ensures that transactions are valid by using complex mathematical problems that require a significant computational effort to solve, thus making it harder for attackers to corrupt a shared database[22]

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[18] See https://www.investopedia.com/terms/d/distributed-ledgers.asp.

[19] M. ATZORI, *supra* note 16, 7.

[20] See A. WRIGHT, P. DE FILIPPI, *supra* note 2, 5.

[21] See L. LAMPERT ET AL., *The Byzantine Generals Problem*, 4 ACM Transactions on Programming Languages and Systems (July 1982), 382.

[22] See S. NAKAMOTO, *supra* note **Error! Bookmark not defined.**, 3.

(unless such attacker owns a majority of the computational power of the entire network, trying a so-called "51 percent attack")[23].

In other words, the blockchain simply created a new kind of trust that has been described as a "trustless trust"[24], as on a blockchain platform nothing and nobody is assumed to be trustworthy, except the output of the platform itself[25]. The blockchain managed to replace the three elements that should usually be trusted in a transaction (the counterparty, the intermediary, and the dispute resolution mechanism) with a software code: parties are represented by digital keys, the intermediary is a distributed ledger operated by unknown users, and dispute resolution occurs through the automatic execution of predefined algorithms[26]. The revolutionary aspect of the blockchain is that it removes the need of any kind of third party: you only have to trust the platform and the software code, without necessarily trusting any person or central authority[27]. In this distributed architecture we may even claim that "code is law"[28], as human factor is significantly reduced and trust shifts from central authorities and legal systems to an open source code[29].

1.3. The core components of the blockchain: some useful definitions

Before examining the operation and the potential uses of the blockchain, and in order to have a better understanding thereof, it would be useful to share a

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[23] See paragraph 1.6.4 below.

[24] R. HOFFMAN, *The Future of the Bitcoin Ecosystem and "Trustless Trust" – Why I invested in Blockstream*, LinkedIn's Pulse (November 17, 2014).

[25] K. WERBACH, *supra* note 13, 29.

[26] *Id.*

[27] J. FAIRFIELD, *Virtual Property*, Boston University Law Review 85 (2005), 1047.

[28] This expression was first used in L. LESSIG, *Code and Other Laws of Cyberspace*, Basic Books (1999).

[29] M. ATZORI, *supra* note 16, 7.

taxonomy of the core components of this new technology[30]. The blockchain operates and is built upon the following components:

Crypto-asset: an asset exchanged on the blockchain, commonly referred to as "token". Crypto-assets are usually divided, based on their features and functions, into three classes[31]: (i) investment tokens (also known as asset tokens or security tokens), that have some profit rights attached and an investment component (like equity or debt instruments), (ii) utility tokens, providing some utility or consumption rights (like the ability to access or buy some products or services), and (iii) payment tokens (also known as exchange tokens or cryptocurrencies), serving as a means of payment (like Bitcoin). However, the above categorization may turn out to be quite confusing in certain contexts, considering that crypto-assets usually show characteristics of more than one of the above classes (we refer to them as "hybrid tokens"), or may even evolve from one class to another. We will discuss in great detail the categorization of crypto-assets under Chapter 2, paragraph 1.4, including potential alternatives to the above-mentioned threefold classification.

Node: a participant of the blockchain, *i.e.* a user or a computer managing the transactions executed on the blockchain.

Transaction: an exchange of crypto-assets between two or more Nodes.

Block: a data structure used for keeping information about a certain number of transactions, distributed to all Nodes in the network.

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[30] See R. GARAVAGLIA, *Tutto su Blockchain – Capire la Tecnologia e le Nuove Opportunità*, Hoepli (2018), 59-66. See also A. LASTOVETSKA, *Blockchain Architecture Basics: Components, Structure, Benefits & Creation*, available at: https://medium.com/@MLSDevCom/blockchain-architecture-basics-components-structure-benefits-creation-beace17c8e77.

[31] EUROPEAN SECURITIES AND MARKETS AUTHORITY (ESMA), *Advice on Initial Coin Offerings and Crypto-Assets* (January 9, 2019), 8, available at: https://www.esma.europa.eu/sites/default/files/library/esma50-157-1391_crypto_advice.pdf.

Hash: a mathematical function that converts an input of letters and numbers into an encrypted output of a fixed length.

Ledger: the public distributed ledger on which all the transactions are annotated. It is made up by series of blocks enchained through encryption and the use of Hash functions.

Chain: a sequence of blocks in a specific order.

Miners: specific Nodes which perform the block verification process and receive a reward for their work.

Mining: the process by which transactions are validated and registered on the blockchain.

Consensus: a set of rules and arrangements governing blockchain transactions, shared by all Nodes.

Proof-of-Work (PoW): the proof allowing Miners to demonstrate to all the other Nodes the validation of the Block (and entitling such Miner to receive the reward in crypto-assets).

Protocol: the group of rules governing the network defining, *inter alia*, the dimension of Blocks and the reward for Miners.

Wallet: a virtual wallet with the credentials to access, spend and transfer crypto-assets.

Digital signature: a cryptographic process based on asymmetric keys (i.e. a private key and a public key) that, together with the Hash function, can provide a secure evidence that a transaction on the blockchain has been generated by the user entitled to access the specific Wallet used in the transaction.

1.4. Classification of blockchain systems

Before delving into the structure of a blockchain transaction, it is worth mentioning the commonly used classification of blockchain systems in three sub-

categories: (i) public blockchain, (ii) private blockchain, and (iii) consortium blockchain[32].

(i) Public blockchain: also called "permission-less" blockchain, as there are no restrictions on participation. Any user is free to join and perform transactions on the blockchain, and decentralized consensus is reached through mechanisms such as mining and proof-of-work.

(ii) Private blockchain: also called "permissioned" blockchain, as access to the network is controlled and limited to members of a single organization (or multiple organizations under the same control). Membership is invitation-only and subject to a set of rules and to Know-Your-Business (KYB) or Know-Your-Customer (KYC) procedures. The difference with the public blockchain is the extent of decentralization (more centralized in private blockchains) and anonymity (completely guaranteed only in public blockchains)[33].

(iii) Consortium blockchain: it is a hybrid between private and public blockchains. Indeed, not a single organization (like in private blockchains), but a consortium of nodes is responsible for block validation. Those nodes decide who can be part of the network and who can perform mining activities; most importantly, a block can only be validated by the consortium of nodes[34].

Despite the existence of private and consortium blockchains, our analysis will mainly focus on public blockchains, as they constitute the vast majority of existing blockchains (including the Bitcoin network) and they better reflect the original Nakamoto's idea of a decentralized, open, and shared blockchain.

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[32] For a detailed description of the three categories, see D. PUTHAL, N. MALIK, S. MOHANTY, E. KOUGIANOS, G. DAS, *supra* note 3, 5.

[33] M. PILKINGTON, *supra* note 11, 11.

[34] D. PUTHAL, N. MALIK, S. MOHANTY, E. KOUGIANOS, G. DAS, *supra* note 3, 5.

1.5. The operation of the blockchain

The blockchain is simply a distributed database: "*it logs pieces of information that are bundled in blocks and that are connected through a cryptographic procedure in an ever-expanding chain – hence the name*"[35].

To perform any transaction on the blockchain, the users need to possess a digital wallet (comparable to a bank account) that can only be accessed through a cryptographic process based on asymmetric keys: a private key, personal for each user and kept secret like a password, and a public key, shared with all the other users. In order to perform a transaction, the purchaser (i.e. the future owner of the crypto-assets) sends his public key to the seller (i.e. the original owner of the crypto-assets that will be transferred). Private keys are instead kept secret and used to digitally sign transactions.

It is fundamentally important to keep in mind that, while the traditional architecture of the World Wide Web uses a client-server network, where the server keeps all the required information in one place (so that it can be easily updated and controlled by a number of administrators), the blockchain is based on a peer-to-peer (P2P) network, where every node (i.e. each participant of the blockchain) maintains in its computer a copy of all transactions[36] and where each computer periodically synchronize to make sure that all nodes have the same shared database[37]. This mechanism provides an exceptional degree of resiliency, as the database can be restored in its entirety even if one or more computers

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[35] P. HACKER, C. THOMALE, *Crypto-Securities Regulation: ICOs, Token Sales and Cryptocurrencies under EU Financial Law*, 15 European Company and Financial Law Review 645-696 (2018), available at: http://dx.doi.org/10.2139/ssrn.3075820, 8.

[36] A. LASTOVETSKA, *Blockchain Architecture Basics: Components, Structure, Benefits & Creation*, available at https://medium.com/@MLSDevCom/blockchain-architecture-basics-components-structure-benefits-creation-beace17c8e77.

[37] A. WRIGHT, P. DE FILIPPI, *supra* note 2, 7.

fail[38]. The blockchain is, therefore, an encrypted ledger containing all such transactions, which are continuously generated by nodes and organized into smaller datasets called blocks. Each block contains information about a number of transactions, a reference to the preceding block, and an answer to a complex mathematical problem (used to validate the information included in the block)[39].

As already mentioned, in blockchain platforms there are no central authorities that validate transactions and keep track of the flow of funds. This absence of a centralized party may significantly increase the risk of frauds, such as the "double-spending problem", occurring when the same digital tokens are spent more than once. In order to avoid frauds, the blockchain relies on a consensus mechanism: the transaction does not become part of the blockchain until it is verified and included in a block by a process called "mining"[40]. The most common mechanism used in the mining process is the Proof of Work (PoW), by which miners solve complex mathematical puzzles in order to validate transactions and are incentivized to behave honestly through rewards (generally consisting in transaction fees or in the creation of new coins). Once the transaction is validated, it is permanently added to the blockchain and cannot be deleted or altered by anyone on the network.

1.6. The structure of a transaction on the blockchain: a step-by-step analysis

In order to better understand the operation of the blockchain, we will now analyze step by step a sample transaction: the transfer of cryptocurrencies, in our

[38] *Id.*, 7, note 27.

[39] *Id.*, 7.

[40] A. M. ANTONOPOULOS, *supra* note 6, 26.

case Bitcoins[41] (BTC), from a user A (that we will call Lucy) to a user B (that we will call Mark), although the same basic principles described below hold true, *mutatis mutandis*, for the transfer of any kind of crypto-asset on a blockchain.

1.6.1 The Bitcoin wallet

The first step for Lucy is to choose a Bitcoin wallet. Bitcoin is a protocol that can be accessed using an application, and there are currently many brands of Bitcoin wallets (like Bitcoin Core, or Edge), just like there are many brands of web browsers (e.g. Internet Explorer, Mozilla Firefox, Safari). The choice among the vast universe of Bitcoin wallet applications mainly depends on the features offered and on the level of expertise of the user. After having downloaded and installed the Bitcoin wallet, the user will generally see on the main screen of the app a page with his balance and his Bitcoin address (in the form of a long string of letters and numbers). The Bitcoin address is not sensitive from a security perspective: like an email address, it can be shared with all the other users, that will use it to send Bitcoins directly to the recipient's wallet.[42]

1.6.2 The basic components of transactions: UTXOs

We can imagine Bitcoin transactions as a double-entry bookkeeping ledger: on the one side, we have one or more "inputs", corresponding to debits against the account, while on the other side there are one or more "outputs", which are like credits added to the account.[43] However, on the blockchain there is no "account" in the strict sense of the word; it is, indeed, far from the concept of

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[41] Conventionally the word is used with initial capital B ("Bitcoin") when talking about the network or the technology, while with initial lowercase b ("bitcoin") when talking about the cryptocurrency. We will however use the word here only with initial capital B.

[42] A. M. ANTONOPOULOS, *supra* note 6, 6.

[43] *Id.*, 18.

"account" we are used to when dealing, for example, with bank deposits. In fact, instead of a single account, on the blockchain we have several fractions of crypto-assets (in our case, of Bitcoins) called UTXO (Unspent Transaction Outputs). UTXOs are the basic components of a transaction on the blockchain: indivisible fractions of Bitcoins belonging to the same owner, which are recognized as unit of value by the entire network.

Whenever a transaction is confirmed, spent coins are removed from the UTXO database, but a record of such spent coins will still exist on the ledger. Bitcoin transactions are therefore more similar to cashier checks: you cannot spend custom amounts, but the entire amount stored in that data byte. For example, if we need to spend an amount equal to 1 BTC, the algorithm may take 0.4 BTC from one data byte and 0.6 BTC from another. Any change resulting from these fractions is sent to the UTXO database, which stores all change records from Bitcoin transactions. Therefore, the Bitcoin balance on a user's account is nothing more than the sum of all UTXOs belonging to that user, which can be used only with the private key of such user. The rationale behind UTXOs is that a sheer amount of small coins populating the Bitcoin network would make certain transactions unprofitable, as the cost to transact might exceed the actual cost of the product being purchased with Bitcoins.[44]

1.6.3 Input/Output and hash functions

Once downloaded and installed the Bitcoin wallet, Lucy is ready to send and receive Bitcoins. She only has to provide two inputs: the Bitcoin address of the recipient (Mark) and the amount to send, in Bitcoin or in fiat currency (*e.g.* EUR, USD, etc.). In the last case, the wallet will automatically convert the

[44] See https://www.investopedia.com/terms/u/utxo.asp.

currency in Bitcoin based on the most recent exchange rate[45]. In order to process the transaction in a timely fashion, Lucy's wallet application will add a small transaction fee that will be collected by the miner as a fee for validating the transaction and including it in a block[46].

Needless to say, cryptocurrencies like Bitcoin must have strong security measures in order to prevent users from tampering with the system. However, unlike fiat currencies, cryptocurrencies do not have central authorities controlling the money supply and implementing anti-fraud measures. In order to remedy the above-mentioned lack of control, cryptocurrencies, as the word suggests, make heavy use of cryptography[47]. The cryptography used in the blockchain relies on hashes and hash functions. A hash is a mathematical function that takes an input and transforms it into a string of letters and numbers called "Digest". A hash function has essentially three properties: (i) its input can be any string of any size, (ii) it produces a fixed-size output, and (iii) it is efficiently computable (i.e. you can figure out the output in a reasonable amount of time)[48]. For a hash function to be cryptographically secure, it should also have the following three properties: (a) collision resistance[49], (b) hiding[50], and (c)

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[45] Bitcoin, like many other virtual currencies, has a floating exchange rate that fluctuates according to supply and demand in the markets where it is traded. There are many applications (like Bitcoin Average or CoinCap) that provide the current market rate (*e.g.* BTC/EUR or BTC/USD) by aggregating the prices from several markets and calculating a volume-weighted average. See A. M. ANTONOPOULOS, *supra* note 6, 12.

[46] A. M. ANTONOPOULOS, *supra* note 6, 24.

[47] A. NARAYANAN, J. BONNEAU, E. FELTEN, A. MILLER, S. GOLDFEDER, *Bitcoin and Cryptocurrency Technologies – A Comprehensive Introduction*, Princeton University Press (2016), 1.

[48] *Id.*, 2.

[49] A collision occurs when two distinct inputs produce the same output.

[50] The hiding property asserts that if we are given the output of a hash functions, there is no feasible way to figure out what the input was.

puzzle friendliness[51]. The Bitcoin network uses the hash function SHA-256, originally developed by the NSA (National Security Agency), which takes a 768-bit input and produces a 256-bit output.

In short, when Lucy creates the transaction, before sending it to the network she follows the below procedure:

(i) creates the digest of the transaction by using the hash function;

(ii) signs the digest by using her private key; and

(iii) adds the public key of the recipient[52].

As a result of the input, a transaction output (i.e. a script) is created in the form of an encrypted string of letters and numbers, in a scripting language developed specifically for the Bitcoin network (called "Script"). The script will say something like "This output is payable to whoever can present a signature from the key corresponding to Mark's public address", and only Mark has the wallet with the key corresponding to such address. Therefore, since Lucy encumbered the output with a demand for a signature from Mark, only Mark's wallet has a signature that can redeem that output[53]. It is fundamentally important to remember that the above-mentioned address is a hash of the public key (i.e. a digest created by using the hash function); hence merely specifying the address does not tell us what the public key is[54].

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[51] A hash function H is said to be puzzle-friendly if for every possible n-bit output value y, if k is chosen from a distribution with high entropy, then it is infeasible to find x such that $H(k \| x) = y$ in time significantly less than 2^n. Intuitively, if someone wants to target the hash function to have some particular output value y, and if part of the input has been chosen in a suitably randomized way, then it is very difficult to find another value that hits exactly that target. See A. NARAYANAN, J. BONNEAU, E. FELTEN, A. MILLER, S. GOLDFEDER, *supra* note 47, 8.

[52] R. GARAVAGLIA, *Tutto su Blockchain – Capire la Tecnologia e le Nuove Opportunità*, Hoepli (2018), 70.

[53] A. M. ANTONOPOULOS, *supra* note 6, 24.

[54] A. NARAYANAN, J. BONNEAU, E. FELTEN, A. MILLER, S. GOLDFEDER, *supra* note 47, 55.

Once confirmed, the transaction is irreversible and is transmitted across the Bitcoin peer-to-peer network. Any Bitcoin node that receives a valid transaction never seen before will forward it to all the other nodes to which it is connected (through a propagation mechanism called "flooding")[55].

1.6.4 Validation of transactions

The transaction does not become part of the blockchain until it is verified and then included in a block through a process called "mining".

The first step is the verification of a transaction, which can be carried out by each node of the network. The purpose of this first screening is to avoid the propagation of invalid transactions across the network. Nodes follow several criteria to check the validity of a transaction, including, for instance, the correctness of the syntax and data structure, the transaction size in bytes, and the list of inputs and outputs. Most importantly, nodes will check whether, for each input, the referenced output exists and has not yet been spent (in order to avoid any double-spending problems). After having verified the transaction, and before propagating it across the network, each node builds a pool of valid (but unconfirmed) transactions called "transaction pool" (or "memory pool")[56], where transactions await until they are included in a block.

The process can now move to the second step, known as "mining", by which the transaction is "mined" into a block. Some of the nodes on the network are in fact specialized nodes called "miners". While the transaction is being propagated across the network, each miner can decide to compete with other miners and try to solve the mathematical puzzle in order to confirm the transaction and receive the reward. The best way to understand this complex procedure, which is the very heart of blockchain transactions, is to answer some

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[55] A. M. ANTONOPOULOS, *supra* note 6, 25.

[56] *Id.*, 234-235.

basic questions: (i) who are miners, (ii) which kind of reward they receive from their mining activity, (iii) what is the purpose of mining, and (iv) how miners validate transactions.

As concerns question (i), we should start by saying that, in the early days of the blockchain, mining was mainly done by users on their home computers through a simple CPU (Central Processing Unit). When the system became more and more complex, and mathematical puzzles started to require a more powerful computational power, mining activity was taken over by mining pools (i.e. groups of miners) using ASIC integrated circuits, far more powerful than a common CPU, but also extremely expensive and energy-consuming (therefore requiring a huge investment)[57]. Miners are therefore sophisticated nodes that can rely on a system with a strong computational power and have enough expertise to validate transactions by solving the complex mathematical puzzles.

We can now move to question (ii). Miners, of course, need incentives for carrying out the energy-consuming validation of transactions and for behaving honestly. In this respect, they usually receive two types of rewards: the new Bitcoins created with each new block, and the transaction fees from the transactions they validate and include in a block. Since transactions waiting for validation are prioritized, *inter alia*, by the highest transaction fees included, the higher the transaction fees, the faster the transaction will be validated by miners.

Question (iii) goes straight to the core of blockchain technology: decentralization. On the blockchain there is no central authority controlling transactions and keeping a ledger of all cash movements. The system is based on a peer-to-peer network, where a wide consensus is the remedy to the lack of a centralized control. The term "consensus" means that all the nodes on a blockchain network agree on the same set of rules, thus making such network a "self-auditing ecosystem". The two fundamental functions of consensus are (a)

[57] See PILKINGTON, *supra* note 11, 6.

allowing the blockchain to be updated, and (b) preventing any single node from controlling or tampering with the whole blockchain network[58]. In relation to the latter, the major risk in a peer-to-peer system would be a so-called "51 percent attack", occurring when a miner (or a group of miners) controlling at least 51% of the network tries to derail the blockchain network. Such attacker may, for instance, try to steal Bitcoins from other nodes or try to suppress some transactions. However, the consensus mechanism will prevent the attacker from subverting the rules or the cryptography of the blockchain network: indeed, the attacker does not have control on the Bitcoin software, that all the other (honest) nodes are running; therefore he/she will not be able to change the rules shared by all nodes[59]. Furthermore, controlling 51% of a blockchain requires such a huge investment of energy (and money) that any potential attacker would be discouraged: in fact, even if we assume that the attacker manages to take control of the blockchain, all the other nodes will easily realize that the network is not safe anymore and, therefore, will immediately leave such network. We can then answer question (iii) by saying that the purpose of mining is to ensure the correct and safe operation of a peer-to-peer system without a central authority, since (as we know) security and control is decentralized and distributed across all the nodes of the blockchain network.

The last question is more technical, as it concerns the mechanism by which miners validate new transactions and include them in blocks. When the new transaction is verified by the nodes and propagated across the network, the challenge among miners to validate the transaction starts (as only the first miner who validates the transaction is awarded the reward). In order to validate a transaction, the miner needs to find a solution to the "Proof-of-Work" (PoW) algorithm by solving a complex and energy-consuming mathematical puzzle. In

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[58] See for example https://lisk.io/academy/blockchain-basics/how-does-blockchain-work/consensus-protocols.

[59] A. NARAYANAN, J. BONNEAU, E. FELTEN, A. MILLER, S. GOLDFEDER, *supra* note 47, 48-49.

doing so, miners must create a new block and then calculate a hash that is smaller than a certain target[60]. Technically speaking, mining process is an operation of inverse hashing: the miner shall find a number (called "nonce"), so that the cryptographic hash algorithm of block data results in less than a given threshold. This threshold, called difficulty, is what determines the competitive nature of mining: the lower the threshold, the more computing power is needed to solve the mathematical problem and create a new block. This method pushes miners to invest in more powerful processors in order to improve the efficiency of their mining system[61]. Another method commonly used to validate transactions in other cryptocurrencies[62] (not in Bitcoins) is the Proof-of-Stake, by which miners are chosen based on a specific stake (such as the amount of coins owned by the miner) which is directly proportional to the chance of being chosen as the block validator[63].

1.6.5 The transaction is included in the blockchain

Once the miner has validated the transaction by finding the PoW solution, he/she informs the other nodes of the network about the validation. At this point, the other nodes will just verify the correctness of the validation process performed by the miner and the solution of the mathematical puzzle. If such verification process has a positive outcome, the new block (which includes the new transaction) is added to the blockchain and linked to its previous block (also known as "parent block"). Indeed, each block has a reference to the previous

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[60] A. M. ANTONOPOULOS, *supra* note 6, 247.

[61] See https://blockgeeks.com/guides/proof-of-work-vs-proof-of-stake/.

[62] The platform Ethereum, for example, is currently developing a proof-of-stake mechanism for its cryptocurrency Ether.

[63] D. PUTHAL, N. MALIK, S. MOHANTY, E. KOUGIANOS, G. DAS, *supra* note 3, 6.

block in the "previous block hash" field (in the block header)[64]; therefore, it is usually easy for nodes to find the previous block of the chain. In the event no parent block is found, the block is considered "orphan" and put in the orphan block pool until nodes receive the parent block (this usually occurs when nodes receive the child block before the parent)[65].

The purpose of this last verification process is to ensure that only valid blocks are added to the blockchain and to prevent miners who acted dishonestly from receiving their reward (as their blocks will be rejected by the other nodes).

1.7. Practical applications of blockchain technology

Given the immense potential of blockchain technology, many applications in several fields have been developed since the release of the Bitcoin software in 2009. The decentralized nature of blockchain and its tremendous resistance to tampering made software developers more and more interested in studying new potential applications in both the public and private sector.

In this paragraph we will provide a brief overview of the most prominent examples of the emerging uses of blockchain technology, while in the following chapters some of the blockchain applications described below (such as ICOs and cryptocurrencies) will be addressed in greater detail from a regulatory perspective.

1.7.1 Initial Coin Offerings

Initial Coin Offerings (ICOs) are a new fundraising instrument for companies, particularly in the venture capital sector. ICOs are, generally

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[64] For example, the new block 355,144 will have the reference to its previous (or "parent") block 355,143.

[65] A. M. ANTONOPOULOS, *supra* note 6, 255-256.

speaking, the equivalent of Initial Public Offerings (IPOs) in the crypto-assets universe: investors, in exchange for their support with fiat currencies or with pre-existing cryptocurrencies, receive crypto-assets (*i.e.* tokens) specific to the ICO. The purpose of the sale of tokens is to provide the issuer with the necessary amount of capital to fund its initial development; however, there is no commitment to token holders in relation to the price of future products[66].

One of the most revolutionary aspects of blockchain technology is that it provides every individual with the power to create and issue financial instruments (in the form of tokens or existing securities digitally represented on the blockchain) without listing them on a regulated market, therefore avoiding the high costs of specialized legal and financial advisors and bypassing the stringent and time-consuming procedures prescribed by securities regulation. Furthermore, settlement and payment occur simultaneously, thus significantly increasing the speed of transactions[67].

As we will see in the following chapters, there is an ongoing open debate in relation to the legal qualification of tokens issued in the context of an ICO and to the applicability of securities regulation[68]. In fact, the absence of a specific regulation tailored to ICOs highly increases the risk of frauds, thus leaving investors without a proper protection. Whilst waiting for regulatory intervention, some companies have started to develop alternative solutions to ICOs. The most successful solution so far is the Security Token Offering (STO), a regulated offer of tokens aimed at safeguarding investors. Indeed, STOs are fully regulated and subject to registration with regulatory authorities (such as the SEC in the US), provide investors with voting rights or particular rights on revenues,

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[66] C. CATALINI, J. S. GANS, *Initial Coin Offerings and the Value of Crypto Tokens* (March 5, 2019), MIT Sloan Research Paper No. 5347-18, Rotman School of Management Working Paper No. 3137213, 2, available at: http://dx.doi.org/10.2139/ssrn.3137213.

[67] A. WRIGHT, P. DE FILIPPI, *supra* note 2, 27.

[68] See https://www.investopedia.com/terms/i/initial-coin-offering-ico.asp.

and all tokens are backed up by particular assets, thus offering a much transparent fundraising solution to investors in crypto-assets[69].

1.7.2 Smart Contracts

Although there are many other technical and more specific definitions from a computer science perspective, for the purpose of our analysis we can just say that a smart contract is an agreement whose execution is automated[70]. What makes smart contracts different from traditional contracts is that there is little or no human intervention in the execution phase, as the process is automatically managed by an algorithm; indeed, it would be more appropriate to define smart contracts as computer programs rather than contracts *stricto sensu*.

Smart contracts operate on a blockchain, thus ensuring, as we have already seen above, decentralization, encryption of data, and anonymity for all parties. However, blockchains and smart contracts cannot access data from outside of their network. This lack of external access may raise significant issues if we consider that, in order to properly operate, a smart contract often needs access to information from the outside world that is relevant to the contractual agreement, such as whether a party has executed an agreement[71]. This issue is solved through the use of the so-called "oracles", consisting in a service (generally in the form of software or hardware) that sends and verifies real world occurrences and submits this information to smart contracts, thus triggering changes on the blockchain[72].

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[69] S. GOYAL, *STO Vs. ICO – The Difference Between the Two* (May 30, 2018), on 101 Blockchains, available at https://101blockchains.com/sto-vs-ico-the-difference/.

[70] M. RASKIN, *The Law and Legality of Smart Contracts*, 1 Geo. L. Tech. Rev. 305 (2017), 5.

[71] See S. VOSHMGIR, *Token Economy: How Blockchains and Smart Contracts Revolutionize the Economy*, BlockchainHub Berlin (2019).

[72] *Ibid.*

In addition to the advantages common to all blockchain applications, such as encryption of data and reliability of transactions, smart contracts present a significant number of advantages with the potential to deeply impact today's society.

First, the marginal cost of contracting is significantly reduced, as smart contracts are drafted using a source code. Therefore, they can be standardized and their execution fully automatized, thus limiting human intervention in the drafting phase and slowly making legal advisors less and less necessary. Furthermore, automation also reduces the execution time, as parties can execute smart contracts in real-time.

Second, smart contracts reduce the ambiguity of language, which is one of the most frustrating aspects of drafting. It is true that language ambiguity can provide the parties with more flexibility; but on the other side it can be used by the parties as a tool to avoid the fulfillment of one or more contractual obligations. A source code which simply executes an algorithm would instead force the parties to remain bound to their obligations (although certain contractual terms, such as "good faith" or "reasonableness", would be difficult to translate into a code[73]).

Finally, smart contracts would make it impossible for parties to breach contractual obligations. In fact, with traditional contracts parties are free to decide not to fulfill their obligations, as legal enforcement will be effective only *ex post* through litigation or other contractual remedies. Conversely, smart contracts cannot be breached, as the software will make their execution automatic once all the conditions are met.

However, on the other hand, smart contracts pose several legal issues.

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[73] See K. T. MCCARTHY, *Unanswered Legal Issues: Blockchain "Smart Contracts"*, available at: http://www.larsonking.com/files/FTD-1803-McCarthy.pdf.

First, and most importantly, a self-executing (and self-enforcing) contract may frustrate all the safeguards to protect consumers that invalidate the contract (*e.g.* undue influence, duress, or incapacitation)[74]. Indeed, there is currently no way to encapsulate the entirety of legal limitations in a precise algorithmic language allowing a truly objective adjudication, as it would be almost impossible to convert into a code certain legal concepts, such as duress, which are vague and imprecise by nature and need to be adapted on a case-by-case basis depending on the specific circumstances[75].

Another legal issue relates to the fact that transactions on a blockchain are not modifiable, hence not voidable in case there are some factors affecting the validity of the transaction, or even when one of the parties simply made a mistake[76]. An algorithm, in fact, does not take into account mistakes, fraud, or improper threats: as long as the correct private key has been used (for example, in a transfer of tokens), the transaction is effective and there is no authority with the power to void it[77].

Furthermore, considering that smart contracts are decentralized, jurisdictional issues are likely to arise, as the legal venue for any contractual dispute is often the competent court at the location where the contract became binding for the parties, which is often impossible to identify when using blockchain platforms[78].

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[74] A. WRIGHT, P. DE FILIPPI, *supra* note 2, 24-26.

[75] E. SCHUSTER, *Cloud Crypto Land*, 83 Modern Law Review (2020), available at: http://dx.doi.org/10.2139/ssrn.3476678.

[76] M. LEHMANN, *Who Owns Bitcoin? Private Law Facing the Blockchain*, 21 Minn. J.L. Sci. & Tech. 93 (2019), available at: http://dx.doi.org/10.2139/ssrn.3402678.

[77] *Ibid.*

[78] See K. T. MCCARTHY, *supra* note 73.

1.7.3 Cryptocurrencies

As already mentioned, the first application of blockchain technology was the release of Bitcoin by Satoshi Nakamoto in 2009. Since then, dozens of different cryptocurrencies (such as Ether, Ripple and Cardano) have grown rapidly in price, popularity, and mainstream adoption. We refer to all cryptocurrencies other than Bitcoin as "altcoins". There are approximately 5,392 cryptocurrencies being traded with a total market capitalization of $201 billions (as of April 22, 2020)[79], with Bitcoin accounting for around half of the total market capitalization.

Cryptocurrencies are entirely virtual, not associated with any government or bank, and ensure anonymity of the parties through encryption procedures.

We can divide cryptocurrencies into two main categories: open (or convertible) and closed (or non-convertible). Open cryptocurrencies can be converted into fiat currencies based on exchange rates, as they have a value determinable in real money (one example is Bitcoin). Conversely, closed cryptocurrencies can be used as a means of payment only among a certain community, and do not have a corresponding value in fiat currencies: indeed, there is a central system that issues the currency, establishes rules, keeps a record of transactions, and can discretionary withdraw the currency from circulation[80]. Special classes of cryptocurrencies, such as stablecoins and Central Bank Digital Currencies (CBDCs), will be discussed in detail in the context of the regulatory analysis carried out in the following chapters.

Cryptocurrencies have been shaking world's economy since their launch as a safe, cheap and fast payment system; fees for the transfer of virtual currencies are in fact far lower than the ones imposed by money transfer

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[79] R. BAGSHAW, *Top 10 cryptocurrencies by market capitalisation*, Yahoo Finance (April 22, 2020).

[80] See https://www.investopedia.com/terms/c/closed-virtual-currency.asp.

operators (like MoneyGram or Western Union) to send and receive real money[81]. This payment system can in fact be extremely helpful in developing countries, where the cost of sending money without a bank account may be highly expensive[82].

Nonetheless, cryptocurrencies (and particularly Bitcoin) are currently used more as a store of value rather than an instrument of payment, therefore frustrating one of the main functions of money, *i.e.* a medium of exchange. The success of virtual currencies is, in fact, mainly due to their speculative nature based on their exchange rate *vis-à-vis* fiat currencies rather than to the global, low-cost and high-speed services they offer as payment instruments[83].

On the other hand, despite their predominant (and almost exclusive) use as a store of value, cryptocurrencies are (unfortunately) massively used as a means of payment within illegal markets, thus creating significant regulatory challenges at global level. As we know, a payment system based on open blockchains ensures anonymity of all the parties. This led to a widespread use of cryptocurrencies for transactions of illegal items on the black market (such as the dark web) or for money laundering purposes. For instance, a recent study[84] shows that approximately one-quarter of Bitcoin users and one-half of Bitcoin transactions are associated with illicit activity, amounting to around $72 billion

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[81] See C. CHAN, *Bitcoin vs Western Union: How Low Fees Are Disrupting the Remittance Industry* (April 10, 2015), available at: https://www.coingecko.com/buzz/bitcoin-vs-western-union-low-fees?locale=it.

[82] According to World Bank figures compiled by Diar (available on https://diar.co/volume-3-issue-5/#3), sending money from Angola to Namibia, for example, can be subject to a 20 percent fee. It is quite common for transfer fees to be over 15 percent, while in places like the US, Switzerland, and Germany, fees are well below 10 percent.

[83] See K. WERBACH, *supra* note 13, 143-145.

[84] See S. FOLEY, J. R. KARLSEN, T. J. PUTNINS, *Sex, drugs, and Bitcoin. How much illegal activity is financed through cryptocurrencies?*, The Review of Financial Studies 32(5), 1798-1853 (2019).

per year[85]. As to date, there have been many different regulatory approaches to cryptocurrencies, ranging from a massive intervention of governments and authorities to a prudent or indefinite approach[86].

1.7.4 Decentralized (Autonomous) Organizations

Blockchain technology can also be implemented in the context of corporations and business organizations. The most prominent example is the creation of decentralized organizations, where multiple smart contracts are bound together and operate in accordance with predetermined rules.

The idea originates from the "nexus of contracts" theory, which states that corporations are nothing more than a collection of contracts between different parties - primarily shareholders, directors, employees, suppliers, and customers[87]. Therefore, by coordinating a set of smart contracts, it is possible to create a decentralized organization without the need of formally incorporating a company.

From a corporate governance point of view, the main difference with traditional business organizations is that decisions are taken directly by shareholders through blockchain-based decentralized voting systems, without the need of an executive body (like the board of directors). In addition, transactions are recorded directly on the blockchain, thus ensuring transparency and deeper controls in order to avoid the typical decision-making problems such

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[85] R. WOLFSON, *Tracing Illegal Activity Through The Bitcoin Blockchain To Combat Cryptocurrency-Related Crimes* (November 26, 2018), on Forbes.com, available at: https://www.forbes.com/sites/rachelwolfson/2018/11/26/tracing-illegal-activity-through-the-bitcoin-blockchain-to-combat-cryptocurrency-related-crimes/#3a30293233a9.

[86] Cryptocurrencies and the relating regulatory issues will be discussed in great details in Chapter 2, paragraphs 2.1.3 and 3.1.

[87] M. C. JENSEN, W. H. MECKLING, *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, 3 J. Fin. Econ. 305, 310-311 (1976).

as corruption and inefficiency[88]. Indeed, with corporate and business interactions predefined through smart contracts, parties will only have to trust the security of the underlying code rather than the organization itself[89].

It is also worth mentioning a subset of decentralized organizations, called decentralized autonomous organizations (DAO). A DAO is both autonomous, as no one controls it (even its creators), and self-sufficient, since it receives enough funds for operating independently from any third party (usually by charging its users for the services provided). Moreover, DAO's code is not static: it is designed to evolve and to adapt over time through updates from third parties or through the use of self-developing algorithms[90].

2. The legal and sociological implications of blockchain technology

2.1 The sociological basis of the blockchain revolution

Blockchain revolution is, first of all, a sociological revolution. The idea that society can be run through individual smart contracts without the need of any central state, together with an anti-government rhetoric, has accompanied the blockchain revolution since its very beginning. The aim of the most fervent blockchain supporters is the final demise of centralized, hierarchical States[91]: through decentralized blockchain-based smart contracts, individuals will finally be able to govern themselves without the need of any central authorities.

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[88] P. DE FILIPPI, R. MAURO, *Ethereum: The Decentralized Platform that Might Displace Today's Institutions*, Internet Policy Review (August 25, 2014).

[89] A. WRIGHT, P. DE FILIPPI, *supra* note 2, 16.

[90] *Id.*, p. 17, note 76.

[91] Centralized authorities have been defined in computer terms as a "Single Point of Failure" (SPOF): if the functioning is not optimal, the entire system will be negatively affected. See M. ATZORI, *supra* note 16, 6.

This revolutionary idea may in fact look familiar: the concept of members of society administering the State themselves is indeed the basis of the Marxist doctrine, according to which the State will simply stand aside once workers reach a sufficient level of maturity and political consciousness, thus putting the State "*into the museum of antiquities, next to the spinning wheel and the bronze ax*"[92]. There is, however, an obvious difference between the two movements. While the aim of Marxism was the disruption of capitalism, for blockchain's extreme supporters the result is exactly the opposite: the victory of free markets and private entrepreneurs over public institutions in a process defined as "anarcho-capitalism"[93].

While the moderate wing of blockchain advocates argue that the blockchain revolution will create a decentralized society still based upon the authority of States, where "*legal frameworks become more granular and personalized to the situation*"[94], the extremist fringe prophesizes the definitive demise of the State due to a widespread lack of consent from citizens. This last dystopian scenario originates from the ideas of Enlightenment philosophers Thomas Hobbes[95] and John Locke[96], who argued that a government's legitimacy comes solely from the citizens' consent, through a process that they called "social contract"[97]. By entering into the social contract, citizens surrender some of their freedoms and submit to the authority in exchange for protection of their remaining rights or maintenance of the social order. When the citizens' consent ceases, the State loses its legitimacy and its powers (like in the blockchain extremists' scenario).

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[92] F. ENGELS, *Origins of the Family, Private Property and the State* (1884).

[93] See M. ATZORI, *supra* note 16, 12.

[94] M. SWAN, *Blockchain. Blueprint for a New Economy*, O'Reilly (2015), 17.

[95] T. HOBBES, *Leviathan* (1651).

[96] J. LOCKE, *Two Treatises of Government* (1689).

[97] See K. WERBACH, *supra* note 13, 142.

2.2 Blockchain-based governance

After the above background on the sociological theories behind the blockchain revolution, we can now move to the practical implications of such technology on everyday's society. Setting aside the most extreme scenarios that envisage the demise of States, we can start by saying that the *leitmotiv* of blockchain movement is to explore new forms of interaction between State and society through a progressive decentralization of power from central authorities to individuals with the help of blockchain applications. In such respect, we will now examine the most significant potential implications of a blockchain-based governance on our society.

2.2.1 Direct democracy

Direct participation of citizens in politics has always been a chimera in democratic systems. However, before the advent of the blockchain it was nearly impossible to ensure the security and anonymity of online votes. Conversely, blockchain technology can in fact guarantee the secure identification of voters through asymmetric keys and the anonymity of votes thanks to encryption procedures. Citizens would then be able to participate directly in politics, both at local and national level, by voting on their mobile devices through blockchain platforms. Voters may, for example, vote on the proposed budget for their city, or even remove politicians from their offices if they disapprove their decisions[98].

However, several concerns on the reliability of a blockchain-based voting system have been raised. First, on a fully decentralized blockchain it may be risky to leave the outcome of the elections in the hands of a pool of unknown miners, as votes might be exposed to a potential 51 percent attack (see paragraph

[98] A. WRIGHT, P. DE FILIPPI, *supra* note 2, 39.

1.61.6.4 above). Furthermore, since there is no direct control on the single voters, it would be nearly impossible to check (and prevent) coercion or vote-buying practices[99].

Despite the above-mentioned concerns, blockchain-based voting platforms are gaining more and more credibility worldwide[100]. In March 2018, for example, a blockchain platform was used during the national elections in Sierra Leone, providing a tampering resistant method of transmitting electronic results[101]. Moreover, West Virginia became the first state in the US to use a mobile voting application, allowing members of the US army abroad to express their vote anonymously through the blockchain in the party primaries of 2018 as well as the November 2018 midterms[102].

2.2.2 Algorithmic governance

A more futuristic and avant-garde vision finds in decentralized autonomous organizations (DAO) a substitute for governments. In such a scenario, individuals would be free to create borderless nations governed through a set of algorithmic rules included in smart contracts. As a consequence, groups of citizens would be able to set up customized legal systems through smart contracts by choosing rules better reflecting their individual preferences,

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[99] P. Y. A. RYAN, *Are Blockchain Voting Technologies Safe?* (May 22, 2019), available at: https://www.ispionline.it/it/pubblicazione/are-blockchain-voting-technologies-safe-23155.

[100] J. COLZANI, *Blockchain: A Digital Solution for Modern Democracies?* (May 2019), available at: https://www.iai.it/it/pubblicazioni/blockchain-digital-solution-modern-democracies.

[101] D. FINNAN, Sierra Leone Tests Blockchain Technology for Tallying Election Results, in *RFI* (March 15, 2018), available at: http://rfi.my/2OEM.T.

[102] See WEST VIRGINIA SECRETARY OF STATE, *Warner Releases Unofficial Results for General Election* (November 6, 2018), available at: https://sos.wv.gov/news/Pages/11-6-2018-A.aspx.

without the need of a central authority enforcing such rules (giving rise to the so-called "algorithmic governance")[103].

We can imagine several advantages deriving from a massive use of algorithmic governance. For example, the cost of a product can be calculated in terms of consumer surplus, or self-driving cars controlled by complex algorithms may significantly reduce the number of accidents. Furthermore, healthcare data collected from individuals (e.g. through a smart watch) may help in identifying specific diseases or emergencies; for instance, the algorithm may detect a heart attack and send an ambulance exactly to the position where the person is located.

There is the risk, however, that individuals will slowly (and unconsciously) renounce to free will and leave all their major decisions (e.g. regarding their job or family) to algorithms. The biggest issues arise when we realize that there are many situations in which algorithms may not always select the optimal choice for all individuals. One of the main reasons is that, even with the best intentions, data-driven algorithms can lead to discriminatory practices and outcomes by reproducing existing patterns of discrimination and prejudice of prior decision makers. This may be caused, for instance, by poorly weighted input data[104], or derive from the use of certain data in the wrong context[105]. If we consider the worst scenario where smart contracts are automatically enforced regardless of the parties' will, the result can even be a deterministic system in which individuals are free to choose their own set of rules but, once the choice is

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[103] See A. WRIGHT, P. DE FILIPPI, *supra* note 2, 40.

[104] For example, as a form of indirect discrimination, overemphasis of zip code within predictive policing algorithms can lead to the association of low-income African-American neighborhoods with areas of crime and, as a result, the application of specific targeting based on group membership. See A. CHRISTIN, A. ROSENBLATT, D. BOYD, *Courts and predictive algorithms*, Data & Civil Rights Primer (2015).

[105] See B. LEPRI, N. OLIVER, E. LETOUZÉ, A. PENTLAND, P. VINCK, *Fair, transparent and accountable algorithmic decision-making processes. The premise, the proposed solutions, and the open challenges*, in Philosophy & Technology 31(3) (August 2017), 4, available at: http://www.nuriaoliver.com/papers/Philosophy_and_Technology_final.pdf.

made, cannot deviate from such rules, thus becoming subject to a modern technological version of totalitarian regimes[106].

2.2.3 Privatization of government services

Blockchain-based governance systems may offer a range of services traditionally provided by governments[107]. For instance, by using the blockchain as a permanent repository of records, it would be possible to store governmental documents such as IDs, passports, driving licenses, land deeds, and finally "*put a nation on the blockchain*" [108] by dismissing state archives, physical registers and public notaries. By simply using an app, one could for example get married, title a land, incorporate a company, or notarize a will in a few minutes for a few dollars[109].

We cannot ignore, of course, the evident advantages that may derive from decentralizing government services through an open, permission-less blockchain. First, everything would be recorded on an immutable and tampering resistant ledger, easily accessible by individuals through a mobile app. Second, time and costs would be significantly reduced, since government services will be provided through an algorithm without any human intervention.

There are, however, some problematic aspects that deserve proper attention. The most significant issue to be considered is the speculative nature of blockchain. As we know, mining activity implies a huge investment in terms of money and energy, as solving the mathematical puzzles to find the proof-of-

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[106] A. WRIGHT, P. DE FILIPPI, *supra* note 2, 43.

[107] M. SWAN, *supra* note 94, 48.

[108] *Id.*, 47.

[109] E. VOLLSTÄDT, *Totalitarian Cyber State vs Freedom Unbound: Interview with Fabricio & Susanne Part 2*, on Bitnation-blog.com (April 28, 2015), available at: https://blog.bitnation.co/totalitarian-cyber-state-vs-freedom-unbound-interview-with-fabricio-susanne-part-2/.

work solution requires a tremendous computational power. This may lead to several potential consequences. First, the centralization of computing power in the network and the dependency of networks on private oligarchies (i.e. miner corporations), with the rise of supervisory powers lacking any formal legitimacy. Second, the predominance of market logic over essential public services and constitutional rights. Indeed, a public blockchain can be dismissed at any time by the community if considered not profitable anymore, thus posing the risk of service continuity and conservation of data in the long period (without any chance to detect a liable entity for such disservice)[110]. Therefore, given the fact that government services require a high degree of reliability, accessibility and transparency, it would be advisable to avoid the decentralization of such services on a blockchain.

2.2.4 Constitutional rights and freedoms

The highly reliable cryptography used by blockchains can be also deployed as an effective instrument for individuals to protect their constitutional rights and freedoms. Individual rights such as freedom of speech and privacy have always been considered as fundamental pillars in a democratic society, and encryption may help citizens in protecting their freedom and privacy from governments and big corporations[111].

It is not surprising, therefore, that during the last two decades, and particularly after September 11, 2001, we have witnessed a growing use of peer-to-peer networks able to protect anonymity of users and to resist censorship and mass surveillance from governments[112].

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[110] See M. ATZORI, *supra* note 16, 16-18.

[111] *Id.*, 12.

[112] J. FARMER, *The Spector of Crypto-anarchy: Regulating Anonymity-Protecting Peer-to-Peer Networks*, Fordham Law Review, 72(3), 2003.

2.2.5 Data protection

Finally, it is worth mentioning the impact that blockchain technology will have on personal data protection. With specific reference to the European Union, the issue became particularly sensitive after the entering into force of the General Data Protection Regulation (GDPR)[113]. In this respect, on July 24, 2019 the European Parliament published a study[114] that explores the tension between blockchain technology and compliance with the GDPR and how blockchain technology can be used as a tool to assist with GDPR compliance[115].

According to the above-mentioned study, the points of tension between blockchain and the GDPR are due to two overarching factors[116]. First, the GDPR is based on the assumption that for each personal data point there is at least one natural or legal person (*i.e.* the data controller) that can be addressed to enforce rights under EU data protection law[117]. A blockchain, however, replaces a unitary actor with many different players by using distributed ledger technology, thus making the allocation of responsibility and accountability burdensome[118]. Second, the GDPR assumes that data can be modified or erased

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[113] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation).

[114] EUROPEAN PARLIAMENT, *Blockchain and the General Data Protection Regulation: Can distributed ledgers be squared with European data protection law?* (July 24, 2019), available at: https://www.europarl.europa.eu/RegData/etudes/STUD/2019/634445/EPRS_STU(2019)634445_EN.pdf.

[115] See D. COOPER, G. NASH, *European Parliament Publishes Study on Blockchain and the GDPR*, Covington & Burling (August 12, 2019), available at: https://www.insideprivacy.com/data-privacy/european-parliament-publishes-study-on-blockchain-and-the-gdpr/.

[116] See EUROPEAN PARLIAMENT, *supra* note 114, 101.

[117] *Ibid.*

[118] *Ibid.*

where necessary in order to comply with legal requirements; however, blockchains make such modifications of data purposefully onerous to ensure data integrity and increase trust in the network[119].

The study, however, also highlighted the benefits that blockchain can offer from a data protection perspective, most importantly the increased control over personal data in the hands of data subjects[120]. Indeed, the more people are interacting with Internet-connected devices that are collecting and sharing personal data, the more critical it becomes to strengthen their protection and their sense of trust[121]. Blockchain technology closes the trust gap through cryptography and economic incentives, and increases data subjects' protection by ensuring immutable identity and providing safe and encrypted authentication, authorization, and access[122].

This need for innovation in the management of personal data is also in line with the constitutional principles governing EU strategic policies. Indeed, while on the one side the protection of natural persons in relation to the processing of personal data constitutes a fundamental right under Article 8(1) of the Charter of Fundamental Rights and Article 16(1) TFEU, on the other side innovation is also a significant objective of the EU[123]. Pursuant to Article 173 TFEU, the EU and the Member States must in fact work to improve EU's competitiveness, which includes the fostering of innovation and technological development[124].

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[119] *Ibid.*

[120] *Ibid.*

[121] S. SATER, *Blockchain and the European Union's General Data Protection Regulation: A Chance to Harmonize International Data Flows* (November 6, 2017), 39, available at: http://dx.doi.org/10.2139/ssrn.3080987.

[122] *Ibid.*

[123] M. FINCK, *Blockchains and Data Protection in the European Union*, Max Planck Institute for Innovation and Competition Research Paper No. 18-01 (November 30, 2017), 29, available at: http://dx.doi.org/10.2139/ssrn.3080322.

[124] *Ibid.*

In this respect, blockchain technology will give EU institutions the chance to explore more beneficial forms of innovation in the personal data field and contribute to the development of a digital single market in the EU.

2.3 Blockchain and the law

We can easily affirm that the most delicate aspect concerning blockchain technology is its fraught relationship with law. Whilst this section briefly examines the role of law in the blockchain environment and the interactions between law and code, the following chapters will address the core subject of this thesis, *i.e.* the regulatory issues arising from the practical application of blockchain technology in financial markets.

2.3.1 Is the blockchain compatible with law?

"Code is law"[125] is a well-known motto among blockchain advocates to assert the superiority of software code over legal systems. We have seen, in fact, how the ubiquity nature of blockchain networks may lead in the future to the creation of nationless communities self-imposing their own set of rules encoded in smart contracts. The traditional concept of law imposed by a central State is indeed considered more and more obsolete by the most avant-garde fringe of blockchain enthusiasts.

In order to fully understand the above concerns about the inherent limited nature of national laws, it would be useful to go back in time and focus for a moment on the Middle Age legal system, where rules and business practices were specific to each different kingdom (and often contradictory)[126]. This uncertain legal framework led merchants to establish themselves a set of rules

[125] See *supra*, note 28.

[126] See B. L. BENSON, *The Spontaneous Evolution of Commercial Law*, 55 Southern Econ. J. 644, 646-647 (1989).

regulating trade among different kingdoms, thus creating the so-called *Lex Mercatoria* (i.e. "Merchant Law")[127]. What matters here for the purposes of our analysis is that merchants themselves, and not sovereign authorities, developed and implemented their own set of rules. *Lex Mercatoria* was in fact recognized by all merchants as universal and applicable in all geographic locations[128], and even enforced through the creation of specific merchant courts[129].

A thousand years after, namely in the 1990s, the same identical problems emerged as a consequence of the advent of Internet. The transnational nature of Internet, as opposed to the national character of law, pushed Internet service providers to develop contractual agreements (e.g. Terms of Use) in order to regulate their relationship with users, thus creating a set of rules conventionally referred to as *Lex Informatica*[130]. Like *Lex Mercatoria*, *Lex Informatica* relies on self-regulation: the set of rules was developed by online users and operates transnationally, independent of any border or domestic law[131].

Today we are facing the same issues with the widespread use of blockchain technology, as a new set of rules – that we can call *Lex Cryptographia* – is being developed through self-executing smart contracts and decentralized autonomous organizations[132].

This rapid and relentless expansion of *Lex Cryptographia* takes us back to the initial question: are blockchain and law compatible? And, if yes, do we really

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[127] See D. R. JOHNSON, D. POST, *Law and Borders – The Rise of Law in Cyberspace*, 48 Stan. L. Rev. 1367, 1389 (1996).

[128] A. WRIGHT, P. DE FILIPPI, *supra* note 2, 45.

[129] See L. E. TRACKMAN, *From the Medieval Law Merchant to E-Merchant Law*, 53 U. Toronto L. J. 265, 274 (2003).

[130] J. R. REIDENBERG, *Lex Informatica: The Formulation of Information Policy Rules Through Technology*, 76 Tex. L. Rev. 553, 555 (1998).

[131] See A. WRIGHT, P. DE FILIPPI, *supra* note 2, 46-47.

[132] *Id*., 48.

need laws regulating a network which already has its own set of self-enforceable rules?

To answer the above questions, we can start from the well-known New Chicago School approach theorized by the American jurist Lawrence Lessig in his 1999 book "Code and Other Laws of Cyberspace"[133]. According to Lessig, four regulatory forces are usually deployed to constrain human actions: (i) the market (by using financial incentives and disincentives), (ii) social norms, (iii) architecture (identified in a technological environment as the software code), and (iv) the law. When talking about blockchain, the market is identified with the self-interest of miners (the economic incentive to perform mining activities), social norms with trust, and architecture with cryptography; law is, instead, external to blockchain, as it derives from sovereign authorities. As we can see, software code is just a different kind of regulation which coexists with other mechanisms such as the law[134]. While software code creates rules expressed in formal mathematical terms (e.g. asymmetric keys, hash functions), law uses human language, thus covering all those "human" areas that cannot be described with mathematical functions (such as individual rights, social values, or government and market structures).

In light of the above, we can affirm that the answer to both questions is yes. Law and code are, in fact, not binary alternatives, but two different regulatory forces that should work synergistically in order to achieve the best results in a hybrid environment. This does not mean that law should remain unchanged in front of the progressive expansion of blockchain technology; rather, it should adapt to better address the issues posed by this new technology[135].

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[133] L. LESSIG, *Code and Other Laws of Cyberspace*, Basic Books (1999).

[134] See K. WERBACH, *supra* note 13, 154-155.

[135] *Id*., 156.

2.3.2 Possible interactions between law and blockchain

Even though in many cases law and code have no direct contact, as they represent two different regulatory forces, there are however three potential situations where blockchain-based software codes can interact with the legal system.

The first typical situation occurs when blockchain acts as a supplement of law. There are in fact many situations in which blockchain can reinforce the legal system by offering new ways to achieve objectives defined by law. For instance, in the event of a transfer of securities, in several jurisdictions there are laws imposing the update of public ledgers in order to reflect the new shareholding of the company. Blockchain can offer a different solution: a real-time ledger tracking ownership directly, therefore avoiding any delay or inconvenience that may happen when transfers are recorded at a different moment[136].

A second potential scenario may occur when blockchain acts as a complement to law. There might be in fact situations where law constantly fails in properly regulating certain areas, usually because trust on the legal system is insufficient. Here the blockchain does not only provide a parallel solution (as in the supplement scenario above), but serves as the mechanism that will ensure compliance with law. One example of such situation can be found in copyright law, more specifically in relation to works whose right-holders cannot be found (the so-called "orphan works"). Sometimes, even if the work is in the public domain, right-holders may be extremely difficult to locate, with serious risks of copyright infringement by potential users. In this situation, a blockchain-based ledger may keep track of all the efforts of the potential user to find the right-

[136] *Id*., 166.

holders, while smart contracts can ensure that licensing fees will be paid by users of orphan works in the event the right-holders show up[137].

The third and final situation occurs when blockchain acts as a substitute for law. Here the blockchain replaces law entirely and acts as the sole enforcement mechanism. This situation may occur in places where legal enforcement is weak, such as conflict zones or certain areas of developing countries. There are, for instance, areas in the world where land title records are incomplete or difficult to consult; this can be a major hurdle for local economic development. A blockchain-based ledger may constitute in this case a valid alternative to government registries[138], as individuals would have an easier, cheaper and more efficient way to interact with land title records[139].

We have seen how regulators may adapt to the rapid expansion of blockchain-based applications. However, on the other hand, there are also ways by which blockchain technology may become more "hospitable" to the legal system. One approach would be to pair traditional contracts and smart contracts explicitly. In this case, the two contracts reference one another by means of digital signatures (e.g. the smart contract includes the hash string of the traditional contract's text, and vice versa). The parties will therefore be able to turn to the traditional contract for resolution in the event there is a problem with the smart contract[140]. Another approach would be to integrate into smart contracts some legal enforcement mechanisms. For example, as seen above, in order to determine

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[137] *Id.*, 169.

[138] There is, for example, an ongoing project in Georgia based on cryptocurrency mining and services from Bitfury (one of the largest blockchain technology companies), supported by the Peruvian economist Hernando De Soto. See L. SHIN, *Republic Of Georgia To Pilot Land Titling On Blockchain With Economist Hernando De Soto, BitFury*, Forbes (April 21, 2016), available at: https://www.forbes.com/sites/laurashin/2016/04/21/republic-of-georgia-to-pilot-land-titling-on-blockchain-with-economist-hernando-de-soto-bitfury/#41908e8744da.

[139] K. WERBACH, *supra* note 13, 171.

[140] *Id.*, 212.

whether certain obligations have been fulfilled, smart contracts may defer the judgment to external parties called "oracles". An oracle can be either an automated data source (hardware or software), specifically designed for smart contracts, or one or more human independent arbiters (a judicial court, a panel of arbitrators, or even a jury selected on Internet)[141].

2.3.3 A potential framework for regulatory intervention

As we have seen, blockchain is a technology that is not (and should not be) immune from regulation. However, regulators should carefully consider when and to which extent intervening, in order to avoid stifling a newborn technology with an immense potential.

The first question that regulators should ask themselves is: has blockchain technology a legitimate purpose? As we know, some services accidentally allow the violation of legal obligations, while others are specifically aimed at infringing laws (like dark web marketplaces such as Silk Road). It is, of course, a tricky process to evaluate the intent of a service provider, as well as the magnitude of the illegal activity carried out by using such service. In this respect, regulators should conduct a case-by-case analysis of blockchain-based applications in order to verify whether the single service pursues a legitimate purpose (for instance, whether the purpose of an ICO is solely to bypass securities regulations)[142]. Only when the above assessment has a negative outcome legislators should consider a regulatory intervention, for example blocking a service or taking down a website.

The second question that should be considered is whether there are alternative means to achieve social goals other than regulation. There might be, indeed, soft law solutions that can achieve the same policy goals in a less invasive way. For instance, private organizations may develop a set of standards

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[141] A. WRIGHT, P. DE FILIPPI, *supra* note 2, 50.

[142] See K. WERBACH, *supra* note 13, 195-196.

and best practices through a voluntary and self-regulating process, without the need of a regulatory intervention. One example is the ICO Governance Foundation (IGF), a nonprofit global foundation that created the first ICO registry, thus offering a global standard for ICO disclosures and a registry designed for voluntary self-registration[143]. In fact, this self-regulatory system has proved to be a successful tool in several jurisdictions. In the US, for instance, legal and ethical standards in certain areas of securities law are set by self-regulatory organizations such as the Financial Industry Regulatory Authority (FINRA), for broker-dealers, and the National Futures Association (NFA), for future traders.[144]

The third and last issue to be considered is the assessment of costs and benefits of a regulatory intervention. Regulators should carefully consider not only whether or not intervening, but also to which extent and through which legal enforcement mechanisms. In a decentralized system like the blockchain the crucial issue is to determine who is in charge of the illicit activities carried out on the blockchain and, therefore, who should be the target of a potential regulatory intervention. However, even in a decentralized environment there will still be powerful intermediaries and operators that actually run the network. Therefore, if threatened, regulators may adopt a set of measures against such intermediaries and operators in order to strengthen the State's control over the blockchain network[145]. Regulators may, for instance, require that online intermediaries (like

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[143] ICOs can be registered on the website ICODisclosure.com through a voluntary and self-regulatory filing process which helps investors in the correct evaluation of the offering before investing. See D. CLARK, *ICO Governance Foundation Creates First ICO Registry*. Law.com (October 10, 2018), available at: https://www.law.com/corpcounsel/2018/10/10/ico-governance-foundation-creates-first-ico-registry/?slreturn=20190630111941.

[144] K. WERBACH, *supra* note 13, 198.

[145] See A. WRIGHT, P. DE FILIPPI, *supra* note 2, 51-52.

Google) take out blockchain-based applications from search results[146], or force Internet service providers to block the traffic of encrypted data on their network[147], or even mandate that hardware manufacturers (like Apple) implement measures to block or track the use of encryption techniques on their products[148].

However, the above interventions without a careful balance of costs and benefits may result in a gross abuse of regulatory power and may, at the end, stifle the economic gains that blockchain technology offers. A too restrictive regulation in a specific country will also push investors and activities to more permissive jurisdictions, giving rise to jurisdictional arbitrage practices. In addition, an uncontrolled regulation may transform blockchain technology in a powerful mass surveillance instrument in the hands of governments, thus undermining fundamental constitutional rights such as freedom of expression and privacy and frustrating the original idea of the blockchain as a source of emancipation and decentralization of power[149].

The challenge for regulators is therefore to find an optimal equilibrium between enforcement mechanisms aimed at stopping illegal uses of blockchain-

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[146] This already happened in the context of copyright privacy, where Google started blocking websites with pirated content on its search engine. See C. BAUTISTA, *Google search algorithm changes demote piracy sites from page rankings*, Tech Times (October 22, 2014), available at: https://www.techtimes.com/articles/18334/20141022/google-search-algorithm-changes-demote-piracy-sites-from-page-rankings.htm.

[147] For example, in 2007 Comcast was reported to block the traffic to file-sharing networks such as BitTorrent. See P. SVENSSON, *Comcast Blocks Some Internet Traffic*, NBC News (October 19, 2007), available at: http://www.nbcnews.com/id/21376597/ns/technology_and_science-internet/t/comcast-blocks-some-internet-traffic/#.XUBi7FBS8_U.

[148] For instance, in 2015 former UK Prime Minister David Cameron proposed a ban in end-to-end encryption in communications. See J. BALL, *Cameron wants to ban encryption – he can say goodbye to digital Britain*, The Guardian (January 13, 2015), available at: https://www.theguardian.com/commentisfree/2015/jan/13/cameron-ban-encryption-digital-britain-online-shopping-banking-messaging-terror.

[149] A. WRIGHT, P. DE FILIPPI, *supra* note 2, 53.

based services and the free and unconditioned economical growth of a new technology inspired by democratic principles and determined to create an efficient decentralized government system.

CHAPTER 2

THE LEGAL QUALIFICATION OF CRYPTO-ASSETS IN THE EUROPEAN UNION

Introduction

The European Commission has recently issued a proposal for the regulation of markets in crypto-assets (MiCA)[1] that will make the EU one of the most regulated centers for crypto trading[2].

Although it is still only a proposal, and it is likely that, if approved, will not come into force before 2024, it nonetheless shows a deep interest of EU institutions and authorities in regulating this new phenomenon. The EC proposal followed a 3-month dedicated open public consultation[3] on the development of a potential EU framework for crypto-assets, and takes into account the answers received by all stakeholders (ranging from national regulatory authorities to crypto-asset service providers).

In this chapter we will provide in the first section a general overview of the EU financial regulatory framework and the EU financial regulatory authorities that we deem relevant for the purpose of our analysis. Particular attention will be given to the European Securities and Markets Authority

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[1] EUROPEAN COMMISSION, *Proposal for a Regulation of the European Parliament and of the Council on Markets in Crypto-assets, and amending Directive (EU) 2019/1937,* 2020/0265 (COD) (September 24, 2020).

[2] EC President Ursula von der Leyen has stressed the need for "a common approach with Member States on cryptocurrencies to ensure we understand how to make the most of the opportunities they create and address the new risks they may pose".

[3] EUROPEAN COMMISSION, *Consultation Document on an EU framework for markets in crypto-assets* (December 19, 2019), available at: https://ec.europa.eu/info/sites/info/files/business_economy_euro/banking_and_finance/documents/2019-crypto-assets-consultation-document_en.pdf.

(ESMA) and its supervisory and quasi-rule-making powers, given the undisputed central role of the authority in the EU regulation of crypto-assets.

We will then move to the second section and provide an analysis of the various classes of crypto-assets in order to assess their potential legal qualification as financial instruments under MiFID II, more specifically as (i) transferable securities, (ii) money market instruments, (iii) units in collective investments undertakings, and (iv) derivatives. This is an extremely sensitive issue if we consider that financial instruments are excluded from the scope of MiCA proposed regulation, hence it is of the utmost importance to identify a EU regulatory framework applicable to all offerings of crypto-assets qualifying as financial instruments (this last issue will be examined in detail in Chapter 3, with a particular focus on Prospectus Regulation, MiFID II/MiFIR, and MAR).

Finally, in the third and last section we will discuss whether there are any classes of crypto-assets that might be subsumed under certain categories of non-financial instruments – namely (i) payment instruments, (ii) commodities, and (iii) negotiable (or credit) instruments – and can therefore be exempted from the EU regulatory framework applicable to financial instruments.

1. The EU Regulatory Framework and Financial Regulatory Authorities

Before delving into the legal qualification of crypto-assets under EU financial law, we will provide a brief overview of the relevant EU regulatory framework and financial regulatory authorities.

1.1 A single financial market

In its efforts to create an internal single financial market, clearly one of the Treaty on European Union's objectives[4], the EU started a harmonization process through the implementation of common regulatory standards that shall replace national regimes, thus removing any obstacle to integration[5]. Such internal financial market "shall comprise an area without internal frontiers in which the free movement of goods, persons, services and capital is ensured"[6].

In order to propel the harmonization process forward at a faster pace, the EU legislator, as concerns matters falling within its competence[7], often used the most powerful and effective weapon in its arsenal: binding legislation, that can take the form of regulation, directive, or decision[8]. Regulations are the most effective of EU measures, as they are directly applicable in all Member States without any further action at national level ("self-executing"). Conversely, directives are binding only with regard to the result to be achieved, thus leaving Member States with a discrete degree of leeway in the choice of the method of implementation and the rules to be adopted. Decisions differ from the other two binding instruments as they are addressed to specific EU Member States or individuals, and are binding in their entirety for the addressee[9].

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[4] Art. 3(3) of the Treaty on European Union (TEU): "The Union shall establish an internal market. It shall work for the sustainable development of Europe based on balanced economic growth and price stability, a highly competitive social market economy, aiming at full employment and social progress, and a high level of protection and improvement of the quality of the environment."

[5] See N. MOLONEY, *EU Securities and Financial Markets Regulation*, 3rd ed., Oxford European Union Law Library (2014), 8-12.

[6] Art. 26(2) of the Treaty on the Functioning of the European Union (TFEU).

[7] Articles 2 to 6, and article 352(1), of the TFEU define the limits of the EU's legislative competence.

[8] See art. 288 TFEU.

[9] See P. CRAIG, G. DE BÚRCA, *EU Law – Text, Cases, and Materials*, 5th ed., Oxford University Press (2011), 105-107.

The EU can adopt two different strategies when trying to harmonize Member States' legislation through binding acts. On the one side, the EU can pass legislation that sets the minimum standards, leaving the Member State with the freedom to pursue their own policies within the boundaries set by EU legislation and the Treaty[10]. On the other side, the EU can maximize harmonization by providing an exhaustive regulation of the area, thus pre-empting as much as possible national action and leaving EU Member States with little or zero room for maneuver[11]. In regulating financial markets the EU have favored so far the "maximum" approach in order to have the highest degree of harmonization.

However, although the strenuous law-making activity of the EU legislator ensures a certain level of harmonization of financial markets across EU Member States, it does not result in a completely uniform regulation, mainly due to Member States' interest in keeping their national (and often restrictive) regimes to the maximum possible extent. This lack of uniformity may cause different, even opposite, applications of EU rules at national level, particularly when dealing with directives (given the flexibility granted to EU Member States in their implementation).

1.2 The EU Regulatory Framework

The long and arduous process for the harmonization of financial markets regulation across Member States resulted in the adoption of a number of legislative acts covering a broad range of matters, often supported by soft law tools such as recommendations and guidelines.

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[10] With the term "Treaty" we will always refer here to both the Treaty on European Union (TEU) and the Treaty on the Functioning of the European Union (TFEU).

[11] P. CRAIG, G. DE BÚRCA, *supra* note 9, 600.

For the purpose of our analysis of crypto-assets and their potential qualification as financial instruments, the following EU regulations and directives shall constitute the relevant EU regulatory framework.

***(i) Prospectus Regulation*[12]. The purpose of the Prospectus Regulation is to harmonize requirements for the drawing up, approval and distribution of the prospectus to be published when securities are offered to the public or admitted to trading on a regulated market in a EU Member State[13]. The prospectus shall contain the necessary information which is material to an investor for making an informed assessment of the securities and the financial situation of the issuer[14]. The main purpose of the prospectus is to guarantee a high level of consumer and investor protection by reducing the asymmetries between issuer and investors[15].

***(ii) MiFID II*[16]. MiFID II, which came into force on 3 January 2018 and replaced the preceding MiFID[17] regime, regulates financial markets in the EU and creates a harmonized regulatory framework for investment services across all EU Member States. MiFID II primarily focuses on firms who provide services to clients linked to "financial instruments" (shares, bonds, units in collective investment schemes and derivatives), and the venues where those instruments

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[12] Regulation (EU) 2017/1129 of the European Parliament and of the Council of 14 June 2017 on the prospectus to be published when securities are offered to the public or admitted to trading on a regulated market, repealing Prospectus Directive (2003/71/EC).

[13] Recital 2 Prospectus Regulation.

[14] Article 6 Prospectus Regulation.

[15] Recital 3 and 4 Prospectus Regulation.

[16] Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments.

[17] Directive 2004/39/EC of the European Parliament and of the Council of 21 April 2004 on markets in financial instruments.

are traded (Regulated Markets, Multilateral Trading Facilities (MTFs) and Organised Trading Facilities (OTFs))[18]. The main purpose of the directive is to strengthen investors' protections through the development and implementation of more efficient and transparent financial markets.

(iii) MiFIR[19]. MiFIR is closely related to MiFID II and contains rules and guidelines, which are directly applicable to trading platforms and investment firms, setting harmonized standards on, *inter alia*, reporting requirements, trading venue transparency (pre- and post- trade), and clearing obligations.

(iv) MAR[20]. The Market Abuse Regulation (MAR) establishes a common regulatory framework on insider dealing, the unlawful disclosure of inside information and market manipulation (market abuse) as well as measures to prevent market abuse to ensure the integrity of financial markets in the European Union and to enhance investor protection and confidence in those markets[21].

(v) UCITS Directive[22]. The Undertakings for the Collective Investment in Transferable Securities (UCITS) creates a harmonized regime across EU Member States for the management and sale of mutual funds. In this respect, it provides

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[18] See A. DÜR, D. MARSHALL, P. BERNHAGEN, *The Political Influence of Business in the European Union*, University of Michigan Press (2019), 92.

[19] Regulation (EU) No 600/2014 of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments.

[20] Regulation (EU) No 596/2014 of the European Parliament and of the Council of 16 April 2014 on market abuse (Market Abuse Regulation).

[21] Article 1 MAR.

[22] Directive 2009/65/EC of the European Parliament and of the Council of 13 July 2009 on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (UCITS).

for common basic rules for the authorization, supervision, structure and activities of UCITS established in the EU Member States and the information that they are required to publish[23].

(vi) AIFM Directive[24]. The Alternative Investment Fund Managers Directive (AIFMD) applies to hedge funds, private equity funds, real estate funds, and generally to all those funds that do not qualify as UCITS. The AIFMD aims at establishing common requirements governing the authorization and supervision of AIFMs by setting standards for remuneration, accountability, private capital raising, and risk reporting[25]. In order to sell financial services in the EU market, AIFMs shall therefore comply with all the requirements set forth under the AIFMD. The two major purposes of the AIFMD are (i) protecting investors through a strict disclosure regime (such as disclosure of conflict of interests and independent valuation of assets), and (ii) reducing the systemic risk for the EU economy by regulating, *inter alia*, remuneration policies and risk management.

(vii) EMIR[26]. The European Markets Infrastructure Regulation (EMIR) lays down clearing and bilateral risk-management requirements for over-the-counter (OTC) derivative contracts, reporting requirements for all derivative contracts, and uniform requirements for the activities of central counterparties (CCPs) and trade repositories. EMIR aims at substantially improving the mitigation of counterparty credit risk and improving transparency, efficiency and integrity

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[23] Recital 4, UCITS Directive.

[24] Directive 2011/61/EU of the European Parliament and of the Council of 8 June 2011 on Alternative Investment Fund Managers.

[25] Recital 2 AIFM Directive.

[26] Regulation (EU) No 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivatives, central counterparties and trade repositories.

for OTC derivatives transactions[27]. The above-mentioned purposes are pursued through (i) reporting obligations on both counterparties, that should report the details of any derivative trade to one of the trade repositories[28], (ii) clearing obligations[29], consisting in the obligation to centrally clear certain classes of over-the-counter (OTC) derivative contracts[30] through a CCP, *i.e.* a legal person that interposes itself between the counterparties to the contracts traded on one or more financial markets[31], and (iii) risk-mitigation techniques for OTC derivative contracts not cleared by CCPs, including procedures and arrangements to measure, monitor and mitigate operational risk and counterparty credit risk[32].

1.3 EU Financial Regulatory Authorities

1.3.1 The European System of Financial Supervision: a general overview

Proposals to create a central supervisory European institution, inspired by the example of the Securities and Exchange Commission (SEC) in the United States, have always been the subject of intense debate at EU level. They however received a remarkable boost following the 2007-2008 financial crisis, which exposed significant shortcomings in the areas of cooperation, coordination,

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[27] Recital 9 EMIR.

[28] Article 9 EMIR.

[29] According to Article 2(3) of EMIR, 'clearing' means "the process of establishing positions, including the calculation of net obligations, and ensuring that financial instruments, cash, or both, are available to secure the exposures arising from those positions".

[30] 'OTC derivative' or 'OTC derivative contract' means a derivative contract the execution of which does not take place on a regulated market or on a third-country market considered as equivalent to a regulated market under EU laws (see Article 2(7) EMIR).

[31] Article 4 EMIR.

[32] Article 11 EMIR.

consistent application of EU law, and trust between national supervisors[33]. In order to strengthen the European supervisory arrangements, and following the recommendations of the report by the de Larosière expert group[34], the European System of Financial Supervision (ESFS) was established in January 2011.

The ESFS is a system of micro- and macro-prudential authorities that includes the European Systemic Risk Board (ESRB), the three European Supervisory Authorities (ESAs) – namely the European Banking Authority (EBA), the European Securities and Markets Authority (ESMA), and the European Insurance and Occupational Pensions Authority (EIOPA) – and the national competent authorities (NCAs). In November 2014, also the European Central Bank (ECB) became part of the ESFS with the task of supervising the euro-area banks under the Single Supervisory Mechanism (SSM)[35]. The main objectives of the ESFS include ensuring consistent and coherent financial supervision in the EU, preserving financial stability, providing protection for consumers, and facilitating a single EU financial market.

The ESFS is articulated in two separate layers: the ESRB is responsible for the macro-prudential supervision (the "upper" layer) of the EU financial system, while the micro-prudential oversight (the "lower" layer) is performed by: (i) the EBA, the ESMA, and the EIOPA working together in a joint committee (*i.e.* the ESAs), (ii) the ECB, and (iii) the NCAs. Without embarking on an in-depth analysis of this two-layered supervision system, we can say that micro-prudential supervision aims at safeguarding individual financial institutions and preventing them from taking excessive risk, whilst macro-prudential supervision

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[33] Recital 1 ESMA Regulation.

[34] See EUROPEAN ECONOMIC AND SOCIAL COMMITTEE, *Opinion of the European Economic and Social Committee on the 'Report of the de Larosière Group'*, OJ C 318, 23.12.2009, 57–65.

[35] Under the SSM, the European Central Bank (ECB) is the central prudential supervisor of financial institutions in the euro area and in non-euro EU countries that choose to join the SSM. The ECB directly supervises the largest banks, while the national supervisors continue to monitor the remaining banks.

focuses on the interactions among individual financial institutions and the stability of the financial system as a whole[36].

1.3.2 The European Securities and Markets Authority (ESMA)

Among all the EU financial regulatory authorities making up the ESFS, ESMA is surely the most relevant one for the purposes of our analysis, hence the one whose role, tasks, and powers – identified in ESMA Regulation[37] – deserve a particular scrutiny.

(a) Objective and role

ESMA Regulation establishes the European Securities and Markets Authority as an independent EU body with legal personality which is part of the ESFS. ESMA is designed as an EU agency, and therefore subject to EU rules governing agencies. Decisions are taken by a Board of Supervisors, the voting members of which are the heads of NCAs in the EU and the European Economic Area (EEA) responsible for securities regulation and supervision[38]; non-voting members include the Chairperson and one representative of (i) the Commission, (ii) the ESRB, (iii) EBA, and (iv) EIOPA[39]. The objective of ESMA is "to protect the public interest by contributing to the short, medium and long-term stability and effectiveness of the financial system, for the Union economy, its citizens and businesses"[40].

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[36] See EUROPEAN CENTRAL BANK, *Financial Stability Review* (May 2014), 135-136, available at: https://www.ecb.europa.eu/pub/pdf/fsr/financialstabilityreview201405en.pdf.

[37] Regulation (EU) No. 1095/2010 of the European Parliament and of the Council of 24 November 2010.

[38] See N. MOLONEY, *The Age of ESMA: Governing EU Financial Markets*, Hart Publishing (2018), 7.

[39] Article 40 ESMA Regulation.

[40] Article 1(5) ESMA Regulation.

ESMA shall pursue its objective by improving the functioning of the internal market, safeguarding the integrity, transparency, and efficiency thereof, enhancing customer protection, strengthening international supervisory coordination, ensuring the taking of investment and other risks are appropriately regulated and supervised, and preventing regulatory arbitrage[41].

Nonetheless, the supervision of the EU financial market, despite ESMA's undisputed central role, remains a primarily local function in the hands of Member States' NCAs[42]. Indeed, all the legislative acts forming the EU financial markets regulation (listed in paragraph 1.2 above) require Member States to appoint an independent NCA, usually with the status of public authority[43], and identify the powers and functions *vis-à-vis* market participants that must be conferred to such authority[44]. Such powers generally include the authorization and supervision of market participants, investigations on alleged violations of financial markets regulation, and the enforcement of sanctions[45].

ESMA, on the other hand, is not empowered with any direct powers of intervention *vis-à-vis* market participants and issuers[46], with the exception of a number of limited cases[47]. However, as we will see in subsection (c) below,

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[41] *Ibid*.

[42] N. MOLONEY, *supra* note 5, 965-966.

[43] Although some exceptions apply. EMIR, for instance, does not specify whether the NCA should be a public authority.

[44] AIFMD, for example, requires that NCAs must be conferred with a wide range of powers, including the power to access any documents, to carry out on-site inspections, to require information from any person related to alternative investment funds' activities, to request the cessation of any practice contrary to the AIFMD, and to withdraw authorizations granted to managers and depositories.

[45] N. MOLONEY, *supra* note 5, 966.

[46] F. WALLA, *Capital Markets Supervision in Europe*, in *European Capital Markets Law*, 2nd ed., edited by R. VEIL, Hart Publishing (2017),155.

[47] For instance, in the event the NCA does not comply with ESMA's recommendations, ESMA has the power to adopt decisions addressed directly to individual market

ESMA can rely on a broad range of powers *vis-à-vis* NCAs in order to ensure a coherent and consistent supervision of the EU financial market[48], including the power to issue recommendations to NCAs and to settle disagreements between NCAs in cross-border matters; moreover, its quasi-rule-making powers are of the utmost importance in the promotion and development of uniform supervisory practices and procedures across EU Member States.
We will now have a close look at ESMA's main tasks and at the powers conferred to the authority in order to effectively carry out its functions.

(b) Main tasks

ESMA Regulation entrusts the authority with a number of tasks evidencing the central role of ESMA in the micro-prudential supervision of EU financial markets. Among the main tasks of ESMA, it is worth mentioning the following ones.

(i) Establishing high-quality common regulatory and supervisory standards and practices. This task is carried out by providing opinions to the EU institutions, by developing guidelines, recommendations and draft regulatory, and by implementing technical standards[49].

(ii) Ensuring that the acts constituting EU financial markets regulation are consistently, efficiently, and effectively applied in EU Member States, contributing to a common supervisory culture, preventing regulatory arbitrage, and settling disagreements between competent authorities[50].

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participants (Article 17(6) ESMA Regulation). For further details, see paragraph 1.3.2(c) below.

[48] F. WALLA, *supra* note 46, 155.

[49] Art. 8(1)(a) ESMA Regulation.

[50] Art. 8(1)(b) ESMA Regulation.

(iii) Cooperating closely with the ESRB, in particular by providing the ESRB with the necessary information for the achievement of its tasks and by ensuring a proper follow up to the warnings and recommendations of the ESRB[51].

(iv) Strengthening consistency in supervisory outcomes by organizing and conducting peer review analyses of NCAs, including issuing guidelines and recommendations and identifying best practices[52].

(v) Monitoring and assessing market developments in the area of its competence. In this respect, ESMA initiates and coordinates EU-wide stress tests – ensuring that such tests are applied consistently across EU Member States – in order to assess the resilience of financial market participants to adverse market developments, and conducts economic analyses of the markets[53].

(vi) Fostering adequate protection of investors and consumers in a harmonized framework throughout the European Union [54].

(c) Quasi-rule-making and supervisory powers

In order to ensure the achievement of the above tasks, ESMA Regulation grants a wide range of powers to the authority. In the exercise of its powers, ESMA must operate within its scope restrictions set out under Article 1(2) of ESMA Regulation, which empowers ESMA to act within the scope of a list of EU legislative acts (basically all EU acts relating to securities and markets

[51] Art. 8(1)(d) ESMA Regulation.

[52] Art. 8(1)(e) ESMA Regulation.

[53] Art. 8(1)(f) and Recital 43 ESMA Regulation.

[54] Art. 8(1)(h) ESMA Regulation.

regulation)[55]. Furthermore, Article 1(3) of ESMA Regulation gives the authority the power to act also "in the field of activities of market participants" in relation to issues not directly covered in the EU legislative acts listed under Article 1(2), including "matters of corporate governance, auditing and financial reporting", as long as such actions "are necessary to ensure the effective and consistent application of those acts"[56]. Finally, ESMA "shall also take appropriate action in the context of take-over bids, clearing and settlement, and derivative issues"[57].

ESMA's powers are generally divided into two broad categories: quasi-rule-making powers and supervisory powers[58].

The **quasi-rule-making powers** category includes the power to issue binding technical standards and soft law measures. The "quasi" prefix, used in most of the EU law literature when dealing with ESMA's rule-making powers[59], originates from the limitations to EU regulatory agencies' powers set out by the landmark 1958 *Meroni* ruling[60] (known as the *Meroni* doctrine). The *Meroni* doctrine[61] states that EU institutions cannot delegate[62] to agencies powers

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[55] *Id.*, 920.

[56] Art. 1(3) ESMA Regulation.

[57] *Ibid.*

[58] N. MOLONEY, *supra* note 5, 919.

[59] See, for example, N. MOLONEY, *supra* note 2, and E. FAIA, A. HACKETHAL, M. HALIASSOS, K. LANGENBUCHER, *Financial Regulation – A Transatlantic Perspective*, Cambridge University Press (2015).

[60] Judgment of 13 June 1958, *Meroni & Co., Industrie Metallurgiche, SpA v High Authority of the European Coal and Steel Community,* Case 9-56, EU:C:1958:7.

[61] For a detailed analysis of the relationship between EU Agencies and the *Meroni* doctrine, see E. CHITI, *European Agencies Rulemaking: Powers, Procedures, and Assessment* (2013), 19 ELJ 93.

[62] The application of the *Meroni* doctrine to ESMA's powers rests on the assumption that powers are originally conferred to an institution by the Treaty, and then delegated by that institution to an agency. However, it is argued that powers created by secondary legislation and directly conferred by that legislation on the agency should be considered as "conferred" rather than "delegated", hence the *Meroni* doctrine shall not apply. See X. YATAGANAS, *Delegation of Regulatory Authority in the European Union - The Relevance of the*

implying a broad margin of discretion, but only executive powers precisely defined by the delegating authority and subject to strict scrutiny[63]. The rationale behind the *Meroni* doctrine is the safeguard of the principle of institutional balance in the EU, which implies that each of the EU institutions has to act in accordance with the powers conferred on it by the Treaty. ESMA's rule-making and operational powers are therefore significantly limited by the *Meroni* doctrine; this clashes with ESMA's status as independent authority and with the operational freedom that supervisory agencies usually enjoy[64]. That's why the *Meroni* doctrine has been largely criticized by the most recent EU law literature[65], urging for a re-reading of the doctrine in light of the rampant process of "agencification" of the EU administration[66]. As we will see, the complex and vast range of powers granted to ESMA is the result of a delicate attempt to strike a balance between the need to harmonize EU capital markets law and coordinate NCAs, on the one side, and the limits imposed by the Treaty[67], on the other side[68].

American Model of Independent Agencies (2001), available at https://jeanmonnetprogram.org/archive/papers/01/010301.html.

[63] N. MOLONEY, *supra* note 5, 909.

[64] *Id.*, 996.

[65] See, for instance, S. GRILLER, A. ORATOR, *Everything Under Control? The "Way Forward" for European Agencies in the Footsteps of the Meroni Doctrine* (2010), ELR 35(1), 3-35.

[66] See M. CHAMON, *EU agencies: does the Meroni doctrine make sense?*, Maastricht journal of European and comparative law 17(3) (September 2010).

[67] Compliance of ESMA's quasi-rule-making powers with the Treaty is one of the most delicate EU law topics under ongoing discussion. The most relevant case in this respect is the action filed with the ECJ by the United Kingdom on the application of Article 28 of Regulation EU 236/2012 on short selling, that gives ESMA the power to adopt restrictive measures in order to limit certain types of transactions under extraordinary circumstances. With a decision issued on January 22, 2014, the ECJ ruled that Article 28 has sufficient grounds in the Treaty (namely in Article 114 TFEU), and therefore dismissed UK's action claiming the annulment of the mentioned provision (Judgment of 22 January 2014, *United Kingdom of Great Britain and Northern Ireland*, *v*. *European Parliament and Council of the European Union*, C-270/12, EU:C:2014:18).

[68] F. ANNUNZIATA, *La disciplina del mercato mobiliare*, 9th ed., Giappichelli (2017), 38.

Quasi-rule-making powers also constitute a fundamental tool for the achievement of one of the key purposes of ESMA's mission, that is the creation of a single rulebook aimed at providing a single set of harmonized rules on EU financial markets and preventing an excessive fragmentation in the regulation of the internal market[69]. ESMA, which describes itself as a "standard setter in relation to securities regulation"[70], launched in 2018 an interactive version of the single rulebook[71] that provides a comprehensive overview of all level 2[72] and level 3[73] measures adopted by ESMA in relation to a given level 1[74] text (*e.g.* MiFID II, MiFIR, UCITS).

ESMA Regulation confers the following quasi-rule-making powers to the authority.

(i) The power to submit draft Regulatory Technical Standards (RTS) to the Commission (Art. 10 ESMA Regulation), which are acts delegated pursuant to Article 290 TFEU. RTSs do not become legally binding until endorsed by the Commission, and require a legal foundation in a Level 1 act[75]. Furthermore, RTSs are characterized as technical, do not imply any strategic decision or policy choice, and their content is delimited by the Level 1 acts on which they are based[76]. RTSs are the instrument by which

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[69] See ESMA, EBA, EIOPA, *Joint Committee Report on Risks and Vulnerabilities in the EU Financial Sector* (March 2013), 16, available at: https://www.esma.europa.eu/sites/default/files/library/2015/11/jc-2013-010_jc_rsc_joint_risk_report_2.pdf.

[70] ESMA, Annual Report (2011), 9 and 11, available at: https://www.esma.europa.eu/sites/default/files/library/2015/11/esma-2011.pdf.

[71] Available at https://www.esma.europa.eu/rules-databases-library/interactive-single-rulebook-isrb.

[72] Regulatory Technical Standards (Art. 10 ESMA Regulation) and Implementing Technical Standards (Art. 15 ESMA Regulation).

[73] Guidelines and Recommendations (Art. 16 ESMA Regulation).

[74] Legislative acts of the EU Parliament and the Council (Arts. 294 ff. TFEU).

[75] F. WALLA, *supra* note 48, 162.

[76] N. MOLONEY, *supra* note 5, 921-922.

ESMA sets out procedural rules in the context of EU legislative acts regulating financial markets.

(ii) The power to develop Implementing Technical Standards (ITS) and submit them to the Commission for endorsement (Art. 15 ESMA Regulation). ITSs have an executive/implementing nature and derive their legal basis from Article 291 TFEU. Like RTSs, they do not imply any strategic decision of policy choice, and they shall determine the conditions of application of EU legislation. ITSs are often used by ESMA in order to develop standard forms, sample texts, and measures facilitating procedures[77].

(iii) The power to issue Guidelines and Recommendations addressed to NCAs or financial markets participants (Art. 16 ESMA Regulation), a useful tool to ensure the common, uniform, and consistent application of EU law. Guidelines and Recommendations are soft-law, hence not binding for market participants and national/EU courts. In relation to NCAs, however, ESMA Regulation introduces a "comply or explain" requirement: within two months of the issuance of a guideline or recommendation, each NCA must inform ESMA about whether it intends to comply with the guideline or recommendation; in the event the NCA decides not to comply, it shall inform ESMA stating its reasons. ESMA will publish the fact that a competent authority does not comply or intend to comply with that guideline or recommendation, and may also decide, on a case-by-case basis, to publish the reasons provided by the NCA[78]. This public nature of the "comply or explain" mechanism strengthens the binding quality of guidelines and recommendations and gives them a higher status than mere soft-law, as NCAs may be reluctant to publicly

[77] F. WALLA, *supra* note 48, 163.

[78] Article 16(3) ESMA Regulation.

disclose their national interests and to undermine ESMA's ability to support them at national level[79]. Furthermore, it is worth mentioning that the "hard" nature of guidelines and recommendations issued by ESAs (ESMA, EBA, and EIOPA) has been endorsed by the ESA Board of Appeals[80] and the Commission[81].

(iv) The power to adopt "soft" Supervisory Convergence Measures addressed to NCAs, with quasi-regulatory effects, in order to promote common EU supervisory practices and ensure uniform procedures[82] (Art. 29 ESMA Regulation). The vast array of measures that can be adopted by ESMA, listed under Art. 29, includes providing opinions to NCAs, promoting bilateral and multilateral exchanges of information between NCAs, and organizing training programs for NCAs' staff.

The **supervisory powers** category includes all the powers granted to ESMA in order to carry out its supervisory functions *vis-à-vis* NCAs. The relationship between ESMA and NCAs can be seen as hierarchical if we consider, for instance, the ability of ESMA to address decisions to NCAs, to intervene in national markets under exceptional circumstances, to mediate and settle disagreements between NCAs, or to subject NCAs to the "comply or explain" mechanism with regard to recommendations and guidelines[83]. ESMA can also be regarded as a "supervisor of supervisors" or "system supervisor"[84], given its

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[79] N. MOLONEY, *supra* note 5, 930.

[80] Decision of the Board of Appeal of the European Supervisory Authorities, BoA 2013-008, 24 June 2013, that considered the failure to comply with EBA's 2012 Guidelines on the Assessment and Suitability of Members of the Management Body and Key Function Holders as a breach of EU law.

[81] EUROPEAN COMMISSION, *Report from the Commission to the European Parliament and Council on the Short Selling Regulation*, COM(2013)885, 6.

[82] N. MOLONEY, *supra* note 5, 935.

[83] *Id.*, 973.

[84] For an in-depth analysis of ESMA as a "system supervisor", see HM TREASURY, *Response to the Commission Services Consultation on the Review of the ESFS* (2013).

fundamental function to ensure a consistent, efficient, and effective supervision in the EU financial market.

ESMA is empowered, *inter alia*, with the following supervisory powers.

(i) The power to address decisions to NCAs in the event of a breach of EU law (Art. 17 ESMA Regulation). ESMA shall follow a three-step mechanism when dealing with an alleged breach of EU law by a NCA[85]. In the first step, ESMA, the Parliament, the Council, the Commission, or the Securities and Markets Stakeholders Group (SMSG) initiates an investigation on the alleged breach or non-application of EU law; within two months after the beginning of such investigation, ESMA may address a recommendation to the NCA setting out the necessary actions to comply with EU law[86]. In the event the NCA has not complied with EU law within 1 month from receipt of ESMA's recommendation, the procedure can move to the second step: the Commission, after being informed by ESMA or on its own initiative, may issue a formal opinion requiring the NCA to take the action necessary to comply with EU law[87]. If the NCA does not comply with the formal opinion of the Commission within the period of time specified therein, and where it is necessary to remedy in a timely manner such non compliance in order to maintain or restore neutral conditions of competition in the market or ensure the orderly functioning and integrity of the financial system, ESMA can proceed to the third step: the authority may, where the breached EU provisions are directly applicable, adopt an individual decision addressed to a financial market participant requiring the necessary action to comply with its obligations under EU law, including the cessation of any practice[88].

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[85] See F. WALLA, *supra* note 48, 156, and N. MOLONEY, *supra* note 5, 976-977.

[86] Article 17(3) ESMA Regulation.

[87] Article 17(4) ESMA Regulation.

[88] Article 17(6) ESMA Regulation.

(ii) The power to address measures to NCAs in emergency situations (Art. 18 ESMA Regulation)[89]. ESMA's "emergency" powers are triggered when the Council, in consultation with the Commission and the ESRB and, where appropriate, the ESAs, determines the existence of an emergency situation following a request by ESMA, the Commission, or the ESRB[90]. Where the Council has adopted such decision, and in exceptional circumstances where coordinated action by NCAs is necessary to respond to adverse developments which may seriously jeopardise the orderly functioning and integrity of financial markets or the stability of the whole or part of the financial system in the EU, ESMA may adopt individual decisions requiring NCAs to take the necessary action[91]. In the event the NCA does not comply with ESMA's decision within the period laid down therein, and if the breached EU provisions are directly applicable, ESMA may adopt an individual decision addressed to a financial market participant requiring the necessary action to comply with its obligations[92].

(iii) The power to mediate and settle disagreements between NCAs in cross-border matters (Art. 19 ESMA Regulation). ESMA's powers are triggered at the request of one of more of the NCAs concerned; only where provided for in the relevant legislation[93] or when disagreement can be determined on the basis of objective criteria, ESMA can act on its own initiative[94]. Before taking any settlement decision on the matter, ESMA shall act as a mediator between the NCAs, setting a time limit for conciliation[95]. If the NCAs fail to

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[89] See F. WALLA, *supra* note 48, 157, and N. MOLONEY, *supra* note 5, 977-978.

[90] Article 18(2) ESMA Regulation.

[91] Article 18(3) ESMA Regulation.

[92] Article 18(4) ESMA Regulation.

[93] For instance, Article 13(6) MAR and Article 57(6) MiFID II.

[94] N. MOLONEY, *supra* note 5, 978. See also F. WALLA, *supra* note 48, 157.

[95] Article 19(2) ESMA Regulation.

reach an agreement within the conciliation phase, ESMA shall take a decision requiring the NCA(s) to take specific action or to refrain from action in order to settle the matter, with binding effects for the NCAs concerned[96]. If a NCA does not comply with the decision, ESMA may adopt an individual decision addressed to a financial market participant[97].

(iv) The power to provide opinions with respect to specified sensitive supervisory decisions. This category includes a vast array of soft-law measures included in both ESMA Regulation and the other EU legislative acts on securities and market regulation. For instance, under the Short Selling Regulation[98], any supervisory action by NCAs shall be notified to ESMA, that must provide an opinion on whether the action is necessary given the circumstances; if the NCA does not intend to follow ESMA's opinion, a "comply or explain" mechanism applies, as the NCA shall publish a notice explaining its reasons[99]. The same "comply or explain" requirement applies to NCAs' decisions to impose leverage limits on alternative investment funds managers under AIFMD[100]: ESMA must provide an advice and, if the NCA does not intend to follow the advice, it shall inform ESMA about the reasons behind its choice[101]. Another example is the power to provide opinions to NCAs in order to build a common EU supervisory culture and ensure uniform procedures throughout the EU[102]. Despite being far less intrusive than the powers under (i), (ii), and (iii)

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[96] Article 19(3) ESMA Regulation.

[97] Article 19(4) ESMA Regulation.

[98] Regulation (EU) No 236/2012 of the European Parliament and of the Council of 14 March 2012 on short selling and certain aspects of credit default swaps, Articles 26-27.

[99] N. MOLONEY, *supra* note 5, 980-981.

[100] Article 25 AIFMD.

[101] N. MOLONEY, *supra* note 5, 981.

[102] Article 29(1) ESMA Regulation.

above, these softer measures have an increasingly incisive role in promoting consistency in supervisory practices across EU Member States[103].

(v) The power to directly supervise credit rating agencies and trade repositories. This power to directly supervise specific market participants arises directly from Article 8(1)(j) ESMA Regulation, requiring ESMA to fulfill any other specific tasks set out therein or in other legislative acts. Since July 2011, ESMA has been responsible for registering credit rating agencies and has exclusive supervisory powers in relation to such agencies[104]. Furthermore, ESMA has a central role in the authorization and monitoring of CCPs and trade repositories in OTC derivatives transactions[105].

After years of its existence, ESMA continues to play a fundamental role in the unification of EU securities and financial markets regulation and in supervisory convergence. In the long term, ESMA has the potential to become the most important supervisory player in EU capital markets and to assume powers comparable to the SEC in the United States[106].

1.4 Identifying a potential legal qualification of crypto-assets

Having briefly examined the applicable EU legislation and the relevant EU supervisory authorities, we can now go back to the core subject of this chapter and identify a potential legal qualification of crypto-assets under EU financial law.

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[103] N. MOLONEY, *supra* note 5, 982.

[104] Regulation (EC) No 1060/2009 of the European Parliament and of the Council of 16 September 2009 on credit rating agencies, as amended by Regulation (EU) No 513/2011 of the European Parliament and of the Council of 11 May 2011 and Regulation (EU) No 462/2013 of the European Parliament and of the Council of 21 May 2013.

[105] See Recital 10 EMIR.

[106] F. WALLA, *supra* note 48, 167.

We will proceed by examining the various categories of crypto-assets in order to understand whether (and to which extent) they qualify as financial instruments, and are therefore subject to the applicable EU regulation, or if they fall within the scope of other categories of instruments such as commodities, payment instruments, or credit instruments. Determining whether or not a crypto-asset qualifies as a financial instrument is a delicate issue if we consider that MiCA regulation proposal expressly excludes from its scope crypto-assets qualifying as financial instruments under MiFID II.

In conducting the above analysis, we will use the traditional threefold classification of crypto-assets[107] in: (i) investment tokens (also known as asset tokens or security tokens), that have some profit rights attached and an investment component (like equity or debt instruments), (ii) utility tokens, providing some utility or consumption rights (like the ability to access or buy some products or services), and (iii) payment tokens (also known as exchange tokens or cryptocurrencies), serving as a means of payment (like Bitcoin). However, it is not uncommon that crypto-assets share features of more than one of the above three categories; in such a case, we refer to them as hybrid tokens (*e.g.* hybrid investment/payment tokens).

Despite the wide use of the above taxonomy, we are nonetheless experiencing a rising trend in abandoning the three traditional classes of crypto-assets, considered obsolete, for a more substantial categorization that takes into account the technical and economic differentiators of the crypto-asset in question and the relevant legal landscape[108]. Indeed, it is not uncommon to see authors

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[107] Although the nomenclature may in some cases slightly differ, this classification is the one used by ESMA and by great part of NCAs (such as FCA in the UK, FINMA in Switzerland, and Consob in Italy).

[108] J. G. ALLEN, R. M. LASTRA, *Towards a European Governance Framework for Cryptoassets*, SUERF Policy Note, Issue No. 110 (November 2019), available at: https://www.suerf.org/policynotes/7839/towards-a-european-governance-framework-for-cryptoassets.

shaping new, more detailed classifications of crypto-assets that also take account of several different features, including for instance: (i) the existence and nature of a counterparty; (ii) whether the crypto-asset represents off-chain value[109] and, if so, what type of value; (iii) the technical function of the crypto-asset within the network[110]; (iv) the rights granted to the holders of the crypto-asset; and (v) the underlying infrastructure of the network (e.g. "permissioned" or "permission-less" blockchain)[111].

Another interesting approach criticizes the traditional "bottom-up" taxonomy of tokens, which looks at the structure of tokens in order to subsume them under an abstract category (*e.g.* investment, payment, or utility token), and promotes a "top-down" approach moving from the trading venues. According to the "top-down" approach, if a token is exchanged on a trading venue under MiFID II it would qualify as a financial instrument, regardless of whether it is a payment, investment, or utility token[112].

It is also worth mentioning another interesting theory that considers all utility tokens as having both payment and investment features and excludes

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[109] Off-chain transactions refer to those transactions occurring on a crypto exchange which move the value outside of the blockchain (for example, an existing asset). On the other hand, on-chain transactions refer to those crypto transactions occurring on the blockchain – *i.e.* on the records of the blockchain - and remaining dependent on the state of the blockchain for their validity.

[110] In this respect, see for example the classification between "protocol tokens" and "app tokens" in J. ROHR, A. WRIGHT, *Blockchain- Based Token Sales, Initial Coin Offerings, and the Democratization of Public Capital Markets*, Hastings Law Journal 70 (2019), 470-477. Protocol tokens are those used "to compensate parties for participation in some activity that contributes to the maintenance of the blockchain and its network", while app tokens (that include utility and investment tokens) are used "to coordinate activity related to online services and other collaborative endeavors". "As compared to protocol tokens, app tokens tend to have more specific and narrow objectives, imbuing the holder of a token with pre-defined rights, privileges, and rewards within a particular online application or service".

[111] J. G. ALLEN, R. M. LASTRA, *supra* note 108.

[112] F. ANNUNZIATA, *Speak, If You Can: What Are You?. An Alternative Approach to the Qualification of Tokens and Initial Coin Offerings*, in ECFR vol. 17, n. 2 (2020), 43.

their categorization as a separate class having solely a utility function[113]. The theory revolves around the assumption that utility tokens are, after all, the means of payment for services or products that the team wants to create[114]. Indeed, the team offers utility tokens as a cryptocurrency to be used within the relevant eco-system, while on the other hand platform cryptocurrencies (such as Bitcoin) can be spent in any crypto-environment[115]. From this point of view, the conceptual difference between a payment token and a utility token is just the dimension of the crypto-environment where the token can be spent[116]. Furthermore, utility tokens are often kept to speculate on their increase in value in crypto-exchanges rather than to get access to the utilities that the platform offers[117]. In light of the above considerations, utility tokens can be conceptualized both as a mini-currency and as an investment[118].

Even though we recognize the value of other more technical or functional categorizations, we have nevertheless decided to use the traditional threefold classification of crypto-assets (investment, payment, and utility tokens) given its broad use among regulators and its easy adaptability to legal analyses.

The main guidance in our analysis on the legal qualification of crypto-assets will be the advice on Initial Coin Offerings and Crypto-Assets[119] published by ESMA on January 9, 2019 (hereinafter "ESMA's Advice") and addressed to the EU institutions. To better understand the circumstances under which crypto-

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[113] D. BOREIKO, G. FERRARINI, P. GIUDICI, *Blockchain Startups and Prospectus Regulation*, European Business Organization Law Review, Volume 20, Issue 4 (2019) 665-694.

[114] *Id.*, 672.

[115] *Ibid.*

[116] *Ibid.*

[117] *Id.*, 673.

[118] *Ibid.*

[119] ESMA, *Advice on Initial Coin Offerings and Crypto-Assets,* ESMA50-157-1391 (January 9, 2019), available at: https://www.esma.europa.eu/sites/default/ files/library/esma50-157-1391_crypto_advice.pdf.

assets may qualify as financial instruments in the EU, ESMA undertook a survey of NCAs of EU Member States[120] in the summer of 2018, using a sample set of six different types of crypto-assets[121]. The sample crypto-assets were real crypto-assets reflecting different characteristics that ranged from investment-type (cases 1[122] and 2[123]) to utility-type (case 5[124]), and hybrids of investment-type, utility-type and payment-type crypto-assets (cases 3[125], 4[126], and 6[127]). Pure payment-

[120] 29 NCAs provided answers to the survey, including 27 EU Member States (all except Poland), Liechtenstein, and Norway.

[121] For a detailed description of the six types of crypto-assets classified in the survey, see Annex 1 to ESMA's Advice, 24-26, available at: https://www.esma.europa.eu/sites/default/files/library/esma50-157-1384_annex.pdf.

[122] Case 1: FINOM (FIN) uses Blockchain technology to provide fully integrated financial services. The FINOM ecosystem aims at allowing access to crypto-assets to a wide range of users. Other expected benefits include full transparency and traceability of transactions. The issued crypto-assets (FIN) have the following attached rights: 1) right to receive a portion of company profit in the form of dividends, 2) right to participate in community management, and 3) right to a portion of company assets. USD 41m were raised through the crypto-asset sale, which ended on 31 December 2017. The funds raised will be used to develop the services that the firm aims to provide. Crypto-assets have been placed in accordance with Regulation D (Rule 506(c) of Regulation D) of the U.S. Securities Act of 1933, meaning that FINOM crypto-assets could only be acquired by accredited investors from the United States. The crypto-assets are seemingly not traded on crypto exchanges at this point.

[123] Case 2: Polybius Bank (PLBT) is a project by Polybius Foundation that aims to offer all the services of a 'traditional' bank, without any branches or physical front-offices and leveraging on digital technologies. The ICO, which ran in June 2017, raised around USD 30m. The funds raised will serve to develop the infrastructure of the bank and its services. The white paper includes a roadmap for the development of the bank. The Polybius crypto-asset (PLBT) comes with the right to receive 20% of the distributable profit of a financial year. Crypto-assets do not provide any decision making power to their holders. As of 7thNovember 2018, the PLBT crypto-asset was trading at USD 1.64 (Market Cap: USD 6,522,615), to be compared with USD 5.36 (Market Cap: USD 20,468,400) as of 1 January 2018.

[124] Case 5: Filecoin (FIL) is a decentralized storage network that turns cloud storage into an algorithmic market. Filecoins can be spent to get access to unused storage capacity on computers worldwide. Providers of the unused storage capacity in turn earn filecoins, which then can be sold for cryptocurrencies or fiat money.

[125] Case 3: Crypterium (CRPT) aims to build up a "cryptobank" with vertically integrated services. It claims to be faster and less costly than existing banking solutions and stresses its international scaling opportunities. The crypto-asset sale ended in

type crypto-assets (such as Bitcoin) are not represented in the survey, as they are unlikely to qualify as financial instruments[128]. ESMA's Advice outlines ESMA's position on the gaps and issues emerging when crypto-assets qualify as financial instruments and the risks that are left unaddressed when crypto-assets do not qualify as financial instruments[129]. The legal basis of ESMA's Advice is Article 9(4) of ESMA Regulation, requiring ESMA to establish a Committee on financial innovation "with a view to achieving a coordinated approach to the regulatory and supervisory treatment of new or innovative financial activities and providing advice for the Authority to present to the European Parliament, the Council and the Commission"[130]. Thus, ESMA's Advice can be counted among

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January and raised USD 51m from 68,125 crypto-asset purchasers. The crypto-assets maybe used to pay for transaction fees when using the services of the cryptobank. In addition, they grant the right to receive a monthly share of the revenues derived from the transactions. In addition, services not known yet might be available to crypto-asset holders at a cheaper price or for free in the future. Crypto-asset holders are also granted 'priority treatment' (although the white paper does not specify what this priority treatment would entail).

[126] Case 4: PAquarium (PQT) aims to build the world's largest aquarium. PAquarium promises to pay 20% of the aquariums operational profit to crypto-asset holders on an annual basis. The whitepaper also mentions the possibility to sell and exchange PQTs. The crypto-assets come with voting rights on the location of the Aquarium and additional voting provisions may be available in the future. In addition, they may be used as a means of payment for goods at the aquarium. Purchasing a certain amount of crypto-assets gives a lifetime free entry to the aquarium. PAquarium put on sale 1.2 Billion PQT crypto-assets for a total value of USD 120 Million. The funds raised will be used as follows: construction and development (65%), marketing and promotion (20%), operations and legal (15%). It appears that PQTs are not traded on any crypto exchange at the moment. The project is still at a very early stage, e.g., a vote on the location of the aquarium is still underway.

[127] Case 6: AlchemyBite (ALL) aims to provide a crypto-asset that is backed by different crypto-assets. The value of the crypto-asset can be determined by the value of the crypto-assets it is backed with. Between 70% and 75% of the crypto-asset are backed by crypto-assets, whereas the rest is backed by crypto-related assets such as shares in crypto-asset developing companies.

[128]ESMA's Advice, 4-5.

[129] *Id.*, 6.

[130] *Ibid.*

the soft-law measures that ESMA can adopt (see paragraph 1.3.2(c) above) in order to ensure an uniform application of EU securities regulation across EU Member States.

Another fundamental document that will provide guidance in our analysis, which shall be read closely with ESMA's Advice, is the report on crypto-assets issued by EBA on January 9, 2019 (hereinafter the "EBA Report")[131]. The EBA Report particularly focuses on payment-type crypto-assets and on the application of current EU banking, payments, e-money and anti-money laundering laws to crypto-assets. The EBA Report was then followed in May 2019 by a paper summarizing the conclusions of the ECB task force on crypto-assets (hereinafter the "ECB Paper")[132].

Finally, and most importantly, we will discuss the potential future regulation of crypto-assets in light of the recent proposal of the European Commission for the regulation of markets in crypto-assets (MiCA). The main purpose of the proposal, as we will see, is to create a uniform EU legal framework in relation to transparency and disclosure requirements for the issuance and admission to trading of crypto-assets in the EU[133].

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[131] EBA, *Report with advice for the European Commission on crypto-assets* (January 9, 2019), available at: https://eba.europa.eu/sites/default/documents/files/documents/10180/2545547/67493daa-85a8-4429-aa91-e9a5ed880684/EBA%20Report%20on%20crypto%20assets.pdf? retry=1.

[132] ECB CRYPTO-ASSETS TASK FORCE, *Crypto-Assets: Implications for financial stability, monetary policy, and payments and markets infrastructures*, Occasional Paper No. 223 (May 2019), available at: https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op223~3ce14e986c.en.pdf?a31360223fb32f0e50a82ce649a8b7fc.

[133] Article 1 MiCA.

2. Crypto-assets as financial instruments

MiFID II defines "financial instruments" as "those instruments specified in Section C of Annex I"[134]. The list in the mentioned Section C includes (i) transferable securities, (ii) money-market instruments, (iii) units in collective investment undertakings, and (iv) various derivative instruments[135]. In order to avoid the *a priori* exclusion of crypto-assets from the category of "financial instruments", the European Commission has proposed an amendment to the above definition in order to expressly include financial instruments based on distributed ledger technology (DLT)[136], together with a pilot regime on DLT market infrastructures for those instruments[137]. The amended definition, when approved, will be as follows: 'financial instrument' means "those instruments specified in Section C of Annex I, *including such instruments issued by means of distributed ledger technology*"[138]. In addition, as mentioned above, MiCA proposed regulation expressly excludes from its scope all crypto-assets qualifying as financial instruments on the assumption that those instruments should be

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[134] Article 4(1)(15) MiFID II.

[135] The list also includes "Emission allowances consisting of any units recognised for compliance with the requirements of Directive 2003/87/EC (Emissions Trading Scheme)". However, given their scarce relevance for the purpose of our analysis, they will not be examined here.

[136] Proposal for a Directive of the European Parliament and of the Council amending Directives 2006/43/EC, 2009/65/EC, 2009/138/EU, 2011/61/EU, EU/2013/36, 2014/65/EU, (EU) 2015/2366 and EU/2016/2341 - COM(2020)596.

[137] *Id.,* Article 6(4). The proposal, if approved, would temporarily exempt DLT market infrastructures from certain MiFID II provisions in order enable them to develop solutions for the trading and settlement of transactions of crypto-assets that would qualify as financial instruments. For example, the competent authority may permit that, under its rules governing access and for a maximum of four years, the investment firm or market operator admits natural persons to the DLT multilateral trading facility as members or participants, provided that those persons fulfill some requirements of integrity and professionalism.

[138] *Id.*, Article 6(1). Emphasis added.

regulated under the existing EU financial law (*e.g.* MiFID II/MiFIR, Prospectus Regulation, MAR).

Therefore, particularly in light of the increasing interest of the EU lawmaker in this new phenomenon, it goes without saying that determining whether a crypto-asset qualifies as a "financial instrument" under MiFID II definition – and to which class of financial instruments it belongs – is of the utmost importance. Indeed, there are many regulatory implications arising from such qualification, including for instance the applicability of MiFID II/MiFIR and MAR regimes and, when the crypto-asset qualifies as a transferable security, of Prospectus Regulation.

We will therefore proceed by separately examining all classes of financial instruments listed under Section C of Annex 1 to MiFID II in order to understand which types of crypto-assets may fall within such categories.

2.1 Transferable securities

"Transferable securities" are the first category of financial instruments listed under Section C of Annex I to MiFID II. The definition of "transferable securities" is included in MiFID II, and great part of EU financial acts reefers to such definition. For instance, as we will see below in further detail, Prospectus Regulation limits its material scope to "securities", identified as those financial instruments falling under the definition of "transferable securities" under MiFID II (with the exception of money market instruments having a maturity of less than 12 months)[139].

[139] Article 2(1)(a) Prospectus Regulation.

2.1.1 The definition of "transferable securities"

According to MiFID II, "transferable securities" means "those classes of securities which are negotiable on the capital market, with the exception of instruments of payment, such as:

1. shares in companies and other securities equivalent to shares in companies, partnerships or other entities, and depositary receipts in respect of shares;
2. bonds or other forms of securitised debt, including depositary receipts in respect of such securities;
3. any other securities giving the right to acquire or sell any such transferable securities or giving rise to a cash settlement determined by reference to transferable securities, currencies, interest rates or yields, commodities or other indices or measures." [140]

MiFID II first gives a general definition of transferable securities ("those classes of securities which are negotiable on the capital market"), and then provides a non-exhaustive list of instruments that do qualify as transferable securities without any need for a further scrutiny, such as shares, bonds, and any other instrument giving the right to acquire or sell transferable securities (*e.g.* stock options). Instruments of payment are explicitly excluded from the definition of transferable securities.

If we analyze the text of the definition, we will notice that it employs three formal and two substantial criteria in order to check whether a financial instrument can be considered a transferable security. The formal criteria are: (i) transferability ("*transferable*[141] securities means…"), (ii) standardization ("those

[140] Article 4(1)(44) MiFID II.

[141] Emphasis added.

classes[142] of securities"), and (iii) negotiability ("which are *negotiable*[143] on the capital market"), while the substantial ones are (iv) the non-qualification as instruments of payment, and (v) the comparability of the security with a non-exhaustive list of examples, such as shares and bonds[144] (although some commentators, as we will see, do not recognize the existence of the comparability requirement).

The above definition clearly indicates that MiFID II adopts a black-letter law approach: statutory requirements to identify transferable securities are set out in precise details[145], as opposed to the "substance over form" approach of the SEC in the US (that we will analyze in the next chapter). The purpose of such black-letter approach is to leave little leeway for discretion and achieve a uniform interpretation of securities laws within EU Member States; indeed, a "substance over form" approach would have been in conflict with the coveted harmonization of EU financial law, as courts in different EU Member States could show different approaches[146].

2.1.2 The formal criteria: transferability, negotiability, standardization

We will now examine the three formal criteria employed by MiFID II definition of "transferable securities" (transferability, negotiability, and standardization) in order to check whether (and which types of) crypto-assets

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[142] Emphasis added.

[143] Emphasis added.

[144] See P. HACKER, C. THOMALE, *Crypto-Securities Regulation: ICOs, Token Sales and Cryptocurrencies under EU Financial Law*, 15 European Company and Financial Law Review 645-696 (2018), available at: http://dx.doi.org/10.2139/ssrn.3075820, 19-20.

[145] P. MAUME, M. FROMBERGER, *Regulation of Initial Coin Offerings: Reconciling U.S. and E.U. Securities Law*, Chicago Journal of International Law, Vol. 19, No. 2, Article 5 (2019), 572.

[146] *Id.*, 573.

meet those requirements. Particular attention will be given to the opinion of the various NCAs of the EU Member States as evidenced in ESMA's Report.

(a) Transferability

Only securities that are transferable fall under MiFID II definition. In this context, transferability means that securities can be assigned to another person at all, irrespective of whether certificates exist that register or document the existence of such security[147]; hence securities do not require a physical embodiment (like a certificate) to be transferable. Crypto-tokens are not evidenced by certificates, given their non-tangible nature, and are typically sold on secondary markets[148]. Indeed, blockchain technology allows individuals to make transactions and store value in digital wallets by using private keys, through which they can transfer the crypto-assets stored in their wallets and prove ownership thereof[149]. Therefore, we can generally consider crypto-tokens as transferable.

Transferability of tokens can be limited on a contractual basis, for example through a lock-up provision *vis-à-vis* investors[150]. However, contractual restrictions do not deprive crypto-assets of their status of transferability, unless they make it technically impossible for third parties to exercise any right on the token[151]. In fact, a mere contractual restriction does not hinder token holders to

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[147] *Id.,* 20.

[148] *Ibid.* For a list of the most popular crypto exchanges see, for instance, L. CONWAY, *Best Crypto Exchanges*, available at: https://www.investopedia.com/best-crypto-exchanges-5071855.

[149] See V. FERRARI, *The regulation of crypto-assets in the EU – investment and payment tokens under the radar*, Maastricht Journal of European and Comparative Law (May 5, 2020), available at: https://journals.sagepub.com/doi/10.1177/1023263X20911538.

[150] P. HACKER, C. THOMALE, *supra* note 144, 20.

[151] This can be inferred from the wording of Article 7(7) of Prospectus Regulation, requiring information on contractual restrictions on the transferability of securities to be included in the prospectus, and it is confirmed in ESMA, 'Prospectuses. Questions and

pass on ownership of the token in breach of the contractual provision, as the contractual breach does not affect the validity of the transaction (it only makes the parties liable for damages *vis-à-vis* the issuer) [152]. When, instead, contractual restrictions are accompanied by technical limitations that make the assignment of crypto-assets to third parties impossible, it must be concluded that such crypto-assets lack transferability and are therefore not subject to EU laws concerning transferable securities[153].

A relevant issue arises if we strictly follow the above rule, as it may happen that technical restrictions on the transferability of crypto-assets are just temporary. There are no significant risks when crypto-assets are initially transferable and then become non-transferable. For example, tokens issued in the context of one of the largest ICOs, the EOS token sale, became non-transferable on the Ethereum blockchain 23 hours after the end of the final EOS token distribution period[154]. Therefore, such tokens cannot be considered anymore securities after the moment they became non-transferable. The biggest issue arises when crypto-assets are initially non-transferable, but the restriction is removed after a period of time. In such a case, some authors argue that the requirement of transferability should be considered as being fulfilled since the beginning, *i.e.* from the moment of the ICO[155]. First, because the nature of the blockchain imposes that lockups, whether permanent or temporary, are set out in the code of the blockchain from the very beginning; hence the lockup is known

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Answers, 29th updated version – January 2019', *ESMA* (2019), 56: 'the transferability of securities may be reduced on a contractual basis […], ESMA considers that those securities remain "transferable securities" falling into the scope of the Prospectus Directive'.

[152] P. HACKER, C. THOMALE, *supra* note 144, 20.

[153] *Ibid.*

[154] EOS, *Frequently Asked Questions*, Question N. 19, available at https://eos.io/faq.html.

[155] See P. MAUME, M. FROMBERGER, *supra* note 145, 575.

since the ICO and cannot be changed later[156]. Second, and most important, because it may cause many regulatory issues. For instance, issuers could escape EU financial markets regulation (including the prospectus requirement), but take the advantage of a fungible token that is more attractive to prospective investors[157]. Furthermore, investors could also buy crypto-assets using insider knowledge: indeed, when the lockup is removed after the ICO (thus turning the token into a "transferable security"), insiders would claim that the trade falls outside the scope of insider trading regulation as the trade took place when the token was not a transferable security[158]. Therefore, in order to avoid the above absurd consequences and the creation of a loophole in EU capital markets regulation, crypto-assets should be deemed "transferable" from the beginning even if such crypto-assets become transferable at a later stage (*i.e.* if the lockup is removed after the ICO)[159].

(b) Negotiability

In accordance with MiFID II definition, securities shall be "negotiable on a capital market". While transferability refers to the mere fact of passing on ownership, negotiability concerns the ease with which ownership can be transferred (in fact, negotiability implies transferability)[160].

In order to provide clarity on the concept of negotiability, the European Commission, in its Q&A document on MiFID, clarified that "if the securities in question are of a kind that is capable of being traded on a regulated market or MTF, this will be a conclusive indication that they are transferable securities,

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[156] *Id.*, 575, note 178.

[157] *Id.*, 575.

[158] *Ibid.*

[159] *Ibid.*

[160] P. HACKER, C. THOMALE, *supra* note 144, 21.

even if the individual securities in question are not in fact traded[161]. Conversely, if they are not capable of being traded in such multilateral systems this may indicate that they are not transferable securities, but this is not conclusive. […] The concept of negotiability contains the notion that the instrument is tradable. If restrictions on transfer prevent an instrument from being tradable in such contexts, it is not a transferable security"[162]. Regulated markets are authorized marketplaces for financial instruments, operating in accordance to MiFID II (such as stock exchanges), while a MTF (Multilateral Trading Facility) is a trading system that facilitates the exchange of financial instruments between multiple parties.

Furthermore, the EC clarified that the term "capital market" is not defined in EU financial legislation, but "the concept is broad and is meant to include all contexts where buying and selling interest in securities meet"[163]. The purpose of the EC was to leave the door open to market structures that did not exist when MiFID was drafted[164]. In sum, the EC pointed out that financial instruments which are capable of being traded on a regulated market or a MTF shall be deemed tradable, hence negotiable; if not, a case-by-case analysis shall be carried out in order to determine the negotiability of the instrument on a capital market.

Crypto-assets at the moment are not traded on regulated markets or MTFs; they are, instead, traded on crypto exchanges (such as Bittrex, Kraken, or Coinbase). The fact that crypto-assets are not yet traded on regulated markets or MTFs raises the question of where to draw the line between capital markets and

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[161] Indeed, the wording of MiFID II definition ("negotiable" instead of "negotiated") demonstrates that the instruments do not need to be traded on an exchange. See P. MAUME, M. FROMBERGER, *supra* note 145, 579.

[162] EUROPEAN COMMISSION, *Your Questions on MiFID*, Question N. 115, available at: https://ec.europa.eu/info/sites/info/files/business_economy_euro/banking_and_finance/documents/mifid-2004-0039-commission-questions-answers_en_0.pdf.

[163] *Ibid.*

[164] See P. MAUME, M. FROMBERGER, *supra* note 145, 576.

other markets[165]. Crypto exchanges seem to fall under the broad definition of "capital market" provided by the EC, as they bring buying and selling interests together. Therefore, it appears that crypto-assets traded on crypto exchanges meet the "negotiability" requirement under MiFID II definition.

Some authors argue that a financial market can be considered a "capital market" only when the instruments traded possess an investment component that involves financial risk[166] in the form of profit participation or a direct flow of funds[167]. The starting point would be examining what market participants and stakeholders consider to be a "capital market" and what makes it different from other financial markets[168]. Generally, capital markets are considered a place where buyers and sellers engage in the trade of financial securities such as stocks and bonds[169], which seems to be in line with the EC definition seen above. It appears that the main difference between capital markets and other financial markets (like money and commodities markets) is the ongoing relationship between the issuer and the investor based on the traded instrument, such as voting and profit participation rights in the respective company for stocks and an ongoing flow of funds for bonds[170]. Furthermore, the investment component of transferable securities is very clear from the text of Prospectus Regulation.

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[165] *Ibid.*

[166] Financial risk originates from financial markets due to adverse movements of economic conditions or factors affecting the price of investments. Financial risk significantly differs from non-financial risk (such as operational risks), as the latter only concerns the product itself and does not depend on economic factors. See D. BOREIKO, G. FERRARINI, P. GIUDICI, *supra* note 113, 677.

[167] See D. BOREIKO, G. FERRARINI, P. GIUDICI, *supra* note 113, 680; and P. MAUME, M. FROMBERGER, *supra* note 145, 576-578.

[168] P. MAUME, M. FROMBERGER, *supra* note 145, 576.

[169] See, for instance, C. MAJASKI, *Money Market vs. Capital Market: What's the Difference?*, in Investopedia (updated April 19, 2019), available at: https://www.investopedia.com/articles/investing/052313/financial-markets-capital-vs-money-markets.asp.

[170] P. MAUME, M. FROMBERGER, *supra* note 145, 576.

Indeed, the aim of regulation is "to enable investors to make an informed *investment*[171] decision"[172], and the prospectus has to include a summary that "is to be read together with the other parts of the prospectus to aid investors when considering whether *to invest*[173] in such securities"[174]. Accordingly, securities have an investment component, and financial risk is an essential feature of an investment in securities[175]. In fact, financial risk differentiates investments in securities from those in goods or services, where investors have to face other risks such as product failure and obsolescence[176].

If we follow the above approach, crypto-assets without an investment component that involves financial risk in the form of profit participation or a direct flow of payments cannot meet the definition of "transferable securities". As a result, pure investment tokens or hybrid tokens with some investment components would clearly be negotiable on the capital markets[177]. In contrast, pure payment tokens (such as Bitcoin) would not be classified as transferable securities as their structure is often decentralized and there is no ongoing relationship between issuer and investor; indeed, the possible return on investments in payment tokens can only derive from an increased value of the tokens in the secondary market[178]. As concerns utility tokens, they usually grant benefits (for example, vouchers for specific services offered by the issuer), therefore the focus of investors is on consumption and not investment (with the

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171 Emphasis added.

172 Recital (7) Prospectus Regulation.

173 Emphasis added.

174 Article 7(1) Prospectus Regulation.

175 D. BOREIKO, G. FERRARINI, P. GIUDICI, *supra* note 113, 680.

176 *Ibid.*

177 *Id.*, 577.

178 *Ibid.*

absence of any financial risk)[179]. As a consequence, they would not qualify as "transferable securities" even when they are transferable and potentially negotiable[180], although some commentators seem to consider it sufficient for the classification of utility tokens as an "investment token" the mere fact that the token is tradable in a secondary market[181].

ESMA' Advice showed results that seem to be in line with the above statements about the negotiability of crypto-assets. Indeed, great part of the 29 NCAs that answered the survey (21 to 25) considered the six sample crypto-assets as negotiable, mainly because they are capable of being traded. The mere abstract possibility of being traded is considered sufficient by most NCAs, even if there is not a specific market for the product[182]. The only one sample crypto-asset that divided NCAs' opinion is case 5[183], which is a pure utility-type crypto-asset, as only half of the NCAs considered that crypto-asset negotiable (while the other half non-negotiable[184]).

Furthermore, most NCAs (18 to 23) considered the six sample crypto-assets as negotiable on the "capital market", generally because they are capable of being traded on an exchange. Although no Member State has a legal definition of "capital market", NCAs followed the EC idea of a place where buying and selling interests meet[185]. The survey also showed that the majority of NCAs (16) have no specific criteria under their respective national law to identify transferable securities other than those set forth under MiFID II. The other NCAs

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179 P. HACKER, C. THOMALE, *supra* note 144, 29.

180 P. MAUME, M. FROMBERGER, *supra* note 145, 577.

181 P. HACKER, C. THOMALE, *supra* note 144, 13.

182 ESMA's Advice, Annex 1, 6.

183 See note 110 above.

184 One NCA, for instance, was of the opinion that there should be an evidence of trading and not the mere promise of negotiability, while another NCA pointed out that the utility and value of the crypto-asset was limited to the acquisition of goods and services.

185 ESMA's Advice, Annex 1, 7.

pointed out that they have national criteria in place, some providing for a more restrictive interpretation (*e.g.* a compulsory book-entry recording requirement), some for a broader interpretation (*e.g.* a "substance over the form" approach) of what constitutes a transferable security[186].

Finally, as concerns the "investment component", the majority of NCAs (17) consider the "investment component" of the crypto-asset as a necessary feature in order to qualify it as a transferable security, while only 9 stated that such component is not necessary for this qualification[187]. However, no NCA has a national definition of "investment component", and opinions differ about its interpretation. For most NCAs (13) "investment component" means a promise or indication of future profits stemming from the investment, shared revenues, or a direct flow of payments; however, 14 NCAs stated that an expectation of direct flow of payment from the originators of the ICO to the token holders is not necessary to meet the "investment component" requirement, while others (3) pointed out that neither MiFID II nor national laws require the existence of such investment component[188]. Conversely, those NCAs that consider the expectation of direct flow as a necessary requirement claim that the investment component can be derived from, *inter alia*, the negotiability of the crypto-asset[189]. Finally, in relation to utility tokens – the most controversial category of crypto-assets in this respect – most NCAs (14) are of the opinion that they do not have an "investment component" when only a limited number of them can be exchanged on a common platform, when part of them are retained by managers for remuneration purposes, and when the expectation of value increase derives solely from secondary trading[190].

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[186] *Id.*, 8.

[187] *Id.*, 10.

[188] *Ibid.*

[189] *Ibid.*

[190] *Id.*, 11.

(c) Standardization

If the financial instruments are not sufficiently standardized, they cannot be considered securities under EU law[191]. There are two main arguments supporting such statement. First, MiFID II definition refers to "classes of securities", therefore implying that the issued instruments must have some characteristics in common and not individually negotiated with investors[192]. Second, this flows from the basis of capital markets transactions, which are executed anonymously and require the respective units to be identifiable, enumerable, and easily traded[193].

Standardization does not require that all instruments available in the market share the same characteristics. For instance, certain securities such as shares come in different classes (e.g. ordinary shares, preferred shares, etc.)[194]. Similarly, there are various types of crypto-assets that have different features. What is commonly required is fungibility within a single class of shares; this also applies to different classes of tokens. In fact, it is not necessary that all tokens from different issuers are standardized, as the standardization requirement only seeks to exclude securities that have been customized for particular investors (as this would create uncertainties in the market)[195]. Furthermore, it is also irrelevant that sometimes tokens are purchased in increments (for instance, 0.57 units), the reason being that ICO interfaces often ask for the amount the subscriber is willing to invest and then translate such investment amount into fractions of a

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[191] P. HACKER, C. THOMALE, *supra* note 144, 22.

[192] *Ibid.*

[193] P. MAUME, M. FROMBERGER, *supra* note 145, 580.

[194] P. HACKER, C. THOMALE, *supra* note 144, 23.

[195] P. MAUME, M. FROMBERGER, *supra* note 145, 580.

token. Indeed, standardization does not require tokens to be traded in full, as even fractions of tokens remain identifiable and thus standardized[196].

In light of the above, if all tokens issued in the context of a particular ICO are of the same kind, or the ICO comprises different classes of tokens that are clearly identifiable and therefore negotiable, the standardization requirement is met. This is usually the case in most ICOs: given their main purpose of efficiently raise funds, and considering that customized agreements with investors would significantly increase costs, it is not uncommon that tokens issued in the context of an ICO are sufficiently standardized[197].

ESMA's Advice also addressed the "standardization" requirement of MiFID II definition. It first points out that MiFID II does not define the term "class", and the vast majority of NCAs (24) have not defined the same term in their domestic legislation. Regardless of whether they developed a national definition, all NCAs agreed on some common characteristics that crypto-assets should have in order to meet the "standardization" requirement: in order to form a class, tokens need to be (i) interchangeable, (ii) issued by the same issuer, (iii) show similarities, and (iv) give access to the same (equal) rights[198] to the same group of investors[199]. Following that interpretation, the majority of NCAs considered cases 1, 2, 3, 4, and 6 to form a class (and therefore to meet the "standardization" requirement), while they were not of the same opinion about case 5.

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[196] *Id.*, 581.

[197] P. HACKER, C. THOMALE, *supra* note 144, 24.

[198] Such rights can include, for instance, the right to receive a portion of the profits in the form of dividends, the right to participate in community management (*e.g.* voting rights), and the right over a portion of the assets of the company. See ESMA's Advice, Annex 1, 5.

[199] ESMA's Advice, Annex 1, 4-5.

2.1.3 No instruments of payment

MiFiD II explicitly excludes "instruments of payment" from the definition of transferable securities[200]. This paragraph has the sole purpose of identifying those crypto-assets that fall within the category of "instruments of payment" and are therefore exempt from the EU discipline applicable to "transferable securities". We will instead analyze the EU regulation of crypto-assets qualifying as instruments of payment later in paragraph 3.1, together with the results evidenced by the EBA Report, while we will discuss in Chapter 3 the provisions of MiCA proposal applicable to certain classes of stablecoins[201].

Like "capital markets", the term "instruments of payment" is not defined under MiFiD II and needs to be interpreted in accordance with the general understanding in the markets[202]. The only definition of "payment instrument" found under EU law is the one provided under EU's second Payment Services Directive (PSD2) [203], that we will see below.

From a market perspective, it is worth specifying that, in order to qualify as a payment instrument under EU law, an instrument does not necessarily need to perform all the three functions of "money" described by classic macroeconomics theories, *i.e.* (i) unit of account, (ii) store of value, and (iii) medium of exchange[204]. Indeed, such instrument only need to fall under the broad general category of instruments of payment, that includes all forms of liquid payments such as cash and cheques[205]. As clarified by the ECB, it also

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[200] Article 4(1)(44) MiFID II.

[201] As we will see below, stablecoins are a particular category of payment tokens which are backed by an external asset – such as a fiat currency, a commodity, or a crypto-asset.

[202] P. MAUME, M. FROMBERGER, *supra* note 145, 581.

[203] Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market.

[204] See A. MILNES, *The economic foundations of reconstruction*, Macdonald and Evans (1919), 55.

[205] P. HACKER, C. THOMALE, *supra* note 144, 30.

includes non-cash payment instruments such as cards, credit transfers, direct debits, and e-money[206].

It is clear that investment tokens and utility tokens are far from being considered instruments of payment, as they are not used as a medium of exchange (even though they might be used as consideration); hence they do not fall under the "instruments of payment" exemption under the "transferable securities" definition.

Conversely, payment tokens (*i.e.* cryptocurrencies) are designed to be used as a medium of payment, and they show strong similarities with e-money, which is classified by the ECB as a payment instrument. In this respect, EBA clarified under its EBA Report that a crypto-asset will qualify as "electronic money" (or "e-money") as defined in point (2) of Article 2 of EMD2[207] only if it satisfies each element of the definition. According to EMD2 definition, "electronic money" means "electronically, including magnetically, stored monetary value as represented by a claim on the issuer which is issued on receipt of funds for the purpose of making payment transactions as defined in point 5 of Article 4 of [PSD2], and which is accepted by a natural or legal person other than the electronic money issuer"[208]. We will examine this definition under paragraph 3.1 below, but we can already see that the main concern here is the necessary presence of an issuer, which is generally absent when dealing with standard cryptocurrencies (such as Bitcoin). There is, however, a particular class of cryptocurrencies called "stablecoins" that seems to create fewer problems in this respect. Stablecoins are cryptocurrencies generally issued by governments,

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[206] See EUROPEAN CENTRAL BANK, *Payment Instruments*, available at: https://www.ecb.europa.eu/paym/pol/activ/instr/html/index.en.html.

[207] Directive 2009/110/EC of the European Parliament and of the Council of 16 September 2009 on the taking up, pursuit and prudential supervision of the business of electronic money institutions.

[208] Article 2(2) EMD2.

banks, or companies that peg their market value to an external reference (such as a fiat currency, a commodity, or a crypto-asset). One example is Libra, the cryptocurrency developed by Facebook, which is linked to the value of other currencies. Given the presence of an issuer, stablecoins may, in theory, match EMD2 definition of "e-money". As we will see, MiCA proposal dedicates a specific regulation to stablecoins reflecting their increasing use worldwide.

Therefore, the necessary presence of an issuer seems to exclude the vast majority of payment tokens from EMD2 definition of e-money. In our opinion, however, this should not be decisive in the case at stake, as the term "instrument of payment" is broader than just e-money, and it is generally assumed, from a market perspective, that cryptocurrencies share far more similarities to cash rather than to a security[209]. In ESMA's Advice, for instance, pure payment tokens were intentionally not included in the six sample tokens provided to NCAs, possibly suggesting that ESMA maintains the same view[210].

The above statement is also confirmed by the landmark *Hedqvist* decision[211], where the CJEU ruled that exchanging fiat currencies for Bitcoins (and vice versa) is exempt from VAT pursuant to the EU VAT Directive[212]; embedded in the CJEU's ruling is the conclusion that Bitcoin is indeed a currency – and not, as some have argued, a commodity, a speculative asset, a contract or

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[209] T. MAAS, *Initial Coin Offerings: When Are Tokens Securities in the EU and US?*, SSRN Electronic Journal (January 2019), 55, available at: http://dx.doi.org/10.2139/ssrn.3337514.

[210] *Id.*, 56.

[211] Judgment of 22 October 2015, *Skatteverket v. David Hedqvist*, C-264/14, EU:C:2015:718. In this case, the CJEU was asked to establish the taxation applicable to an exchange selling Bitcoin for fiat currencies developed by a Swedish individual. The issue was whether Bitcoin, under the VAT Directive, could be considered equivalent to a legal tender.

[212] Article 135 (1)(e) of the EU Directive 2006/112/EC of 28 November 2006 (the VAT Directive) requires EU Member States to provide a VAT exemption for "transactions, including negotiation, concerning currency, bank notes and coins used as legal tender".

property right, or some other form of legally enforceable claim against others[213]. Such decision has been interpreted extensively in order to include all other virtual currencies[214], provided that the virtual currency has no purpose other than being a mere medium of payment[215]. Even though the CJEU ruled in favor of the application of the exemption, it is unclear whether a tax law decision can also apply to securities regulation, given the substantial difference in terms of purpose between the two disciplines. What matters here is that a cryptocurrency (Bitcoin) has been equated by the CJEU with traditional fiat currencies, therefore implying that virtual currencies similar to Bitcoin (*i.e.* pure payment tokens) shall be considered instruments of payment.

As anticipated above, it is worth mentioning that there is actually a definition of "payment instrument" under EU law, also adopted by some EU Member States. In fact, PSD2 defines "payment instrument" as "personalised device(s) and/or set of procedures agreed between the payment service user and the payment service provider and used in order to initiate a payment order"[216]. However, such definition becomes quite useless when dealing with cryptocurrencies, given the absence of a payment service provider. Nevertheless, PSD2 definition can still fit the special category of stablecoins, that may be considered as "payment instruments" under PSD2 in the event the issuer qualifies as a payment service provider.

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[213] J. MAUPIN, *The ECJ's First Bitcoin Decision: Right Outcome, Wrong Reasons?*, Verfassungsblog (November 4, 2015), available at: https://verfassungsblog.de/the-ecjs-first-bitcoin-decision-right-outcome-wrong-reasons/.

[214] S. BLEMUS, *Law and Blockchain: a legal perspective on current regulatory trends worldwide*, Revue Trimestrielle de Droit Financier, RTDF N°4-2017 (December 2017), 3, available at: http://dx.doi.org/10.2139/ssrn.3080639.

[215] NORTON ROSE FULBRIGHT, *Bitcoins - ECJ rules that buying and selling Bitcoin is exempt from VAT*, (October 2015), available at: https://www.nortonrosefulbright.com/en/knowledge/publications/a0f1c5bb/bitcoins---ecj-rules-that-buying-and-selling-bitcoin-is-exempt-from-vat.

[216] Article 4(14) PSD2.

Given the scarce utility of PSD2 definition for the purposes of our analysis, we would need to rely on the general understanding of the concept of "payment instrument" in the market and on the CJEU ruling in its *Hedqvist* decision. As discussed above, both seem to lead us to the conclusion that (pure) payment tokens are likely to qualify as payment instruments under EU law and therefore excluded from the definition of "transferable securities"[217].

While there seems to be little doubt about the qualification of pure payment tokens as instruments of payment, several issues arise when we have to deal with hybrid crypto-assets with a payment component. Based on the above interpretation of "instruments of payment", if a payment token combines payment functions with investment aspects (that are not based solely on rising rates or prices), it would be classified as an investment token; as a consequence, it would not qualify as an instrument of payment and therefore shall not be exempt from the EU discipline applicable to "transferable securities"[218].

This conclusion can be also reached through a systemic approach. First, by considering that the "instruments of payment" exemption is an exception from the general rule, and like all exceptions it shall be treated cautiously. Therefore, all uncertain cases shall be left outside the scope of the exception and subsumed under the general rule unless it is unambiguously clear that the token is used solely for payment purposes (this can hardly be the case for hybrid tokens)[219]. Second, by highlighting the fact that instruments of payment are not unregulated: indeed, they are primarily subject to EU banking and payment regulation. Accordingly, when a hybrid token has a payment and an investment component, both areas of law (banking law and securities regulation) can apply

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[217] P. MAUME, M. FROMBERGER, *supra* note 145, 581.

[218] P. MAUME, M. FROMBERGER, *supra* note 145, 582.

[219] *Ibid.*

simultaneously without any risk of overlapping[220]. Third, because an extensive interpretation of the exception would create a regulatory loophole and encourage regulatory arbitrage. In fact, if adding some limited payment functionality to crypto-assets would result in the inapplicability of the EU discipline of "transferable securities", issuers could easily escape EU financial markets regulation (particularly Prospectus Regulation and MiFID II) even when the tokens have a significant investment component[221].

In sum, crypto-assets fall within the "instruments of payment" exception, and therefore cannot be considered "transferable securities" under MiFID II definition, only when it is clear that tokens will be used exclusively for payment purposes.

ESMA's Advice seems to be pretty clear on the point: almost all NCAs (23 to 25) affirmed that all the six cases do not qualify as instruments of payment[222], it being understood that none of the six cases concerned pure payment tokens (but only investment, utility, and hybrid tokens). The fact that ESMA did not include any case concerning pure payment tokens may be a sign that the authority is of the opinion that such tokens fall outside the scope of EU securities regulation.

In ESMA's Advice, all NCAs referred to the definition of "payment instrument" provided by PSD2 (see above). The majority of NCAs (16) reported that they do not have a definition of "instruments of payment" in their domestic regulation, while the others simply transposed PSD2 definition in their internal legislation[223]. The prevailing argument among NCAs was to exclude from the "instruments of payment" exemption all those crypto-assets that do not serve the

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[220] *Ibid.*

[221] *Ibid.*

[222] ESMA's Advice, Annex 1, 11.

[223] *Ibid.*

payment function that is characteristic of payment instruments; moreover, the majority of NCAs (17) did not encounter difficulties in assessing hybrid forms of crypto-assets with a currency and an investment component (*i.e.* they were of the opinion that such hybrid forms are not instruments of payment)[224]. As we can see, the outcome of ESMA's Advice on the point seems to be in line with our statements above.

2.1.4 The comparability requirement

Some authors claim the existence of a comparability requirement in MiFID II definition of "transferable securities". This unwritten requirement revolves around the interpretation of the words "such as" before the list of examples provided by MiFID II definition (*e.g.* shares, bonds, and any other securities giving the right to buy or sell shares or bonds). Commentators supporting the existence of the comparability requirement are interpreting "such as" like "with characteristics similar to", thus introducing a "comparability" requirement in the definition, while other scholars argue that the list only contains non-exhaustive examples of transferable securities.

Opponents of the comparability requirement[225] claim that such unwritten criterion would be too vague. There is no indication about the necessary level of comparability, and it is unclear whether EU lawmakers wanted to restrict the applicability of the "transferable securities" regime to instruments which are comparable with the list of examples.

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[224] *Id.*, 12.

[225] See, for instance, D. BOREIKO, G. FERRARINI, P. GIUDICI, *supra* note 113, 681; and P. MAUME, M. FROMBERGER, *supra* note 145, 582-583.

In addition, some authors claim that the examples listed shall not be read with an *ejusdem generis* approach[226]. Indeed, the term used in the definition ("such as") is an evident clue that EU lawmakers only wanted to provide a non-exhaustive list of the typical forms of securities in the market at the time the regulation was drafted[227]. Nothing more. Those authors acknowledge that the broad range of the "negotiability on the capital markets" criterion could result in the application of securities laws to instruments having little to do with the common understanding of securities[228] (such as utility tokens and payment tokens). Nevertheless, they claim that a correct application of the "transferable securities" definition would suffice and the creation of a comparability requirement would be totally useless in this respect. Indeed, as discussed above, some authors argue that instruments must possess an investment component in order to be traded in "capital markets" and thus meet the "negotiability" requirement and qualify as transferable securities[229]. This view has been further confirmed by the majority of NCAs in ESMA's Advice (see paragraph 2.1.2(b) above).

This interpretation of MiFID II definition, rather than introducing an unwritten and vague "comparability" requirement, draws a line between investment, utility, and payment tokens and allows a distinction based on the general understanding in the markets and the wording of the provision[230]. In sum, instead of creating a new requirement and discussing about the level of

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[226] D. BOREIKO, G. FERRARINI, P. GIUDICI, *supra* note 113, 681. According to the *ejusdem generis* rule, when a class of things is followed by a general term, the general term is usually restricted to things of the same type as the listed ones. However, it is disputed whether the rule can be applied when the general words precede the specific ones, which follow as examples (like in the case at stake).

[227] P. MAUME, M. FROMBERGER, *supra* note 145, 583.

[228] *Ibid.*

[229] See D. BOREIKO, G. FERRARINI, P. GIUDICI, *supra* note 113, 681-682.

[230] P. MAUME, M. FROMBERGER, *supra* note 145, 583.

comparability that would be necessary to meet such requirement, it would be sufficient to apply the "investment component" test in order to exclude from the definition of "transferable securities" tokens having little in common with the traditional "investment-based" forms of securities listed in the definition. This approach would therefore exclude from the definition of "transferable securities" pure utility tokens, pure payment tokens, and hybrid tokens lacking investment features.

Advocates of the comparability requirement[231], on the other hand, claim that the list becomes relevant when dealing with new investment products such as crypto-assets. With a "substance over form" approach, they argue that tokens must be at least comparable to the list of typical securities that EU lawmakers had in mind when they drafted the regulation[232]. Tokens must therefore be examined on a case-by-case basis in order to check whether they share some similarities with shares and bonds and if they "are constituted and traded in such a manner as to give rise to regulatory issues comparable to traditional financial instruments"[233].

Our analysis will focus on the three categories of crypto-assets (investment, utility, and payment tokens) and on their hybrid forms in order to assess the comparability with traditional forms of securities.

(i) Investment tokens

As their name would suggest, investment tokens have an investment component in the form of expectation of profits. The easiest example in this respect would be an Initial Coin Offering (ICO), where investors generally buy

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[231] See, for example, P. HACKER, C. THOMALE, *supra* note 144, 24-37.

[232] *Id.*, 25.

[233] Recital 8 MiFID II.

tokens with an expectation of future cash flows generated by the issuer. Therefore, when investors have a clear expectation of profits, tokens can be deemed comparable with shares and bonds, as they share with them the same main features.

It is however unclear whether, in order to qualify as shares, crypto-assets, in addition to an expectation of profits, must grant property rights in the underlying company launching the ICO[234]. MiFID II definition seems very broad in this respect when it says "other securities equivalent to shares in companies, partnerships, or *other entities*[235]". In fact, we can consider token holders as members of the blockchain-based investment vehicle[236]. While the ICO vehicle is generally not incorporated anywhere, it is sufficient that there is some permanent structure granting membership rights[237]. And even when investment tokens lack any membership rights in the underlying company/platform, they can still potentially qualify as bonds (namely as "other forms of securitized debt").

Furthermore, given the fact that buyers of investment tokens typically expect profits, these tokens give rise to those "regulatory issues comparable to traditional financial instruments" required by MiFID II. In this respect, considering investment tokens as "transferable securities" and therefore applying Prospectus Regulation to ICOs would solve several regulatory issues, most importantly the lack of protection for token holders. The main purpose of a prospectus is indeed to offer guidance on the risks linked to the investment, and

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234 P. HACKER, C. THOMALE, *supra* note 144, 26.

235 Emphasis added.

236 The structure is generally in the form of a Decentralized Autonomous Organization (DAO), consisting in a network of smart contracts supporting a blockchain-based investment vehicle. See P. HACKER, C. THOMALE, *supra* note 123, 26.

237 *Ibid.*

token holders need to be aware of those risks in order to make an informed decision[238].

It being understood that a case-by-case analysis is always necessary, we can nonetheless conclude that investment tokens are generally comparable with shares and bonds and are therefore "transferable securities" under MiFID II definition.

(ii) Utility tokens

Utility tokens provide the user with some utility or consumption rights, like the ability to access or buy some products or services developed by the issuing company on a blockchain. One example is Filecoin, a blockchain-based digital storage system that allows users to rent unused hard drive space[239]. (Pure) utility tokens do not confer property stakes in the underlying company: they grant membership in the blockchain vehicle[240], but the aim of such membership is not to generate future cash flow, but to enjoy the product or service provided by the issuing company on the blockchain[241].

It is quite evident that utility tokens are far from being comparable to the structure and purpose of shares and bonds. In addition, the purpose of EU securities laws, in particular Prospectus Regulation, does not fit utility tokens. Utility token holders, in fact, do not have any expectation of profits, therefore the asymmetries between sellers and buyers are not relevant from a securities law perspective.

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[238] *Id.*, 27-28.

[239] See https://filecoin.io/store/#decentralize.

[240] Utility tokens sometimes even grant voting rights in the vehicle, but the purpose in this case significantly differs from voting rights of shareholders in a company. In fact, the purpose is not to make their investment in the company more profitable, but rather to improve the functionality of the products and services.

[241] P. HACKER, C. THOMALE, *supra* note 144, 28.

To conclude, unless they clearly show an investment component, utility tokens are not comparable with shares and bonds, therefore do not qualify as transferable securities under MiFID II definition.

(iii) Payment tokens

As already discussed above in paragraph 2.1.3, instruments of payment are expressly excluded from MiFID II definition of transferable securities. We have also seen that (pure) payment tokens generally qualify as instruments of payment as they show strong similarities with e-money, which is classified by the ECB as a payment instrument.

Even though buying payment tokens carries some inherent risks, mainly due to the extreme volatility of exchange rates, securities regulation do not seem to provide the most appropriate protection in such respect. Indeed, default risks arising from credit and liquidity issues are best dealt with under banking and payment services laws[242], and operational risks through the regulation of financial market infrastructures[243]. As we will see below, this view is also in line with the EBA Report on crypto-assets.

We can therefore conclude that payment tokens are not comparable with shares and bonds and are thus exempted from EU securities regulation as they do not qualify as transferable securities under MiFID II definition (but they may pertain to other regulatory areas such as banking and payment services regulation).

(iv) Hybrid Utility/Investment tokens

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[242] *Id.*, 32-33.

[243] See A. WALCH, *The Bitcoin Blockchain as Financial Market Infrastructure: A Consideration of Operational Risk*, 18 NYU Journal of Legislation and Public Policy (2015), 837.

The most relevant issue with utility tokens is the possibility to sometimes trade them on secondary markets and gain profits from their sale. Even though they are designed to confer some utility rights to the holder, investors could still have some expectation of profits arising from the increase in the token's value[244]. These profits come of course from unforeseeable market forces, but also from the efforts of the developers working to improve the products and services of the issuing company[245].

We could therefore start wondering whether holders of such utility tokens deserve some kind of protection (*e.g.* risk factors described in a prospectus) when they decide to make their purchase. The main question here would be: can we qualify "negotiable" utility tokens as transferable securities even though the issuer do not promise any potential future cash flow (like investment tokens)? In some cases, for instance, promoters of the utility tokens sale highlight the potential appreciation of the tokens' value and the possibility to resell them on secondary markets[246]. In such a case, given the initial focus on the profitability of the purchase, would securities regulation be triggered?

There are two main arguments against considering "negotiable" utility tokens as comparable with shares and bonds.

The first element evidencing the difference with shares is that utility token holders do not own a stake in the underlying company. It is true that some shares, particularly in tech companies, do not pay dividends[247], and investors

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[244] P. HACKER, C. THOMALE, *supra* note 144, 33.

[245] *Ibid.*

[246] *Id.*, 34.

[247] See, for example, F. IMBERT, *Investors are losing out on billions because tech stocks don't pay dividends*, CNBC.com (October 6, 2017), available at: https://www.cnbc.com/2017/10/06/investors-are-losing-out-on-billions-because-tech-dont-pay-dividends.html.

earn profits only from speculating on the market price[248]. Even in such cases, however, shareholders remain owners of a stake and the ultimate claimants of residual profits in case the company is sold or winded-up[249] (while utility token holders are mere members of a blockchain-based community, although sometimes they even have voting rights).

The second argument arises from a systematic view of EU law: qualifying utility tokens as transferable securities for the reasons described above would create a significant overlap between securities regulation and consumer law. Indeed, consumers buying digital content in the EU are already protected by the Consumer Rights Directive[250] as amended in 2019[251], which mandates mandatory disclosure of certain characteristics of digital products[252] and provides remedies for non-disclosure of such information, therefore reducing the asymmetries between sellers and buyers. A discussion about EU consumer law for digital products would transcend the scope of our analysis[253]; what is worth mentioning here is that the Consumer Rights Directive protects customers from digital products' deficiencies impacting the value and resale price of such products[254].

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[248] P. HACKER, C. THOMALE, *supra* note 144, 34.

[249] *Ibid.*

[250] Directive 2011/83/EU of the European Parliament and of the Council of 25 October 2011 on consumer rights, as amended by Directive (EU) 2019/2161 of the European Parliament and of the Council of 27 November 2019.

[251] In 2019 the Consumer Rights Directive was amended in order to include in its scope all the cases "where the trader supplies or undertakes to supply digital content which is not supplied on a tangible medium or a digital service to the consumer and the consumer provides or undertakes to provide personal data to the trader".

[252] See Article 6 Consumer Rights Directive. The trader shall provide the consumer with a number of information, such as the characteristics of the product, the identity of the trader, and the conditions of after-sales services and commercial guarantees.

[253] For an in-depth analysis of EU consumer law applied to digital products see, for example, J. MORAIS CARVALHO, *Sale of Goods and Supply of Digital Content and Digital Services – Overview of Directives 2019/770 and 2019/771*, Journal of European Consumer and Market Law, Volume 8, Issue 5 (2019), 194-201.

[254] P. HACKER, C. THOMALE, *supra* note 144, 34-35.

This is exactly the kind of protection utility tokens holders would need in order to avoid the depreciation of their tokens' value and a potential loss of profits that may occur when they resell tokens on secondary markets.

Therefore, unless the tokens exhibit a clearly dominant investment component (*e.g.* by promising a future cash flow), securities regulation seems to be unfit for hybrid utility/investment tokens, as they do not show any significant functional similarities with shares and bonds.

(v) Hybrid Payment/Investment tokens

We have seen that payment tokens (*i.e.* cryptocurrencies) such as Bitcoin are considered instruments of payment for their similarities with e-money; this view was also confirmed by the CJEU in their ruling in *Hedqvist* (analyzed above). However, empirical data show that the vast majority of payment token holders buy cryptocurrencies only to speculate on their value on crypto exchanges rather than for using them as a medium of exchange[255]. This raises the question about whether payment tokens have an inherent investment component that deserves the protection of EU securities regulation.

The rationale behind the general idea of excluding payment tokens from the definition of "transferable securities" has much in common with the hybrid utility tokens case analyzed above.

First, from a functional perspective. Even though we cannot deny that the value of cryptocurrencies on secondary markets is mainly driven by the efforts of

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[255] See, for instance, D. G. BAUR, K. HONG, A. D. LEE, *Bitcoin: Medium of Exchange or Speculative Assets?* (September 26, 2017), 11-12, available at: http://dx.doi.org/10.2139/ssrn.2561183; D. PEETZ, G. MALL, *Why Bitcoin is Not a Currency But a Speculative Real Asset* (September 9, 2017), available at: http://dx.doi.org/10.2139/ssrn.3098765; and S. CARLETON ATHEY, I. PARASHKEVOV, V. SARUKKAI, J. XIA, *Bitcoin Pricing, Adoption, and Usage: Theory and Evidence* (August 1, 2016), Stanford University Graduate School of Business Research Paper No. 16-42.

the core developers and not only by market forces, payment tokens are still far from the structure and purpose of shares and bonds[256]. Indeed, payment token holders do not own any stake in the issuer, and promoters of cryptocurrencies do not promise any future cash flow (even though they may underline the speculative value of tokens). Furthermore, the vast majority of commentators, together with EU authorities (EBA, ESMA) and courts (CJEU), seem to be adamant that payment tokens fall within the "instruments of payment" exception under MiFID II definition of "transferable securities".

Second, if we follow a systematic approach, we will see that payment tokens, even though they may exhibit an investment component arising from their speculative nature, are regulated by banking and payment services law (such as EMD2 and PSD2) due to their payment instruments nature. In order to avoid any regulatory overlap, and considering that securities laws are not the most effective tool to reduce information asymmetries between issuer and token holders, we can leave such tokens out of the reach of securities regulation.

Therefore, unless they show a significant investment component in the form of future cash flow (and not in terms of a mere increase in their market value), hybrid payment/investment tokens cannot be considered as comparable with shares and bonds; hence they are not transferable securities.

(vi) Hybrid Payment/Investment/Utility tokens

The same test discussed above applies to those crypto-assets showing components from all three archetypes[257]. Some modern tokens are indeed used (i) as a medium of exchange, (ii) for speculative purposes on secondary markets, and (iii) to enjoy some services provided by the issuer.

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[256] P. HACKER, C. THOMALE, *supra* note 144, 36.

[257] *Id.*, 37.

One example is Ether, the cryptocurrency used on the Ethereum blockchain. It is widely used as a medium of exchange, it is subject to massive speculation by traders on secondary markets vis-à-vis the value of fiat currencies, and it provides access to several services on the Ethereum blockchain (such as the use of the computational power of the Ethereum Virtual Machine for smart contracts)[258].

Even with this "three-headed" hybrid form, we are of the opinion that tokens shall not be subject to securities regulation unless they show a significant investment component in the form of a promise of future cash flow from the issuer.

2.2 Money-market instruments

The second category of "financial instruments" listed under Section C of Annex I to MiFID II is "money-market instruments". According to MiFID II, "money-market instruments" means "those classes of instruments which are normally dealt in on the money market, such as treasury bills, certificates of deposit and commercial papers and excluding instruments of payment"[259]. The European Commission provided a broad interpretation of the above definition[260] by clarifying that "it is commonly understood that money-market instruments

[258] *Ibid.*

[259] Article 4(17) MiFID II.

[260] The questions answered by the European Commission referred to MiFID, and not MiFID II. However, considering that the definition of "money-market instruments" remained unchanged, we can consider the EC interpretation as applicable to MiFID II too.

are liquid debt instruments that are capable of being traded (although in practice most are held until maturity). They usually mature in less than one year"[261].

The EC further confirmed that the list of examples provided by the definition is not exhaustive[262]. Such list of examples includes: (i) treasury bills, (ii) certificates of deposit, and (iii) commercial papers. Instruments of payment are expressly excluded from the definition.

The question here is whether there are crypto-assets in the form of liquid debt instruments which are traded on money markets. Given the express exemption of payment instruments from the definition, we can exclude the applicability of money-market instruments regime to payment tokens, such as Bitcoin. We should therefore check whether there are some crypto-assets with characteristics similar to the three examples provided by the definition.

2.2.1 Crypto-assets as treasury bills

Treasury bills are traditionally short-term debt securities (with a maturity of less than one year) backed primarily by the U.S. government, broadly regarded as a low-risk and secure investment. However, it is clear from the context of MiFID II that the reference to treasury bills should be read more widely, as covering "securities issued or backed by any central, regional or local authority, a central bank of a Member State, the European Union, the ECB, the European Investment Bank, a non-Member State or, if the latter is a federal State, by one of the members making up the federation"[263].

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[261] EUROPEAN COMMISSION, *Your Questions on MiFID*, Question No. 167, available at: https://ec.europa.eu/info/sites/info/files/business_economy_euro/banking_and_finance/documents/mifid-2004-0039-commission-questions-answers_en_0.pdf.

[262] *Ibid.*

[263] COMMITTEE OF EUROPEAN SECURITIES REGULATORS, *Q&A on MiFID complex and noncomplex financial instruments for the purposes of the Directive's appropriateness requirements*, CESR/09-559 (November 3, 2009), 9, available at: https://www.esma.europa.eu/sites/default/files/library/2015/11/09_559.pdf.

The fact that treasury bills are issued by governments, local authorities or central banks makes it very difficult to imagine a "crypto treasury bill". The crypto-assets phenomenon is in fact (at least so far) generally concentrated on the private sector, although we are experiencing an increasing interest of governments in blockchain technology. For instance, as concerns treasury bills, in July 2020 the Philippines became the first country to issue treasury bonds through a blockchain-based app that will be used in the distribution of such government-issued bonds[264]. However, the blockchain was only used to ease the distribution of the bonds and to ensure faster, safer, and cheaper transactions, and the issuance followed the applicable "traditional" regime. Therefore, when traded on money markets, those bonds will be undoubtedly considered as money-market instruments for all purposes.

We have not experienced yet anything similar in the European Union. Nonetheless, even if one day a blockchain-based issue of treasury bills occurs in the EU, it will be unlikely that the issuing government, local authority or central bank will try to bypass EU securities regulation. The same holds true when such instruments will be traded on money markets.

2.2.2 Crypto-assets as commercial papers

Commercial papers are unsecured, short-term debt instruments generally issued by credit institutions or large corporations, typically used for the financing of payroll and other short-term liabilities[265]. Commercial papers have a

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[264] G. BENJAMIN, *Philippines Becomes the First to Leverage Blockchain to Issue Retail Treasury Bonds in Asia*, Blockchain News (July 22, 2020), available at: https://blockchain.news/news/philippines-first-retail-treasury-bond-issuance-leverage-blockchain-technology-asia.

[265] https://www.investopedia.com/terms/c/commercialpaper.asp

fixed maturity of up to 270 days and variable interest rates[266], and are backed by one or more assets of the issuer.

The opportunity to issue commercial papers through distributed ledger technology was brought into the spotlight in July 2020 when China Zheshang Bank (CZB) – a Chinese commercial bank based in the Zhejiang province – issued and distributed an asset-backed commercial paper with the help of blockchain technology[267]. Nonetheless, the European Union had already experienced a blockchain-based issuance of commercial papers before the mentioned Chinese bank. In 2017, KfW – a public German bank – issued its first euro commercial paper using distributed ledger technology. The pilot transaction was led by the German bank Commerzbank as part of a test of blockchain technology in the sale of money-market instruments[268].

We do not see, however, any regulatory problems arising from the cases described above: commercial papers were issued using traditional processes required by securities laws, with the sole difference that such products have been "tokenized" and distributed through a blockchain. Furthermore, considering that commercial papers are issued by large institutions with substantial denominations (usually $100,000 or more), they are generally purchased by institutional investors, such as other corporations, financial institutions, and money market funds, and it is unlikely that such sophisticated investors will purchase unregulated financial products.

Therefore, there is little or no risk of "crypto commercial papers" contravening the applicable EU securities laws.

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[266] Q&A on MiFID complex and noncomplex financial instruments, *supra* note 263, 9.

[267] C. GUNDIUC, *Chinese Bank Issues First Asset-Backed Commercial Paper Utilizing Blockchain*, Securities.io (July 19, 2020), available at: https://www.securities.io/chinese-bank-issues-first-asset-backed-commercial-paper-utilizing-blockchain/.

[268] H. BARTHOLOMEW, *KfW uses blockchain for money market issue*, Reuters (September 25, 2017), available at: https://www.reuters.com/article/kfw-uses-blockchain-for-money-market-iss-idUSL8N1M62U4.

2.2.3 Crypto-assets as certificates of deposit

A certificate of deposit (CD) is a product offered by credit institutions that provides an interest rate premium to customers in exchange for a deposit left untouched for a predetermined period of time[269]. A certificate of deposit would be covered by MiFID II where it is transferable and negotiable on the capital market, otherwise it would qualify as an instrument of payment and therefore excluded from MiFID II[270].

This category of money-market instruments is the one that may raise some regulatory concerns. We can imagine, for instance, a blockchain-based company that starts issuing certificates of deposit providing an interest rate to investors keeping a specific payment token in his wallet for a predefined amount of time. Let's also assume that such certificates will be traded on a secondary market.

The above scenario is not too far from reality. HEX, for example, is a system providing the first blockchain-based certificate of deposit. HEX is an ERC-20 token (*i.e.* a token based on the Ethereum blockchain) that pays holders for rewards instead of miners, essentially a crypto version of a traditional fixed deposit account. Users can lock up funds, then receive their investment plus interest when the term matures[271]. HEX is substantially a project to recreate certificates of deposit, and is fully automated in the form of a smart contract on the Ethereum blockchain. HEX gives rewards to token holders through the "staking" function. Staking consists in invoking a function on the smart contract to commit your HEX tokens for a time period – with a daily unit of time – and at

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[269] https://www.investopedia.com/terms/c/certificateofdeposit.asp.

[270] Q&A on MiFID complex and noncomplex financial instruments, *supra* note 263, 9.

[271] T. WRIGHT, *HEX Still Can't Shake Scam Label as Token Approaches $1B Market Cap*, Cointelegraph (May 15, 2020), available at: https://cointelegraph.com/news/hex-still-cant-shake-scam-label-as-token-approaches-1b-market-cap.

the end of the period you receive your HEX tokens back in addition to interests accrued[272].

As we can see, this is a structure perfectly resembling certificates of deposit transplanted into the crypto universe. In the event those certificates become negotiable on a crypto money market, they will fall under MiFID II definition of "money-market instruments" and will therefore qualify as financial instruments with all the consequential regulatory implications if traded on a EU money market.

2.2.4 Final remarks on crypto-assets as money-market instruments

The above overview shows that there are currently no crypto money-market instruments negotiated on money markets, although we cannot exclude that the phenomenon will explode in the near future.

After all, even ESMA's Advice did not address the "money-market instruments" issue; it simply reported that all NCAs are of the opinion that none of the six cases qualifies as a money-market instrument under MiFID II definition[273].

2.3 Units in collective investment undertakings

The third category of financial instruments is "units in collective investment undertakings". This category, which refers – as the name may suggest – to investment funds, includes units in both regulated and unregulated collective investment schemes. MiFID II does not provide a definition of collective investment undertakings; we should therefore refer to ESMA's

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[272] See the HEX contract, available at: https://docs.google.com/document/d/1P0ZDaBQx4ghkdX5IUwZb1n8ThvYf7i22MSt9Gm00JRU/edit#.

[273] ESMA's Advice, Annex 1, 17.

guidelines in such respect. Indeed, in its effort to ensure a uniform approach of EU Member States on the regulation of investment funds, ESMA used its quasi rule-making powers granted by Article 16 ESMA Regulation (see paragraph 1.3.2(c) above) to issue guidelines on the regulation of collective investment undertakings in the EU[274].

According to ESMA, the following characteristics, if all of them are exhibited by an undertaking, should show that the undertaking is a collective investment undertaking: (a) the undertaking does not have a general commercial or industrial purpose; (b) the undertaking pools together capital raised from its investors for the purpose of investment with a view to generating a pooled return for those investors; and (c) the unitholders or shareholders of the undertaking – as a collective group – have no day-to-day discretion or control[275].

There are currently two regulatory regimes in the EU applicable to collective investment undertakings: UCITS Directive and AIFMD.

2.3.1 Undertakings for Collective Investments in Transferable Securities (UCITSs)

Undertakings for Collective Investments in Transferable Securities (UCITSs) established within the territories of EU Member States are regulated by the UCITS Directive[276]. The Directive defines UCITS as undertakings (a) "with the sole object of collective investment in transferable securities or in other liquid

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[274] ESMA, *Guidelines on key concepts of the AIFMD*, ESMA/2013/611 (August 13, 2013), available at: https://www.esma.europa.eu/sites/default/files/library/2015/11/2013-611_guidelines_on_key_concepts_of_the_aifmd_-_en.pdf.

[275] *Id.*, 5.

[276] Directive 2009/65/EC of the European Parliament and of the Council of 13 July 2009 on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (UCITS).

financial assets referred to in Article 50(1)[277] of capital raised from the public and which operate on the principle of risk-spreading"[278], and (b) "with units which are, at the request of holders, repurchased or redeemed, directly or indirectly, out of those undertakings' assets. Action taken by a UCITS to ensure that the stock exchange value of its units does not significantly vary from their net asset value shall be regarded as equivalent to such repurchase or redemption"[279].

This "repurchase or redemption" feature is at the heart of the UCITS regime aimed at protecting investors, and is reflected in Article 84(1) UCITS Directive, which requires UCITSs to repurchase or redeem its units at any unit-holder's request in order to protect them against liquidity risks[280]. A UCITS can be constituted in accordance with contract law (as common funds managed by management companies), trust law (as unit trusts), or statute (as investment companies)[281].

UCITS Directive then lists a number of exemptions from the UCITS discipline. The most relevant exemption is the one applying to collective investment undertakings of the closed-ended type[282]. Collective investment undertakings can be broadly divided into two main categories: open-end and closed-end. In a closed-end scheme, there are several restrictions applying to the redemption of the units representing the capital of the scheme: the investor buys a share in a company the main activity of which is investment and holds the usual equity risk held by shareholders, as well as the risk that such company

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[277] This category includes, *inter alia*, transferable securities and money-market instruments admitted or dealt in a regulated market, units of UCITS authorized according to UCITS Directive, and financial derivative instruments.

[278] Article 1(2)(a) UCITS Directive.

[279] Article 1(2)(b) UCITS Directive.

[280] N. MOLONEY, *supra* note 5, 215.

[281] Article 1(3) UCITS Directive.

[282] Article 3(a) UCITS Directive.

trades at a discount of its net assets[283]. On the other hand, in an open-end scheme units are issued continuously (or at short intervals) at a price equal to the net asset value and can be redeemed at any time by unit-holders at their net asset value, therefore preventing any liquidity risk for investors[284].

The other exemptions concern (i) collective investment undertakings which raise capital without promoting the sale of their units to the public within the EU or any part of it[285], (ii) collective investment undertakings the units of which may be sold only to the public in third countries[286], and (iii) categories of collective investment undertakings prescribed by the regulations of the EU Member States for which the investment and borrowing rules of the UCITS Directive are inappropriate[287].

The UCITS cannot pursue any activities until it is formally authorized by the NCA of a EU Member State; the authorization will then be valid for all Member States[288].

2.3.2 Alternative Investment Funds (AIFs)

All non-UCITS collective investment undertakings, namely alternative investment funds (AIFs), are regulated in the EU under the Alternative Investment Fund Managers Directive (AIFMD)[289]. Thus, if a collective investment undertaking does not "opt-in" to the UCITS regime (*i.e.* if it does not choose to be defined as a UCITS and therefore abide by UCITS stricter

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[283] N. MOLONEY, *supra* note 5, 216.

[284] *Id.*, 216-217.

[285] Article 3(b) UCITS Directive.

[286] Article 3(c) UCITS Directive.

[287] Article 3(d) UCITS Directive.

[288] Article 5(1) UCITS Directive.

[289] Directive 2011/61/EU of the European Parliament and of the Council of 8 June 2011 on Alternative Investment Fund Managers.

regulation), AIFMD shall apply by default[290]. The AIF universe includes a large variety of schemes mainly targeted to institutional investors, such as hedge funds and private equity funds[291]. AIFs, that can be both open-ended and closed-ended, are defined as collective investment undertakings that (i) raise capital from a number of investors, with a view to investing it in accordance with a defined investment policy for the benefit of those investors, and (ii) do not require authorization pursuant to UCITS Directive[292].

The subject matter of AIFMD is defined under Article 1, which states that the directive lays down the rules for the authorization, ongoing operation and transparency of the managers of alternative investment funds (AIFMs) which manage and/or market alternative investment funds (AIFs) in the EU[293]. The first element that stands out from the above-mentioned article is that the directive does not address or regulate directly AIFs, but instead the fund manager. Article 5 AIFMD makes it clear that the regulation of AIFs is clustered around fund managers (AIFMs): it indeed requires EU Member States to ensure that each AIF managed within the scope of AIFMD has a single AIFM, which shall be responsible for ensuring compliance with the directive[294]. The AIFM shall be either (i) an external manager appointed by the AIF or on its behalf, which will be responsible for managing the AIF (external AIFM)[295]; or (ii) where the legal form of the AIF permits an internal management and where the AIF's governing body chooses not to appoint an external AIFM, the AIF itself, which shall accordingly be authorized as AIFM[296].

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[290] N. MOLONEY, *supra* note 5, 284.

[291] *Id.*, 270.

[292] Article 4(1)(a) AIFMD.

[293] Article 1 AIFMD.

[294] Article 5(1) AIFMD.

[295] Article 5(1)(a) AIFMD.

[296] Article 5(1)(b) AIFMD.

As concerns the spatial scope, AIFMD applies to (i) EU AIFMs which manage one or more AIFs irrespective of whether such AIFs are EU AIFs or non-EU AIFs, (ii) non-EU AIFMs which manage one or more EU AIFs, and (iii) non-EU AIFMs which market one or more AIFs in the EU irrespective of whether such AIFs are EU AIFs or non-EU AIFs[297].

EU Member States shall ensure that no AIFMs manage AIFs unless they are authorized in accordance with AIFMD, and AIFMs shall meet the conditions for authorization at all times[298].

2.3.3 Crypto-assets as units in UCITSs and AIFs

After the above brief overview of the two categories of collective investment undertakings in the European Union, we need to check whether there are some crypto-assets that may qualify as units in collective investment undertakings under MiFID II definition of financial instruments.

We can start our analysis by noting that there are many similarities between collective investment undertakings and tokenized investment funds[299], such as decentralized autonomous organizations (DAOs)[300]: in both cases, indeed, a collective pooling of funds is used by an undertaking to invest, while governance and dividend rights are provided to the investor[301]. In this respect we can consider the example of "The DAO"[302], the most famous case of a

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[297] Article 2(1) AIFMD.

[298] Article 6(1) AIFMD.

[299] With this term we are referring to investment undertakings where units are sold in the form of tokens on a blockchain platform.

[300] Business organizations made up by a set of smart contracts and based on a blockchain (see Chapter 1, paragraph 1.7.4).

[301] T. MAAS, *supra* note 209, 56.

[302] P. HACKER, C. THOMALE, *supra* note 144, 39.

decentralized autonomous organization raising capital through an ICO[303]. The proceeds of the ICO launched by The DAO were supposed to be reinvested in other crypto assets, and investors were supposed to share the profits generated by these investments via smart contracts[304]. The DAO launched in April 2016 through an ICO that raised around $ 150 million[305], although it was delisted at the end of the same year and ceased to operate; there are however many existing examples of DAOs (*e.g.* Steem, Dash, and Augur). For the purpose of this analysis, we can consider a sample tokenized investment fund with a structure similar to The DAO.

Given the absence of a definition of "collective investment undertaking", we should refer to the above-mentioned ESMA Guidelines on AIFMD[306] and apply ESMA's criteria to our sample tokenized investment fund.

First, the undertaking shall not have a general commercial or industrial purpose. ESMA clarified that, in order to meet that requirement, the undertaking shall not run predominantly a commercial activity (such as the purchase, sale, or exchange of goods and the supply of non-financial services), an industrial activity (involving the production of goods or the construction of properties), or a combination thereof[307]. In our example, the main purpose of the fund is nothing else than providing investment services; hence it does not have any commercial or industrial purpose.

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[303] The DAO was also subject to an investigation by the SEC that led to the publication of an investigative report in which the SEC addressed for the first time the risks arising from crypto-assets. The report, that we will see in further detail in Chapter 4, is available at: https://www.sec.gov/news/press-release/2017-131.

[304] P. HACKER, C. THOMALE, *supra* note 144, 25.

[305] See, for example, R. WATERS, *Automated company raises equivalent of $120M in digital currency*, CNBC.com (May 17, 2016), available at: https://www.cnbc.com/2016/05/17/automated-company-raises-equivalent-of-120-million-in-digital-currency.html.

[306] ESMA, *Guidelines on key concepts of the AIFMD*, *supra* note 238, 4.

[307] *Id.*, 3.

Second, the undertaking shall pool together "capital raised from its investors for the purpose of investment with a view to generating a pooled return for those investors". "Pooled return" shall be interpreted as the return generated by the pooled risk arising from acquiring, holding or selling investment assets[308]. This perfectly matches the case at stake, where the tokenized investment fund would raise capital from investors through the sale of tokens and reinvest the proceedings in other crypto-assets in order to generate a gain for the benefit of such investors.

Third, the unit-holders – considered as a collective group – shall have no day-to-day discretion or control. A "day-to-day discretion or control" shall mean a form of direct and ongoing power of decision – whether exercised or not – over operational matters relating to the daily management of the undertakings' assets[309]. This last requirement may raise some concerns, as most of the times blockchain-based entities (like DAOs, or in general public blockchains[310]) do not have an executive body with management functions and decisions are taken by token-holders through majority votes. In such a case, *i.e.* where token-holders can have a day-to-day control over the issuer due to the absence of a management, it would be difficult to consider such issuer as a collective investment undertaking. There are, on the other hand, token issuers based on private or consortium blockchains[311], where there is a restricted number of nodes (*i.e.* members) granted with decisional powers[312].

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[308] *Ibid.*

[309] *Ibid.*

[310] See Chapter 1, paragraph 1.4.

[311] ESMA, *Guidelines on key concepts of the AIFMD*, *supra* note 274, 3.

[312] It would be worth mentioning that ESMA excludes from the definition of "day-to-day discretion or control" a management of assets which extends substantially further than the ordinary exercise of decision or control through voting at shareholder meetings on matters such as mergers or liquidation, the election of shareholder representatives, the appointment of directors or auditors or the approval of annual accounts. Therefore, in

In sum, a case-by-case analysis would be always necessary in order to verify whether crypto-assets issued by a tokenized investment fund qualify as units in collective investment undertakings in accordance with ESMA's criteria examined above.

Let's assume that the crypto-assets issued by our sample tokenized investment fund do qualify as units in collective investment undertakings. We know that such crypto-assets would be considered "financial instruments" under MiFID II, with all the regulatory implications that we will see later in this chapter. However, we may wonder at this point whether the tokenized investment fund will be subject to UCITS Directive or AIFMD, or even if a loophole in the current EU regulation of collective investment undertakings may prevent the applicability of both regulatory regimes.

We can start our analysis from UCITSs, considering that AIFs constitute a "residual" category including all non-UCITS collective investment undertakings. If we look again at the definition of UCITS, we can see that the first part states that UCITSs have the sole object of collective investment in transferable securities (or in other specifically identified liquid assets). As mentioned above, The DAO, which has a structure similar to our sample tokenized investment fund, was supposed to reinvest proceeds in other crypto-assets. The issue at this point would be analyzing on a case-by-case basis whether the crypto-assets in which the tokenized investment fund reinvests the proceeds qualify as transferable securities (see paragraph 2.1 above) or one of the other liquid assets referred to in Article 50(1) of UCITS Directive (such as money-market instruments and certain derivative instruments)[313]. Therefore, if the crypto-assets in which a tokenized

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order to exercise a day-to-day discretion or control, the decisional power of blockchain members shall extend beyond a mere voting on extraordinary matters.

[313] Although there are some examples of traditional (*i.e.* non blockchain-based) UCITSs and AIFs investing in crypto-assets, such as Invesco Elwood Global Blockchain UCITS, we are referring here only to blockchain-based entities with tokenized units.

investment fund reinvests the proceeds qualify as transferable securities (or one of the liquid assets listed under Article 50(1)), then the first section of UCITS definition is met. The same holds true – *a fortiori* – if such issuer reinvests the proceeds in traditional transferable securities or in one of the above-mentioned liquid assets.

The definition then continues by stating that the capital must be raised from the public and the undertaking for collective investment shall operate on the principle of risk-spreading. As concerns the first part, there are no doubts that the capital in a tokenized investment fund (like a DAO) is raised from the public, as ICOs are generally targeted to retail investors.

The second part requires the investment undertaking to operate on the principle of risk-spreading. UCITS Directive imposes strict risk spreading limits on UCITSs' investments. The most relevant limit in this respect is the so-called "5/10/40 rule", which states that a UCITS shall not invest more than 5% of its assets in transferable securities or money-market instruments of a single issuer. EU Member States can increase this limit to 10% per single issuing body, but in this case the total value of the transferable securities and the money-market instruments held by the UCITS in each issuing bodies where it invests more than 5% of its assets shall not exceed 40% of the value of its assets[314]. For example, a scheme which does not operate on the principle of risk-spreading is one which seeks to exercise control over the undertakings in which it invests[315]. A tokenized investment fund that wants to qualify as a UCITS shall then keep in mind the risk-spreading limits when investing in other crypto-assets or traditional securities.

The last part of UCITS definition requires that units shall be, at the request of holders, repurchased or redeemed, directly or indirectly, out of the

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[314] Articles 52(1) and 52(2) UCITS Directive.

[315] N. MOLONEY, *supra* note 5, 215, note 132.

undertakings' assets. This is the fundamental feature of UCITSs, that protects investors from liquidity risks. In order to meet that requirement, issuers of crypto-assets should offer the token-holders the option to repurchase (or redeem) the tokens issued in the context of an ICO, either directly or indirectly. However, tokenized investment funds generally do not allow for the redemption of their units. Instead, their units (in the form of tokens) are more often traded on secondary markets themselves[316]. Even if we assume that a sale of such tokens on the secondary market can be deemed a "repurchase" or "redemption", none of the fund's assets are liquidated[317].

Finally, the tokenized investment fund shall not fall under one of the exemptions seen above: for instance, it must be structured as an open-end scheme and should promote the sale of tokens to the public within the EU or any part of it (and not sell such tokens only to the public in third countries).

Although it might seem a bit extreme, we have seen that a tokenized investment fund (like a DAO) meeting all the UCITS Directive requirements can decide to "opt-in" to the UCITS regime and qualify as a UCITS. If, on the one hand, the issuer would exponentially increase investors' trust in its issued tokens, on the other hand it shall comply with a significant number of obligations. After asking (and obtaining) the authorization from a EU Member State's NCA, the tokenized investment fund will be subject to, *inter alia*, several obligations concerning information to be provided to investors, such as the publication of a prospectus, an annual report for each financial year, and a half-yearly report covering the first six months of the financial year[318].

Let's now move to Alternative Investment Funds (AIFs), the second category of collective investment undertakings regulated in the EU. As seen

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316 T. MAAS, *supra* note 209, 56.

317 *Ibid.*

318 Article 68(1) UCITS Directive.

above, AIFs are defined by AIFMD as collective investment undertakings that (i) raise capital from a number of investors, with a view to investing it in accordance with a defined investment policy for the benefit of those investors, and (ii) do not require authorization pursuant to UCITS Directive.

As concerns the second requirement of AIF definition, we have already seen that all collective investment undertakings not qualifying as UCITSs are subject to AIFMD regime. Thus, a tokenized investment fund not meeting the UCITS definition may still qualify as an AIF if (a) it raises capital from a number of investors (b) following a defined investment policy (c) for the benefit of such investors.

As concerns the item *sub* (a), according to ESMA Guidelines, "raising capital" consists in a commercial activity of taking direct or indirect steps by an undertaking (or a person or entity acting on its behalf – typically the AIFM) to procure the transfer or commitment of capital by one or more investors to the undertaking[319]. We do not see any issues in this respect, as tokenized investment funds actively seek investors that are willing to commit capital to buy their tokens. As concerns the second period of item (a), *i.e.* "from a number of investors", ESMA clarified that an undertaking which is not prevented from raising capital from more than one investor by its national law, the rules or instruments of incorporation, or any other provision or arrangement of binding legal effect, should be regarded as an undertaking which raises capital from a number of investors[320]. This second period may raise some concerns in case national laws of a EU Member State provide for restrictions on the sale of crypto-assets issued by a tokenized investment fund. An analysis of domestic regulations would be fundamental in order to check whether the tokenized investment fund meets the "number of investors" requirement.

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[319] ESMA, *Guidelines on key concepts of the AIFMD*, *supra* note 274, 6.

[320] *Ibid.*

Moving to item (b), ESMA clarified that an undertaking which has a policy about how the pooled capital is to be managed to generate a pooled return for the investors from whom it has been raised should be considered to have a defined investment policy[321]. The following factors, singularly or cumulatively, indicate the existence of such a policy: (i) the investment policy is determined and fixed, (ii) the investment policy is set out in a document which becomes part of or is referenced in the rules or instruments of incorporation of the undertaking, (iii) the undertaking has an obligation to investors, which is legally enforceable by them, to follow the investment policy, (iv) the investment policy specifies investment guidelines, including for instance criteria relating to investments in certain categories of assets or in specific geographical areas[322]. Tokenized investment funds usually have very rudimental documents explaining their business, most importantly the white paper. A white paper is a document published by crypto-assets issuers before their ICO informing potential investors about the new technology, methodology, product or service being launched. All the documents published by a tokenized investment fund, including the white paper, shall therefore be carefully read in order to check whether the "defined investment policy" requirement is met.

Finally, item (c) requires that the capital shall be raised "for the benefit of investors". Given its clarity, this last requirement was not addressed in ESMA's Guidelines. The collective investment undertaking shall raise capital from investors with the purpose of reinvesting it and generating profits for the benefit of the same investors. The same holds true for tokenized investment funds.

It is also worth recalling that AIFMD regime applies to the managers of the AIF, and not directly to the AIF. Such managers (AIFMs), that must be authorized by a EU Member State, can be external or, where the legal form of the

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321 *Id.*, 7.

322 *Ibid.*

AIF permits an internal management and the AIF's governing body chooses not to appoint an external AIFM, the AIF itself. AIFMs are defined by AIFMD as legal persons whose regular business is managing one or more AIFs[323]. In our tokenized investment fund sample, if the blockchain structure allows the presence of a restricted number of members managing the entity (*e.g.* private blockchains), then the AIFM can also be external; otherwise, when decisions are generally taken with majority votes by all members of the blockchain (like in public blockchains), the AIFM would be the AIF itself, therefore the token issuer.

One of the main consequences of the qualification of a tokenized investment fund as a AIF would be the necessary authorization by a EU Member State of the AIFM managing the issuer and the imposition on such AIFM of all the obligations under AIFMD, including reporting obligations to NCAs[324] and disclosure of certain information to investors (such as a description of the investment strategy and the objectives of the AIF)[325].

We have seen that it is not totally implausible that tokenized investment funds, particularly the ones with a structure similar to a DAO, may qualify as a collective investment undertaking, either in the form of UCITS or AIF[326]. For instance, the Monetary Authority of Singapore clarified in its Guide to Digital Token Offerings that a digital token might constitute "a unit in a collective investment scheme ("CIS"), where it represents a right or interest in a CIS, or an option to acquire a right or interest in a CIS"[327].

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[323] Article 4(1)(b) AIMFD.

[324] Article 24 AIFMD.

[325] Article 23 AIMFD.

[326] P. HACKER, C. THOMALE, *supra* note 144, 39.

[327] MONETARY AUTHORITY OF SINGAPORE, *A Guide to Digital Token Offerings* (August 1, 2017), 3, available at: https://www.mas.gov.sg/~/media/MAS/Regulations%20and%20Financial%20Stability/Regulations%20Guidance%20and%20Licensing/Securities%20Futures%20and%20Fund%20Management/Regulations%20Guidance%20and%

The issue was also briefly addressed in ESMA's Advice, where ESMA reported that most NCAs (25 to 27) agreed that cases 1 to 5 could not qualify as units in collective investment undertakings. However, not all NCAs were of the same opinion in relation to case 6 (*i.e.* a crypto-asset that is backed by different crypto-assets): 16 NCAs qualified tokens in case 6 as units in collective investment undertakings (most likely AIFs), while 12 NCAs replied "no", provided no answer, or came back with an inconclusive answer[328]. According to ESMA, further analysis will be required in order to assess whether cases similar to case 6 may fall within the scope of the AIFMD and therefore comply with AIFMD rules[329].

After all, not applying the UCITS or the AIFMD regime to a tokenized investment fund qualifying as a collective investment undertaking may create a dangerous regulatory gap for the benefit of those investment funds willing to bypass the applicable EU regulation[330].

2.4 Derivative instruments

The last category of financial instruments listed under Section C of Annex 1 to MiFID II includes a large variety of derivative instruments, such as options, futures, swaps, forwards and any other derivative contracts relating to, *inter alia*, securities, currencies, interest rates or yields, emission allowances, and

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20Licensing/Guidelines/A%20Guide%20to%20Digital%20Token%20Offerings%20%2014%20Nov%202017.pdf.

[328] ESMA's Advice, Annex 1, 16.

[329] ESMA's Advice, 35.

[330] For instance, we are already experiencing the development of blockchain-based asset managers, usually incorporated in offshore jurisdictions, running "crypto funds" with tokenized assets, where investors have access to such assets via single tokens. In case those tokenized funds are incorporated or marketed in the EU, it is likely that the blockchain-based asset manager will need the authorization required by AIFMD for AIFMs.

commodities[331]. Although a discussion about those complex and sophisticated financial instruments would go far beyond the scope of our analysis, a brief introduction may be helpful for those who are not familiar with derivatives, particularly if we consider the recent rise and the increasing availability of crypto-derivatives on crypto exchanges.

2.4.1 A brief overview of derivatives

A derivative can be defined as a financial contract the value of which derives from the value of an underlying asset[332]. The underlying asset can be anything, such as a security, a currency, an interest rate, or a commodity[333]; the nature of the underlying asset, as we will see below, qualifies the derivative as a "financial derivative" or a "commodity derivative". Derivatives can be used to hedge a position, speculate on the directional movement of an underlying asset, or give leverage to holdings, and their value comes from the fluctuations of the values of the underlying asset[334]. The EU legal framework applicable to

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[331] Derivatives are in fact defined under Article 2(5) EMIR as those financial instruments listed under points (4) to (10) of Section C of Annex I to MiFID II. MiFIR definition under Article 2(1)(29), on the other hand, adds to the above list those financial instruments defined in point (44)(c) of Article 4(1) of MiFID II, *i.e.* "any other securities giving the right to acquire or sell any such transferable securities or giving rise to a cash settlement determined by reference to transferable securities, currencies, interest rates or yields, commodities or other indices or measures". For a more detailed description of the single categories of derivatives under points (4) to (10) of Section C of Annex I to MiFID II, see K. LIEVERSE, *The Scope of MiFID II*, in *Regulation of the EU Financial Markets: MiFID II and MiFIR*, edited by D. BUSCH, G. FERRARINI, Oxford University Press (2016), 43-45.

[332] R. STEGEMAN, A. BERKET, *Derivatives – Trading, Clearing, STP, Indirect Clearing, and Portfolio Compression*, in *Regulation of the EU Financial Markets: MiFID II and MiFIR*, edited by D. BUSCH, G. FERRARINI, Oxford University Press (2016), 393.

[333] *Ibid.*

[334] https://www.investopedia.com/terms/d/derivative.asp.

derivative instruments includes MiFIR, MiFID II, and EMIR[335] (see paragraph 1.2 above).

Derivatives can be classified in two macro categories: (i) exchange-traded derivatives (ETDs), and (ii) over-the-counter (OTC) derivatives. According to MiFIR definition, "exchange-traded derivative" means a derivative that is traded on a regulated market or on a third-country market considered to be equivalent to a regulated market (and as such does not fall within the definition of an OTC derivative under EMIR)[336]. On the other side, EMIR defines OTC derivatives as derivative contracts the execution of which does not take place on a regulated market or on a third-country market considered as equivalent to a regulated market[337]; accordingly, derivatives traded on MTFs or OTFs qualify as OTC derivatives rather than ETDs[338]. In short, ETDs are derivatives traded on regulated markets, and are therefore highly standardized in order to be liquid enough to be regularly exchanged on trading venues[339]; conversely, OTC derivatives are more tailor-made in order to meet specific requests from investors, and are negotiated directly between the parties[340].

The most common forms of derivatives are:

I. Futures: derivative financial contracts that obligate the parties to transact an asset at a predetermined future date and price, regardless of the current market price at the expiration date. Futures are ETDs, as they are traded on regulated markets.

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[335] Regulation (EU) No 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivatives, central counterparties and trade repositories.

[336] Article 1(32) MiFIR.

[337] Article 2(7) EMIR.

[338] R. STEGEMAN, A. BERKET, *supra* note 332, 394.

[339] *Ibid.*

[340] *Ibid.*

II. Options: a derivative contract that offers the buyer the opportunity to buy (call option) or sell (put option) the underlying asset. Unlike futures, the holder does not have an obligation to buy or sell the asset. Options can be either traded on regulated markets as ETDs or negotiated as OTC derivatives.

III. Forwards: customized contracts between two parties to buy or sell an asset at a specified price on a future date. Unlike standard futures contracts, a forward contract can be customized to a commodity, amount, and delivery date. Forwards are OTC instruments, as they are not traded on regulated markets.

IV. Swaps: contracts through which two parties exchange the cash flows or liabilities from two different financial instruments. Swaps fall under the category of OTC derivatives.

2.4.2 The main obligations applicable to derivatives

Instruments qualifying as derivatives are subject to several sets of obligations under MiFIR, MiFID II and EMIR.

(i) Trading obligation

First, MiFIR provides for a trading obligation with respect to certain classes of derivatives [341]. Financial counterparties [342] and non-financial counterparties [343] – as defined under EMIR – shall conclude transactions

[341] For a deeper analysis of the trading obligation, see R. STEGEMAN, A. BERKET, *supra* note 332, 394-404.

[342] A financial counterparty (FC) is defined under Article 2(8) EMIR as an investment firm, a credit institution, an insurance undertaking, an assurance undertaking, a reinsurance undertaking, a UCITS (and where relevant its management company), an institution for occupational retirement provision, or an AIF managed by an AIFM. All financial counterparties must be authorized according to the relevant EU directive in order to fall under EMIR definition.

[343] According to Article 2(9) EMIR, non-financial counterparties (NFCs) are those undertakings that do not qualify as financial counterparties under Article 2(8) EMIR.

regarding certain derivatives only on regulated markets, Multilateral Trading Facilities (MTFs), Organized Trading Facilities (OTFs), or third-country trading venues meeting certain requirements[344].

Article 32 MiFIR outlines the procedure for establishing which derivatives should be declared subject to the trading obligation. According to Article 32 MiFIR, for the trading obligation to apply, the following requirements shall be met: (i) a derivative must belong to a class of derivatives which is subject to the EMIR clearing obligation (see below), and (ii) the European Commission must have adopted a delegated regulation specifying which classes of derivatives are subject to the trading obligation in accordance with draft Regulatory Technical Standards (RTS) submitted by ESMA pursuant to Article 10 ESMA Regulation (see paragraph 1.3.2(c) above). In this respect, Article 32(2) MiFIR specifies other two requirements which shall be taken into account by ESMA when drafting its RTSs: the class of derivatives (i) must be admitted to trading or traded on at least one trading venue (the "venue test") and (ii) sufficiently liquid to be traded only on trading venues (the "liquidity test")[345].

ESMA submitted the draft RTS to the European Commission on September 28, 2017[346], and the EC adopted the delegated regulation on the basis on ESMA's RTS on November 17, 2017[347]. According to the mentioned EC delegated regulation, the classes of derivatives which are subject to the trading

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344 Article 28 MiFIR.

345 When drafting the RTS, ESMA shall consider the class of derivatives as sufficiently liquid pursuant to the following criteria: (i) the average frequency and size of trades over a range of market conditions, (ii) the number and type of active market participants, and (iii) the average size of the spreads. See Article 32(3) MiFIR.

346 ESMA, *Draft RTS on the trading obligation for derivatives under MiFIR*, ESMA70-156-227 (September 28, 2017), available at: https://www.esma.europa.eu/sites/default/files/library/esma70-156-227_final_report_trading_obligation_derivatives.pdf.

347 Commission Delegated Regulation (EU) 2017/2417 of 17 November 2017 supplementing Regulation (EU) No 600/2014 of the European Parliament and of the Council on markets in financial instruments with regard to regulatory technical standards on the trading obligation for certain derivatives.

obligation are fixed-to-float interest rate swaps denominated in EUR, USD and GBP, and index credit default swaps.

(ii) Clearing obligation, risk-mitigation, and reporting requirements

Clearing is the post-trading service for certain classes of ETDs and OTC derivatives which ensures that transactions on an exchange will settle. It is a process occurring between execution and settlement. While MiFIR and MiFID II do not provide any definition, EMIR defines "clearing" as the process of establishing positions, including the calculation of net obligations, and ensuring that financial instruments, cash, or both, are available to secure the exposures arising from those positions[348].

The clearing process is conducted by a central counterparty (CCP)[349], defined by EMIR as a legal person that interposes itself between the counterparties to the contracts traded on one or more financial markets, becoming the buyer to every seller and the seller to every buyer[350]. Where a legal person established in the EU intends to provide clearing services as a CCP, it shall apply for authorization to the competent authority of the Member State where it is established[351]; such authorization will be valid for all EU territories[352].

CCPs shall meet various strict requirements in order to be authorized by NCAs. For instance, CPPs must meet the minimum capital requirement (EUR 7.5 million) [353] and organizational requirements such as robust governance arrangements, effective processes to identify and monitor risks, and a clear

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[348] Article 2(3) EMIR.

[349] For an insight on CCPs, see J. GREGORY, *Central Counterparties: Mandatory Clearing and Bilateral Margin Requirements for OTC Derivatives*, Wiley (2014).

[350] Article 2(1) EMIR.

[351] Article 14(1) EMIR.

[352] Article 14(2) EMIR.

[353] Article 16 EMIR.

organizational structure with well-defined lines of responsibility[354]. In addition, CCPs shall maintain, for a period of at least 10 years, all the records on the services and activity provided[355], and shall notify its competent authority of any changes to its management[356].

Essentially, clearing allows counterparties to trade with each other anonymously without worrying about whether their counterparty will honor the trade. The main difference between ETDs clearing, regulated under MiFIR[357], and OTC derivatives clearing, regulated under EMIR[358], is that the MiFIR clearing obligation for ETDs applies to the operator of the regulated market, while EMIR clearing obligation for OTC derivatives applies to the counterparties to the derivative contract[359]. ESMA, pursuant to its quasi-rule-making powers, issues RTS with a list of derivatives subject to the clearing obligation, that shall then be approved by the EC. ESMA's Public Register[360] lists the classes of OTC derivatives covered by the clearing obligation[361] and those CCPs authorized to clear them.

Where OTC derivatives are not subject to the CCP clearing obligation, a number of risk-mitigation obligations shall apply to financial and non-financial counterparties above the clearing threshold set by class of OTC derivative contracts through EMSA's RTS, while a calibrated regime applies to non-

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354 Article 26 EMIR.

355 Article 29 EMIR.

356 Article 31 EMIR.

357 Article 29 MiFIR.

358 Article 4 EMIR.

359 R. STEGEMAN, A. BERKET, *supra* note 332, 407.

360 Last updated on April 9, 2020, and available at: https://www.esma.europa.eu/sites/default/files/library/public_register_for_the_clearing_obligation_under_emir.pdf

361 Such list includes, for instance, basis swap classes, fixed-to-float interest rate swap classes, and forward rate agreement classes.

financial counterparties below the clearing threshold[362]. Risk-mitigation requirements are aimed at reducing counterparty and operational risk and at enhancing the collateralization of transactions[363]. According to EMIR, financial counterparties and non-financial counterparties that enter into an OTC derivative contract not cleared by a CCP shall ensure, exercising due diligence, that appropriate procedures and arrangements are in place to measure, monitor and mitigate operational risk and counterparty credit risk[364]. Such procedures shall include at least: (a) the timely confirmation, where available, by electronic means, of the terms of the relevant OTC derivative contract[365], and (b) formalized processes which are robust, resilient and auditable in order to reconcile portfolios, to manage the associated risk and to identify disputes between parties early and resolve them, and to monitor the value of outstanding contracts[366].

Finally, counterparties (both financial and non-financial) and CCPs are subject to an extensive reporting regime designed to provide regulators and market participants with greater transparency on derivatives market activities[367]. Under EMIR, counterparties and CCPs shall make sure that the details of any derivative contract they have concluded (whether or not OTC), together with any modification or termination thereof, are reported to a trade repository[368], *i.e.* a legal person that centrally collects and maintains the records of derivatives[369].

(iii) Straight-Through-Processing (STP) obligation

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[362] N. MOLONEY, *supra* note 5, 602.

[363] *Id.*, 602-603.

[364] Article 11(1) EMIR.

[365] Article 11(1)(a) EMIR.

[366] Article 11(1)(b) EMIR.

[367] N. MOLONEY, *supra* note 5, 604.

[368] Article 9 EMIR.

[369] Article 2(2) EMIR.

Another obligation applying both to ETDs and OTC derivatives is the Straight-Through-Processing (STP) obligation. Such obligation requires trading venues and investment firms acting as a clearing member[370] (*i.e.* an undertaking which participates in a CCP) to have in place effective systems, procedures, and arrangements in relation to cleared derivatives to ensure that transactions in cleared derivatives are submitted and accepted for clearing as quickly as technologically practicable using automated systems[371]. MiFIR is referring here to a Straight-Through-Processing (STP) system, an automated process done purely through electronic transfers – with no manual intervention involved – aimed at speeding up transactions.

The essence of STP applied to derivative transactions is to make the execution and clearing of a trade practically simultaneous, thus increasing the efficiency of clearing and eliminating trading failures[372]. Indeed, the quicker a trade reaches the CCP to be cleared after its execution – and the fewer people involved – the lower the risk of errors[373].

The STP obligation applies to "cleared derivatives", defined as (i) derivatives which are to be cleared pursuant to the clearing obligations under MiFIR and EMIR, and (ii) all derivatives which are otherwise agreed by the relevant parties to be cleared[374].

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[370] As defined under Article 2(14) EMIR.

[371] Article 29(2) MiFIR.

[372] R. STEGEMAN, A. BERKET, *supra* note 332, 412.

[373] R. BAKER, *The Trade Lifecycle: Behind the Scenes of the Trading Process*, John Wiley & Sons (2010), 72.

[374] Article 29(2) MiFIR.

2.4.3 Crypto-derivatives and their legal qualification

Now that we have a general understanding of derivatives instruments, we can move forward and identify a potential legal framework for crypto-derivatives. Crypto-derivatives are derivative instruments, generally traded on crypto exchanges, whose underlying asset is a crypto-asset (usually a cryptocurrency). The significant growth of the crypto-derivatives market during the past years has drawn the attention of regulatory authorities to that new phenomenon[375]. The primary crypto derivatives products include futures, options and swaps; they represent an option among the crypto community to manage risks efficiently and utilize leverage options[376].

There are two main issues that must be analyzed with respect to crypto-derivatives: (i) whether crypto-assets are eligible underlying assets, and (ii) the regulatory framework applicable to crypto-derivatives if (i) is true.

(i) Crypto-assets as eligible underlyings

The first question requires a brief analysis of the definition of derivatives. In this respect, it is worth having a look at the two definitions of derivatives provided under EMIR and MiFIR, respectively. EMIR defines derivatives as financial instruments as set out in points (4) to (10) of Section C of Annex I to MiFID II[377]. MiFIR definition is substantially similar, but adds to the mentioned instruments the transferable securities under Article 4(1)(44)(c) MiFID II, *i.e.*

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[375] According to data analytics company Cryptocompare, cryptocurrency derivatives trading volumes climbed 32% in May 2020 to a new record high of $602 billion. See J. GOGO, *Report Shows Crypto Derivatives Volumes Soared 32% to a Record $602 Billion in May*, Bitcoin.com (June 5, 2020), available at: https://news.bitcoin.com/report-shows-crypto-derivatives-volumes-soared-32-to-a-record-602-billion-in-may/.

[376] A. AXELROD, *Crypto Derivatives Might Drive a New Cycle of Mass Adoption*, Cointelegraph (June 20, 2020), available at: https://cointelegraph.com/news/crypto-derivatives-might-drive-a-new-cycle-of-mass-adoption.

[377] Article 2(5) EMIR.

those securities "giving the right to acquire or sell any such transferable securities or giving rise to a cash settlement determined by reference to transferable securities, currencies, interest rates or yields, commodities or other indices or measures".

Among the derivatives listed under points (4) to (10) of Section C of Annex I to MiFID II, item (4) is undoubtedly the most relevant for the purpose of our analysis. Item (4) refers, indeed, to the so-called "financial derivatives": "options, futures, swaps, forward rate agreements and any other derivative contracts relating to securities, currencies, interest rates or yields, emission allowances or other derivatives instruments, financial indices or financial measures which may be settled physically or in cash". This category catches at least all those crypto-derivatives where the underlying crypto-asset is an investment token (qualifying as a "security") or a payment token (qualifying as a "currency").

The other points refer to (i) "commodity derivatives" [378] (items 5, 6, 7, and 10), (ii) derivative instruments for the transfer of credit risk (item 8), and (iii) financial contracts for differences (item 9).

The category of "commodity derivatives" includes many instruments designed to protect the integrity and hedging function of a market that has often been affected by turbulences[379]. As a general overview, item (5) relates to cash settled derivatives, item (6) to physically settled derivatives traded on trading venues, item (7) to physically settled derivatives traded outside trading venues, and item (10) to cash settled derivatives with what ESMA has termed as more

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[378] Commodity derivatives are defined under MiFIR as those financial instruments defined in point (44)(c) of Article 4(1) of MiFID II; which relate to a commodity or an underlying referred to in Section C(10) of Annex I to MiFID II; or in points (5), (6), (7) and (10) of Section C of Annex I thereto.

[379] A. SCIARRONE ALIBRANDI, E. GROSSULE, *Commodity Derivatives*, in in *Regulation of the EU Financial Markets: MiFID II and MiFIR*, edited by D. BUSCH, G. FERRARINI, Oxford University Press (2016), 444.

"exotic" underlyings such as climatic variables, freight rates or inflation rates, together with any other derivative contracts relating to assets, rights, obligations, indices and measures. As we can see, the category of commodity derivatives is extremely broad and seems to cover all those crypto-derivatives with an underlying crypto-asset that does not qualify as a security or a currency. We are talking, for example, about utility tokens, payment tokens not qualifying as currencies, or even some hybrid forms; those classes of crypto-assets may, in fact, qualify as commodities[380] or at least as assets or rights[381].

Financial contracts for differences (CFDs) under item (9) are, instead, agreements between a buyer and a seller to exchange the difference between the current price of an underlying asset and its price when the contract is closed. Considering that item (9) does not limit those contracts to a closed number of underlyings, we can easily subsume under this category all those CFDs on cryptocurrencies that are becoming increasingly popular (particularly in relation to Bitcoin).

Finally, derivative instruments for the transfer of credit risk (item 8) ("credit derivatives") consist in a contract between two parties in a creditor/debtor relationship that allows the creditor to transfer the risk of the debtor's default to a third party. Credit derivatives are generally used by banks and other lenders in order to remove the risk of default entirely from a loan portfolio in exchange for paying an upfront fee. Given its evident scarce

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[380] "Commodity" within the MiFID framework means "any goods of a fungible nature that are capable of being delivered, including metals and their ores and alloys, agricultural products, and energy such as electricity" (Article 2(6) of the Commission Delegated Regulation (EU) 2017/565 of 25 April 2016 supplementing MiFID II). We will discuss the potential qualification of crypto-assets as commodities under paragraph 3.2 below.

[381] Commission Delegated Regulation (EU) 2017/565, Article 8, states that the terms "assets" and "rights" under Section C(10) of Annex I to MiFID II mean "any other asset or right of a fungible nature, other than a right to receive a service, that is capable of being transferred". Crypto-assets are generally fungible and capable of being transferred.

adaptability to crypto-assets, we will not discuss this category of derivatives further.

The question on the eligibility or crypto-assets as underlying assets has also been addressed by the French national competent authority (AMF) in its report on crypto-derivatives[382]. The AMF points out that, by choosing the list approach, European lawmakers have provided themselves with leeway to expand the list of eligible underlying assets; in addition, referring to notions of increasingly broader scope enables them to keep in step with innovation in the industry[383]. We have seen, indeed, that the list of potential underlying assets for all classes of derivatives is so wide that it may potentially cover all categories of crypto-assets.

Therefore, given the broad range of eligible underlying assets, we do not see any significant reason to exclude *a priori* crypto-derivatives relating to all three classes of crypto-assets – including their hybrid forms – from the definition of derivative instruments (provided that the crypto-derivative falls under one of the categories of derivatives under Section C of Annex I). Furthermore, crypto-derivatives falling under the definition of "derivatives" will be considered as financial instruments under MiFID II definition, with all the subsequent regulatory implications.

(ii) Regulation of crypto-derivatives

As concerns the legal framework applicable to crypto-derivatives traded in the EU, considering that such instruments are generally traded on crypto

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[382] AUTORITÉ DES MARCHES FINANCIERS (AMF), *Analysis of the legal qualification of cryptocurrency derivatives* (March 23, 2018), 2, available at: https://www.amf-france.org/en/news-publications/news/analysis-legal-qualification-cryptocurrency-derivatives.

[383] *Id.*, 2.

exchanges[384] (and not regulated markets), we will only focus on EMIR regime and assume they qualify as OTC derivatives.

First, if falling under certain derivatives classes, crypto-derivatives shall be subject to the trading obligation (see above). Therefore, the parties shall conclude transactions regarding those classes of crypto-derivatives only on regulated markets, MTFs, OTFs, or third-country trading venues meeting certain requirements. However, we know that crypto-derivatives are generally traded on crypto exchanges that, although showing similarities, are unlikely to be qualified as regulated markets, MTFs, or OTFs. Therefore, there might be a serious risk that certain classes of crypto-derivatives subject to the trading obligation (such as fixed-to-float interest rate swaps) are traded in breach of such obligation.

Second, certain classes of crypto-derivatives are subject to the clearing obligation. As seen above, clearing is performed by a CCP, which interposes itself between buyer and seller and underwrites the risk of a default in derivatives transactions. In order to fulfill their tasks, CCPs shall be authorized by the NCA of a EU Member State, meet several strict capital and organizational requirements, and maintain, for a period of at least 10 years, all the records on the services and activity provided. In the event the crypto-derivative is not subject to the clearing obligation, the CCP shall implement risk mitigation measures by ensuring that appropriate procedures and arrangements are in place to measure, monitor and mitigate operational risk and counterparty credit risk. The counterparties and the CCP shall also report to a trade repository the details of any crypto-derivative contract they have concluded, together with any modification or termination thereof.

Therefore, in order to comply with EMIR regime, crypto-derivatives exchanges shall have a duly authorized CCP performing the above tasks and

[384] The most popular crypto-derivatives exchanges are BitMEX, Binance, and FTX.

meeting all the necessary requirements, including the setting up of a Straight-Through-Processing (STP) automatic system to make the execution and clearing of a trade as quickly as technologically practicable. However, in the unregulated crypto-derivatives market, trading generally takes place on a peer-to-peer basis and, by definition, there's no such thing as a CCP[385]. Indeed, on a peer-to-peer crypto derivatives exchange traders have exposure to each other rather than to a central risk management entity like a CCP[386]. As a consequence, fundamental activities in derivatives trades, such as clearing, risk mitigating, and reporting, may not find space when handling with crypto-derivatives.

So how do crypto exchanges deal with the absence of CCPs? In the event of default, it is generally the crypto derivatives exchange that steps in and automatically liquidates the losing position[387]. However, in a fast-moving market like this, the liquidation price may be worse than the one at which the losing trader has run out of margin, thus leaving the winning trader (*i.e.* the party with the opposing position) with a potential shortfall[388]. That's why several cryptocurrency derivatives exchanges, such as BitMEX, have set up insurance funds in order to compensate traders with winning positions in the event the margin payments of losing traders prove insufficient[389]. However, the insurance fund itself might run out of cash, and winners might not be able to receive as much profit as they are entitled to[390]. In order to avoid those liquidity issues, EMIR requires CCPs to comply with a number of strict prudential measures[391].

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[385] P. AMERY, *The wild world of crypto derivatives*, New Money Review (June 26, 2019), available at: https://newmoneyreview.com/index.php/2019/06/26/the-wild-world-of-crypto-derivatives/.

[386] *Ibid.*

[387] *Ibid.*

[388] *Ibid.*

[389] *Ibid.*

[390] *Ibid.*

[391] Articles 40-50 EMIR.

For example, a CCP shall (i) measure and assess its liquidity and credit exposures to each clearing member[392], (ii) impose, call and collect margins to limit its credit exposures from its clearing members[393], and (iii) maintain a pre-funded default fund to cover losses that exceed the losses to be covered by margin requirements[394]. However, the absence of an authorized CCP in crypto-derivatives transactions will cause the above prudential measures to be totally useless and ineffective.

The above considerations come from the assumption that the crypto exchange is based on a public (*i.e.* permission-less) blockchain, that by definition is totally decentralized and works on a peer-to-peer network. We have seen, however, that blockchains may also exist in a private (*i.e.* permissioned) form, where a central "authority" (consisting in one or more members) is granted with a number of decisional powers, including the power to authorize access to the network. If the crypto exchange is based on a private blockchain, the central "authority" may be considered as the CCP in derivatives transactions. However, considering also that blockchains generally guarantee the anonymity of its members, it would be difficult to imagine such central "authority" applying for CCP authorization and complying with all the CCP requirements under EMIR.

All the above considerations show that crypto-derivatives trading in the EU poses several regulatory issues; hence, European and national authorities need to shed more light on the course on this new phenomenon in order to avoid the rise of unregulated derivatives markets. In this respect, it is worth mentioning that in October 2020 the UK's financial regulator (FCA) banned the sale of cryptocurrency-related derivatives to retail consumers, pointing out that

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[392] Article 40 EMIR.

[393] Article 41 EMIR.

[394] Article 42 EMIR.

the underlying assets had "no reliable basis for valuation"[395]. The FCA also cited the "extreme volatility" in the price of the above assets, the prevalence of market abuse and financial crimes such as cyber theft, and the lack of understanding of the products among consumers[396].

2.4.4 Crypto-assets as derivative instruments

There is one last issue that deserve a bit of analysis in relation to derivative instruments. We have seen that derivatives with an underlying crypto-asset (*i.e.* crypto-derivatives) do qualify as derivative instruments and can therefore be considered financial instruments under MiFID II. We should wonder now whether crypto-assets themselves might qualify as derivative instruments.

The question has been briefly addressed in ESMA's Advice. Essentially, there was a strong consensus among NCAs (25 to 27) that crypto-assets in all six sample cases do not qualify as derivatives under MiFID II[397]. NCAs provided several explanations in relation to their statement, including, for instance, the lack of an underlying asset and the fact that crypto-assets do not behave as contracts (as it happens with derivatives)[398]. They also pointed out that those crypto-assets do not give their holders a forward commitment with any exposure to the fluctuations on an underlying asset[399].

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[395] FINANCIAL CONDUCT AUTHORITY (FCA), *Prohibiting the sale to retail clients of investment products that reference cryptoassets*, PS20/10 (October 2020), available at: https://www.fca.org.uk/publication/policy/ps20-10.pdf.

[396] D. THOMAS, M. DARBYSHIRE, *Crypto derivatives for retail investors banned by UK regulator*, Financial Times (October 6, 2020), available at: https://www.ft.com/content/83bb20e3-141a-4f3a-a9ff-cd7bb4649a4d.

[397] ESMA's Advice Annex I, 16.

[398] *Ibid.*

[399] *Ibid.*

Only in relation to case six, one NCA answered positively saying that the crypto-asset derives its value from an underlying asset (*i.e.* another crypto-asset), while another NCA stated that it falls within item (4) of Section C of Annex I to MiFID II[400] ("options, futures, swaps, forward rate agreements and any other derivative contracts relating to securities, currencies, interest rates or yields, emission allowances or other derivatives instruments, financial indices or financial measures which may be settled physically or in cash").

If we adopt a formal approach based on a legal categorization of tokens, we have no other option than to agree with the vast majority of NCAs and consider all three categories of crypto-assets as non-derivative instruments. In fact, as seen in the previous paragraphs, crypto-assets are more likely to qualify as other categories of instruments (such as, for instance, transferable securities and payment instruments), and they lack the essential features of derivatives: a contractual form and an underlying asset from which they derive their value.

However, if we use a "top-down" approach, as suggested by some commentators, the mere fact that a token is exchanged on a trading venue (or is intended to be so in a subsequent phase after its issuance) would suffice in order to qualify it as a financial instrument under MiFID II; hence, following this approach, a token traded on a derivatives exchange should be considered a derivative regardless of its formal categorization[401].

3. Crypto-assets as non-financial instruments: other potential qualifications and regulatory implications

In the event a crypto-asset does not fall under any of the various classes of financial instruments seen above, we should wonder whether there are some

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[400] *Ibid.*

[401] See F. ANNUNZIATA, *supra* note 112, 44-45.

other regulated categories that may be suitable for certain types of crypto-assets. In this respect, we have identified three categories that do not qualify as financial instruments and are therefore subject to other specific regulations: (i) instruments of payment, (ii) commodities, and (iii) credit instruments (also known as negotiable instruments).

3.1 Instruments of payment

We have already seen above under paragraphs 2.1 and 2.2 that instruments of payment are expressly excluded from MiFID II definitions of "transferable securities" and "money-market instruments", and are also not included in the list of financial instruments under Section C of Annex I to MiFID II. Instruments of payment are, in fact, subject to other branches of law, such as banking and financial services law.

In this paragraph 3.1 we will first briefly recap the issues relating to the qualification of crypto-assets as payment instruments already discussed in greater detail under paragraph 2.1.3 above, and then we will try to identify a potential EU regulatory framework.

We should start by recalling that "instruments of payment" are not defined under MiFID II, and according to ESMA's Advice the majority of EU Member States does not have a domestic definition. The only available definition under EU law, adopted by some Member States, is the one under PSD2[402], that defines 'payment instrument' as "a personalised device(s) and/or set of procedures agreed between the payment service user and the payment service provider and used in order to initiate a payment order"[403]. In addition, from a market point of view, the category of instruments of payment seems to include

[402] Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market.

[403] Article 4(14) PSD2.

(i) all forms of liquid payments such as cash and cheques and, as confirmed by the ECB[404], (ii) non-cash payment instruments such as cards, credit transfers, direct debits, and e-money.

We have already seen above under paragraph 2.1.3 that investment and utility tokens are undoubtedly excluded from the category of payment instruments; that view was also confirmed by the vast majority of NCAs (23 to 25) in ESMA's Advice[405]. Conversely, payment tokens are designed to be used as a medium of payment and show strong similarities with e-money, which is classified by the ECB as a payment instrument.

We have also discussed the fact that, although not entirely matching EMD2 "e-money" definition (given the absence of an issuer) and PSD2 "payment instrument" definition (given the lack of a payment service provider)[406], cryptocurrencies share far more similarities to cash rather than to securities, and the term "instrument of payment" is broader than just e-money. Hence, from a market perspective, cryptocurrencies are likely to fall under the category of "instruments of payment" – which are excluded from MiFID II "transferable securities" definition and from MiFID II list of financial instruments. In ESMA's Advice, indeed, pure payment tokens were intentionally not included in the six sample tokens provided to NCAs, possibly suggesting that ESMA maintains the same view[407]. The above statement is also confirmed by the landmark Hedqvist decision[408], in which the CJEU ruled that exchanging fiat currencies for Bitcoins

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[404] See EUROPEAN CENTRAL BANK, *Payment Instruments*, available at: https://www.ecb.europa.eu/paym/pol/activ/instr/html/index.en.html.

[405] ESMA's Advice, Annex 1, 11.

[406] With the exception of stablecoins (see paragraph 2.1.3 above and paragraph 3.1.1 below).

[407] *Id.*, 56.

[408] Judgment of 22 October 2015, *Skatteverket v. David Hedqvist*, C-264/14, EU:C:2015:718. See *supra* note 211.

(and vice versa) is exempt from VAT[409] due to the fact that Bitcoin is a currency; such decision has been interpreted extensively in order to include all other virtual currencies[410] – provided that the virtual currency, like Bitcoin, has no purpose other than being a mere medium of payment[411].

Finally we have examined the category of hybrid tokens with a payment component, and we have reached the conclusion that they cannot be considered as payment instruments unless it is clear that such tokens will be used exclusively for payment purposes.

We have therefore concluded that pure payment tokens, *i.e.* cryptocurrencies, are likely to qualify as instruments of payment under EU law. Thus, after providing an overview of the main features of cryptocurrencies, we will try to identify below a potential regulatory framework applicable to cryptocurrencies in the EU.

3.1.1 A brief overview of cryptocurrencies

Cryptocurrencies (or payment tokens) are virtual currencies that use cryptography to secure transactions on a blockchain network and to control the creation of new currency units[412]. They are not issued by any central government or bank, and they rely on DLT platforms.

We can roughly divide cryptocurrencies into two broad categories: open (or convertible) and closed (or non-convertible). Open cryptocurrencies can be converted into fiat currencies based on exchange rates, as they have a value

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[409] Article 135 (1)(e) of the EU Directive 2006/112/EC of 28 November 2006 (the VAT Directive) requires EU Member States to provide a VAT exemption for "transactions, including negotiation, concerning currency, bank notes and coins used as legal tender".

[410] S. BLEMUS, *supra* note 214, 3.

[411] NORTON ROSE FULBRIGHT, *supra* note 215.

[412] For a more detailed description of cryptocurrencies, see Chapter 1, paragraph 1.7.3.

determinable in real money; one example is Bitcoin, together with the vast majority of altcoins[413]. Conversely, closed cryptocurrencies can be used as a means of payment only among a certain community, and do not have a corresponding value in fiat currencies: indeed, there is a central system that issues the currency, establishes rules, keeps a record of transactions, and can discretionary withdraw the currency from circulation[414].

One of the main questions that have been subject to intense debate since the beginning of this phenomenon is whether cryptocurrencies can be considered as "money" from an economic perspective. As well known, the three functions of money described by classic macroeconomics are (i) unit of account, (ii) store of value, and (iii) medium of exchange[415].

Cryptocurrencies seem *prima facie* to perform the function of "medium of exchange", as they are generally accepted as a means of payment and exchanged for present and future services or goods. In this respect, two conditions shall be met: the cryptocurrency (i) must be accepted as a means of exchange by at least two persons acting independently, and not only among two individuals who agreed to use it with such purpose, and (ii) shall not exhaust its medium of payment function after it is exchanged[416]. The vast majority of the known cryptocurrencies easily meet the above requirements and can be therefore considered as a medium of exchange.

In relation to the "store of value" function, it must be first observed that, given the high volatility of their value in markets, cryptocurrencies are often

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[413] As seen in Chapter 1, with "altcoin" we refer to all cryptocurrencies other than Bitcoin.

[414] See https://www.investopedia.com/terms/c/closed-virtual-currency.asp.

[415] See A. MILNES, *The economic foundations of reconstruction*, Macdonald and Evans (1919), 55. Milnes' original criteria were actually four, but modern economic literature subsumes the fourth requirement (standard of value) in the other three.

[416] M. CIAN, *La criptovaluta – Alle radici dell'idea giuridica di denaro attraverso la tecnologia: spunti preliminari*, Banca Borsa Titoli di Credito, n. 3 (2019), 319-320.

stored by investors as part of their assets[417]. A limit to such function may be found in goods which are difficult to store, such as perishable items, or in the event of practical storage issues arising from the dimensions of such goods[418]. This is not the case of cryptocurrencies, as they can be easily stored digitally in whatever amount.

The function of "unit of account", however, seems to be unfit for the vast majority of the existing cryptocurrencies, including the most popular ones (such as Bitcoin). Indeed, the value of cryptocurrencies generally derives from their exchange rate *vis-à-vis* fiat currencies, such as EUR or USD, which represent the real unit of account when determining the market price of cryptocurrencies[419].

Nonetheless, any discussion about the qualification of cryptocurrencies as "money" in accordance with macroeconomics theories, although fascinating, may turn out to be quite useless for the purposes of a regulatory analysis. The scope of this work is, in fact, to identify the most appropriate qualification of cryptocurrencies based on the existing categories of instruments under EU financial law[420].

Going back to our overview, it would be worth providing a brief description of two special categories of cryptocurrencies.

We will start with a particular class of cryptocurrencies, known as "stablecoins", which is becoming more and more popular in crypto markets. Stablecoins are a relatively new form of payment token designed to minimize the volatility of the price of cryptocurrencies and the speculations on their value. Stablecoins are typically asset-backed (by physical collateral or crypto-assets) or in the form of an algorithmic stablecoin (with algorithms being used as a way to

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417 *Id.,* 321.

418 *Ibid.*

419 *Id.,* 321-322.

420 See *id.,* 322.

stabilize volatility in the value of the token)[421]. One example of stablecoin is Libra, the cryptocurrency developed and launched by Facebook. Stablecoins, as we will see in Chapter 3, are also subject to a specific regulation under MiCA proposal, which divides them in the two categories of "asset-referenced tokens" and "e-money tokens" and describes them as a type of crypto-asset that purports to maintain a stable value by referring to the value of a fiat currency that is legal tender (e-money tokens) or to the value of several fiat currencies, one or more commodities, or one or more crypto-assets (asset-referenced tokens)[422].

Furthermore, it is worth spending some words about another category of cryptocurrencies known as Central Bank Digital Currencies (CBDCs). Indeed, there is a rising trend for central banks to start considering the use of cryptocurrencies for their own monetary operations. The rationale behind the introduction of CBDCs is that digital assets could help in a project of modernization of financial institutions: for instance, it may help reducing fees for services such as ATM withdrawals or debit/credit cards payments[423]. Under this approach, individual payments may be processed at a central bank by debiting a payer's CBDC account and crediting the payee's CBDC account, operating similarly to debit/credit cards but without the costs associated with intermediary correspondent banks[424], as CBDCs would circulate electronically among private individuals and firms using a blockchain platform[425]. However, as opposed to traditional cryptocurrencies, whose issuance and distribution is preprogrammed by the blockchain code, central banks would likely retain their power to

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[421] EBA Report, *supra* note 131, 7.

[422] Articles 3(1)(3) and 3(1)(4) MiCA.

[423] C. BRUMMER, *Fintech Law in a nutshell*, West Academic Publishing (2020), 198.

[424] *Ibid.*

[425] M. D. BORDO, A. T. LEVIN, *Central Bank Digital Currency and the Future of Monetary Policy*, Nat'l Bureau of Econ. Research, Working Paper No. 23,711 (2017), 6, available at: https://www.nber.org/papers/w23711.

unilaterally determine the supply of CBDS tokens[426]. As to date, many central banks have shown interest in CBDCs. For example, China's central bank (PBOC), in October 2020, carried out a lottery to distribute a total of 10 million yuan worth of digital currency to 50,000 people in the Shenzhen area to test out China's new Digital Currency Electronic Payment[427]. A similar interest has been shown by the central banks of many other countries such as Japan, Sweden, England, Canada, and Switzerland, that, together with the Bank for International Settlements (BIS) and the ECB, published in October 2020 a report identifying the foundational principles necessary for any publicly available CBDCs to help central banks meet their public policy objectives[428]. The ECB, for its part, issued a statement exploring the benefits of a potential Digital Euro, in which the Executive Board member Fabio Panetta pointed out that "a digital euro would be a digital symbol of progress and integration in Europe"[429]; while the US Federal Reserve, despite speculations about the future issuance of a "FedCoin", has been more cautious by affirming through its Board of Governors member Lael Brainard that, given the US dollar's fundamental role in the world economy, it is continuing to assess the opportunities and challenges of a CBDC as a complement to cash and other payments options[430].

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[426] *Ibid.*

[427] A. KHARPAL, *China hands out $1.5 million of its digital currency in one of the country's biggest public tests*, CNBC (October 12, 2020), available at: https://www.cnbc.com/2020/10/12/china-digital-currency-trial-over-1-million-handed-out-in-lottery.html.

[428] BANK FOR INTERNATIONAL SETTLEMENTS (BIS), *Central bank digital currencies: foundational principles and core features*, Joint report by The Bank of Canada, European Central Bank, Bank of Japan, Sveriges Riksbank, Swiss National Bank, Bank of England, Board of Governors of the Federal Reserve and Bank for International Settlements (October 9, 2020), available at: https://www.bis.org/publ/othp33.pdf.

[429] EUROPEAN CENTRAL BANK, *A Digital Euro* (October 2020), available at: https://www.ecb.europa.eu/euro/html/digitaleuro.en.html.

[430] L. BRAINARD, *An Update on Digital Currencies*, Speech at the Federal Reserve Board and Federal Reserve Bank of San Francisco's Innovation Office Hours, San Francisco,

3.1.2 EU regulation of virtual currencies

As mentioned above, cryptocurrencies are virtual currencies operating on a blockchain platform through the use of cryptography. They are therefore subject to the EU regulation of virtual currencies.

Thus, at EU level it is important to provide clarity about the applicability of current EU financial services law to activities involving cryptocurrencies. In this respect, the 2019 EBA Report[431] on crypto-assets and the following ECB Paper[432] will provide guidance in order to identify a potential EU legal framework for cryptocurrencies.

An in-depth analysis of EU financial services law would be, of course, beyond the scope of this dissertation, which is instead focused on EU securities regulation. We will therefore provide here only a general overview of the most relevant EU financial services laws potentially applicable to virtual currencies (namely the Fifth AML Directive, PSD2, and EMD2) and the issues arising therefrom. We will then discuss in Chapter 3 the provisions of MiCA proposal applicable to certain classes of stablecoins.

The long path leading to the regulation of virtual currencies in the EU dates back to 2012, when the ECB expressed for the first time its views on virtual currencies and defined them as "a type of unregulated, digital money, which is issued and usually controlled by its developers, and used among the members of a specific virtual community"[433]. The ECB also pointed out that that "virtual currency schemes differ from electronic money schemes insofar as the currency

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California (August 13, 2020), available at: https://www.federalreserve.gov/newsevents/speech/brainard20200813a.htm.

[431] EBA Report, *supra* note 131.

[432] ECB Paper, *supra* note 132.

[433] EUROPEAN CENTRAL BANK, *Virtual Currency Schemes* (October 2012), available at: https://www.ecb.europa.eu/pub/pdf/other/virtualcurrencyschemes201210en.pdf.

being used as the unit of account has no physical counterpart with legal tender status". This limited initial view implied that virtual currencies would only be used by small groups of economic market players and not on a systemic scale[434].

The 2012 ECB report was followed by an opinion released by EBA in July 2014 [435] addressed to EU institutions that strongly discouraged financial institutions from buying, selling, or holding virtual currencies until the adoption of a specific regulation. The opinion suggests a regulatory approach in the long term, including (i) the creation of an entity that is accountable to the regulator for virtual currency activities ("scheme governance authority"), (ii) customer due diligence requirements in order to address anonymity issues, (iii) market abuse requirements in order to prevent insider dealing and market manipulation, (iv) mandatory registration and authorization to provide virtual currency services, and (v) evidence of secure IT systems[436].

EBA's opinion also urged EU institutions to implement an immediate regulatory response in the short term in order to prevent the rise of money laundering and financial crimes due to a widespread use of virtual currencies. In this respect, EBA recommends that EU legislators consider declaring virtual currency exchanges as "obliged entities" that must comply with anti-money laundering and counter terrorist financing requirements set out in the EU Anti Money Laundering Directive.

(i) AML/CFT regime

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[434] S. BLEMUS, *supra* note 214, 2.

[435] EUROPEAN BANK AUTHORITY, *Opinion on 'Virtual Currencies'*, EBA/Op/2014/08 (July 4, 2014), available at: https://eba.europa.eu/sites/default/documents/files/documents/10180/657547/81409b94-4222-45d7-ba3b-7deb5863ab57/EBA-Op-2014-08%20Opinion%20on%20Virtual%20Currencies.pdf.

[436] *Id.*, 39-43.

EBA's 2014 recommendation was welcomed by the European Commission, that in 2018 proposed an amendment to the EU Fourth AML Directive, that was later approved by the EU Parliament and Council, in order to cover virtual currency market players[437]. As a result, the new EU Fifth AML Directive defines "virtual currency" as "a digital representation of value that is not issued or guaranteed by a central bank or a public authority, is not necessarily attached to a legally established currency and does not possess a legal status of currency or money, but is accepted by natural or legal persons as a means of exchange and which can be transferred, stored and traded electronically"[438]. We can see that the above definition perfectly describes cryptocurrencies, which are (i) entirely virtual, (ii) not associated with any government or bank, (iii) not necessarily associated to a fiat currency (save for stablecoins), (iv) not possessing a legal status as a currency (although showing many similarities), (v) accepted as a medium of exchange among the relevant network, and (vi) transferred, stored and traded electronically.

The Fifth AML Directive then extends the scope of the AML/CFT regime to "providers engaged in exchange services between virtual currencies and fiat currencies"[439], that will have to, *inter alia*, perform due diligence activities on customers when exchanging virtual currencies for fiat currencies. The main purpose of the extension of the AML/CFT regime is to limit the potential misuse of virtual currencies for criminal purposes by reducing the anonymity of transactions.

Therefore, crypto exchanges where investors can trade cryptocurrencies for fiat currencies are subject to the AML/CFT regime. However, since the EBA's

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[437] Directive (EU) 2018/843 of the European Parliament and of the Council of 30 May 2018 amending Directive (EU) 2015/849 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing.

[438] Article 3(18) V AML Directive.

[439] Article 2(1)(3)(g) Fifth AML Directive.

2014 opinion, services such as crypto-to-crypto exchanges (whereby one crypto-asset can be exchanged for another type of crypto-asset) have become more prevalent[440]. The issue it that such crypto-to-crypto exchanges do not fall under the Fifth AML Directive scope, as the latter only covers crypto-to-fiat-currency exchanges. Therefore, taking into account the call from the FATF[441] for jurisdictions to take urgent legal and practical action to address money laundering and terrorist financing risks relating to virtual assets, EBA recommended in its latest report on crypto-assets that the European Commission extends the EU AML/CFT perimeter in order to include providers of services not currently within the scope of the Fifth AML Directive (most importantly crypto-to-crypto exchanges)[442].

(ii) EMD2 regime

The (second) e-money directive (EMD2)[443] sets out the rules for the business practices and supervision of e-money institutions. The directive aims to lay the foundations for a single market for e-money services in the EU. EMD2 provisions aim at aligning EU requirements for e-money services, put in place coherent set of requirements for obtaining a license as an e-money institution, and facilitate access for newcomers to the e-money market.

"E-money" (or "electronic money") is defined by EMD2 as "electronically, including magnetically, stored monetary value as represented by a claim on the issuer which is issued on receipt of funds for the purpose of making payment

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[440] EBA Report, *supra* note 131, 20.

[441] FINANCIAL ACTION TASK FORCE (FATF), *Regulation of Virtual Assets* (October 19, 2018), available at: http://www.fatf-gafi.org/publications/fatfrecommendations/documents/regulation-virtual-assets.html.

[442] EBA Report, *supra* note 131, 21.

[443] Directive 2009/110/EC of the European Parliament and of the Council of 16 September 2009 on the taking up, pursuit and prudential supervision of the business of electronic money institutions.

transactions as defined in point 5 of Article 4 of [PSD2][444], and which is accepted by a natural or legal person other than the electronic money issuer"[445].

EBA clarified that a crypto-asset will qualify as "electronic money" as defined in point (2) of Article 2 of the EMD2 only if it satisfies each element of the definition[446]. More specifically, the token shall:

(1) be electronically stored: this broad requirement includes, for instance, magnetic chips, electronic servers, and DLT platforms (like a blockchain)[447];
(2) have monetary value;
(3) represent a claim on the issuer;
(4) be issued on receipt of funds;
(5) be issued for the purpose of making payment transactions (as defined under PSD2 – see paragraph (iii) below); and
(6) be accepted by persons other than the issuer.

We can easily see that the only one item raising concerns is the one under (3), as "traditional" cryptocurrencies such as Bitcoin are not technically issued by an entity. In fact, new Bitcoins are issued through a complex process called "mining"[448], and the Bitcoin protocol is designed in such a way that new Bitcoins are created at a decreasing and fixed rate until Bitcoin issuance halts completely

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[444] According to Article 4(5) PSD2, 'payment transaction' means "an act, initiated by the payer or on his behalf or by the payee, of placing, transferring or withdrawing funds, irrespective of any underlying obligations between the payer and the payee".

[445] Article 2(2) EMD2.

[446] EBA Report, *supra* note 131, 12.

[447] That requirement should be wide enough to avoid hampering technological innovation and to cover not only all the electronic money products available today in the market but also those products which could be developed in the future. See EBA Report, *supra* note 131, 13 (note 31).

[448] See Chapter 1, paragraph 1.6.4.

with a total of 21 million Bitcoins in existence[449]. The European Central Bank seems to be of the same opinion: the ECB task force on crypto-assets, in the ECB Paper, concluded that cryptocurrencies would not qualify as e-money under EMD2 to the extent that they are not and do not represent a claim on the issuer[450]. However, the ECB points out that this does not mean that assets recorded using DLT may not qualify as e-money; in fact, as clarified by the ECB, the EBA Report sets out the circumstances under which such assets will qualify as e-money and will therefore fall within the scope of EMD2[451].

Furthermore, in a totally virtual and decentralized system like a blockchain it would be almost impossible to ensure the redeemability of the monetary value of e-money at any moment at par value, as required by Article 11 of [452]EMD2[453]. Other issues may also arise from Recital 5 of EMD2, stating that the scope of the directive should be limited in order to exclude those payment instruments that can only be used within a limited network of service providers or only to acquire a limited range of goods or services[454], although the most popular cryptocurrencies, such as Bitcoin and Ether, are able to reach a huge community of users and can be used to purchase a wide range of goods and services.

Nevertheless, we have seen that there is a particular class of cryptocurrencies called "stablecoins" (see paragraph 3.1.1 above) generally issued by governments, banks, or companies. Stablecoins are backed by an asset,

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[449] See https://bitcoin.org/en/faq#how-are-bitcoins-created.

[450] ECB Paper, *supra* note 132, 8.

[451] *Id.*, 8 (note 13).

[452] G. GASPARRI, *Timidi tentativi giuridici di messa a fuoco del Bitcoin: miraggio monetario crittoanarchico o soluzione tecnologica in cerca di un problema?*, Diritto dell'Informazione e dell'Informatica, No. 3 (2015), 422.

[453] Article 11(2) EMD2.

[454] G. GASPARRI, *supra* note 452, 422-423.

generally a commodity, a fiat currency, or a crypto-asset; this "asset-backed" feature aims at limiting the extreme volatility of the value of such coins. One example is Libra, the cryptocurrency developed by Facebook, which is linked to the value of other currencies. Given the presence of an issuer, stablecoins may in theory meet EMD2 definition of "e-money"; however, as we will see, MiCA proposal provides for a specific regulation of stablecoins meeting certain requirements and excludes from its scope all those crypto-assets qualifying as e-money under EMD2.

Although the vast majority of cryptocurrencies currently in use (including Bitcoin) seem to be excluded from the scope of EMD2, there may be in theory cases where, based on the specific characteristics of the cryptocurrency in question and where all the requirements listed above are met, a payment token may qualify as "e-money" and will therefore fall within the scope of EMD2[455]. In such cases, authorization as an electronic money institution is required to carry out activities involving electronic money (unless a limited network exemption applies)[456]. EBA points out that it is essential to carry out an assessment on a case-by-case basis, bearing in mind that different cryptocurrencies have different characteristics (which in some cases may change during the lifecycle of the asset), and that a "substance over form" approach should be adopted[457].

(iii) PSD2 regime

The Revised Payment Services Directive (PSD2)[458] regulates payment services and payment service providers across EU Member States. Indeed, the increase in mobile and Internet banking services and the failure of the original

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[455] EBA Report, *supra* note 131, 14.

[456] *Ibid.*

[457] *Id.*, 12.

[458] Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market.

2007 first Payment Services Directive (PSD I) to develop cross-border payment services encouraged the development of the revised Directive[459].

The directive aims at ensuring a high level of consumer protection in the use of payment services in the EU in order to face the rapid growth in the number of electronic and mobile payments and the emergence of new types of payment services in the market place [460] which may, in due course, disintermediate some of the traditional payment arrangements[461]. This will lead, according to the directive's objectives, to more choice and more transparency of payment services while strengthening the trust of consumers in a harmonized payments market[462].

The issue here is examining whether cryptocurrency transactions meet the "payment transaction" definition under PSD2. "Payment transaction" is defined as "an act, initiated by the payer or on his behalf or by the payee, of placing, transferring or withdrawing *funds*[463], irrespective of any underlying obligations between the payer and the payee"[464]. The definition, as evidenced, revolves around the meaning of "funds", defined by PSD2 as banknotes and coins, scriptural money, or electronic money as defined under EMD2[465].

As highlighted by EBA and confirmed by the ECB[466], cryptocurrencies are not banknotes, coins or scriptural money. For this reason, cryptocurrencies do

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[459] A. BRENER, *Payment Service Directive II and Its Implications*, in *Disrupting Finance – FinTech and Strategy in the 21st Century*, edited by T. LYNN, J. G. MOONEY, P. ROSATI, M. CUMMINS, Palgrave Pivot (2018), 103.

[460] Recital 3 PSD2.

[461] A. BRENER, *supra* note 459, 103.

[462] Recital 6 PSD2.

[463] Emphasis added.

[464] Article 4(5) PSD2.

[465] Article 4(25) PSD2.

[466] ECB Paper, *supra* note 132, 8.

not fall within PSD2 definition of "funds" unless they qualify as "electronic money" under EMD2[467].

Therefore, should a firm propose to carry out, using DLT, a "payment service" as listed in Annex I to PSD2[468] (such as the execution of payment transactions, including issuing payment instruments and/or acquiring payment transactions and money remittance) with a cryptocurrency that qualifies as "electronic money", such activity would fall within the scope of PSD2 by virtue of being "funds"[469]. As a consequence PSD2 obligations, including authorization, registration, and transparency requirements, shall apply.

Also with reference to PSD2 regime, EBA clarified that a case-by-case analysis should be carried out taking into account the different features of each cryptocurrency.

3.1.3 Final remarks

Reflecting on the analysis above, it appears that a significant portion of activities involving cryptocurrencies may not fall within the scope of current EU financial services law. As a consequence, activities involving such cryptocurrencies are not subject to a common scheme of regulation in the EU, this giving rise to potential issues, including those regarding consumer protection and market integrity[470]. Furthermore, as EBA points out, the fact that a cryptocurrency may fall within the scope of current EU financial services law does not necessarily mean that all risks are effectively mitigated[471].

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[467] EBA Report, *supra* note 131, 14.

[468] Article 4(3) PSD2 defines "payment service" as any business activity set out in Annex I to PSD2.

[469] EBA Report, *supra* note 131, 14.

[470] *Ibid.*

[471] *Ibid.*

For the above reasons, EBA Report advised the European Commission to carry out a cost/benefit analysis in order to assess whether EU-level action is appropriate and feasible at this stage to address the issues identified, taking into account of the potential application of DLT and crypto-assets beyond the financial sector[472]. As evidenced by the ECB, given the global dimension of the crypto-assets phenomenon, uncoordinated and/or inconsistent regulatory approaches undertaken at national level may prove ineffective and create incentives for regulatory arbitrage[473]. It is also fundamental that the ECB continues to monitor the crypto-assets phenomenon, particularly in relation to cryptocurrencies, in cooperation with other relevant authorities[474].

However, as we will see in paragraph 4 below when discussing MiCA, the European Commission in its proposal for a regulation of crypto-assets left many of the issues still open, particularly in relation to all cryptocurrencies not qualifying as stablecoins.

3.2 Commodities

For the sake of completeness, we should also wonder whether there are any categories of crypto-assets that may qualify as commodities under EU law. Although the general idea of a commodity (such as gold, crude oil, or gas) might be quite far from the image of a digital asset like a token, the question is not totally groundless if we consider that, on the other side of the ocean, the Commodity Futures Trading Commission (CFTC) in 2015 surprisingly qualified cryptocurrencies as commodities under US law[475].

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[472] *Id.*, 29.

[473] ECB Paper, *supra* note 132, 28.

[474] *Id.*, 31.

[475] *In re Coinflip, Inc*., CFTC No. 15-29, 2015 WL 5535736 (September 17, 2015). We will analyze this ruling from the CFTC in Chapter 4 when discussing the legal qualification of crypto-assets in the United States.

As a preliminary remark, it is worth specifying that we are not examining here the so-called "crypto-commodities", which are a mere representation of commodities on a blockchain by means of tradable tokens (such as crypto-gold); put it simply, it is just a tokenization of a physical asset. The issue at stake is, instead, whether tokens themselves may qualify as commodities under EU law.

It would be appropriate to start from the definition of "commodity" under EU law. "Commodity" within the MiFID II framework means "any goods of a fungible nature that are capable of being delivered, including metals and their ores and alloys, agricultural products, and energy such as electricity"[476]. When we look at the above definition, the first thing we notice is that the list of examples refers exclusively to physical goods, such as metals, agricultural products, and energy. Crypto-assets are, as we know, totally immaterial and not physically deliverable, as they only exist in a digital form; hence from a market perspective they should be excluded from the list of commodities.

We can find a confirmation of the above statement in Recital 26 of Regulation 1287/2006 on record-keeping obligations for investment firms, transaction reporting, market transparency, and admission of financial instruments to trading[477], which expressly states that "the concept of commodity should not include services or other items that are not goods, such as currencies or rights in real estate, or that are entirely intangible". Crypto-assets cannot exist outside a blockchain platform; it is technically impossible and would violate the

[476] Article 2(6) of the Commission Delegated Regulation (EU) 2017/565 of 25 April 2016 supplementing MiFID II. We can find the same definition under Article 2(1) of Commission Regulation (EC) No 1287/2006 of 10 August 2006.

[477] Commission Regulation (EC) No 1287/2006 of 10 August 2006 implementing Directive 2004/39/EC of the European Parliament and of the Council as regards record-keeping obligations for investment firms, transaction reporting, market transparency, admission of financial instruments to trading, and defined terms for the purposes of that Directive.

fundamental principle of distributed storage underlying DLT[478]. As a consequence, crypto-assets are entirely intangible; hence they cannot qualify as commodities under EU law.

One last argument supporting the above conclusions is that many crypto-assets, particularly cryptocurrencies, are based on the principle of traceability of transactions, meaning that each unit of a crypto-asset can be traced back to its creation[479]. Thus, each crypto-asset is unique and cannot be seen as totally fungible, as there might be a restriction on the tradability of a crypto-asset – for example if it was previously used in illicit transactions – impairing the fungibility of such crypto-asset in the network (while commodities of the same type – such as barrels of crude oil – are always interchangeable regardless of their trading history)[480].

Finally, classifying all or certain classes of crypto-assets as commodities would rule out the possibility to qualify them as securities, kicking off a trend of using crypto-assets instead of traditional securities in order to bypass EU securities regulation[481]. Other potential consequences would be, for instance, that crypto exchanges would be classified as "commodity exchanges", and derivatives relating to crypto-assets would qualify as "commodity derivatives", with all the subsequent regulatory implications.

In light of the above considerations, we do not see any reasonable grounds to qualify crypto-assets as commodities under EU law.

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[478] R. RIRSCH, S. TOMANEK, *Crypto-assets: Commodities under European financial markets law?*, Journal of Financial Compliance, Vol. 2, No. 3 (2019), 203.

[479] *Id.,* 203-204.

[480] *Id.,* 204-205.

[481] *Id.,* 200.

3.3 Negotiable (or credit) instruments

There is one last category of instruments that deserves our attention. We are referring to the so-called "negotiable instruments", also known as "credit instruments", widely used among several EU Member States such as Italy (*Titoli di Credito*)[482], France (*Effet de Commerce*)[483], Spain (*Título de Crédito*)[484], Germany (*Schuldscheine*), and United Kingdom[485]. Although there is no EU framework regulation of credit/negotiable instruments (and they are all regulated under national laws), we can still try to identify some features which are common to the majority of EU jurisdictions.

Before delving into the matter, it is worth specifying that certain types of negotiable instruments – like promissory notes – may also qualify as financial instruments under MiFID II if all the necessary requirements seen above are met[486] (for example, if the instrument is traded on capital markets or money markets). In such a case, the negotiable instrument will be subject, of course, to the EU regime for financial instruments that will be analyzed under Chapter 3 – together with the specific regulation applicable to such instrument under national law.

3.3.1 Definition and main features

A negotiable (or credit) instrument is a written document that guarantees the payment of a specific amount of money to a specified person (the payee) or to

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[482] See, *ex multis*, G. F. CAMPOBASSO, *Diritto Commerciale*, 4th ed., Vol. 3, UTET (2008), 245-326.

[483] See, *ex multis*, H. CAUSSE, *Les titres négociables, Essai sur le contrat négociable*, Litec (1993).

[484] See, *ex multis*, M. BROSETA PONT, F. MARTÍNEZ SANZ, *Tratado de derecho mercantil*, Tecnos (2018), 443.

[485] In the United Kingdom negotiable instruments are regulated under the Bills of Exchange Act 1882.

[486] See paragraph 2 above.

the bearer of the document[487]. In other words, it is a transferable, signed document that promises to pay the bearer or the person indicated therein a sum of money at a future date or on-demand. Each negotiable instrument is, indeed, based on (a) a pre-existing contractual relationship between the issuer and the first transferee, and (b) an agreement between them to incorporate the payment obligation arising from such relationship in the negotiable instrument[488]. The issuer of the negotiable instrument must be named or otherwise indicated on the document.

Negotiable instruments can be either payable to the bearer (*i.e.* to the person possessing the document) or to order (*i.e.* to the person indicated in the document). They differ from the so-called "nominative instruments", such as shares, as there is no record of the owners of the negotiable instrument, while each owner of nominative instruments is kept on file with the issuer.

The term "negotiable" refers to the fact that such instruments are transferable to third parties. Considering that the right to obtain the payment is incorporated in the document, once the instrument is transferred the holder in due course obtains a full legal title to the instrument. Most importantly, the transferee acquires a good title even when the transferor had a defective or no title.

Negotiable instruments circulate through physical delivery of the document where they are made payable to the bearer, and through physical

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[487] Some EU jurisdictions, like Italy, have a broader definition of negotiable/credit instruments. For example, in Italy are considered negotiable instruments (*Titoli di Credito*) not only those instruments with an underlying paying obligation (identified as negotiable instruments *stricto sensu*), but also documents representing goods (like bills of lading) and securities (such as shares and notes). Nonetheless, we will refer here only to negotiable instruments guaranteeing a payment obligation, which are common to the vast majority of EU jurisdictions.

[488] G. F. CAMPOBASSO, *supra* note 482, 251.

delivery and endorsement[489] where they are made payable to order. Given the fact that they are transferable and assignable, some negotiable instruments may be traded on a secondary market (however, in such a case they are likely to qualify as transferable securities or money-market instruments under MiFID II and be subject to the EU regulation of financial instruments).

Although their regulation may slightly differ from jurisdiction to jurisdiction, we can nonetheless summarize here the main principles governing the circulation of negotiable instruments.

(a) The autonomy principle. Whoever purchases the negotiable instrument – in compliance with the formalities required by applicable law – automatically becomes the holder of the underlying right, even if the seller was not the legitimate owner of the instrument (provided that the purchaser was in *bona fide*)[490]. Indeed, each transfer of the instrument is independent from all previous transfers: the holder of the instrument is entitled to receive the payment regardless of any valid claim under the original contractual relationship or any precedent transfer of the same instrument.

(b) The literal principle. The purchaser of the negotiable instrument becomes the holder of a right whose content is exclusively based on a literal interpretation of what is written on the instrument, regardless of any other claim between the parties[491].

(c) The legitimacy principle. The holder in due course of the negotiable instrument is entitled to exercise the underlying right without having to prove the transfer of ownership or the existence of such right. After all, the

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[489] An endorsement on a negotiable instrument has the effect of transferring all the rights represented by the instrument to another individual. It is generally made by signing the document on the back.

[490] G. F. CAMPOBASSO, *supra* note 482, 248.

[491] *Id.*, 248-249.

bona fide payer is released from the payment obligation even if the payee was not the legitimate holder of the right[492].

3.3.2 Common types of negotiable instruments

Although a vast number of negotiable instruments currently exist across the various EU Member States, we have identified three classes of negotiable instruments that are common, *mutatis mutandis*, to the various jurisdictions.

(1) Promissory Note. A promissory note is a written unconditional promise by one party (the note's issuer or maker) to pay another party (the note's payee) or the bearer of the instrument a certain sum of money, on demand or at a specified future date. A promissory note typically contains all the terms pertaining to the indebtedness, such as the principal amount, interest rate, maturity date, date and place of issuance, and issuer's signature.

(2) Bill of Exchange. A bill of exchange is a written unconditional order by a creditor to a debtor to pay a definite sum of money to himself, to a certain person, or to the bearer of the instrument, on demand or at a specified future date. A bill of exchange often involves three parties: the drawee (that pays the sum), the payee (that receives the sum), and the drawer (that obliges the drawee to pay the payee), although the payee may coincide with the drawer.

(3) Cheque. A cheque is a written unconditional document on a printed form that orders a bank to pay a specific amount of money from a person's account to the person in whose name the cheque has been issued. Cheques are order instruments, therefore are not payable to the bearer (*i.e.* they shall always indicate the name of the payee).

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[492] *Id.*, 249.

3.3.3 Crypto-assets as negotiable instruments

We will now examine whether one or more classes of crypto-assets may qualify, under certain circumstances, as negotiable instruments. Our analysis will be based on the following elements:

(a) the existence of an underlying payment obligation;
(b) the presence of a counterparty;
(c) the compliance with the main principles governing the circulation of negotiable instruments; and
(d) the comparability of crypto-assets to the most common types of negotiable instruments seen above.

As a preliminary remark, valid for all classes of crypto-assets, it is worth recalling that negotiable instruments are generally in written form and signed, and are traded by means of physical delivery. This would obviously exclude all crypto-assets, which are totally virtual and are not represented by any physical document. However, some EU Member States are recently introducing, or discussing the introduction of[493], a regulation of digital forms of negotiable instruments (such as digital promissory notes), and we are of the opinion that many other jurisdictions will follow this trend. In Germany, for example, in a pilot project four banks have collaborated to create a blockchain platform for promissory note loans, digitalizing the entire process from trade confirmation to document generation[494]. Therefore, the non-physical form of crypto-assets cannot

[493] One example is Italy, where the 2020 Budget Law (*Legge di Bilancio*) provided for the introduction of a digital form of promissory note (*Cambiale Digitale*) for a limited number of payment transactions. The provision was, at the end, excluded from the 2020 Budget Law as not pertinent to budgetary matters, and will be discussed again separately.

[494] See T. SIMMS, *Four Banks Successfully Test New Blockchain Platform for Processing Promissory Note Loans*, Cointelegraph (May 22, 2019), available at: https://cointelegraph.com/news/four-banks-successfully-test-new-blockchain-platform-for-processing-promissory-note-loans.

exclude *a priori* their qualification as negotiable instruments if the competent jurisdiction admits digital forms of certain negotiable instruments and all the other necessary conditions are met.

After all, the rationale behind the use of negotiable instruments is to make the transfer of credits easier. In fact, negotiable instruments circulate in the same way of goods: through physical delivery, the simplest way to make transfers. The "trick" is to consider the document as the object of the transfer, while it is instead the underlying right that is transferred[495]. As a consequence, credit transfers can be made through a simple physical delivery of the instrument by its bearer and, in case of instruments payable to order, the bearer will just need to endorse the document with a signature on the back.

In light of the above considerations, we believe that, *a fortiori*, jurisdictions should be favorable to a tokenization of negotiable instruments in order to make credit transfers even easier: physical delivery would be, indeed, replaced by a "click" to transfer the token on a blockchain platform, and endorsement, when needed, may occur through the use of cryptographic keys. All, of course, in compliance with the national rules currently regulating negotiable instruments.

We can now move to the separate analysis of the three classes of crypto-assets in order to find some similarities with negotiable instruments.

(i) Payment tokens

Given the complexity of payment tokens (*i.e.* cryptocurrencies), we deem it appropriate to start the analysis by identifying a negotiable instrument that shows similarities with such tokens and focus our attention thereon. The only negotiable instrument that may be, in theory, compared to payment tokens is the promissory note – more likely in a form payable to the bearer, considering the

[495] G. F. CAMPOBASSO, *supra* note 482, 248.

encrypted identity of the holder in crypto transactions[496]. As we have seen above, a promissory note is a written unconditional promise by one party (the issuer) to pay another party (the payee) or the bearer of the instrument.

We will therefore focus our attention here on the specific category of promissory notes. We will, on the other hand, exclude from our analysis cheques, as they always show the name of the payee, and bills of exchange, as their three-party structure is not suitable for the case at stake.

The most relevant issue with payment tokens is that, when talking about standard cryptocurrencies (such as Bitcoin), there is no issuer of the instrument. Cryptocurrencies are in fact generated by the blockchain on the basis of algorithms and are traded using distributed ledger technology. As a result, holders of cryptocurrencies cannot claim any rights *vis-à-vis* any counterparty. This lack of a counterparty clashes with the nature of negotiable instruments, where there are always at least two opposite contractual parties.

Furthermore, technically speaking, there is no underlying obligation to pay a sum of money, as cryptocurrencies themselves are used as money (*i.e.* as a medium of exchange). For the purpose of our analysis, we can push a bit the boundaries and consider as payment obligation the right of the holder of cryptocurrencies to claim the correspondent value in fiat currencies (for example, for a holder of Bitcoins, to obtain their conversion in EUR or USD).

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[496] We might wonder whether we should compare cryptocurrencies to promissory notes payable to the bearer or to order. Considering that the mere possession of a token in a wallet is sufficient to exercise the rights arising from such token, and the identity of the payee is always hidden, we may affirm that cryptocurrencies are more similar to instruments payable to the bearer. It may be argued, however, that each unit of cryptocurrencies can always be traced back to the holder of the right, even if the identity is encrypted, and that the transfer of cryptocurrencies always requires the possession of a private key (that only the legitimate owner of tokens knows). In this respect, cryptocurrencies should be considered more similar to instruments payable to order, as there is always an identified payee behind the veil of encryption that changes every time each token is "endorsed" (*i.e.* transferred) to another individual.

As concerns the absence of an issuer, hence of a counterparty, we may try to consider the blockchain platform as the issuer of tokens. In this case, however, we should assume that any bearer of cryptocurrencies would be able to redeem tokens in exchange of fiat currency; put simply, that any token-holder can obtain at any time (or when due) an amount of money from the network corresponding to the value of the tokens in fiat currencies (just as the bearer or payee of a promissory note).

We know, however, that this is not the case with cryptocurrencies. Indeed, in the event the holder of cryptocurrencies wants to receive the due amount of money in fiat currencies, the only option would be to sell the tokens in a secondary market (in this case, in a crypto-to-fiat-currency exchange).

Hence, even a broad interpretation of "payment obligation" leads us to the conclusion that cryptocurrencies lack an underlying obligation to pay a definite sum of money, which is one of the fundamental features of negotiable instruments.

Nonetheless, we have seen above that there is a particular class of cryptocurrencies, called "stablecoins", generally issued by governments, banks, or corporations and whose value is linked to an external asset. In this case, we actually have an entity that can be considered as comparable to the issuer of a promissory note.

However, even when belonging to the stablecoins category, we do not see any reason why we should consider cryptocurrencies as negotiable instruments. First, even if we identify an issuer, there is still no underlying payment obligation, but only the possibility to convert cryptocurrencies in their equivalent value in fiat currencies by selling them in secondary markets. Second, cryptocurrencies do not show any similarities with any of the most common negotiable instruments. Finally, MiCA proposal provides for a specific regime for those cryptocurrencies qualifying as stablecoins, therefore excluding the application of any other regulation.

We can therefore conclude that payment tokens, even in the form of stablecoins, are unlikely to qualify as negotiable instruments.

(ii) Investment tokens

Broadly speaking, investment tokens generally have an underlying payment obligation, consisting for example in the payment of dividends (if tokens are comparable to shares) or principal and interests accrued (when comparable to bonds). Investment tokens are indeed characterized by a clear investment component resulting in an expectation of profits. This investment component is also common to the vast majority of negotiable instruments: promissory notes, for instance, have an interest rate[497], and the holder is promised a fixed amount of periodic income.

For the same reasons explained above in relation to payment tokens, we will focus our attention here on the specific category of promissory notes – the only one comparable to investment tokens – and leave cheques and bills of exchange aside.

As opposed to payment tokens, investment tokens generally have a counterparty which may be equivalent to the issuer in negotiable instruments. Such counterparty could be, for instance, the issuer of tokens in the context of an ICO, which is liable *vis-à-vis* token-holders for the payment obligation underlying such tokens.

Therefore, having seen that investment tokens have an underlying payment obligation, contemplate the presence of an issuer-counterparty, and are comparable to the negotiable instruments' category of promissory notes, we need to discuss the last element of the above list: whether investment tokens can

[497] Although interest-free promissory notes are also permitted.

functionally comply with the principles governing the circulation of negotiable instruments.

In this respect, we are of the opinion that all three principles described above are met.

First, as concerns the autonomy principle, we can easily affirm that token-holders are entitled to exercise the underlying rights regardless of any claim arising from the previous transfers of from the initial contractual relationship, even if they stole the tokens (for example by hacking the legitimate owner's private key). Indeed, the mere possession of the private key makes anyone the legitimate holder of the rights underlying the token. And given the anonymity of transactions, potential purchasers will always be considered as being in *bona fide*, as they only have to rely on the fact that the seller is in possession of the private key (otherwise he/she would not be able to authorize the transaction). It is true that the blockchain network may detect and block the member who hacked and stole the private key, therefore returning the tokens to the legitimate owner; but this can also happen, of course, with physical negotiable instruments in the event the non-legitimate owner is caught before transferring the instrument to a *bona fide* purchaser.

Second, in relation to the literal principle, tokens provide their holders only with the rights codified therein. Of course we do not have here a literal description of the underlying right, which is instead codified in an algorithm. We can however consider the code as equivalent to the literal description of the rights on the physical instrument, as they are both certain and non-modifiable.

Third, we can also affirm that the legitimacy principle is met, as token-holders are entitled to exercise the underlying right without having to prove the transfer of ownership or the existence of such right.

We have seen that investment tokens have many characteristics in common with negotiable instruments, including the way they circulate. Hence

investment tokens may in theory qualify as negotiable instruments, together with hybrid forms with a significant investment component, if they meet all the requirements under the applicable national law (first of all, if such law permits digital forms of negotiable instruments).

Of course, in order to identify the most appropriate applicable regulation, a case-by-case analysis would always be necessary in order to check whether the tokens under examination show more similarities with negotiable instruments or, instead, with other categories of instruments such as shares and bonds. For instance, in the event the issuer keeps a ledger with a record of all the owners of the issued crypto-assets, the tokens would be more likely to qualify as shares and therefore could not circulate based on the principles governing the circulation of negotiable instruments.

(iii) Utility tokens

As we already know, utility tokens provide the holder with some utility or consumption rights, such as the ability to access or buy some products or services. Hence they do not give rise to any payment obligation.

Considering that one of the main features of negotiable instruments is the existence of an underlying payment obligation, we can exclude utility tokens without any need of further analysis[498].

[498] Utility tokens may qualify as negotiable instruments if we give the latter a broader reach in order to include also other categories of obligation (and not only payment obligations). For instance, we may imagine a negotiable instrument providing the holder with the right to obtain a predetermined service, such as the delivery of goods or the use of certain facilities, and consider then a utility token with the same function. We have, however, limited our discussion to the most common negotiable instruments, *i.e.* the ones with an underlying payment obligation; we therefore exclude utility tokens from the scope of this analysis.

CHAPTER 3

A POTENTIAL EU REGULATORY FRAMEWORK FOR THE OFFERING AND EXCHANGE OF CRYPTO-ASSETS

Introduction

In this chapter we will identify a EU regulatory framework for the offering and exchange of crypto-assets in light of the analysis on their legal qualification carried out in the previous chapter. Particular attention will be given to the regulation of Initial Coin Offerings (ICOs) and crypto-exchanges.

We will first assess the state of art of the EU regulatory framework *de iure condito*, with a focus on crypto-assets qualifying as financial instruments under MiFID II and the EU financial legislation applicable thereto. We will then move to a *de iure condendo* approach and discuss a potential future regulation of crypto-assets in the EU in light of the recent MiCA proposal.

From a EU law standpoint, we have seen in the previous chapter that crypto-assets may qualify, under certain circumstances, as:

(1) Financial instruments, and therefore subject to EU securities regulation (*e.g.* MiFID II/MiFIR, MAR, Prospectus Regulation). We have subsumed under this category pure investment tokens and all hybrid investment tokens with a significant investment component.

(2) Payment instruments, hence subject to AML regulation and, if certain requirements are met, to EU financial services regulation (most importantly EMD2 and PSD2). We have seen that pure payment tokens and hybrid tokens used exclusively as a means of payment fall within this category. As we will see, a special category of payment instruments, *i.e.* stablecoins, will be subject to MiCA regulation when it will come into force.

(3) No specific categorization. This is the case of pure utility tokens, that do not match any of the analyzed instruments and seem to have a structure more similar to contracts. Utility tokens may, however, qualify as financial instruments when they show a significant investment component, or as payment instruments in case they are used exclusively as a means of payment. We will see, however, that utility tokens will be subject to a specific regulation under MiCA when it will come into force.

Considering that the core focus of this dissertation is EU securities regulation, we will concentrate our regulatory analysis here on those crypto-assets qualifying as financial instruments under MiFID II. As concerns other classes of instruments, we have already briefly examined the (potential) regulation of those crypto-assets qualifying as payment instruments in the previous chapter[1], and we do not deem it appropriate delving further into the matter. We have also seen that some investment tokens may qualify, if the necessary requirements are met, as negotiable (or credit) instruments. However, given the absence of a EU uniform regime for such instruments, we will not discuss here their regulation.

In light of the above considerations, this chapter will be structured as follows.

In the first section we will provide a general overview of Initial Coin Offerings (ICOs) in order to better understand the underlying issues that we will analyze in the following paragraphs when discussing the application of the EU financial regulatory framework to crypto-assets.

In the second section we will examine the EU regulatory framework applicable to crypto-assets qualifying as financial instruments under MiFID II and the issues arising from the application of EU financial legislation to the offering and exchange of tokens. Although the EU framework applicable to

[1] See Chapter 2, paragraph 3.1.

financial instruments is wide and covers many areas, we have decided to focus our attention here only on the following pieces of EU legislation, that we consider the most relevant ones for the purposes of our analysis: (i) Prospectus Regulation (for those crypto-assets qualifying as transferable securities), (ii) MiFID II/MiFIR, and (iii) MAR[2]. We will not further discuss the regulation of crypto-derivatives, as we deem it sufficient to limit our analysis to the relevant EMIR and MiFID II/MiFIR provisions already examined in the previous chapter[3]. The same holds true for the regulation of collective investment undertakings[4] (UCITS Directive and AIFMD).

Finally, in the third section we will discuss the potential future evolution of the regulation of crypto-assets in the EU. We will first analyze the issues that a non-uniform EU legal framework for crypto-assets may pose, together with a brief overview of the national approaches to the regulation of crypto-assets of some EU Member States – from the most crypto-friendly countries (Malta, Estonia) to the jurisdictions that showed a more prudential attitude (UK, France, Italy, Germany). We will then move to the recent MiCA proposal of the European Commission: after examining in great details the most relevant provisions, we will discuss the several issues that the proposed regulation leaves open.

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[2] We will therefore exclude from our analysis all the other pieces of EU legislation applicable to financial instrument, including: the Transparency Directive (Directive 2013/50/EU), Short Selling Regulation (Regulation (EU) No 236/2012), the Settlement Finality Directive (Directive 2009/44/EC), the Central Securities Depositories Regulation (Regulation (EU) No 909/2014), the Directive on Investor-compensation Schemes (Directive 97/9/EC).

[3] See Chapter 2, paragraph 2.4.

[4] See Chapter 2, paragraph 2.3.

1. An overview of Initial Coin Offerings (ICOs)

1.1 Definition and main features

Initial Coin Offerings (ICOs) or token sales[5] are a mechanism to raise external funding by issuing tokens or coins [6] through smart contracts [7] programmed on a blockchain[8]. The owner of the token has a private key allowing the transfer of such token to someone else on the blockchain platform[9]. ICOs have recently emerged as an alternative mechanism for financing entrepreneurial ventures, and between 2017 and 2019 they raised approximately $7 billion (compared to $1 billion of traditional venture capital) [10].

The main innovation of ICOs is that they allow ventures to raise funding at close-to-zero transaction costs, while providing investors with anytime-exit opportunities thanks to the fact that tokens are easily tradable within the issuer's

[5] Although ICO and token sale (or offering) are often used interchangeably, the term ICO may be misleading, as most token sales fix the maximum token supply as immutable terms in the underlying smart contract. Therefore, there is technically no "initial" and "subsequent" offer, but just the one. See P. P. MOMTAZ, *Entrepreneurial Finance and Moral Hazard: Evidence from Token Offerings*, Journal of Business Venturing (March 2020), 2 (note 1), available at: http://dx.doi.org/10.2139/ssrn.3343912.

[6] The technical difference between coins and tokens is that coins are created on their own blockchain, while tokens are built upon existing blockchains.

[7] Smart contracts are computer protocols programmed on a blockchain enabling transactions without the need of an intermediary. For a general overview of smart contracts, see Chapter 1, paragraph 1.7.2.

[8] One of the first successful ICOs is the DAO project already discussed above, that in 2016 raised approximately $150 million (see Chapter 2, paragraph 2.3.3).

[9] P. P. MOMTAZ, *Initial Coin Offerings*, PLOS ONE 15(5) (May 21, 2020), 5, available at: http://dx.doi.org/10.2139/ssrn.3166709.

[10] C. CATALINI, J. S. GANS, *Initial Coin Offerings and the Value of Crypto Tokens*, MIT Sloan Research Paper No. 5347-18, Rotman School of Management Working Paper No. 3137213 (March 5, 2019), 2, available at: http://dx.doi.org/10.2139/ssrn.3137213.

ecosystem[11]. In addition, ICOs provide immediate deep liquidity, thus offering contributors the ability to trade their investments after token distribution[12].

ICOs show many similarities with traditional equity financing such as IPOs, venture capital, and crowdfunding: they all entail the issuance of instruments generally offered to retail investors whose value depends on the success of a business venture[13]. However, they differ in several ways.

First, and most importantly, ICOs rely on a totally decentralized system based on peer-to-peer mechanisms that, while resembling in certain aspects crowdfunding, it differs from the latter for the complete absence of any third party intermediary, as ICO investors are free to fund any project matching their investment needs without any need of intermediation[14].

Second, an ICO allocates tokens instead of shares or other equity instruments, which typically do not represent ownership in the issuer, but rather provide access to a set of services in the issuer's ecosystem and can be traded on secondary markets[15]. Indeed, while traditional capital markets require business owners to contractually divest themselves of various rights over the company's assets, in ICOs economic ownership and legal control are left unencumbered[16].

Third, while in traditional equity financing a venture issues shares that are claims on the discounted sum of future profits of such venture, in ICOs claims

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[11] P. P. MOMTAZ, *supra* note 5, 2.

[12] D. BOREIKO, G. FERRARINI, P. GIUDICI, *Blockchain Startups and Prospectus Regulation*, European Business Organization Law Review, Volume 20, Issue 4 (2019), 675.

[13] S. COHNEY, D. HOFFMAN, J. SKLAROFF, D. WISHNICK, *Coin-operated capitalism*, Columbia Law Review, Volume 119, No. 3 (April 2019), 600.

[14] G. GITTI, *Emissione e circolazione di criptoattività tra tipicità e atipicità nei nuovi mercati finanziari*, Banca borsa e titoli di credito, n. 1 (2020), 18.

[15] P. MARTINO, C. BELLAVITIS, C. M. DASILVA, *Blockchain and Initial Coin Offerings (ICOs): a new way of crowdfunding*, SSRN (July 3, 2019), 7, available at: http://dx.doi.org/10.2139/ssrn.3414238.

[16] S. COHNEY, D. HOFFMAN, J. SKLAROFF, D. WISHNICK, *supra* note 13, 609.

are not based on future profits, but rather on the flow of future revenues[17]. Indeed, it is the equilibrium between token demand, which is driven by the present value of expected future use and the exchange rate of tokens against fiat currencies, and token supply, determined by the token's monetary policy[18]. The consequence is that issued tokens can in fact have any value, considering that the venture controls both their technological evolution and their monetary policy[19].

Fourth, ICOs can be employed during all funding stages, while crowdfunding is used to fund early stages, venture capital covers all stages before the firm goes public, and IPOs are used to acquire high volumes of capital[20]. Moreover, while investors only obtain stocks or equity-like instruments in traditional equity financing, in ICOs they can receive a large variety of products, including utility tokens, payment tokens, and investment tokens (and hybrid forms thereof), and ICOs can be employed to raise any volume of capital[21].

Another significant difference is the delocalization of capital raising for small and medium enterprises (SMEs). Looking at the various traditional funding mechanisms, such as IPOs, bonds, venture capital, or bank loans, we observe that they are localized to a particular geographical area, be it national or some union boundaries, defined by common legislation, cultural and linguistic similarities or common past[22]. The advent of ICOs revolutionized and truly internationalized the funding process for SMEs by allowing anybody anywhere

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[17] C. CATALINI, J. S. GANS, *supra* note 10, 3.

[18] S. COHNEY, D. HOFFMAN, J. SKLAROFF, D. WISHNICK, *supra* note 13, 600.

[19] C. CATALINI, J. S. GANS, *supra* note 10, 3.

[20] P. P. MOMTAZ, *supra* note 9, 6.

[21] *Ibid.*

[22] D. BOREIKO, N. SAHDEV, *To ICO or not to ICO – Empirical analysis of Initial Coin Offerings and Token Sales*, SSRN Electronic Journal (January 2018), available at: http://dx.doi.org/10.2139/ssrn.3209180.

in the world to invest in a startup formed by the team members residing in several countries[23].

Furthermore, ICOs differ from traditional finance in terms of where the issued instruments are traded. Indeed, while traditional financial instruments are traded on established secondary markets, tokens trade on hundreds of crypto-exchanges spread across many jurisdictions and subject to light-to-nonexistent regulation[24].

Finally, and most importantly, ICOs differ from all the other traditional forms of finance for the different level of intermediation. While traditional capital markets transactions are heavily mediated by laws, regulations, contracts, and social norms, ICOs replace those mediators by embedding controls within the smart contracts, hence expanding the role played by computer code in governing transactional relationships[25]. Indeed, the use of smart contracts on a blockchain allows a total automation of the process, giving issuers the opportunity to reach investors directly with a perfect disintermediation[26]. Furthermore, social media (such as ICO incubators' platforms) have replaced the traditional underwriters as marketing intermediaries to disseminate projects' information to potential investors[27]. Indeed, ICOs rely on a totally decentralized system based on peer-to-peer mechanisms that, while resembling crowdfunding, it differs from the latter for the complete absence of any third party intermediary, as ICO investors are free to fund any project matching their investment needs without any need of intermediation.

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[23] *Ibid.*

[24] S. COHNEY, D. HOFFMAN, J. SKLAROFF, D. WISHNICK, *supra* note 13, 609.

[25] *Id.*, 601-602.

[26] P. P. MOMTAZ, *supra* note 5, 4.

[27] D. BOREIKO, G. FERRARINI, P. GIUDICI, *supra* note 12, 674.

1.2 The White Paper

Another fundamental difference with traditional capital raising (in particular IPOs) is the documentation required. While traditional issuances are generally subject to strict disclosure and registration requirements imposed by the applicable securities regulation, in ICOs issuers typically publish a simple document (the "white paper") that contains general information on the tokens such as IT protocols, the adopted blockchain, token supply, pricing and distribution mechanism, and details on the project[28].

Authoritative copies of white papers are typically available on promoters' website and are provided through listing services (like coinschedule.com). This makes white papers a transparent form of investor information but, on the other hand, bypasses any external control from regulators before they are published[29].

The legal qualification of the white paper is still unclear. Sometimes they resemble contractual terms and conditions of sale, and in this case they provide information about products and function as contractual warranties[30]. In other cases they speak in future tense and offer details about promises and aspirations of the project[31]. However, in the absence of clearly communicated and defined offers, it is unlikely that buying a token in reliance of the white paper constitutes a traditional contract subject to consumer protection laws[32].

Given the consolidated market practice of publishing a white paper before ICOs, many regulators and lawmakers are showing more and more interest in this new form of informative document that, if properly regulated, may even take over the

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[28] S. ADHAMI, G. GIUDICI, S. MARTINAZZI, *Why do businesses go crypto? An empirical analysis of Initial Coin Offerings*, Journal of Economics and Business, Volume 100 (November-December 2018), 64-75.

[29] S. COHNEY, D. HOFFMAN, J. SKLAROFF, D. WISHNICK, *supra* note 13, 608.

[30] *Id.*, 609.

[31] *Ibid.*

[32] *Ibid.*

function of the traditional prospectus in the context of token offerings. For instance, we will see in paragraph 3.3 below that the recent MiCA regulation proposal of the European Commission transposes this market practice of publishing a white paper into an obligation for crypto-assets issuers subject to stringent form and content requirements.

1.3 The ICO Process

Before starting the ICO project, issuers should go through a number of fundamental strategic decisions, including: (i) the fraction of total token supply that will be sold, (ii) the pricing mechanism (*e.g.* fixed price or Dutch auction), (iii) the distribution method and whether to hold a pre-sale, (iv) lock-ups, and (v) the rights to assign to tokens[33].

Many projects decide to hold a pre-sale (a "pre-ICO") with a lower desired fundraising amount and incentives for early purchasers through discounted prices. There are many reasons why issuers may choose to conduct a pre-ICO, from covering the costs incurred for promotional ads and roadshow to eliciting information from potential investors about the fair price of the tokens[34]. The impact of a pre-sale on the success of the ICO is always uncertain: while the presence of sophisticated investors in a pre-sale may be interpreted as a good signal by potential investors, hence contributing to the success of the ICO, on the other hand it may show that the issuer is unsecure about the ICO and needs to offer high bonuses to attract sophisticated investors[35]. Furthermore, it is not uncommon that tokens issued in a pre-ICO can be then exchanged with the different tokens issued in the context of the main ICO, which often incorporate

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[33] P. MARTINO, C. BELLAVITIS, C. M. DASILVA, *supra* note 15, 8.

[34] P. P. MOMTAZ, *supra* note 9, 9.

[35] M. OFIR, I. SADEH, *ICO vs IPO: Empirical Findings, Information Asymmetry and the Appropriate Regulatory Framework*, 53 Vand. J. Transnat'l L. 525 (2020), 32-33.

different rights as compared to the pre-issued ones; in this case pre-sale tokens may even be considered as bearing a right of option on the "main" ICO tokens exercisable against promoters[36].

As concerns the ICO process, there is no defined rule on the steps to follow when launching a token sale, although there is a movement towards a standardization in the ICO market[37]. This is the reason why, even though other solutions exist, the majority of token issuers choose the Ethereum blockchain in order to issue ERC-20 standard tokens[38], which are compatible with great part of the existing crypto-wallets and crypto-exchanges and can therefore be easily traded[39]. Indeed, a crucial part of every ICO is the listing of tokens on a crypto-exchange following the end of the token sale, as it provides liquidity that in turn attracts new investors and paves the way for the use of tokens as currencies[40]. The death of a project is in fact the delisting of tokens from any crypto-exchange[41].

Notwithstanding the lack of a standard procedure for ICOs, if we take a clearly defined ICO project we can generally identify three phases: (i) prior to, (ii) during, and (iii) after the contribution period – but, in any case, before the launch of the funded project[42].

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[36] G. GITTI, *supra* note 14, 22.

[37] P. P. MOMTAZ, *supra* note 9, 10.

[38] ERC-20 is one of the most popular tokens on the Ethereum blockchain, and is widely considered as the technical standard for tokens; it is used for all smart contracts on the Ethereum blockchain for token implementation and provides a list of rules that all Ethereum-based tokens must follow.

[39] A. COLLOMB, P. DE FILIPPI, K. SOK, *From IPOs to ICOs: The Impact of Blockchain Technology on Financial Regulation*, SSRN Electronic Journal (May 26, 2018), 10, available at: http://dx.doi.org/10.2139/ssrn.3185347.

[40] P. P. MOMTAZ, *supra* note 9, 10.

[41] *Id.,* 11.

[42] A. COLLOMB, P. DE FILIPPI, K. SOK, *supra* note 39, 10.

During the pre-contribution period, potential investors usually conduct a due diligence on the tokens and assess all the various risks. For ICOs restricted to accredited investors, potential buyers get the accreditation through Know Your Customer (KYC) procedures[43]. On the other side, the issuer starts advertising and promoting the ICO online and in conferences/meetings with potential investors.

The contribution period may last from a few seconds to a couple weeks, and all contribution rules are publicly announced prior to the ICO launch. Such rules may provide, for instance, for a cap that determines the end of the auction when reached, or for a floor that shall be attained over the contribution period (otherwise the ICO may be cancelled)[44]. Contributions are usually made by investors in cryptocurrencies (or in fiat currencies where accepted) through dedicated websites managed by the issuer, although specialized firms start to emerge as new intermediaries mostly providing technical assistance and rating services[45].

Once the contribution period is over, funds are released to fundraisers[46], that in turn pursue the development of their project[47]. Tokens start being traded on secondary markets, and it is not uncommon to experience high volatility during the first trading period. In order to avoid such volatility, a lock-in period may apply, thus preventing holders to transfer their tokens for a certain period after the ICO[48]. In some cases we can also assist to the listing of crypto-derivatives relating to the issued tokens.

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[43] *Id.,* 11.

[44] *Id.,* 12.

[45] *Ibid.*

[46] Before the end of the contribution period, funds are generally kept in escrow by a dedicated smart contract.

[47] A. COLLOMB, P. DE FILIPPI, K. SOK, *supra* note 39, 12.

[48] *Ibid.*

1.4 Advantages and potential risks of ICOs

Given their novelty in the finance landscape, ICOs may be a great challenge for both business ventures and investors in terms of advantages and potential risks.

(i) Advantages

ICOs may, first, provide several advantages to new ventures willing to raising capital.

The first and most obvious advantage is a significant reduction in the costs for the fundraising, mainly due to two reasons. First, the absence of any intermediaries in the crowdfunding process. Whilst in traditional finance fundraising in hosted and managed by third-party providers (platforms and financial institutions), ICOs are run on a blockchain through a decentralized peer-to-peer (P2P) system, where transactions are verified by the network with a consensus mechanism[49], thus eliminating any need of a middleman[50]. Second, the fact that ICO issuers can easily bypass securities regulation makes any legal, accounting, or financial advisor unnecessary, as ventures do not have to comply with any filing and registration requirement. The advisory fees, together with the registration fees, may be in fact a heavy burden for small and medium enterprises, considering that the average costs for an IPO can be over $1 million[51].

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[49] For a description of the functioning of the consensus mechanism, see Chapter 1, paragraphs 1.5 and 1.6.

[50] P. MARTINO, C. BELLAVITIS, C. M. DASILVA, *supra* note 15, 10.

[51] See C. CHRISTENSEN, *The Costs of Going Public*, IPO Hub (March 27, 2018), available at: https://www.ipohub.org/costs-going-public/.

Another advantage is the transnational nature of ICOs, which are run on blockchain platforms that, as we know, do not have any central entity (given their decentralized nature) and can be spread across many jurisdictions. This allows emerging ventures to expand their funding opportunities worldwide and to reach a larger pool of investors[52].

In addition, the lack of any dedicated regulatory regime gives ventures great flexibility in their fundraising process, as they can raise large amounts of funds with minimal efforts and at close-to-zero costs, given the absence of any costs for compliance and intermediaries[53]. Furthermore, this technical flexibility allows ICOs to align the incentives between developers and investors without the need to give any party more control over the platform[54]. In addition, tokens may entitle holders to exercise the underlying rights in different ways and times, depending on the purpose pursued by promoters[55]. Indeed, such rights can be made exercisable immediately after the purchase of tokens or following a certain period of time, depending on the wishes of promoters to keep investors in the project for a short period or, instead, in the long run[56].

On the other side, ICOs may also be a great opportunity for investors and provide them with many significant advantages compared to traditional finance. Investors may in fact rely on a more democratic capital markets structure where they can be free to invest any amount of money in any business enterprise, anywhere, without any financial entry barriers[57]. Moreover, investors may receive a double economic benefit from the purchase of tokens: indeed, in addition to the profits generated by the venture's success, they can also speculate

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[52] P. MARTINO, C. BELLAVITIS, C. M. DASILVA, *supra* note 15, 9-10.

[53] *Id.,* 10.

[54] P. P. MOMTAZ, *supra* note 9, 13.

[55] G. GITTI, *supra* note 14, 21.

[56] *Ibid.*

[57] P. MARTINO, C. BELLAVITIS, C. M. DASILVA, *supra* note 15, 11.

on the appreciation in value of the tokens when traded on secondary markets[58]. Finally, investors can rely on rapid exit options thanks to the available liquidity that comes along with the listing of tokens on crypto-exchanges[59].

(ii) Potential risks

There are many potential risks that should not be underestimated when investing in ICOs.

The most common risk in ICOs is the high probability of scams due to the absence of specific regulation and the consequent lack of investors' protection. In addition to the fraudulent behavior of issuers, scams are also made easier by the inability of many blockchain-based start-ups to properly secure funding in ICOs. In case for example the system is hacked and the funds stolen, it is unlikely that investors will be able to recover their sums judicially, considering both the anonymity of blockchain and the problems in identifying the competent jurisdiction (given the cross-border nature of ICOs)[60].

Another potential risk is the extreme volatility of crypto-markets: investors should always be ready to lose all the invested capital, and the lack of investors' protection rules will make it impossible for them to sue the issuer and ask for damages compensation.

Perhaps one of the most significant risks from a regulatory perspective is the high degree of information asymmetry. Although information asymmetries are a natural consequence of capital markets and therefore also exist in the context of traditional finance (such as IPOs, venture capital, and crowdfunding), they however reach intolerably high levels in ICOs. This is manly due to the following factors.

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[58] *Ibid.*

[59] P. P. MOMTAZ, *supra* note 9, 12.

[60] *Id.*, 13.

(a) First, the absence of regulatory disclosure requirements, such as the publication of a prospectus. In ICOs investors can only rely on a very limited set of information voluntarily disclosed by issuers. Such disclosure generally includes a white paper – drafted by the promoters themselves – that most of the times avoid evidencing the most relevant risks, and the source code of the project[61]. In this respect it is interesting to mention that an empirical study showed that the ICO success rate is unaffected by the availability of a white paper, but it is strongly and positively affected by the disclosure of the source code of the project[62]. In fact, while investors give little weight to white papers given their lack of certification or auditing, sets of source code are valued a lot by funders as a tangible proof of the quality of the project[63]. A publicly accessible source code may in fact allow investors with technical expertise to pre-assess the technical value of the project, rely on thousands of independent programmers testing and fixing bugs, and feel a sense of ownership and democratization[64].

(b) Second, average investors' lack of technical knowledge required to assess the quality of the project. Although, as seen above, the disclosure of a source code may increase the trust of expert investors and contribute to the ICO success, average investors are generally insensitive to discrepancies between the white paper and the source code of the project, meaning that they do not have the technical expertise required to properly understand a code on the blockchain[65].

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[61] Source codes are usually disclosed through GitHub repositories. GitHub is a web-based hosting service used for computer coding in open source projects.

[62] S. ADHAMI, G. GIUDICI, S. MARTINAZZI, *supra* note 28, 22.

[63] *Id.*, 10.

[64] *Ibid.*

[65] M. OFIR, I. SADEH, *supra* note 35, 44-45.

(c) Third, given that most ICOs are launched at a very early stage, the general lack of information on the venture's financial history[66]. For instance, investors will not be able to access any financial statement of the issuer or check its past revenues or liabilities.

(d) Fourth, the absence of any reliable intermediaries, such as credit institutions or rating agencies, that provide an authoritative opinion on the quality of the project. In order to fill in this gap, a number of online intermediaries started to emerge with the purpose of offering a third-party certification of the ICO and predict the success of such ICO[67]. It is unclear, however, whether those intermediaries are totally independent, particularly if we consider that they accept payments from token issuers for more prominent placements on their websites[68].

The immediate consequence of information asymmetry and the absence of reliable intermediaries is that ICO issuers have an economic incentive to exaggerate information disclosed in the white paper[69]. Indeed, exaggerating entrepreneurs raise more funds in less time, meaning that investors do not see through this practice initially. However, when investors realize that the initial price does not reflect the actual value of tokens, the trading price of such tokens starts to fall and the chance of failure of the platform in the long run significantly increases[70].

The above "exaggerating" practice incentivizes moral hazard, occurring when transacting parties share the risk, but one party bears the cost of risk taken

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[66] *Id.*, 45.

[67] T. BOURVEAU, E. T. DE GEORGE, A. ELLAHIE, D. MACCIOCCHI, *Information Intermediaries in the Crypto-Tokens Market*, SSRN (May 1, 2019), 3, available at: http://dx.doi.org/10.2139/ssrn.3193392.

[68] *Ibid.*

[69] P. P. MOMTAZ, *supra* note 9, 13.

[70] P. P. MOMTAZ, *supra* note 5, 1.

by another party[71]. Moral hazard in ICOs is expressed through the practice of enterprises to provide exaggerated or misleading information in the white paper in order to raise more funds in the short term (*i.e.* more liquidity for the project) but at the same time causing negative long-term consequences for token purchasers. Hence the cost of risk associated with the project is almost entirely borne by investors[72]. This practice is incentivized by several variables, including: (i) the fact that token sellers play one-shot games, as they can tap the market only once given the fixed amount of maximum token supply, (ii) the absence of any institutions overseeing crypto-markets, and (iii) the lack of any sanctions for providing exaggerated or misleading information about the ICO[73].

In order to reduce the degree of information asymmetry, token issuers may, for instance, provide more extensive and reliable information in white papers, or implement practices aimed at protecting investors[74]. However, absent any regulation or sanctioning regime, we do not see any incentive for ventures to limit their practice of taking advantage of information asymmetry to maximize short-term fundraising at the expense of investors' long-term returns.

1.5 Alternative token offering structures: STOs and IEOs

In addition to ICOs, other token offering structures have been developed in the crypto industry during the past years.

(i) STOs

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[71] *Id.*, 8.

[72] M. OFIR, I. SADEH, *supra* note 35, 51.

[73] P. P. MOMTAZ, *supra* note 5, 9-10.

[74] M. OFIR, I. SADEH, *supra* note 35, 45-48.

One example are STOs (Security Token Offerings), a regulated offer of tokens developed as a response to the absence of ICO regulation and the consequent lack of investors protection.

A security token issued in the context of a STO is a digital representation of an investment product (mainly stocks and bonds), recorded on a distributed ledger, subject to regulation under securities laws[75]. Indeed, STOs are fully regulated and subject to registration with national regulatory authorities, provide investors with voting rights or particular rights on revenues, and all tokens are backed up by particular assets, thus offering a much transparent fundraising solution to investors in crypto-assets[76]. Security tokens are fit for both startup and mature firms: their issuance can be conducted either early in the lifetime of the firm or later[77].

Considering that STOs do not pose any significant regulatory challenge, we will not further examine them in our analysis of token offerings.

(ii) IEOs

Another token offering structure that is worth mentioning is the Initial Exchange Offering (IEO). IEOs are similar to initial coin offerings (ICOs) in that they are initial offerings of tokens to raise capital. However, IEOs are being touted as an innovation on ICOs because they are offered directly by online trading platforms (*e.g.* Binance) on behalf of issuers – usually for a fee – to provide immediate trading opportunities for tokens[78]. These online trading

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[75] T. LAMBERT, D. LIEBAU, P. ROOSENBOOM, *Security Token Offerings*, SSRN (October 15, 2020), 6, available at: http://dx.doi.org/10.2139/ssrn.3634626.

[76] S. GOYAL, *STO Vs. ICO – The Difference Between the Two* (May 30, 2018), on 101 Blockchains, available at https://101blockchains.com/sto-vs-ico-the-difference/.

[77] T. LAMBERT, D. LIEBAU, P. ROOSENBOOM, *supra* note 75, 7.

[78] https://www.sec.gov/oiea/investor-alerts-and-bulletins/ia_initialexchangeofferings.

platforms are typically not registered with competent authorities and claim to perform due diligence or other quality assessments of the IEOs[79].

Among the benefits of IEOs, crypto experts quote greater security for investors, improved transparency, and informational efficiency; in addition, IEOs are positively considered for offering a token auction system that do not discriminate against late or smaller investors[80].

Given that IEOs raise the same regulatory issues of ICOs, the same considerations relating to ICOs discussed in this section shall also apply to IEOs.

2. Regulation of crypto-assets qualifying as financial instruments

We have seen in Chapter 2 that certain classes of crypto-assets, namely investment tokens and hybrid tokens with a significant investment component, may qualify as financial instruments pursuant to MiFID II definition and shall therefore be subject to the applicable EU financial legislation.

We will examine here the most relevant pieces of EU legislation regulating the offering and exchange of financial instruments and the issues arising from their application to crypto-assets, with a particular focus on ICOs and crypto-exchanges.

2.1 Prospectus Regulation

One of the most discussed issues relating to crypto-assets regulation is the applicability of Prospectus Regulation to Initial Coin Offerings (ICOs), in particular the obligation to draft a prospectus subject to the NCA's approval. In

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[79] *Ibid.*

[80] D. BOREIKO, G. FERRARINI, P. GIUDICI, *supra* note 12, 675.

this paragraph we will first examine the main provisions of Prospectus Regulation governing Initial Public Offerings (IPOs) and then discuss their potential applicability to those ICOs involving the offering of tokens qualifying as transferable securities under MiFID II[81].

2.1.1 Material and spatial scope

Securities shall only be offered to the public in the EU after prior publication of a prospectus in accordance with Prospectus Regulation[82]. The scope of Prospectus Regulation is clearly identified in Article 1: a prospectus shall be published "when securities are offered to the public or admitted to trading on a regulated market situated or operating within a Member State"[83]. We can easily infer from the text of Article 1 that, for Prospectus Regulation to apply, the offering of securities must fall within (i) a spatial scope and (ii) a material scope.

(i) Spatial scope

As concerns the spatial scope, the securities must be "offered to the public or admitted to trading on a regulated market situated or operating within a Member State". We can identify two different scenarios: (i) a public offer of securities (primary market) and (ii) the trade of securities on regulated markets (secondary market).

In relation to the first scenario, Prospectus Regulation tries to clarify the scope of "offer to the public" by defining it as "a communication to persons in any form and by any means, presenting sufficient information on the terms of the

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[81] See Chapter 2, paragraph 2.1 for a detailed discussion on the potential qualification of crypto-assets as transferable securities under MiFID II.

[82] Article 3(1) Prospectus Regulation.

[83] Article 1 Prospectus Regulation.

offer and the securities to be offered, so as to enable an investor to decide to purchase or subscribe[84] for those securities"[85]. Although the broad range of this definition created several interpretative issues, particularly in relation to pre-offer communications, the Commission decided not to amend the definition[86] in order to avoid consequences arising from its benchmark effects[87].

With regard to the second scenario, the focus on "regulated markets" clearly reflects their central role in the EU in the capital-raising process *vis-à-vis* lightly regulated private markets. Indeed, the regulated markets perimeter fosters the main objectives of Prospectus Regulation, such as investor protection and market integration, by allowing EU trading venues operating as regulated markets to brand themselves as high-quality venues[88].

The biggest difference between the two spatial scope scenarios clearly emerges from the text of Article 1: while in relation to secondary markets Prospectus Regulation applies only to regulated markets which are situated or operating within a EU Member State, primary markets (*i.e.* initial offerings of securities to the public in the EU) fall within the spatial scope even if the securities are not intended to be listed or traded on a EU secondary market[89].

The spatial scope also applies to third country issuers, that shall obtain approval of the prospectus from the NCA of their home Member State (*i.e.* "the

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[84] Prospectus Regulation does not apply to free offers, such as options granted to employees without consideration.

[85] Article 2(1)(d) Prospectus Regulation.

[86] The Commission suggested that guidance remains the most appropriate tool to address legal uncertainty issues. See Background Document, n. 198, 15.

[87] N. MOLONEY, *EU Securities and Financial Markets Regulation*, 3rd ed., Oxford European Union Law Library (2014), 83.

[88] *Id.*, 83-84.

[89] P. HACKER, C. THOMALE, *Crypto-Securities Regulation: ICOs, Token Sales and Cryptocurrencies under EU Financial Law*, 15 European Company and Financial Law Review 645-696 (2018), available at: http://dx.doi.org/10.2139/ssrn.3075820, 16.

Member State where the securities are intended to be offered to the public for the first time or where the first application for admission to trading on a regulated market is made"[90]). The approval from the home Member State extends to any other Member State (defined as "host Member State"[91]); the third country issuer only needs to notify the NCA of the host Member State(s) with a certificate of approval attesting that the registration document, or universal registration document and any amendments thereto, has been drawn up in accordance with Prospectus Regulation and with an electronic copy of that document[92].

(ii) Material scope

Moving to the material scope of Prospectus Regulation, we see that Article 1 limits such scope to those financial instruments falling under the definition of "securities". According to Prospectus Regulation, "securities" means "transferable securities" as defined under MiFID II, with the exception of money market instruments having a maturity of less than 12 months[93]. We have already analyzed in Chapter 2 the criteria that a financial instrument shall meet in order to qualify as a "transferable security" under MiFID II definition[94]. Therefore, an instrument falling under MiFID II definition of "transferable securities" shall be subject to the material scope of Prospectus Regulation.

However, Article 1(2) of Prospectus Regulation lists a number of classes of securities which are excluded from the material scope of the regulation even when they possess all the features of a security. That list includes, *inter alia*: (a)

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[90] Article 2(1)(m) Prospectus Regulation.

[91] Article 2(1)(n) Prospectus Regulation.

[92] Article 26 Prospectus Regulation.

[93] Article 2(1)(a) Prospectus Regulation.

[94] See Chapter 2, paragraph 2.1.

units issued by collective investment undertakings[95] other than the closed-end type[96], (b) non-equity securities issued by a Member State or by one of a Member State's regional or local authorities, by public international bodies of which one or more Member States are members, by the European Central Bank or by the central banks of the Member States[97], (c) shares in the capital of central banks of the Member States[98], (d) securities unconditionally and irrevocably guaranteed by a Member State or by one of a Member State's regional or local authorities[99], and (e) securities issued by associations with legal status or non-profit-making bodies for the purposes of obtaining the funding necessary to achieve their non-profit-making objectives[100].

Furthermore, Prospectus Regulation shall not apply to an offer of securities to the public with a total consideration in the EU of less than EUR 1.000.000, which shall be calculated over a period of 12 months[101].

Another important characteristic of the scope of Prospectus Regulation is the delineation of the perimeter between the notionally "public" markets and those "private" markets within which capital can be raised by issuers without being subject to the Regulation regime[102]. One example is the exemption for offerings of securities addressed solely to qualified investors[103]. Other relevant exemptions include, for instance, (i) an offer of securities addressed to fewer than

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[95] Open-ended funds in the form of collective investment undertakings are indeed subject to the UCITS Directive regime.

[96] Article 1(2)(a) Prospectus Regulation.

[97] Article 1(2)(b) Prospectus Regulation.

[98] Article 1(2)(c) Prospectus Regulation.

[99] Article 1(2)(d) Prospectus Regulation.

[100] Article 1(2)(e) Prospectus Regulation.

[101] Article 1(3) Prospectus Regulation.

[102] N. MOLONEY, *supra* note 87, 85.

[103] Article 1(4)(a) Prospectus Regulation.

150 natural or legal persons per Member State, other than qualified investors[104], (ii) an offer of securities whose denomination per unit amounts to at least EUR 100.000[105], and (iii) an offer of securities addressed to investors who acquire securities for a total consideration of at least EUR 100.000 per investor, for each separate offer[106].

Finally, it is also worth mentioning that EU Member States may decide to exempt offers of securities to the public from the obligation to publish a prospectus provided that: (i) such offers are not subject to prospectus notification for cross-border offers, and (ii) the total consideration of each such offer in the EU is less than a monetary amount calculated over a period of 12 months which shall not exceed EUR 8.000.000[107].

2.1.2 The prospectus: form and content

A prospectus shall contain the necessary information which is material to an investor for making an informed assessment of (i) the assets and liabilities, profits and losses, financial position, and prospects of the issuer and of any guarantor, (ii) the rights attaching to the securities, and (iii) the reasons for the issuance and its impact on the issuer[108]. Annex 1 to Prospectus Regulation sets out the categories of information that should be disclosed in the prospectus, including information on the company and its management, major shareholders and related-party transactions, details on the offer and admission to trading, and the financial situation of the issuer.

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[104] Article 1(4)(b) Prospectus Regulation.

[105] Article 1(4)(c) Prospectus Regulation.

[106] Article 1(4)(d) Prospectus Regulation.

[107] Article 3(2) Prospectus Regulation.

[108] Article 6(1) Prospectus Regulation.

A fundamental section of the prospectus is the one relating to risk factors specific to the issuer and/or to the securities which are material for taking an informed investment decision[109]. Each risk factor shall be adequately described, explaining how it affects the issuer or the securities being offered or to be admitted to trading, and shall assess the materiality of the risk factors based on the probability of their occurrence and the expected magnitude of their negative impact[110].

The information in a prospectus shall be written and presented in an easily analyzable, concise and comprehensible form [111] . Nevertheless, prospectuses have always been criticized for being too dense and technical for average investors. Indeed, prospectuses are often technically inaccessible for retail investors, that therefore tend to use them as ex-post legal documents rather than ex-ante information sources (and prefer relying on shorter marketing materials)[112].

The regulation also requires all EU Member States to have internal provisions concerning prospectus liability. More specifically, EU Member States shall ensure that their laws, regulations and administrative provisions on civil liability apply to those persons responsible for the information given in a prospectus[113]. In this respect, the persons responsible for the prospectus shall be clearly identified in the prospectus by their names and functions, and such persons shall declare that, to the best of their knowledge, the information contained in the prospectus is in accordance with the facts and that the prospectus makes no omission likely to affect its import[114].

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[109] Article 16(1) Prospectus Regulation.

[110] *Ibid.*

[111] Article 6(2) Prospectus Regulation.

[112] N. MOLONEY, *supra* note 87, 97.

[113] Article 11(2) Prospectus Regulation.

[114] Article 11(1) Prospectus Regulation.

A prospectus shall not be published before its approval from the NCA[115], that shall notify the issuer of its decision regarding the approval of the prospectus within 10 working days of the submission of the draft prospectus[116]. The NCA shall also notify ESMA of the approval of the prospectus. In the event the NCA finds that the draft prospectus does not meet the standards of completeness, comprehensibility and consistency necessary for its approval and/or that changes or supplementary information are needed, it shall inform the issuer and shall clearly specify the changes or supplementary information that are needed[117]. Where the issuer is unable or unwilling to make the necessary changes or to provide the supplementary information requested, the NCA shall be entitled to refuse the approval of the prospectus and terminate the review process[118].

Once approved, the prospectus shall be made available to the public by the issuer (or the person asking for admission to trading) on its website[119] in electronic form at a reasonable time in advance of, and at the latest at the beginning of, the offer to the public or the admission to trading of the securities involved[120].

The regulation also provides for a passport and mutual recognition regime across EU Member States. Indeed, where an offer of securities to the public (or admission to trading on a regulated market) occurs in one or more EU

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[115] Article 20(1) Prospectus Regulation.

[116] Article 20(2) Prospectus Regulation.

[117] Article 20(4) Prospectus Regulation.

[118] Article 20(5) Prospectus Regulation.

[119] The prospectus shall be deemed available to the public also when it is published on the website of (i) the financial intermediaries placing or selling the securities, or (ii) the regulated market where the admission to trading is sought.

[120] Article 21(1) Prospectus Regulation.

Member States, or in a EU Member State other than the home Member State[121], the prospectus approved by the home Member State and any supplements thereto shall be valid for the offer to the public (or the admission to trading) in any number of host Member States[122], provided that ESMA and the NCA of each host Member State are duly notified in accordance with the regulation[123].

2.1.3 The extension of Prospectus Regulation regime to ICOs

Now that we have a general overview of the main provisions of Prospectus Regulation governing IPOs, we can examine whether such rules may be suitable for those ICOs involving the offering of tokens qualifying as transferable securities in one or more EU Member States – therefore falling under the material and spatial scope of Prospectus Regulation. Indeed, the similarities between ICOs and IPOs have raised the question of whether they shall be both regulated in the same way[124].

(i) ICOs and Prospectus Regulation disclosure requirements

There are many factors that may suggest that the traditional IPO disclosure requirements under Prospectus Regulation are not well suited for ICOs[125].

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[121] According to Article 2(m) Prospectus Regulation, "home Member State" means (i) for all issuers of securities established in the EU, the EU Member State where the issuer has its registered office, or (ii) for all issuers of securities established in a third country, the EU Member State where the securities are intended to be offered to the public for the first time or where the first application for admission to trading on a regulated market is made.

[122] According to Article 2(n) Prospectus Regulation, "host Member State" means the EU Member State where an offer of securities to the public is made or admission to trading on a regulated market is sought, when different from the home Member State

[123] Article 24(1) Prospectus Regulation.

[124] A. COLLOMB, P. DE FILIPPI, K. SOK, *supra* note 39, 23.

[125] M. OFIR, I. SADEH, *supra* note 35, 52.

First, the costs for a prospectus may be prohibitive for small enterprises and can constitute a significant barrier to enter the market[126]. The average cost for a prospectus in fact lies between EUR 1 million and EUR 2.3 million[127], and can be a heavy burden for a startup with no financial history. It may be argued, however, that ICOs typically more than EUR 10 million, and in such a range the costs of a prospectus are not necessarily prohibitive, especially as many companies already offer a prospectus-free private pre-sale of which parts can be used for drafting the prospectus[128]. In addition, if the enterprise has a lower financing requirement, the promoters of the ICO can make use of the exemption for small offerings[129] (see paragraph 2.1.4 below).

Second, ICO investors may not benefit from the same information included in a typical IPO prospectus. The reasons are threefold: (i) ICOs are launched at an early stage, therefore a prospectus may be able to provide only a limited amount of information on the issuer and its financial history, (ii) ICO investors are not entirely rational and are mainly driven by emotional factors, and (iii) many information included in a IPO prospectus may be irrelevant for ICO investors due to the technological nature of ICOs[130] (and, on the other hand, many information not required in a IPO prospectus may be relevant for ICO investors). However, in relation to item (i), some authors argue that large part of the prospectus information relate to future potential events, especially with

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[126] L. KLÖHN, N. PARHOFER, D. RESAS, *Initial Coin Offerings (ICOs): Economics and Regulation*, SSRN (March 5, 2019), 35, available at: http://dx.doi.org/10.2139/ssrn.3290882.

[127] J. ARMOUR, L. ENRIQUES, *The Promise and Perils of Crowdfunding: Between Corporate Finance and Consumer Contracts*, The Modern Law Review, Vol. 81, Issue 1 (2018), 55.

[128] L. KLÖHN, N. PARHOFER, D. RESAS, *supra* note 126, 36.

[129] *Ibid.*

[130] M. OFIR, I. SADEH, *supra* note 35, 52.

regard to risk factors; hence it is not generally true that ICO promoters could provide no information in a prospectus[131].

Third, the typical structure of ICOs may significantly differ from a traditional IPO. Indeed, we observe a disconnect between the informality of ICOs and the IPO process, that involves a sheer amount of actors such as law firms, investment banks, regulators, and a number of buy-side institutional intermediaries[132]. On the other side, ICOs mainly rely on coders and small tech enterprises, and there are no expert institutions or intermediaries ensuring the quality of offerings[133]. The community of professional intermediaries who are able to assess and audit an ICO is, in fact, small and still need to develop vetting capacity[134]. Considering that retail investors generally do not read the prospectus (as they often lack the necessary expertise) and therefore rely on the analysis conducted by professional intermediaries, we may wonder whether a prospectus may be useful in ICOs given the absence of reliable intermediaries assessing the quality of the offer[135]. Nonetheless, instead of exempting ICOs from the prospectus requirement, an alternative solution would be to increase the presence of gatekeepers and regulators though crypto-expert units[136] and to impose the auditing of an ICO prospectus (or white paper) by a qualified intermediary.

(ii) Identifying a disclosure regime tailored to ICOs

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[131] L. KLÖHN, N. PARHOFER, D. RESAS, *supra* note 126, 37.

[132] S. COHNEY, D. HOFFMAN, J. SKLAROFF, D. WISHNICK, *supra* note 13, 659.

[133] *Ibid.*

[134] *Ibid.*

[135] L. KLÖHN, N. PARHOFER, D. RESAS, *supra* note 126, 37.

[136] S. COHNEY, D. HOFFMAN, J. SKLAROFF, D. WISHNICK, *supra* note 13, 660.

When trying to identify a potential disclosure regime for ICOs, EU lawmakers and ESMA shall take into account some key factors which are specific to ICOs and deserve a proper disclosure in the offering documents.

First, in the disclosure documentation there should be a focus on the technological aspects of the project[137]. The current Prospectus Regulation regime does not require disclosure of the code governing the ICO and a description of the underlying blockchain platform. As we have seen above, some ICO issuers publish the source code on a voluntary basis in order to enable vetting by external experts. However, the quality of the source code is a crucial component for the security and the utility of the offered tokens, and shall therefore be subject to mandatory disclosure before the initial offering in order to allow crypto-experts to assess such code and fix all the bugs (if any)[138]. Some authors point out the fact that the vast majority of investors are not able to assess the true quality of a source code, hence they propose a mandatory disclosure only to a qualified intermediary that shall audit the code and publish its assessment before the initial offering[139]. This is also to prevent that, by disclosing the source code to everyone, ICOs enable other ventures to imitate their technology and therefore lose their competitive advantage[140].

Second, a requirement to disclose information about the existence of presale rounds and their terms shall be included. In case a presale was run, the issuer should then disclose information on the beneficial owners of such pre-sold tokens and on any investment agreements that are in place[141]. This is to protect investors from "pump and dump" scams, as they would demand a lower price

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[137] M. OFIR, I. SADEH, *supra* note 35, 53.

[138] P. HACKER, C. THOMALE, *supra* note 89, 41.

[139] M. OFIR, I. SADEH, *supra* note 35, 53-54.

[140] *Id.,* 54.

[141] P. HACKER, C. THOMALE, *supra* note 89, 42.

or lock-up mechanisms if they were exposed to information regarding a pre-ICO[142].

Third, there should be a requirement imposing disclosure of the ability to create new tokens after the launch of the ICO, as it may negatively impact the outcome of a token sale[143]. It has been observed, indeed, that an ICO should have a predetermined token supply in order to maximize the amount raised in a token sale[144].

Fourth, the issuer shall explain in its disclosure documentation why blockchain technology is required for its project[145]. Indeed, empirical studies show that most ICOs do not actually need blockchain, but issuers use it in order to lure new investors attracted by the novelty of this praised technology[146].

Fifth, there should be a requirement imposing the disclosure of essential information on the developers of the project, including which entity officially acts as the issuer, and which rights and obligations are attached to tokens[147]. Disclosure documents shall also provide a detailed overview of the concrete purpose and steps that are being funded with the ICO, a piece of information that is often omitted in white papers[148].

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142 M. OFIR, I. SADEH, *supra* note 35, 54.

143 *Ibid.*

144 See, for instance, C. CATALINI, J. S. GANS, *supra* note 10.

145 M. OFIR, I. SADEH, *supra* note 35, 54.

146 See, for example, C. FENG, N. LI, M. H. F. WONG, M. ZHANG, *Initial Coin Offerings, Blockchain Technology, and White Paper Disclosures*, SSRN (March 25, 2019), available at: http://dx.doi.org/10.2139/ssrn.3256289.

147 P. HACKER, C. THOMALE, *supra* note 89, 42.

148 *Ibid.*

2.1.4 Exemptions potentially applicable to ICOs

Prospectus Regulation offers many exemptions potentially applicable to ICOs. We have identified the most relevant ones for the purpose of our analysis.

First, Article 1(2)(e) exempts from the scope of the regulation all those associations with legal status or non-profit-making bodies, recognized by a Member State, for the purposes of obtaining the funding necessary to achieve their non-profit-making objectives. Traditionally foundation-like structures were widely used by software engineers in token issues in order to collect donations for their projects[149]. Notwithstanding tokens have rapidly become a tradable finance product with an immediate investment component, the foundation structure has been kept by many teams for tax purposes[150]. Therefore, the use of a foundation is often perceived as a formal screen for startups in order to avoid disclosure requirements. In any case, a foundation recognized by a EU Member State that is able to demonstrate its non-profit nature would be able to raise capital through an ICO without any prospectus obligation[151].

Second, under Article 3(2) Prospectus Regulation, EU Member States may decide to exempt offers of securities to the public from the obligation to publish a prospectus provided that the total consideration of each such offer in the EU is less than a monetary amount calculated over a period of 12 months which shall not exceed EUR 8.000.000. However, from an empirical analysis it emerges that the EUR 8 million threshold can be too low for the vast majority of ICOs. Indeed, empirical data show that a large amount of ICOs raise more than EUR 8 million[152]; hence the threshold is not sufficient to exempt great part of ICOs[153].

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[149] D. BOREIKO, G. FERRARINI, P. GIUDICI, *supra* note 12, 682.

[150] *Ibid.*

[151] *Ibid.*

[152] For example, the Icobench database reports that, out of 945 ICOs with data on the funds raised operating from September 2015 to May 2018, 401 (*i.e.* 42%) raised more than USD 8 million (approximately EUR 8 million).

Third, there are a number of exceptions based on the value of the offer and on the number of investors. Under Article 1(4) Prospectus Regulation, the obligation to publish a prospectus shall not apply to (1) offers of securities addressed to fewer than 150 natural or legal persons per Member State, other than qualified investors[154], (2) offers of securities whose denomination per unit amounts to at least EUR 100.000[155], and (3) offers of securities addressed to investors who acquire securities for a total consideration of at least EUR 100.000 per investor, for each separate offer[156]. The above exemptions, however, do not seem to be well-suited for token offerings, given that: (i) tokens are always offered to an undistinguished number of investors, therefore the exemption for offerings addressed to fewer than 150 natural or legal persons per Member State does not apply – also considering that the cross-border nature of blockchain would make it difficult to locate investors; (ii) the usual denomination per single token is always below the EUR 100.000 threshold; and (iii) average ICO investors are unlikely to purchase tokens for a total consideration of at least EUR 100.000[157]. Even though this last restriction may be technically implemented, it would nonetheless deprive retail clients from access to tokens and therefore counteracting the decentralized spirit of blockchain-based systems[158]. In addition, given that thresholds are indicated in Euro in the regulation, we should also consider the issues that may arise when trying to identify an "official" exchange rate between the issued tokens (that are usually purchased with cryptocurrencies) and Euro[159].

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[153] D. BOREIKO, G. FERRARINI, P. GIUDICI, *supra* note 12, 682-683.

[154] Article 4(1)(b) Prospectus Regulation.

[155] Article 4(1)(c) Prospectus Regulation.

[156] Article 4(1)(d) Prospectus Regulation.

[157] D. BOREIKO, G. FERRARINI, P. GIUDICI, *supra* note 12, 683.

[158] P. HACKER, C. THOMALE, *supra* note 89, 38.

[159] *Ibid.*

Finally, another exception, and perhaps the most relevant for the case at stake, is the one under Article 1(4)(a) Prospectus Regulation, that exempts from the scope of the regulation private placements addressed solely to qualified investors. Qualified investors are defined under Article 2(1)(e) Prospectus Regulation as those persons or entities that are (i) listed in points (1) to (4) of Section I of Annex II to MiFID II[160], (ii) on request, treated as professional clients in accordance with Section II of that Annex, or (iii) recognized as eligible counterparties in accordance with Article 30 MiFID II. As concerns ICOs, the most relevant class of qualified investors would be persons or entities treated, on request, as professional clients. Nevertheless, the requirements to be treated as a professional client may be too burdensome for ICO investors, given that they require the intervention and assessment of a financial intermediary[161]. In the course of the assessment, as a minimum, two of the following criteria shall be met: (i) the client has carried out transactions, of a significant amount, on the relevant market at an average frequency of 10 per quarter over the previous four quarters; (ii) the size of the client's financial instrument portfolio, defined as including cash deposits and financial instruments, exceeds EUR 500.000; (c) the client works or has worked in the financial sector for at least 1 year in a professional position, which requires knowledge of the transactions or services envisaged[162]. It is quite evident that, although the requirement under (b) might in theory be satisfied, the other two criteria are almost impossible to be met by any ICO investor. Indeed, the requirement under (a) is unlikely to be satisfied given that the relevant market is the crypto-assets one, and the criterion under (c) restricts the class to a small number of investors that may have little to none

[160] The list includes, for instance, credit institutions, investment firms, insurance companies, and other authorized or regulated financial institutions.

[161] D. BOREIKO, G. FERRARINI, P. GIUDICI, *supra* note 12, 683.

[162] Section II of Annex II to MiFID II.

expertise in the crypto industry[163]. Furthermore, anonymity in permission-less blockchains makes the verification of the qualified investor status even more difficult[164].

In essence, the exemptions from the Prospectus Regulation scope do not offer any help to token issuers willing to avoid the burdensome disclosure requirements prescribed by the regulation. The main issue concerns the too stringent requirements for being considered as a qualified investor in the context of ICOs and therefore participate in private placements, given that the regulation imposes the necessary intervention of a financial intermediary. After all, if we compare such requirements with the more relaxed US rules relating to "accredited investors" [165], which are mainly based on net assets and income, the restrictive nature of the above EU provisions becomes even more evident[166].

It is also worth mentioning that domestic legislation of some EU Member States, such as Italy[167] and Germany[168], provide for further exemptions in relation to crowdfunding initiatives[169], that are not regulated at EU level. ICOs may

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[163] D. BOREIKO, G. FERRARINI, P. GIUDICI, *supra* note 12, 683.

[164] P. HACKER, C. THOMALE, *supra* note 89, 38.

[165] According to SEC Rule 501(a)(5), an individual investor is an "accredited investor" only if he or she (i) is a director or executive officer of the corporation issuing the securities, (ii) has an individual net worth (or a joint net worth with a spouse) that exceeds $1 million, excluding the value of the investor's primary residence, (iii) has an individual income that exceeds $200,000 in each of the two most recent years, and has a reasonable expectation of reaching the same individual income level in the current year, or (iv) has a joint income that exceeds $300,000 in each of the two most recent years, and has a reasonable expectation of reaching the same joint income level in the current year (17 C.F.R. § 230.501(a)(5)).

[166] D. BOREIKO, G. FERRARINI, P. GIUDICI, *supra* note 12, 690.

[167] See http://www.consob.it/web/investor-education/crowdfunding.

[168] See https://www.bafin.de/EN/Aufsicht/FinTech/Crowdfunding/crowdfunding_node_en.html; jsessionid=128AE49E9684C52A9B72FF3AFD370C48.2_cid361.

[169] Crowdfunding is the use of small amounts of capital from a large number of individuals to finance a new business venture, and usually takes place on online platforms.

therefore take advantage of such national exemptions from disclosure obligations, although crowdfunding regulations usually set very low aggregate caps that exclude many large ICOs and only apply to specific classes of financial products (such as profit participating loans)[170].

2.1.5 Potential regulatory solutions for ICO disclosure

In order to avoid legal uncertainty and a regulatory gap, and given the significant differences between IPOs and ICOs discussed above, EU lawmakers should introduce an ICO-specific disclosure regime offering a safe harbor for token issuers who suspect their tokens may qualify as securities under Prospectus Regulation[171]. The most immediate solution would be to add an annex to Prospectus Regulation that identifies the minimum information that shall be included in an ICO offering document (whether we call it prospectus or white paper).

The starting point would be Article 13 of Prospectus Regulation, that authorizes the European Commission to publish delegated acts detailing, *inter alia*, the specific information to be included in the prospectus for different types of securities[172]. In this respect, ESMA should work closely with the EC and employ its arsenal of quasi-rule-making powers[173] to identify specific disclosure requirements for ICOs through an open public consultation with NCAs and crypto-markets stakeholders. ESMA should then submit draft Regulatory Technical Standards (RTS) to the European Commission[174] for its approval, that shall include a detailed list of all the information that must be disclosed in an

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[170] P. HACKER, C. THOMALE, *supra* note 89, 39.

[171] P. HACKER, C. THOMALE, *supra* note 89, 7.

[172] *Id.*, 42.

[173] For an overview of ESMA's quasi-rule-making powers, see Chapter 2, paragraph 1.3.2(c).

[174] See Article 10 ESMA Regulation.

ICO prospectus (or white paper, if we want to stick with crypto-markets nomenclature). Those ICO-specific disclosure requirements, once approved and published by the EC, can be attached to Prospectus Regulation as a new annex or included in a separate piece of EU legislation.

This solution is similar to the one adopted by MiCA proposal for stablecoins[175], that transposed into a EU regulation the consolidated market practice of publishing a white paper and listed the minimum information that shall be disclosed in white papers. It may be argued that a potential ICO disclosure regime may simply recall the disclosure requirements under MiCA proposal in order to have more uniform rules for token offerings. However, as we will see, MiCA does not apply to crypto-assets qualifying as financial instruments. Accordingly, the white paper disclosure regime provided in the proposal has been designed for other types of crypto-assets (such as stablecoins); it is therefore not well suited for securities offerings and cannot be adapted to the case at stake.

A less-invasive solution would be the release by ESMA of Guidelines and Recommendations[176] addressed to NCAs and financial market participants with a detailed guide on how to interpret the existing Prospectus Regulation disclosure requirements in the event of an ICO, in order to better adapt such requirements to the different needs of crypto markets. This solution can also be adopted on a temporary basis before an official amendment to Prospectus Regulation enters into force – given the lengthy process for the approval of EU legislative acts[177].

It is also worth mentioning an alternative solution that focuses on the functional equivalence between traditional securities and tokens. Proponents of

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[175] See paragraph 3.3 below.

[176] See Article 16 ESMA Regulation.

[177] P. HACKER, C. THOMALE, *supra* note 89, 42.

this solution claim that the technological features of blockchain may satisfy some of the requirements of existing securities law, as it happened in the late 90's with the advent of e-commerce in relation to contractual provisions[178]. Indeed, while IPOs rely on paper-based formalities (like the prospectus and the other offering documents), ICOs are entirely conducted via technical infrastructures which are programmable and can therefore incorporate a variety of features that may help achieving some of the regulatory objectives of securities law[179]. In fact, the most powerful tool of blockchain technology is that it can provide automated means for making sure that a token offering complies with securities regulation[180]. In short, instead of imposing on ICO issuers the traditional paper-based disclosure obligations under Prospectus Regulation, a more technologically-oriented solution may instead require ICOs to incorporate a series of technical guarantees in the issued tokens. Such guarantees, that would operate automatically, may for instance (i) enable investors to redeem their tokens in case the offering did not comply with the applicable requirements, (ii) disable the "send function" in order to make lock-up provisions effective and avoid "pump and dump" practices, or even (iii) achieve real-time auditing and automatic reporting[181]. However, considering the relative immaturity of blockchain technology, it is still difficult to understand precisely which technological features may be functionally equivalent to securities regulation provisions[182].

Finally, other "technological" solutions to the regulation of ICOs may be found by employing blockchain technology in the context of a developing trend known as "RegTech", which aims at using technologies in order to address the

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178 A. COLLOMB, P. DE FILIPPI, K. SOK, *supra* note 39, 24-25.

179 *Id.,* 27.

180 *Ibid.*

181 *Id.,* 27-28.

182 *Id.,* 28.

complexity of regulatory frameworks[183]. For financial institutions, it means automatizing and digitalizing all reporting processes and compliance rules, while for financial supervisors it represents a powerful tool to improve the quality of market oversight[184]. At EU level, financial supervisory authorities, such as ESMA and EBA, have in many occasions openly supported RegTech solutions[185]. For instance, market players may use RegTech as part of their operations software solutions ("Operations RegTech") or as part of their compliance programs ("ComplianceTech"), such as for reporting activities that require the aggregation of data from different departments or subsidiaries[186]. Without delving further in the discussions about RegTech, that would deserve a separate analysis, we can affirm that blockchain technology would be highly beneficial to the fulfillment of reporting obligations in the context of ICOs. On the one side, it would make any reporting and filing process by ICO issuers faster and less costly through automation, while on the other side it would enable regulators to better monitor ICOs given the transparency of blockchains, particularly in relation to Prospectus Regulation reporting obligations and AML requirements. In addition, the use of a distributed ledger accessible by the supervisory authority would make the control on the data provided by intermediaries more direct and efficient, although such data may need to be standardized in order to be shared on a specific blockchain platform[187]. However, the most significant issue in this respect would be that authorities

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[183] N. LINCIANO, P. SOCCORSO, *FinTech e RegTech: approcci di regolamentazione e di supervisione*, in *FinTech – Introduzione ai profili giuridici di un mercato unico tecnologico dei servizi finanziari*, edited by M. T. PARACAMPO, Giappichelli (2017), 44.

[184] *Ibid.*

[185] *Id.*, 46.

[186] L. ENRIQUES, *Financial Supervisors and Regtech: Four Roles and Four Challenges,* Revue Trimestrielle de Droit Financier 53 (2017), available at: https://ssrn.com/abstract=3087292, 3.

[187] A. PERRONE, *La nuova vigilanza. RegTech e capitale umano*, Banca Borsa Titoli di Credito, No. 4 (2020), 520.

might need to outsource the management of data coming from blockchain platforms to specialized external companies, hence risking to lose control on the whole supervisory process, of which the authorities would remain in any case responsible[188]. Furthermore, one of the main priorities for supervisors in the transition to a RegTech-dominated environment should be to ensure that high-quality specialized personnel is always in place and that people at the top of such supervisors are able to effectively lead and monitor the transition[189].

2.2 MiFID II/MiFIR

A firm that provides investment services/activities in relation to financial instruments as defined under MiFID II needs to be authorized as an investment firm and comply with MiFID II/MiFIR requirements. Therefore, when crypto-assets qualify as financial instruments[190], several crypto-related activities are likely to qualify as investment services/activities, such as placing, dealing on own account, operating an MTF or OTF, or providing investment advice[191].

2.2.1 The scope of MiFID II/MiFIR and the definition of "investment firm"

The scope of MiFID II (and MiFIR) covers (i) investment firms, (ii) market operators[192], (iii) data reporting services providers[193], and (iv) third-country firms

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[188] See N. LINCIANO, P. SOCCORSO, *supra* note 183, 47.

[189] L. ENRIQUES, *supra* note 186, 9.

[190] See Chapter 2, paragraph 2.

[191] ESMA's Advice, 24.

[192] "Market operator" means a person or persons who manages and/or operates the business of a regulated market and may be the regulated market itself (Article 4(1)(18) MiFID II).

[193] "Data reporting services provider" means an Approved Publication Arrangement (APA), a Consolidated Tape Provider (CTP), or an Approved Reporting Mechanism (ARM) (Article 4(1)(63) MiFID II).

providing investment services or performing investment activities through the establishment of a branch in the EU[194].

We will focus our attention here on investment firms, which are the most relevant for the purpose of our crypto-assets analysis. MiFID II defines an investment firm as any legal person whose regular occupation or business is the provision of one or more investment services to third parties and/or the performance of one or more investment activities on a professional basis[195]. The core element of the definition is the reference to (i) the provision of investment services to third parties, and (ii) the performance of investment activities on a professional basis[196]. Such investment services and activities are listed under Section A of Annex I to MiFID II and include, *inter alia*, (1) the reception and transmission of orders in relation to one or more financial instruments, (2) the execution of orders of behalf of clients, (3) dealing on own account, (4) portfolio management, (5) investment advice, (6) underwriting of financial instruments and/or placing financial instruments on a firm committed basis, (7) placing of financial instruments without a firm committed basis, (8) operation of an MTF, (9) operation of an OTF. Most importantly, all the listed services and activities must relate to any of the financial instruments included in Section C of Annex I to MiFID II[197] (*i.e.* transferable securities, money-market instruments, units in collective investment undertakings, and derivatives). Therefore, the list of financial instruments and the list investment services/activities are the primary tools for determining the scope of MiFID II/MiFIR[198].

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[194] Article 1(1) MiFID II. See also Article 1(2) MiFIR.

[195] Article 4(1)(1) MiFID II.

[196] See K. LIEVERSE, *The Scope of MiFID II*, in *Regulation of the EU Financial Markets: MiFID II and MiFIR*, edited by D. BUSCH, G. FERRARINI, Oxford University Press (2016), 28.

[197] Article 4(1)(2) MiFID II. Financial instruments are defined in Article 4(1)(15) MiFID II as those specified in Section C of Annex I.

[198] K. LIEVERSE, *supra* note 196, 28.

2.2.2 Obligations applicable to investment firms

Investment firms need to comply with a number of obligations under MiFID II/MiFIR, that combine general prudential requirements established in the field of banking regulation with specific additions tailored to the specific characteristics of investment activities/services[199]. In particular, the complex set of corporate governance requirements, which covers many areas such as risk management and remuneration issues, is aimed at reducing systemic risk irrespective of the nature of the investment firm's business[200]. We will provide below a general overview of investment firms' obligations under MiFID II.

(i) Minimum capital requirements[201]. Such requirements vary depending on the type of services/activities performed by the firm. For example, investment firms operating an MTF or an OTF, or dealing on own account, need to have an initial capital of at least EUR 730.000.

(ii) Organizational requirements[202]. Investment firms shall have adequate policies and procedures in order to ensure compliance with their obligations under MiFID II, including those for the prevention of conflicts of interest, approval and distribution of financial instruments to clients, business continuity, integrity and security of data, recordkeeping, internal controls, and risk management.

(iii) Investor protection requirements[203]. These include provisions to identify, prevent and manage conflicts of interest, to act honestly, fairly and professionally in accordance with the best interest of clients, to ensure that

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[199] J. BINDER, *Governance of Investment Firms under MiFID II*, in *Regulation of the EU Financial Markets: MiFID II and MiFIR*, edited by D. BUSCH, G. FERRARINI, Oxford University Press (2016), 61.

[200] *Id.*, 82-83.

[201] Article 15 MiFID II.

[202] Article 16 MiFID II.

[203] Articles 24-30 MiFID II.

all information addressed to clients is fair, clear and not misleading, and to execute orders on terms most favorable to clients.

(iv) Access to MTFs, OTFs, and RMs. MTFs and OTFs need to have in place transparency and non-discriminatory rules for access to their facilities[204]. Similar provisions apply to RMs[205].

(v) Pre and post-trade transparency. Both equity and non-equity instruments are subject to rules governing (i) pre-trade transparency on bid and offer prices, (ii) waivers from pre-trade transparency, (iii) restrictions to such waivers, (iv) post-trade transparency, and (v) deferred publications[206]. Pre-trade and post-trade data shall be made available to the public separately on a reasonable commercial basis and ensure non-discriminatory access; such information shall then be made available free of charge 15 minutes after publication[207].

(vi) Transaction reporting and record-keeping. Investment firms shall maintain records for five years from the date of the order[208] and report details on transactions to NCAs[209].

2.2.3 Trading venues under MiFID II/MiFIR regime

A trading facility is the place where buyers and sellers meet to trade financial instruments (either securities or derivatives)[210]. Looking at the two main

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[204] Article 18(3) MiFID II.

[205] Article 53 MiFID II.

[206] Articles 3-11 MiFIR.

[207] Articles 12-13 MiFIR.

[208] Article 25(1) MiFIR.

[209] Article 26 MiFIR.

[210] G. FERRARINI, P. SAGUATO, *Governance and Organization of Trading Venues*, in *Regulation of the EU Financial Markets: MiFID II and MiFIR*, edited by D. BUSCH, G. FERRARINI, Oxford University Press (2016), 287.

features of trading facilities – *i.e.* whether (i) trading is bilateral or multilateral and (ii) the facility is regulated or unregulated – we can divide facilities in three groups: trading venues, systematic internalisers, and alternative finance platforms[211]. MiFID II only recognizes the first two groups (trading venues and systematic internalisers[212]), while alternative finance platforms[213] are outside the reach of MiFID II regime.

We will focus our attention here on trading venues, given their multilateral nature that resembles the structure of crypto-exchanges. Broadly speaking, trading venues are multilateral regulated facilities that provide a location for brokers and traders to meet and execute their trades[214]. Additionally, a trading venue publishes information about prices, volumes and (often) the identity of the parties, thus ensuring a high degree of transparency in financial markets[215].

Under MiFID II, "trading venue" means a Regulated Market (RM), a Multilateral Trading Facility (MTF), or an Organised Trading Facility (OTF)[216].

(i) Regulated Markets (RMs)

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[211] *Ibid.*

[212] "Systematic internaliser" means "an investment firm which, on an organised, frequent systematic and substantial basis, deals on own account when executing client orders outside a regulated market, an MTF or an OTF without operating a multilateral system" (Article 4(1)(20) MiFID II).

[213] The category includes a vast array of alternative trading (electronic) platforms and systems operated by investment firms in a framework of bilaterally concluded financial transactions that fuel the OTC markets. See G. FERRARINI, P. SAGUATO, *supra* note 210, 288.

[214] G. FERRARINI, P. SAGUATO, *supra* note 210, 287.

[215] *Ibid.*

[216] Article 4(1)(24) MiFID II.

The first category, Regulated Markets (RMs), is probably the archetype of a public market, as it encompasses the main stock and derivatives exchanges[217]. Under MiFID II, Regulated Market means a "multilateral system operated and/or managed by a market operator, which brings together or facilitates the bringing together of multiple third-party buying and selling interests in financial instruments – in the system and in accordance with its non-discretionary rules – in a way that results in a contract, in respect of the financial instruments admitted to trading under its rules and/or systems"[218].

MiFID II regulation of RMs is specifically addressed to two targets: (i) market operators of RMs and (ii) RM systems; both are therefore subject to regulation and supervision of NCAs, and the system is the formal recipient of the authorization. In fact, according to the directive, EU Member States shall reserve authorization as a RM to a system only where the NCA is satisfied that both the market operator and the systems of the RM comply at least with the requirements laid down under Articles 44-56 MiFID II[219]. Such requirements include, *inter alia*, corporate governance and organizational obligations.

Corporate governance requirements for RMs are aligned with those applicable to investment firms under MiFID II, which are in turn modeled on the requirements foreseen by CRD IV[220] for banks[221]. First, all members of the management body of the market operator shall at all times be of sufficiently good repute, possess sufficient knowledge, skills and experience to perform their duties[222], and commit sufficient time to perform their functions in the market

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[217] G. FERRARINI, P. SAGUATO, *supra* note 210, 292.

[218] Article 4(1)(21) MiFID II.

[219] Article 44(1) MiFID II.

[220] Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms.

[221] G. FERRARINI, P. SAGUATO, *supra* note 210, 292.

[222] Article 45(1) MiFID II.

operator[223]. The management body of the market operator shall also define and oversee the implementation of the governance arrangements that ensure effective and prudent management of an organization, including the segregation of duties in the organization and the prevention of conflicts of interest[224]. Second, as concerns the ownership of the market operator, Member States shall require the persons who are in a position to exercise, directly or indirectly, significant influence over the management of the regulated market to be suitable[225]. In this respect, the market operator shall provide the NCA with information regarding the ownership of the regulated market and/or the market operator, and inform the NCA of any transfer of ownership which gives rise to a change in the identity of the above persons[226].

In addition, MiFID II identifies some duties and obligations that the organizational structure of a RM shall perform, including (i) having arrangements to clearly identify and manage the potential adverse consequences of any conflict of interest between the interest of the regulated market, its owners or its market operator, and the sound functioning of the regulated market; (ii) being adequately equipped to manage the risks to which it is exposed; (iii) having arrangements for the sound management of the technical operations of the system; (iv) having transparent and non-discretionary rules and procedures that provide for fair and orderly trading and establish objective criteria for the efficient execution of orders; (v) have effective arrangements to facilitate the efficient and timely finalization of the transactions executed under its system; and (vi) having available, at the time of authorization and on an ongoing basis, sufficient financial resources to facilitate the orderly functioning of the RM[227].

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[223] Article 45(2)(a) MiFID II.

[224] Article 45(6) MiFID II.

[225] Article 46(1) MiFID II.

[226] Article 46(2) MiFID II.

[227] Article 47(1) MiFID II.

Furthermore, a RM shall have in place effective systems, procedures and arrangements to ensure its trading systems are resilient, have sufficient capacity to deal with peak order and message volumes, are able to ensure orderly trading under conditions of severe market stress, are fully tested to ensure such conditions are met, and are subject to effective business continuity arrangements to ensure continuity of its services if there is any failure of its trading systems[228].

(ii) MTFs and OTFs

Multilateral Trading Facilities (or MTFs) are multilateral systems, operated by an investment firm or a market operator, which bring together multiple third-party buying and selling interests in financial instruments in a way that results in a contract[229]. The operation of a MTF is included among the list of services and activities under MiFID II[230], therefore it is subject to authorization both for investment firms and market operators.

Organised Trading Facilities (or OTFs), on the other hand, are multilateral system which are not a RM or an MTF and in which multiple third-party buying and selling interests in bonds, structured finance products, emission allowances or derivatives are able to interact in the system in a way that results in a contract[231]. As we can see, OTFs trade in non-equity assets – mainly derivatives and bonds – and are designed to capture all non-RM and non-MTF multilateral trading venues[232]. When granting the necessary authorization, the NCA may

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[228] Article 48(1) MiFID II.

[229] Article 4(1)(22) MiFID II.

[230] See paragraph 2.2.1 above.

[231] Article 4(1)(23) MiFID II.

[232] G. FERRARINI, P. SAGUATO, *supra* note 210, 295.

indeed require a detailed explanation why the system cannot operate as a RM, an MTF, or a systematic internaliser[233].

The corporate governance and organizational requirements for MTFs and OTFs are substantially the same already discussed above for RMs. There are however some requirements which are specific for MTFs and OTFs.

Specific requirements for MTFs include the establishment and implementation of non-discretionary rules for the execution of orders in the trading system[234]. In addition, investment firms and market operators running an MTF shall have arrangements in place to manage the risks to which the system is exposed[235], and should not execute client orders against their proprietary capital nor engage in matched principal trading[236].

As concerns the requirements specific for OTFs, firms operating an OTF (i) are precluded from executing client orders against their proprietary capital[237], (ii) are allowed to engage in matched principal trading only in relation to some instruments and only with the client's consent[238], (iii) are allowed to deal on own account only for sovereign debt instruments for which there is not a liquid market[239], and (iv) cannot operate an OTF and a systematic internaliser within

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[233] Article 20(7) MiFID II.

[234] Article 19(1) MiFID II.

[235] Article 19(3) MiFID II.

[236] Article 19(5) MiFID II. "Matched principal trading" means a transaction where the facilitator interposes itself between the buyer and the seller to the transaction in such a way that it is never exposed to market risk throughout the execution of the transaction, with both sides executed simultaneously, and where the transaction is concluded at a price where the facilitator makes no profit or loss, other than a previously disclosed commission, fee or charge for the transaction (Article 4(1)(38) MiFID II).

[237] Article 20(1) MiFID II.

[238] Article 20(2) MiFID II.

[239] Article 20(3) MiFID II.

the same legal entity[240]. However, orders on OTFs are executed on a discretionary basis, hence OTFs do not have to implement non-discretionary rules for the execution of orders[241]; this is probably the most significant difference with MTF systems.

2.2.4 Crypto-exchanges as trading venues

In the event the tokens qualify as financial instruments[242], we may consider the possibility to ascribe the platform where such tokens to one of the three trading venues regulated under MiFID II[243]. Assuming that the fundamental features of trading venues as described under MiFID II are present, we would need to assess the existence of an "organized system"[244].

The main difference between RMs, on the one hand, and MTFs/OTFs, on the other hand, is the recipient of the authorization. With RMs, as seen above, the authorization is granted to the system, rather than to the legal entity that set up the system itself. Conversely, the authorization to set up and manage an MTF or an OTF is granted to the investment firm providing the investment activity/service (*i.e.* operating an MTF/OTF) or to the market operator; indeed, such authorization allows the recipient to set up many trading system without the need of requesting a specific authorization for each one[245].

The directive, however, does not provide any specific guidelines for the interpretation of the term "system". It seems that the term must be understood as an organized set of structures and rules, suitable to allow the functioning of the

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[240] Article 20(4) MiFID II.

[241] G. FERRARINI, P. SAGUATO, *supra* note 210, 297.

[242] See Chapter 2, paragraph 2.

[243] F. ANNUNZIATA, *Speak, If You Can: What Are You?. An Alternative Approach to the Qualification of Tokens and Initial Coin Offerings*, in ECFR, vol. 17, n. 2 (2020), 45.

[244] *Ibid.*

[245] *Id.*, 46.

trading platform[246]. In this respect, MiFIR specifies that "the term 'system' encompasses all those markets that are composed of a set of rules and a trading platform as well as those that only function on the basis of a set of rules"[247]. MiFIR further specifies that "a market which is only composed of a set of rules that governs aspects related to membership, admission of instruments to trading, trading between members, reporting and, where applicable, transparency obligations is a regulated market or an MTF within the meaning of this Regulation and the transactions concluded under those rules are considered to be concluded under the systems of a regulated market or an MTF"[248].

In light of the above, we can provisionally conclude that, in order for a system to exist, it would be necessary to have a set of rules established in advance and a technical infrastructure allowing the system to operate efficiently[249]. It is however the "set of rules" requirement that counts, given the possibility for the operator to use outsourcing agreements for the establishment of the technical structure[250].

In essence, a RM falls under the scope of MiFID II when it is able to set up the rules that govern the system and under which contracts are executed on the platform, regardless of the ownership of the market's infrastructure[251]. Those considerations also apply to MTFs and OTFs, although MiFID II approach is different – the authorization is indeed granted to the investment firm or market operator (and not to the system).

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246 *Ibid.*

247 Recital (7) MiFIR.

248 *Ibid.*

249 F. ANNUNZIATA, *supra* note 243, 47.

250 *Ibid.*

251 *Id.*, 48.

In light of the above considerations, it appears that, in order to configure a crypto-exchange as a "trading venue" subject to MiFID II regime, the core question lies in the possibility of defining and setting in advance the rules governing the system, and not in the technological infrastructure of the platform (that can be subject to outsourcing)[252].

2.2.5 Potential gaps and issues: are MiFID II/MiFIR rules suitable for crypto-exchanges?

When, in light of the criteria discussed above, a crypto-exchange qualifies as a trading venue (a RM, MTF, or OTF, as the case may be), such crypto-exchange would be subject to the applicable set of obligations under MiFID II/MiFIR. The issue that immediately arises is whether MiFID II/MiFIR rules governing "traditional" trading venues would be well-suited for a blockchain-based trading platform.

The first issue concerns the fact that, in order to qualify an exchange as a trading venue, it is necessary to identify a subject that defines and sets the rules governing the platform. However, given the decentralized nature of many blockchain-based exchanges, it may be difficult to identify an "entity" that operates the platform and establishes the rules governing the system; hence many crypto-exchanges would fall outside the perimeter of MiFID II/MiFIR[253]. This lack of a clearly identified operator might also pose significant risks relating to investor protection.

Another issue relates to the impossibility to check whether members or participants of crypto-exchanges comply with MiFID II/MiFIR requirements, given the disintermediated access to crypto-asset trading platforms. For example, it would be impossible to assess whether such members or participants are of

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[252] *Ibid.*

[253] *Id.* 48-49.

sufficient good repute, with sufficient level of trading ability, competence and experience, and with adequate organizational arrangements and resources[254].

In addition, the existing pre-trade and post-trade transparency provisions under MiFIR may be ill-suited for crypto-assets. Indeed, such provisions are designed for traditional equity and non-equity instruments and, although certain classes of crypto-assets may qualify as financial instruments under MiFID II, not all jurisdictions may categorize such crypto-assets as equity or non-equity instruments, hence causing an inconsistent application of transparency requirements across EU Member States[255].

Furthermore, ESMA's Regulatory Technical Standards relating to various reporting and record-keeping requirements (such as transaction reporting, instruments reference data, transparency data) would need to be revised, as they were designed to capture traditional financial instruments and not the peculiarities of crypto-assets[256].

Finally, the list of investment activities/services under MiFID II may need to be revised in order to reflect the specificity of crypto-assets.

2.3 Market Abuse Regulation (MAR)

The Market Abuse Regulation (MAR) establishes a common regulatory framework on insider dealing, the unlawful disclosure of inside information and market manipulation (market abuse) as well as measures to prevent market abuse to ensure the integrity of financial markets in the European Union and to enhance investor protection and confidence in those markets[257].

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[254] ESMA's Advice, 28.

[255] *Ibid.*

[256] *Ibid.*

[257] Article 1 MAR.

The choice for a regulation instead of a directive is based on the idea that a regulation (that is self-executing and directly applicable to EU Member States) is the most appropriate tool to define a delicate matter like market abuse in the EU[258].

MAR shall be read together with the Market Abuse Directive on Criminal Sanctions[259], that sets out the general framework for criminal sanctions for violations of the prohibitions of MAR[260].

As concerns the scope of the regulation, MAR applies to (a) financial instruments admitted to trading on a RM or for which a request for admission to trading on a RM has been made; (b) financial instruments traded on an MTF, admitted to trading on an MTF or for which a request for admission to trading on an MTF has been made; (c) financial instruments traded on an OTF; and (iv) financial instruments not covered by point (a), (b) or (c), the price or value of which depends on or has an effect on the price or value of a financial instrument referred to in those points[261].

The two forms of market abuse described under MAR are (i) insider dealing, and (ii) market manipulation.

2.3.1 Insider dealing and the notion of inside information

Insider dealing arises where a person possesses inside information and uses that information by acquiring or disposing of, for its own account or for the

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[258] M. VENTORUZZO, S. MOCK, *Market Abuse Regulation – Commentary and Annotated Guide*, Oxford University Press (2017), 4.

[259] Directive 2014/57/EU of the European Parliament and of the Council of 16 April 2014 on criminal sanctions for market abuse.

[260] M. VENTORUZZO, S. MOCK, *supra* note 258, 9.

[261] Article 2(1) MAR.

account of a third party, directly or indirectly, financial instruments to which that information relates[262].

MAR defines "inside information" as information of a precise nature, which has not been made public, relating, directly or indirectly, to one or more issuers or to one or more financial instruments, and which, if it were made public, would be likely to have a significant effect on the prices of those financial instruments or on the price of related derivative financial instruments[263]. The regulation then provides other definitions of inside information specific for commodity derivatives[264], emission allowances[265], and persons charged with the execution of orders concerning financial instruments[266]. MAR requires any issuer to inform the public as soon as possible of inside information which directly concerns that issuer[267]. Disclosure can only delayed when (i) immediate disclosure is likely to prejudice the legitimate interests of the issuer, (ii) delay of disclosure is not likely to mislead the public, and (iii) the issuer is able to ensure the confidentiality of that information[268]. On the other hand, disclosure of inside information is deemed to be unlawful when a person discloses that information to any other person, except where the disclosure is made in the normal exercise of an employment, a profession or duties[269].

Furthermore, the notion of insider dealing also covers the conduct of recommending, on the basis of inside information, that another person acquire or dispose of financial instruments (or cancel/amend an order) to which that

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[262] Article 8(1) MAR.

[263] Article 7(1)(a) MAR.

[264] Article 7(1)(b) MAR.

[265] Article 7(1)(c) MAR.

[266] Article 7(1)(d) MAR.

[267] Article 17(1) MAR.

[268] Article 17(4) MAR.

[269] Article 10(1) MAR.

information relates, or induces that person to make such an acquisition or disposal (or cancellation/amendment)[270].

The insider dealer can be any person who possesses the inside information as a result of: (a) being a member of the administrative, management or supervisory bodies of the issuer or emission allowance market participant; (b) having a holding in the capital of the issuer or emission allowance market participant; (c) having access to the information through the exercise of an employment, profession or duties; (d) being involved in criminal activities; or (e) in any case where that person knows or ought to know that it is inside information[271].

Whether or when trading in securities based on inside information should be banned is still subject to a vivid debate. Some scholars, indeed, argue that allowing insiders to trade may be beneficial for price discovery, while others highlight the fact that the advantage position of insiders would undermine public confidence in the integrity of the markets[272].

2.3.2 Market manipulation

Market manipulation consists in a multi-layer phenomenon covering many kinds of behavior generally not accepted in markets[273]. We can divide the market manipulation conducts described under MAR into two broad categories: (i) information-based manipulation[274] and (ii) transaction-based manipulation[275].

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[270] Article 8(2) MAR.

[271] Article 8(4) MAR.

[272] M. VENTORUZZO, S. MOCK, *supra* note 258, 30.

[273] *Id.*, 36-37.

[274] Articles 12(1)(c) and 12(1)(d) MAR.

[275] Articles 12(1)(a) and 12(1)(b) MAR.

Information-based manipulation occurs when a person disseminates information through the media or by any other means which gives, or is likely to give, false or misleading signals as to the supply of, demand for, or price of, a financial instrument, or is likely to secure the price of one or several financial instruments at an abnormal or artificial level, where the person who made the dissemination knew, or ought to have known, that the information was false or misleading. Whether such an artificial price level actually exists is often difficult to assess, as it requires a determination of the right market price for the financial instrument [276]. However, in case of information-based manipulation, such determination is less problematic, as only an abnormal increase or decrease in the market price shall be deemed to be connected with the publication of the false or misleading signals[277].

Transaction-based manipulation occurs when someone enters into a transaction, placing an order to trade or any other behavior which gives, or is likely to give, false or misleading signals as to the supply of, demand for, or price of, a financial instrument, or secures, or is likely to secure, the price of one or several financial instruments at an abnormal or artificial level. Here the determination of the right price level can be extremely difficult, although it is not usually necessary: with regard to administrative and criminal sanctions, for instance, it is sufficient that the manipulator committed a market manipulation in general (such a determination will be, instead, mandatory in the context of civil liability)[278].

Finally, MAR provides a non-exhaustive list of sample behaviors that shall constitute market manipulation, such as (i) securing a dominant position over the supply of or demand for a financial instrument which has, or is likely to have,

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[276] M. VENTORUZZO, S. MOCK, *supra* note 258, 37.

[277] *Ibid.*

[278] *Id.*, 38.

the effect of fixing purchase or sale prices or creates other unfair trading conditions; (ii) buying or selling of financial instruments, at the opening or closing of the market, which has or is likely to have the effect of misleading investors acting on the basis of the prices displayed; or (iii) taking advantage of occasional or regular access to the traditional or electronic media by voicing an opinion about a financial instrument[279].

2.3.3 The application of MAR to crypto-assets: issues and regulatory concerns

MAR applies to financial instruments admitted to trading on a RM, an MTF, or an OTF. Hence, where crypto-assets qualify as financial instruments, and provided they are traded or admitted to trading on a trading venue, MAR will apply.

In such a case, the trading platform (*i.e.* the crypto exchange) would need to have in place effective arrangements, systems and procedures aimed at preventing, detecting and reporting market abuse[280]. In addition, issuers would need to disclose inside information as soon as possible[281] and to maintain an insider list[282], and managers of issuers would need to notify the NCA of every transaction conducted on their own account[283]. Furthermore, persons who produce or disseminate investment recommendations would need to ensure that such information is objectively presented[284], which may be particularly significant for crypto-markets where limited trading volumes and concentrated

[279] Article 12(2) MAR.

[280] Article 16 MAR.

[281] Article 17 MAR.

[282] Article 18 MAR.

[283] Article 19 MAR.

[284] Article 20 MAR.

ownerships of certain crypto-assets may raise a high risk of conflicts of interest[285]. However, considering the decentralized nature of blockchain-based exchange platforms, it would be quite difficult to check compliance with the above requirements.

Where crypto-assets do not qualify as financial instruments, trading activity in them would in theory fall outside the scope of MAR. This regulatory gap may pose relevant risks in situations where the price of a (traditional) financial instrument could be influenced through manipulative trading activity in crypto-assets not qualifying as financial instruments (for example, where the same issuer has issued financial instruments traded on a traded venue and crypto-assets)[286].

Finally, given the novelty of crypto-markets, some new abusive behaviors may arise which are not captured by MAR. For example, new market participants, such as miners and wallet providers, may hold new forms of inside information that could potentially be used to manipulate the trading of crypto-assets[287].

3. Towards a common EU legal framework for crypto-assets: regulatory challenges and MiCA proposal

The most urgent task at EU level is to provide guidance and legal certainty to tokens sellers, on the one side, and crypto-investors, on the other side[288]. In this respect, it would be appropriate to have a common EU regulatory framework in order to avoid a different regime for crypto-assets across EU Member States.

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[285] ESMA's Advice, 29.

[286] *Ibid.*

[287] *Ibid.*

[288] P. HACKER, C. THOMALE, *supra* note 89, 42.

3.1 Current regulatory issues and challenges in the EU

As we have seen above, in the event crypto-assets qualify as financial instruments or payment instruments, a full set of EU rules is likely to apply to them and to firms providing investment services in relation to such instruments[289]. However, considering that the current EU legal framework was not designed with instruments like crypto-assets in mind, NCAs face many challenges in trying to interpret the existing regulation and assess its applicability to tokens[290].

Furthermore, as evidenced in ESMA's Advice, NCAs defined the term "financial instrument" differently when transposing MiFID II into their national laws: indeed, some NCAs opted for a restrictive approach to the definition of financial instruments, while others employed a broader interpretation[291]. This obviously creates uncertainty in both the regulation and supervision of crypto-assets.

Further uncertainty is generated by the fact that only a fraction of the wide range of crypto-assets currently existing are likely to qualify as financial instruments under MiFID II or as payment instruments. This means that all the remaining crypto-assets would be outside the reach of EU regulation and therefore be regulated under domestic laws, that might significantly differ from one EU Member State to another. The result is that investors may not be able to distinguish between those crypto-assets falling under the scope of EU financial regulation (with all the safeguards that those rules provide) and those that are not[292].

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[289] ESMA's Advice, 36-37.

[290] *Id.*, 37.

[291] *Id.*, 39.

[292] *Id.*, 39-40.

Considering the high degree of regulatory uncertainty, the vast majority of NCAs, when asked by ESMA, expressed their opinion that all crypto-assets should be subject to some form of regulation; however, there was little consensus as to whether a bespoke regulatory regime for those crypto-assets not qualifying as financial instruments should be designed within the scope of MiFID II or outside of it[293]. On the other hand, great part of NCAs agreed that crypto-assets qualifying as financial instruments should be regulated as such, although a number of NCAs suggested that changes to existing legislation or additional provisions may be needed to respond to the unique features of this new industry[294].

Another issue that should not be underestimated concerns the UK situation post-Brexit, given the central role of the UK in the financial services industry and the choice of many crypto-asset service providers to operate in the UK. The European Commission made it clear in a July 2020 notice[295] that, at the end of the Brexit transition period on 31 December 2020, the MiFID II framework for investment services and activities will no longer apply to the UK. After the end of the transition period the UK will be a third country as regards to the implementation and application of EU law in the EU member states[296]. During the transition period, the EU and the UK shall negotiate an agreement on a new partnership; however, it is not certain whether such an agreement will be concluded and will enter into force at the end of the transition period[297]. This creates further uncertainty in relation to the future treatment of crypto-assets in

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[293] *Id.*, 21.

[294] *Id.*, 20.

[295] EUROPEAN COMMISSION, *Notice to Stakeholders – Withdrawal of the United Kingdom and EU Rules in the Field of Markets in Financial Instruments* (July 13, 2020), available at: https://ec.europa.eu/info/sites/info/files/brexit_files/info_site/financial_instruments_en.pdf.

[296] *Id.*, 1.

[297] *Ibid.*

the UK, to the regulation of firms offering services or performing activities related to crypto-assets in the UK and, most importantly, to the relationship between the UK and EU Member States with regard to any UK-EU transnational crypto-activity.

Finally, uncertainty in the EU internal market is also generated from the fact that many EU Member States have introduced, or are discussing the introduction of, a specific regulation for crypto-assets. As we will see in the next paragraph, some EU Member States, such as Malta and Estonia, adopted a progressive approach and implemented a crypto-friendly domestic regulation of crypto-assets in order to attract foreign crypto-businesses and investors. On the other hand, some EU Member States, such as Italy, France, Germany, and the United Kingdom, followed a more prudential approach in implementing an internal regulation of crypto-assets.

3.2 The different approaches of EU Member States: some examples

3.2.1 Crypto-friendly approach: Malta and Estonia

Among those EU Member States that adopted a crypto-friendly regulation of crypto-assets, Malta was one of the first ones showing a proactive approach to the matter; this earned the country the nickname of "Blockchain Island"[298]. In fact, in July 2018 the Maltese government approved the Digital Innovation Framework with the purpose of establishing a favorable regulatory climate for blockchain technology and crypto-assets. The framework, which included three acts (the Digital Innovation Authority Act, the Innovative Technological Arrangement and Services Act, and the Virtual Financial Asset Act), required

[298] The appellative comes from the then-Prime Minister Joseph Muscat, that in September 2018 presented Malta as a "blockchain island" at the United Nations General Assembly.

businesses to be licensed by the MFSA (Malta's NCA) in the event they launch initial coin offerings, trade digital assets, or provide electronic wallets and brokerage activities[299].

Estonia is another EU Member State that introduced a crypto-favorable regulation at the first stage of the phenomenon. Indeed, in 2017 the Estonian government passed a number of new laws designed to support crypto projects by introducing two different licenses: one for those willing to operate a crypto exchange, and one for those looking to launch an initial coin offering.[300]. Estonia also offered the ability for citizens of any nation to obtain a "digital residence" by locating themselves or their companies in Estonia, thereby obtaining the mentioned crypto licenses much easier – even if they conducted business elsewhere[301].

We can also find similar crypto-friendly regimes in other EU Member States such as Lithuania, Cyprus, and Czech Republic.

Nonetheless, during the past two years, crypto-friendly EU Member States are experiencing a significant reduction in the number of businesses applying for crypto-licenses or setting up their crypto-activities there. The main reason is the implementation by the EU of the Fifth AML/CFT Directive[302], that must be transposed in all EU Member States. As a consequence, even the most crypto-friendly EU Member States shall now operate under a well-defined regulatory

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[299] S. O'NEAL, *As Malta Delays Regulatory Clarity, Fewer Firms Remain on 'Blockchain Island'*, Cointelegraph (April 3, 2020), available at: https://cointelegraph.com/news/as-malta-delays-regulatory-clarity-fewer-firms-remain-on-blockchain-island.

[300] C. EVANS, *The Great Estonian Exodus – Crypto Firms Are Leaving Estonia*, Cointelegraph (June 27, 2020), available at: https://cointelegraph.com/news/the-great-estonian-exodus-crypto-firms-are-leaving-estonia.

[301] *Ibid.*

[302] See Chapter 2, paragraph 3.1.1.

framework that includes strict reporting and KYC rules, making their internal regulations as stringent as those of other EU countries[303].

3.2.2 *Prudential* approach: UK, Italy, France, and Germany.

On the other side, we have a group of EU Member States that, although showing an open attitude to blockchain technology and its applications, adopted a more prudential approach in the regulation of blockchain technology and crypto-assets.

(i) United Kingdom

The United Kingdom, for example, regulates crypto-assets only for AML/CFT purposes, while for other matters it still relies on soft law. In this respect, the FCA (UK financial regulator) issued in 2019 its guidelines on crypto-assets[304], aiming at giving market participants and interested stakeholders clarity on the types of crypto-assets that fall within the FCA's regulatory remit and the resulting obligations on firms, together with regulatory protections for consumers. It also provides information on those crypto-assets falling outside FCA's perimeter, and the regulatory implications for firms and consumers[305].

Afterwards, on January 10, 2020, the FCA was appointed the UK's AML/CFT financial regulator and supervisor of crypto-asset in the context of the implementation of the Fifth AML Directive. Accordingly, new crypto-business (who began operating after 10 January 2020) must register with the FCA before they begin conducting business[306].

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[303] S. O'NEAL, *supra* note 299.

[304] FINANCIAL CONDUCT AUTHORITY (FCA), *Guidance on Cryptoassets*, PS 19/22 (July 2019), available at: https://www.fca.org.uk/publication/policy/ps19-22.pdf.

[305] *Id.*, 3.

[306] See https://www.fca.org.uk/cryptoassets-aml-ctf-regime/register.

Furthermore, in October 2020, the FCA published final rules banning the sale of derivatives and exchange traded notes (ETNs) that reference certain types of crypto-assets[307] to retail consumers, as the FCA considers these products to be ill-suited for retail consumers due to the harm they pose[308].

Moreover, the tax collecting body of the UK, HMRC (Her Majesty's Revenue and Customs), released in December 2019 its guidelines on the taxation of crypto-assets in the U.K.[309], covering activities such as crypto trading, payments, and mining. Without delving into tax matters, it is interesting to mention that crypto-assets (including payment tokens) are not considered currency or money but rather assets, as most individuals hold cryptocurrencies as personal investment, and they will pay capital gains tax when they "dispose" thereof[310].

Finally, we need to take into consideration the regulatory issues that Brexit will pose, briefly discussed in paragraph 3.1 above.

(ii) Italy

In Italy, Consob (Italy's financial regulator) released, in January 2020, a final report on ICOs and exchanges of crypto activities[311] after a public hearing held at Bocconi University and a public consultation with representatives of, *inter*

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[307] Crypto-assets referred to by FCA are those tokens that are not 'specified investments' or e-money, and can be traded, which includes well-known tokens such as Bitcoin, Ether or Ripple. Specified investments are types of investment which are specified in legislation.

[308] See https://www.fca.org.uk/news/press-releases/fca-bans-sale-crypto-derivatives-retail-consumers.

[309] Available at: https://www.gov.uk/government/publications/tax-on-cryptoassets/cryptoassets-for-individuals.

[310] See B. STRICKLAND, *Crypto Taxes in the United Kingdom*, TokenTax, available at: https://tokentax.co/guides/crypto-taxes-in-united-kingdom/.

[311] CONSOB, *Le Offerte Iniziali e gli Scambi di Cripto-attività – Rapporto Finale* (January 2, 2020), available at: http://www.consob.it/documents/46180/46181/ICOs_rapp_fin_20200102.pdf/70466207-edb2-4b0f-ac35-dd8449a4baf1.

alia, FinTech associations, FinTech services providers, academia, and law firms. Consob evidenced that it is not clear whether crypto-assets fall within MiFID II definition of "financial instruments". In this respect, considering that MiFID II definition cannot be integrated with further specifications at national level, Consob proposed a comparative analysis with the list of financial instruments already existing under MiFID II[312].

Consob then urged for a regulatory intervention mainly aimed at regulating ICOs and ensuring reliability of crypto-exchanges. In particular, as concerns ICOs, Consob suspended in 2018 an ICO from a UK company (Togacoin Ltd) on the grounds that its offering of instruments in Italy was "abusive" as made in breach of Italian securities regulation[313] – therefore implying that ICOs may qualify, if they meet the necessary requirements, as regular offerings of financial instruments from a regulatory perspective.

Furthermore, Italy transposed the Fifth AML Directive in order to include cryptocurrency services providers among those firms subject to AML obligations.

As concerns taxation of crypto-assets, there is no specific indication from the internal revenue authority (*Agenzia delle Entrate*) in this respect; the authority only clarified that cryptocurrencies shall be considered as a foreign currency and therefore exempt from VAT[314] (indeed, only capital gain generated from crypto-trade is taxed).

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[312] *Id.*, 2.

[313] CONSOB, Delibera n. 20660 del 31 ottobre 2018, *Sospensione, ai sensi dell'art. 99, comma1, lett.b), del d.lgs.n.58/1998, dell'offerta al pubblico residente in Italia avente ad oggetto "tokenTGA", effettuata da Togacoin LTD*.

[314] AGENZIA DELLE ENTRATE, *Interpello ai sensi dell'art. 11, legge 27 luglio 2000, n. 212. Trattamento fiscale applicabile alle società che svolgono attività di servizi relativi a monete virtuali*, Risoluzione N. 72 /E (September 2, 2016), available at: https://www.finaria.it/pdf/bitcoin-tasse-agenzia-entrate.pdf.

In sum, Italy still has to implement an internal regulatory framework for crypto-assets that will take into account the advices included in Consob's final report.

(iii) France

France has regulated Initial Coin Offerings (ICOs) and intermediaries providing crypto-asset services by virtue of a 2019 law[315]. Its aim was twofold: France wanted to attract meritorious projects to its territory while also bringing this ecosystem within the ambit of regulation[316]. Thus, when France transposed the Fifth AML Directive, it went a step further by imposing additional regulatory duties on intermediaries[317]. Pursuant to the current regulation, ICO issuers have the ability – but not the obligation – to apply for a "visa" from the French Financial Markets Regulator (AMF) in return for filing an information document, providing clear, transparent and not misleading communications to the public, and by complying with anti-money laundering (AML) duties[318]. The visa remains optional and the raising of funds without AMF visa will continue to be legal in France; however, issuers who have not received the AMF visa will not be able to use general solicitation[319].

In addition, if they wish, digital assets services providers may be licensed and placed under the supervision of the AMF. Whether or not they choose to obtain the optional license, service providers who wish to provide digital assets

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[315] PACTE law n° 2019-486 of 22 May 2019.

[316] I. BARSAN, *France: Regulation of Crypto-assets, Intermediaries and Initial Coin Offerings in France*, Global Compliance News (February 24, 2020), available at: https://globalcompliancenews.com/france-regulation-of-crypto-assets-intermediaries-and-initial-coin-offerings-s-in-france/.

[317] *Ibid.*

[318] *Ibid.*

[319] See https://www.amf-france.org/en/news-publications/news/towards-new-regime-crypto-assets-france.

custody services to third parties or to purchase/sell digital assets in exchange for legal tender are subject to mandatory registration with the AMF in compliance with the Fifth AML Directive[320].

Finally, as concerns the tax regime, according to guidelines from the Direction Générale des Finances Publiques (DGFP, General Directorate for Public Finance), capital gains from the sale of cryptocurrencies are subject to taxation, although they will be taxed differently depending on whether the taxpayer's acquisition and sale of cryptocurrency is an occasional activity or a habitual activity.

(iv) Germany

Germany has adopted a new regulatory regime for crypto-assets in connection with the implementation of the Fifth AML Directive. First, the reform introduces the new category of "crypto assets" in the German definition of "financial instruments" set out in the German Banking Act (KWG), that includes several classes of crypto-assets including payment tokens and investment tokens[321]. Moreover, the reform introduces the new regulated financial service "crypto custody business", defined as the custody, administration, or safeguarding of crypto-assets or private cryptographic keys used to hold, store or transfer crypto assets as service for others[322]. Service providers such as custodian wallet providers will therefore require a license for crypto custody business issued by Germany's financial regulator (BaFin). BaFin released its guidelines on the interpretation of the above amendments to the KWG, in particularly as

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[320] *Ibid.*

[321] C. HERKSTRÖTER, M. BORN, *Crypto Assets: Germany introduces new regulatory regime*, Norton Rose Fulbright (February 17, 2020), available at: https://www.regulationtomorrow.com/de/crypto-assets-germany-introduces-new-regulatory-regime/.

[322] *Ibid.*

concerns (i) the interpretation of "crypto custody business", and (ii) the application for authorization for crypto custody business[323].

Furthermore, Germany passed a law (598/19) enabling banks to both sell and store cryptocurrencies, and BaFin has shown strong support for investment tokens by approving a number of STOs[324], hence showing a proactive approach in what seems to become an attempt to create a hub for blockchain innovation[325].

Finally, as concerns tax treatment, although there are no explicit legal provisions governing the taxation of cryptocurrencies, the German Federal Ministry of Finance issued in 2018 a document[326] clarifying that Germany will treat cryptocurrencies as legal tender for tax purposes when used for payments.

3.2.3 Final remarks

The different and sometimes inconsistent regimes across EU Member States in the regulation of crypto-assets pose a serious risk of regulatory arbitrage, particularly in relation to those classes of crypto-assets not covered by EU financial law.

Although regulatory arbitrage is not necessarily a bad thing, some caution is warranted in this case, as we are experiencing a proactive regulatory

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[323] https://www.bafin.de/EN/Aufsicht/BankenFinanzdienstleister/Zulassung/Kryptoverwahrgeschaeft/kryptoverwahrgeschaeft_node_en.html.

[324] Such as StartMark, Neufund, and BitBond.

[325] T. FRIES, *Germany Passes Law Enabling Banks to Store Cryptocurrencies*, The Tokenist (July 7, 2020), available at: https://tokenist.com/germany-passes-law-enabling-banks-to-store-cryptocurrencies/.

[326] Available at: https://www.bundesfinanzministerium.de/Content/DE/Downloads/BMF_Schreiben/Steuerarten/Umsatzsteuer/Umsatzsteuer-Anwendungserlass/2018-02-27-umsatzsteuerliche-behandlung-von-bitcoin-und-anderen-sog-virtuellen-waehrungen.pdf;jsessionid=50B81F7F4C1885DD69ECE00796509FB1?__blob=publicationFile&v=1.

competition to attract businesses by some jurisdictions[327]. Indeed, regulatory competition in markets for financial services, especially when coming from smaller jurisdictions (such as Malta and Estonia), can be particularly dangerous, as the harm that a financial institution's collapse can cause outside the competent jurisdiction can be much serious than the harm caused domestically[328].

3.3 The proposal for a regulation on markets in crypto-assets (MiCA)

In order to mitigate all the risks discussed under paragraph 3.1 above, ESMA urged EU policymakers to set up a bespoke regime for those crypto-assets that do not qualify as financial instruments[329].

The European Commission welcomed ESMA's advice and took a broad approach to the future development of digital finance in the EU[330] by adopting on 24 September 2020 a new Digital Finance Package[331]. Perhaps the most interesting and innovative part of the EU Digital Finance Package is represented by the legislative proposals for an EU regulatory framework on crypto-assets[332], most significantly the proposal for a new Regulation on Markets in Crypto-

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[327] L. ENRIQUES, *Welcome to Vilnius: Regulatory Competition in the EU Market for E-Money*, Oxford Business Law Blog (October 22, 2019), available at: https://www.law.ox.ac.uk/business-law-blog/blog/2019/10/welcome-vilnius-regulatory-competition-eu-market-e-money.

[328] *Ibid.*

[329] ESMA's Advice, 40.

[330] D. A. ZETZSCHE, F. ANNUNZIATA, D. W. ARNER, R. P. ROSS, *The Markets in Crypto-Assets Regulation (MICA) and the EU Digital Finance Strategy,* European Banking Institute Working Paper Series No. 2020/77, University of Luxembourg Law Working Paper Series No. 2020-018 (November 5, 2020), 2, available at: http://dx.doi.org/10.2139/ssrn.3725395.

[331] FINANCIAL STABILITY, FINANCIAL SERVICES AND CAPITAL MARKETS UNION, EUROPEAN COMMISSION, *Communication on Digital Finance Package* (24 September 2020), available at: https://ec.europa.eu/info/publications/200924-digital-finance-proposals_en.

[332] D. A. ZETZSCHE, F. ANNUNZIATA, D. W. ARNER, R. P. ROSS, *supra* note 330, 3.

Assets (MiCA)[333], that will be the core subject of our analysis here, and a new proposal for a Regulation on a Pilot Regime for Market Infrastructures Based on Distributed Ledger Technology (DLT Infrastructure Regulation)[334].

The DLT Infrastructure Regulation is a regulatory sandbox for DLT market infrastructures providing trading and settlement services for DLT-transferable securities, and is open for market participants running "multilateral trading facilities" or "securities settlement systems" using DLT[335]. Such market participants must be authorized as an investment firm or a market operator under MiFID II or as a Central Securities Depository under Regulation 909/2014 (CSDR). If those requirements are met, the market participant can apply for specific permission under the Pilot Regime and be temporary exempted from certain rules and obligations[336]. This permission will be granted only if the applicant fulfills a number of special requirements under the Pilot Regime, including certain limitations on the securities which are going to be traded on the market infrastructure, as well as some general obligations aimed at preventing risks raised by the use of DLT[337].

MiCA, on the other hand, deals with crypto-assets with a particular focus on stablecoins, and is the EU's response to the policy debate arisen from Facebook's Libra proposal in June 2019[338].

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[333] EUROPEAN COMMISSION, *Proposal for a Regulation of the European Parliament and of the Council on Markets in Crypto-assets, and amending Directive (EU) 2019/1937,* 2020/0265 (COD) (September 24, 2020).

[334] EUROPEAN COMMISSION, *Proposal for a Regulation of the European Parliament and of the Council on a Pilot Regime for Market Infrastructures Based on Distributed Ledger Technology*, COM/2020/594 final (September 24, 2020).

[335] W. RINGE, C. ROUF, *The DLT Pilot Regime: An EU Sandbox, at Last!*, Oxford Business Law Blog (November 19, 2020), available at: https://www.law.ox.ac.uk/business-law-blog/blog/2020/11/dlt-pilot-regime-eu-sandbox-last.

[336] *Ibid.*

[337] *Ibid.*

[338] D. A. ZETZSCHE, F. ANNUNZIATA, D. W. ARNER, R. P. ROSS, *supra* note 330, 4.

Essentially, as we will see below in greater detail, MiCA aims at (i) regulating those crypto-assets which are currently out of EU securities regulation scope (such as stablecoins) and their service providers in the EU, (ii) providing a single licensing regime across all EU Member States, and (iii) establishing uniform rules for crypto-asset service providers and issuers at EU level. The particular attention to the creation of an uniform crypto-assets framework in the EU is also evidenced by the fact that the EC opted for a regulation (self-executing and directly applicable) rather than a directive in order avoid any discretion of EU Member States in the implementation of MiCA rules.

In line with the existing EU securities regulation, the competent authorities responsible for carrying out the functions and duties provided for under MiCA regulation shall be designated by EU Member States at national level[339]. The national competent authorities (NCAs) shall cooperate with each other[340] and with ESMA and EBA[341] for all the purposes of the regulation. ESMA and EBA, on their side, in fulfilling their supervisory duties, shall ensure an effective cooperation among NCAs and a uniform application of MiCA rules across EU Member States. In carrying out these functions, ESMA and EBA can rely on a broad range of powers including, *inter alia*, requesting information to NCAs, coordinating cross-border inspections and investigations, and settling disagreements between NCAs[342].

Although MiCA is still in the form of a proposal and we cannot predict when exactly it will come into force, the European Commission is confident that it will be implemented by 2024. Indeed, in a communication to other EU institutions, the EC stated that "by 2024, the EU should put in place a

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[339] Article 81(1) MiCA.

[340] Article 83(1) MiCA.

[341] Article 84(1) MiCA.

[342] Articles 83 and 84 MiCA.

comprehensive framework enabling the uptake of distributed ledger technology (DLT) and crypto-assets in the financial sector. It should also address the risks associated with these technologies"[343]. However, even when MiCA regulation comes into force, there will be a transitional period for firms to ensure they meet the new requirements and the ability for a light-touch regime for existing regulated entities[344]. We also cannot exclude that, given the rapid and often unpredictable evolution of the crypto-assets phenomenon, the current version of MiCA proposal may be subject to substantial changes before its final approval.

3.3.1 Scope and definitions

MiCA regulation applies to "persons that are engaged in the issuance of crypto-assets or provide services related to crypto-assets in the Union"[345]. However, some categories of crypto-assets are expressly excluded from the above scope, such as (i) financial instruments as defined under MiFID II, and (ii) electronic money as defined under EMD2 (except where they qualify as electronic money tokens under MiCA)[346]. In addition, MiCA regulation does not apply to certain categories of entities and persons, such as (i) the European Central Bank, national central banks of EU Member States when acting in their capacity as monetary authority, or other public authorities, (ii) persons who provide crypto-asset services exclusively for their parent companies,

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[343] EUROPEAN COMMISSION, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee of the Regions on a Digital Finance Strategy for Europe*, COM(2020) 591, available at: https://www.politico.eu/wp-content/uploads/2020/09/CLEAN-Commission-Digital-Finance-Action-Plan-170920-004.pdf.

[344] ASHURST, *10 things you need to know about MiCA: Europe's proposals for regulating crypto assets* (October 7, 2020), available at: https://www.ashurst.com/en/news-and-insights/legal-updates/10-things-you-need-to-know-about-mica-europes-proposals-for-regulating-crypto-assets/.

[345] Article 2(1) MiCA.

[346] Article 2(2) MiCA.

subsidiaries, or other subsidiaries of their parent companies, and (iii) public international organizations[347].

Perhaps the most significant exemption from the scope of MiCA is the one relating to the ECB and EU Member States' central banks when acting as monetary authorities, which therefore excludes all Central Bank Digital Currencies (CBDCs)[348] issued by the mentioned entities from the application of MiCA regime. The rationale behind the exemption is that bespoke regulation would be a better way to ensure the quality of such crucial monetary functions rather than a general financial legislation[349].

In order to better define the scope of MiCA, we need to have a close look at the most relevant definitions of the proposed regulation.

MiCA provides first a general definition of "crypto-assets" as "a digital representation of value or rights which may be transferred and stored electronically, using distributed ledger technology or similar technology"[350].

The proposed regulation then identifies three specific classes of crypto-assets:

(1) "asset-referenced token", defined as "a type of crypto-asset that purports to maintain a stable value by referring to the value of several fiat currencies that are legal tender, one or several commodities or one or several crypto-assets, or a combination of such assets"[351];

(2) "electronic money token" or "e-money token", defined as "a type of crypto-asset the main purpose of which is to be used as a means of

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[347] Article 2(3) MiCA.

[348] Central Bank Digital Currencies (CBDCs) are discussed under Chapter 2, paragraph 3.1.1.

[349] D. A. ZETZSCHE, F. ANNUNZIATA, D. W. ARNER, R. P. ROSS, *supra* note 330, 24.

[350] Article 3(1)(2) MiCA.

[351] Article 3(1)(3) MiCA.

exchange and that purports to maintain a stable value by referring to the value of a fiat currency that is legal tender"[352];

(3) "utility token", defined as "a type of crypto-asset which is intended to provide digital access to a good or service, available on DLT, and is only accepted by the issuer of that token"[353].

Looking at the above definitions and at the exemptions discussed above, we can draw the following conclusions in relation to the scope of the proposed regulation.

(a) MiCA regulation creates a general catch-all category of "crypto-assets", which also includes utility tokens, and then identifies the sub-categories of asset-referenced tokens and e-money tokens, subject to a special and more stringent regime. It is not entirely clear which classes of tokens fall within the general category of "crypto-assets". As we will see below in greater details, we can generally subsume under this catch-all category: (i) utility tokens not qualifying as financial instruments under MiFID II, (ii) payment tokens not qualifying as e-money under EMD2 or as asset-referenced/e-money tokens under MiCA, and (iii) stablecoins not qualifying as asset-referenced/e-money tokens under MiCA (such as algorithmic stablecoins).

(b) Asset-referenced tokens and e-money tokens are two different categories of stablecoins, *i.e.* those tokens maintaining a stable value by referring to the value of external assets[354]. Asset-referenced tokens are stablecoins which are linked to the value of (i) several (*i.e.* more than one) fiat currencies with legal tender, (ii) one or more commodities, (iii) one or more crypto-assets, or (iv) a combination of the above assets. They can be

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[352] Article 3(1)(4) MiCA.

[353] Article 3(1)(5) MiCA.

[354] See Chapter 2, paragraph 3.1.1.

used either as a means of exchange or as a store of value. E-money tokens, on the other hand, represent a narrower category of stablecoins, as they only include those stablecoins whose value is pegged to one single fiat currency that is legal tender; their main purpose is to be used as a means of exchange. The function of e-money tokens is very similar to the function of e-money as defined under EMD2: like e-money, such tokens are electronic surrogates for coins and banknotes and are used for making payments[355]. All those stablecoins not falling under the definitions of asset-referenced token and e-money token shall be subject to the general provisions regulating the catch-all category of crypto-assets. One example is represented by algorithmic stablecoins, expressly excluded from the "asset-referenced tokens" category[356].

(c) Utility tokens are defined as crypto-assets (i) providing digital access to a good or service available on DLT, and (ii) only accepted by the issuer of those tokens. The definition clearly reflects the general understanding of the market and does not substantially differ from the "unofficial" definitions of utility tokens currently in use among authorities and scholars. Save for some limited specific rules, utility tokens are subject to the regime applicable to the general catch-all category of crypto-assets.

(d) Crypto-assets qualifying as financial instruments under MiFID II are expressly excluded from the scope of MiCA. However, MiCA does not provide any guidance in such respect. We have discussed in great detail under paragraphs 2.1 to 2.4 above which classes of crypto-assets may qualify as financial instruments. Broadly speaking, we have reached the

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[355] Recital (9) MiCA.

[356] See Recital (26) MiCA: "So-called algorithmic 'stablecoins' that aim at maintaining a stable value, via protocols, that provide for the increase or decrease of the supply of such crypto-assets in response to changes in demand should not be considered as asset-referenced tokens, provided that they do not aim at stabilising their value by referencing one or several other assets".

conclusion that investment tokens – together with hybrid tokens with a significant investment component – are likely to qualify as financial instruments under MiFID II, and therefore excluded from the scope of MiCA.

(e) Crypto-assets qualifying as e-money under EMD2 are expressly excluded from the scope of MiCA, except where they qualify as e-money tokens under MiCA. Therefore, those payment tokens qualifying as e-money under EMD2[357] will fall outside the scope of MiCA regulation.

(f) Payment tokens that do not qualify as either asset-referenced/e-money tokens under MiCA or electronic money under EMD2 are likely to fall under the catch-all category of crypto-assets. We can include in this category, for example, Bitcoin and the vast majority of altcoins.

3.3.2 Offerings of crypto-assets

Issuers of crypto-assets (other than asset-referenced tokens or e-money tokens) must publish a white paper to offer crypto-assets to the public or request admission to a trading platform for crypto-assets[358]. The proposed regulation provides for exemptions when crypto-assets are (i) offered for free, (ii) automatically created through mining as a reward, (iii) unique and not fungible with other crypto-assets, (iv) offered to fewer than 150 natural or legal persons per EU Member State, (v) over a period of 12 months, offered to the public in the EU for a total consideration not exceeding EUR 1.000.000 (or the equivalent amount in another currency or in crypto-asset), or (vi) solely addressed to qualified investors (and the crypto-assets can only be held by such qualified investors)[359].

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[357] For a discussion on the point, see Chapter 2, paragraph 3.1.

[358] Article 4(1) MiCA.

[359] Article 4(2) MiCA.

The set of rules provided by MiCA for issuers of the catch-all category of crypto-assets reflect both consolidated market practices and current EU securities laws (namely Prospectus Regulation, MiFID II/MiFIR, and MAR)[360]. Indeed, the issuance of a white paper already constituted a common practice among token issuers; the EC just adapted EU securities regulation to this new form of offering document, which takes the form of a "reduced" prospectus.

The white paper must contain a number of information, including a detailed description of (i) the issuer, (ii) the issuer's project, the type of crypto-asset that will be offered to the public or for which admission to trading is sought, the reasons why the crypto-assets will be offered to the public or why admission to trading is sought, and the planned use of the fiat currency or other crypto-assets collected via the offer to the public, (iii) the characteristics of the offer to the public, (iv) the rights and obligations attached to the crypto-assets, and (v) the risks relating to the issuer, the crypto-assets, the offer to the public of such crypto-assets, and the implementation of the project[361]. In addition, where the offer to the public of crypto-assets concerns utility tokens for a service that is not yet in operation, the duration of the public offer as described in the white paper shall not exceed 12 months[362]. The latter is one of the very few provisions of MiCA which are specific for utility tokens; where MiCA does not provide for any special rule for utility tokens, the provisions applicable to the general catch-all category of crypto-assets (examined in this paragraph 3.3.2) shall apply.

MiCA also regulates marketing communications relating to offerings of crypto-assets, which shall be, *inter alia*, (i) clearly identifiable as such, (ii) fair,

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[360] F. ANNUNZIATA, *Verso una disciplina europea delle cripto-attività. Riflessioni a margine della recente proposta della Commissione UE*, Diritto Bancario (October 15, 2020), available at: http://www.dirittobancario.it/approfondimenti/fintech/verso-una-disciplina-europea-delle-cripto-attivita-riflessioni-margine-recente-proposta-commissione.

[361] Article 5(1) MiCA.

[362] Article 4(3) MiCA.

clear, and not misleading, (iii) consistent with the information in the white paper, and (iv) clearly state that a white paper has been published and indicate the address of the website of the issuer[363].

Issuers of crypto-assets shall notify the white paper, together with marketing communications (if any), to the NCA of their home Member State[364] at least 20 working days before publication of the white paper[365]; they shall also explain the reasons why those crypto-assets do not fall under any of MiCA exemptions (such as financial instruments or e-money)[366]. Neither the white paper nor market communications are subject to any control or approval by NCAs[367]. However, NCAs are granted with a number of supervisory and investigative powers in order to fulfill their duties, including the power to prohibit or suspend an offer of crypto-assets to the public or an admission to trading when they find that MiCA regulation has been infringed or where there are reasonable grounds for suspecting that it would be infringed[368]. It appears that the rationale behind the choice of excluding any *ex ante* control on white papers is to avoid an excessive burden on NCAs; nonetheless, a mere power of

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[363] Article 6 MiCA.

[364] According to Article 3(1)(22) lett. (a), (b) and (c) MiCA, "home Member State" in relation to issuers of crypto-assets other than asset-referenced tokens or electronic money tokens means: (i) where the issuer has its registered office or a branch in the EU, the EU Member State where the issuer of crypto-assets has its registered office or a branch, or (ii) where the issuer has no registered office in the EU but has two or more branches in the EU, the EU Member State chosen by the issuer among those EU Member States where the issuer has branches, or (iii) where the issuer is established in a third country and has no branch in the Union, at the choice of that issuer, either the EU Member State where the crypto-assets are intended to be offered to the public for the first time or the EU Member State where the first application for admission to trading on a trading platform for crypto-assets is made.

[365] Article 7(2) MiCA.

[366] Article 7(3) MiCA.

[367] Article 7(1) MiCA.

[368] Articles 82(1)(o) and 82(1)(p) MiCA.

intervention ex *post* may not be sufficient to guarantee adequate levels of integrity and reliability of crypto-markets[369].

Issuers of crypto-assets shall then publish their white paper and – where applicable – their marketing communications on their website (which shall be publicly accessible) by no later than the starting date of the offer to the public of those crypto-assets or their admission to trading[370].

Once the white paper is published on the issuer's website, such crypto-assets can be offered or admitted to trading in all EU Member States. Issuers will only need to provide the NCA of their home Member State with a list of host Member States[371] where they intend to offer their crypto-assets to the public or intend to seek admission to trading. The NCA of the home Member State shall then notify the competent authority of the host Member State of the intended offer to the public or admission to trading within 2 working days following the receipt of the above-mentioned list[372].

Issuers of crypto-assets shall modify their published crypto-asset white paper and marketing communications (if any) to describe any change or new fact that is likely to have a significant influence on the purchase, sell or exchange decision of any potential investor[373]. The issuer shall immediately inform the public on its website of the notification of a modified white paper with the NCA

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[369] F. ANNUNZIATA, *supra* note 360.

[370] Article 8(1) MiCA.

[371] According to Article 3(1)(23) MiCA, "host Member State" means the EU Member State where an issuer of crypto-assets has made an offer of crypto-assets to the public or is seeking admission to trading on a trading platform for crypto-assets, or where a crypto-asset service provider provides crypto-asset services, when different from the home Member State.

[372] Article 7(4) MiCA.

[373] Article 11(1) MiCA.

of its home Member State and provide a summary of the reasons behind such modification[374].

MiCA regulation also provides for a mandatory right of withdrawal that issuers of crypto-assets shall offer to any consumer who buys such crypto-assets directly from the issuer or from a crypto-asset service provider placing crypto-assets on behalf of that issuer; hence the right shall not apply where the crypto-assets are admitted to trading on a trading platform. Consumers shall have a period of 14 calendar days to withdraw their agreement to purchase those crypto-assets without incurring any cost and without giving reasons[375].

Issuers are also subject to a set of obligations, such as (i) acting honestly, fairly and professionally, (ii) preventing, identifying, managing and disclosing any conflicts of interest, (iii) acting in the best interest of the holders of crypto-assets and treating them equally, and (iv) returning any funds collected from purchasers in case the offering is canceled[376]. Furthermore, in case of time-limited crypto-asset offerings, the issuer shall have effective arrangements in place to monitor and safeguard the funds; in this respect, it shall ensure that all the funds and crypto-assets collected during the offering are kept in custody by either a credit institution or a crypto-custodian[377].

Finally, the proposed regulation introduces a liability regime for issuers for the information provided in the white paper. In fact, if the information included in the white paper is misleading or is not complete, fair or clear, a holder of crypto-assets may claim damages from the issuer or its management body for damages caused by that infringement[378], it being understood that this

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[374] Article 11(2) MiCA.

[375] Article 12(1) MiCA.

[376] Article 13 MiCA.

[377] Article 9(2) MiCA.

[378] Article 14(1) MiCA.

provision does not exclude further civil liability claims in accordance with national law[379]. Any exclusion of civil liability shall be deprived of any legal effect. The burden of proof is on the holders of crypto-assets, that shall demonstrate (i) the breach of Article 5 of MiCA (regulating the content and form of the white paper) and (ii) that the infringement had an impact on his/her decision to buy, sell or exchange the said crypto-assets[380].

3.3.3 Offerings of asset-referenced tokens

MiCA regulation provides for more stringent requirements when dealing with stablecoins, *i.e.* e-money tokens and asset-referenced tokens, and seems to be largely inspired by the current EU regulation of investment firms and e-money firms. Indeed, while the general part of MiCA relating to the catch-all category of crypto-assets merely focuses on enhanced disclosure, e-money tokens and asset-referenced tokens issuers will be subject to licensing and authorization requirements as well as certain operating conditions[381].

As concerns asset-referenced tokens, MiCA requires any issuer of such tokens to be authorized by the NCA of its home Member State[382] before offering its asset-referenced tokens or seeking their admission to trading in the EU[383] (in addition to publishing a white paper, as we will see below). The issuer shall be established in the EU in order to be granted the above-mentioned authorization[384], that will be valid throughout all the EU Member States[385]. The

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[379] Article 14(4) MiCA.

[380] Article 14(2) MiCA.

[381] D. A. ZETZSCHE, F. ANNUNZIATA, D. W. ARNER, R. P. ROSS, *supra* note 330, 10.

[382] According to Article 3(1)(22) lett. (d) MiCA, "home Member State" in relation to asset-referenced tokens issuers means the EU Member State where the issuer has its registered office.

[383] Article 15(1) MiCA.

[384] Article 15(2) MiCA.

authorization is not necessary where (i) over a period of 12 months, calculated at the end of each calendar day, the average outstanding amount of asset-referenced tokens does not exceed EUR 5.000.000, (ii) the offer is solely addressed to qualified investors and the asset-referenced tokens can only be held by such qualified investors[386], or (iii) the issuer is authorized as a credit institution in accordance with EU law[387].

MiCA regulation provides for an authorization procedure involving first the NCA of the home Member State, and then the competent EU regulatory authorities (ESMA, EBA, and the ECB). The authorization procedure shall follow the below steps.

1. The NCA receiving an application for authorization shall, within 20 working days of receipt of such application, assess whether that application, including the white paper, is complete. Where either the application or the white paper is not complete, the NCA shall set a deadline by which the applicant issuer shall provide any missing information[388].

2. The NCA shall, within 3 months from the receipt of a complete application, assess whether the applicant issuer complies with the necessary requirements set out under MiCA and take a fully reasoned draft decision granting or refusing authorization[389].

3. After the three months referred to in the previous point 2, transmit their draft decision to the applicant issuer, and their draft decision and the

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[385] Article 15(5) MiCA.

[386] Article 15(3) MiCA.

[387] Article 15(4) MiCA.

[388] Article 18(1) MiCA.

[389] Article 18(2) MiCA.

application file to EBA, ESMA and the ECB. Applicant issuers can provide the NCA with observations and comments on the draft decision[390].

4. EBA, ESMA, and the ECB shall, within 2 months after having received the draft decision and the application file, issue a non-binding opinion on the application and transmit their non-binding opinions to the NCA concerned. That NCA shall duly consider those non-binding opinions and the observations and comments of the applicant issuer (if any)[391].

5. The NCA shall, within one month after having received the non-binding opinions of EBA, ESMA, and the ECB, take a fully reasoned decision granting or refusing authorization and, within 5 working days, notify that decision to the applicant issuer. Where an applicant issuer is authorized, its white paper shall be deemed approved[392].

The authorization granted by the NCA shall be withdrawn in a number of circumstances listed in the proposed regulation, including situations where the issuer (i) has not used its authorization within 6 months after it is granted or for 6 consecutive months, (ii) has obtained its authorization by irregular means, or (iii) no longer meets the conditions under which the authorization was granted[393].

Even in relation to the content of the white paper MiCA provides for stricter rules when the offering concerns asset-referenced tokens. Indeed, in addition to all information required for offerings of crypto-assets discussed in the previous paragraph, issuers of asset-referenced tokens shall provide other information showing their compliance with the special set of obligations prescribed by MiCA for asset-referenced tokens issuers (discussed below). That information shall include, *inter alia*, a detailed description of (i) the issuer's

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[390] Article 18(3) MiCA.

[391] Article 18(4) MiCA.

[392] Article 19(1) MiCA.

[393] Article 20(1) MiCA.

governance arrangements, (ii) the reserve of assets, (iii) the custody arrangements for the reserve assets, (iv) the investment policy for the reserve assets (in case those assets are invested), and (v) the nature and enforceability of rights[394].

The approved white paper and – where applicable – the marketing communications shall be published on the issuer's website (which shall be publicly accessible) by no later than the starting date of the offer to the public of the asset-referenced tokens or their admission to trading[395]. Issuers or their management bodies shall be liable *vis-à-vis* holders of asset-referenced tokens when the information included in the white paper is misleading or is not complete, fair or clear[396]. The white paper liability regime is identical to the one already discussed above for crypto-assets issuers.

MiCA regulation then requires issuers of asset-referenced tokens to comply with a number of additional obligations other than the ones prescribed for crypto-assets issuers already discussed above (*i.e.* the obligation to act honestly, fairly and professionally in the best interest of token-holders, the obligation to publish the white paper and marketing communications, and the obligation to comply with the requirements set out for marketing communications). Indeed, the EC is concerned about the potential impact that a collapse of a stablecoin issuer may have on EU financial markets stability, hence requires such issuers to comply with a number of disclosure, governance, and prudential obligations.

The first set of additional obligations concerns disclosure and informational requirements. According to these obligations, issuers of asset-referenced tokens shall:

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394 Article 17(1) MiCA.

395 Article 24 MiCA.

396 Article 22 MiCA.

(a) at least every month (and in a clear, accurate and transparent manner) disclose on their website the amount of asset-referenced tokens in circulation and the value and the composition of the reserve assets and, as soon as possible, disclose any event that has or is likely to have a significant effect on the value of the asset-referenced tokens[397];

(b) establish and maintain effective and transparent procedures for the prompt, fair and consistent handling of complaints received from holders of asset-referenced tokens[398];

(c) maintain and implement effective policies and procedures to prevent, identify, manage and disclose conflicts of interest between themselves and a number of persons such as shareholders, members of their management body, their employees, and the holders of asset-referenced tokens[399];

(d) notify their NCAs of any changes to their management body[400].

A second set of additional obligations concerns issuers' governance arrangements. MiCA requires issuers of asset-referenced tokens to have robust governance arrangements, including a clear organizational structure with well-defined, transparent and consistent lines of responsibility, effective processes to identify, manage, monitor and report the risks to which it is or might be exposed, and adequate internal control mechanisms, including sound administrative and accounting procedures[401]. In addition, members of the management body of issuers shall have the necessary good repute and competence, in terms of qualifications, experience and skills, to perform their duties and to ensure the

[397] Article 26 MiCA.

[398] Article 27 MiCA.

[399] Article 28 MiCA.

[400] Article 29 MiCA.

[401] Article 30(1) MiCA.

sound and prudent management of such issuers[402]. Also natural persons who either own, directly or indirectly, more than 20% of the share capital or voting rights of issuers or who exercise, by any other means, a power of control over such issuers shall have the necessary good repute and competence[403]. Neither the members of the management body nor the mentioned controlling persons shall have been convicted of offences relating to money laundering, terrorist financing, or other financial crimes[404]. Furthermore, issuers shall adopt policies and procedures that are sufficiently effective to ensure compliance with MiCA regulation[405].

The third and final set of additional obligations concerns prudential requirements. First, issuers of asset-referenced tokens shall, at all times, have in place own funds equal to an amount of at least the higher of the following: (a) EUR 350.000, or (b) 2% of the average amount of the reserve assets[406]. In addition, issuers of asset-references tokens shall at all times constitute and maintain a reserve of assets[407], and establish, maintain and implement custody policies, procedures, and contractual arrangements that ensure that the reserve assets are segregated from the issuers' own assets and are not encumbered nor pledged[408].

MiCA regulation also provides for a control procedure on intended acquisitions of issuers of asset-referenced tokens. According to MiCA, any natural or legal person (or such persons acting in concert) who intends to acquire, directly or indirectly, a qualifying holding in an issuer of asset-referenced tokens (or to further increase, directly or indirectly, such a qualifying

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[402] Article 30(2) MiCA.

[403] Article 30(3) MiCA.

[404] Article 30(4) MiCA.

[405] Article 30(5) MiCA.

[406] Article 31(1) MiCA.

[407] Article 32(1) MiCA.

[408] Article 33(1) MiCA.

holding) so that the proportion of the voting rights or of the capital held would reach or exceed 10%, 20%, 30%, or 50%, or so that the issuer of asset-referenced tokens would become its subsidiary, shall notify the NCA of that issuer thereof in writing[409]. The same applies to any natural or legal person who has taken a decision to dispose, directly or indirectly, of a qualifying holding in an issuer of asset-referenced tokens[410]. The NCA shall then assess the intended acquisition within 60 working days[411] based on various criteria such as the reputation and the financial soundness of the acquirer and if there are reasonable grounds to suspect that a AML/CFT crime is being committed in connection with the intended acquisition[412].

Finally, MiCA provides for a special regulation of asset-referenced tokens which are considered "significant" and shall therefore fall under the EBA supervision. EBA will determine that an asset-referenced token is "significant" on the basis of the following criteria and where at least three of the following criteria are met: (i) the size of the customer base of the promoters and shareholders of the issuer, (ii) the value or market capitalization of the tokens issued, (iii) the number and value of transactions, (iv) the size of the reserve of assets, (v) the significance of the cross-border activities of the issuer, and (vi) the interconnectedness with the financial system[413]. The thresholds will be determined through EU delegated legislation, it being understood that such thresholds shall not be lower than those specified under MiCA[414].

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[409] Article 37(1) MiCA.

[410] Article 37(2) MiCA.

[411] Article 37(4) MiCA.

[412] Article 38(1) MiCA.

[413] Article 39(1) MiCA.

[414] Article 39(6) MiCA, which sets out the minimum thresholds: (i) EUR 2 million for the customer base requirement, (ii) EUR 1 billion for the value or market capitalization requirement, (iii) 500.000 transactions per day and EUR 100 million per day for the number and value of transactions, respectively, (iv) EUR 1 billion for the reserve assets

The NCA that authorized the issuer of asset-referenced tokens shall provide EBA with information on the above criteria on at least a yearly basis[415]. Where EBA is of the opinion that asset-referenced tokens meet such criteria, it shall prepare a draft decision and notify that draft decision to the issuer and the NCA of the issuer's home Member State[416]. The EBA shall give the issuer and its NCA the opportunity to provide observations and comments, and will issue its final decision within 3 months after the notification of the draft decision[417]. The supervisory responsibilities on issuers of significant asset-referenced tokens shall be transferred to EBA one month after the notification of the final decision[418].

Issuers of asset-referenced tokens can also voluntarily apply in order to have their tokens classified as "significant" by indicating in their application for authorization that they wish to classify their asset-referenced tokens as significant asset-referenced tokens[419]. In such a case, the NCA shall immediately notify the request from the prospective issuer to EBA, that will take its decision based on the criteria seen above.

Given the greater risk to financial stability that significant asset-referenced tokens may pose, issuers of such tokens shall be subject to a set of additional obligations, such as (i) adopting, implementing and maintaining a remuneration policy that promotes sound and effective risk management of issuers and that does not create incentives to relax risk standards[420], (ii) ensuring that such tokens

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requirement, and (v) use in seven or more EU Member States for the cross-border activities requirement.

[415] Article 39(2) MiCA.

[416] Article 39(3) MiCA.

[417] Article 39(4) MiCA.

[418] Article 39(5) MiCA.

[419] Article 40(1) MiCA.

[420] Article 41(1) MiCA.

can be held in custody by different crypto-asset service providers[421], (iii) assessing and monitoring the liquidity needs to meet redemption requests or the exercise of right[422], and (iv) having in place, at all times, own funds equal to an amount of at least the higher of the following: (a) EUR 350.000, or (b) 3% of the average amount of the reserve assets[423] (instead of the 2% already required for non-significant asset-referenced tokens).

Within 30 calendar days of a decision to classify an asset-referenced token as significant, EBA shall establish, manage and chair a consultative supervisory college for each issuer of significant asset-referenced tokens to facilitate the exercise of its supervisory tasks under MiCA regulation[424]. The college shall include, *inter alia*, EBA (as the chair), ESMA, the NCA of the home Member State, and the ECB[425]. Moreover, in order to properly fulfill its supervisory duties in relation to significant asset-referenced tokens, EBA is granted with a number of powers such as conducting investigations[426] and on-site inspections[427] on issuers, taking supervisory measures[428], and imposing fines[429].

However, considering that MiCA applies whenever there is an issuance in the EU, even the smallest amount of significant stablecoin issuance in the EU would require the EBA to demand the lead in the supervisory college, since the EBA lead is the sole way to allow for any cooperation with third countries[430].

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[421] Article 41(2) MiCA.

[422] Article 41(3) MiCA.

[423] Article 41(4) MiCA.

[424] Article 99(1) MiCA.

[425] Article 99(2) MiCA.

[426] Article 104 MiCA.

[427] Article 105 MiCA.

[428] Article 112 MiCA.

[429] Article 113 MiCA.

[430] D. A. ZETZSCHE, F. ANNUNZIATA, D. W. ARNER, R. P. ROSS, *supra* note 330, 25.

This is at odds with the very concept of a global stablecoin. Under the above conditions, it is unlikely that a third-country NCA will accept the EBA lead[431].

3.3.4 Offerings of e-money tokens

The main concern of MiCA regulation is to extend to e-money tokens part of the guarantees applicable to electronic money under EMD2 in order to increase investors' protection. For instance, holders of electronic money as defined under EMD2 are always provided with a claim on the electronic money institution and have a contractual right to redeem their electronic money at any moment against fiat currency that is legal tender at par value with that currency. By contrast, some of the stablecoins referring to one fiat currency which are currently traded the market do not provide their holders with such a claim on the issuers of such assets and could fall outside the scope of EMD2, while others do not provide a claim at par with the currency they are referencing or limit the redemption period[432].

Therefore, in order to avoid regulatory arbitrage, MiCA provides for strict conditions on the issuance of e-money tokens in order to make their regulation similar in certain aspects to that applicable to electronic money under EMD2.

In this respect, MiCA requires e-money token issuers to be duly authorized before any e-money token is offered or admitted to trading in the EU. Any issuer of e-money tokens shall therefore (i) be authorized as a credit institution or as an "electronic money institution" within the meaning of EMD2, (ii) comply with requirements applying to electronic money institution set out under EMD2, and (iii) publish a white paper[433]. The authorization is not necessary where (i) over a period of 12 months, calculated at the end of each

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[431] *Ibid.*

[432] See Recital (10) MiCA.

[433] Article 43(1) MiCA.

calendar day, the average outstanding amount of e-money tokens does not exceed EUR 5.000.000, (ii) e-money tokens are marketed, distributed, and held by qualified investors and can only be held by such qualified investors[434].

In addition, issuers of e-money tokens shall also grant the holders of such tokens with a claim to redeem their tokens at any moment and at par value against the currency referencing those tokens. Any e-money token that does not provide all holders with a claim shall be prohibited[435].

Before offering e-money tokens to the public in the EU or seeking an admission of such e-money tokens to trading on a trading platform, the issuer of e-money tokens shall publish a white paper on its website[436]. As concerns the content of the white paper, this shall include, *inter alia*, the following information: (i) a detailed description of the issuer of e-money tokens and of the issuer's project, (ii) an indication on whether the crypto-asset white paper concerns an offering of e-money tokens to the public and/or an admission of such e-money tokens to trading on a trading platform for crypto-assets, (iii) a detailed description of the rights and obligations attached to the e-money tokens, including the redemption right at par value and the procedures and conditions of exercise of these rights, (iv) the information on the underlying technology and standards met by the issuer of e-money tokens allowing for the holding, storing and transfer of such e-money tokens, (v) the risks relating to the issuer of e-money issuer, the e-money tokens and the implementation of the project, including the technology[437].

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[434] Article 43(2) MiCA.

[435] Article 44 MiCA.

[436] Article 46(1) MiCA.

[437] Article 46(2) MiCA.

MiCA also provides for a regulation of marketing communications[438] and white paper liability[439] almost identical to the one relating to crypto-assets in general. The only significant difference is that marketing communications shall contain a clear and unambiguous statement that all the holders of the e-money tokens have a redemption right at any time and at par value on the issuer[440].

Another interesting rule specific for e-money is the one stating that funds received by issuers of e-money tokens in exchange of e-money tokens that are invested in secure, low-risk assets shall be invested in assets denominated in the same currency as the one referenced by the e-money token[441]. It appears that the main purpose of this rule is to maintain the value of e-money tokens as stable as possible by avoiding any interference of other fiat currencies in their value.

Finally, MiCA also provides for a specific regulation of those e-money tokens qualifying as "significant"[442]. The criteria, the procedure, and the additional obligations are substantially similar to the ones already examined above for asset-referenced tokens.

3.3.5 Obligations for crypto-asset services providers

Under MiCA, crypto-asset service providers will become subject to a licensing and supervisory regime that mirrors MiFID II to some extent, creating a sort of "mini-MiFID" for crypto-assets[443]. Indeed, if the regulation of white

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[438] Article 48 MiCA.

[439] Article 49 MiCA.

[440] Article 48(2) MiCA.

[441] Article 49 MiCA.

[442] Articles 50-52 MiCA.

[443] D. KLINGENBRUNN, M. BENZING, E. MCQUAID, *15 observations on the Commission's proposal for a European crypto-assets framework*, Lexology (September 25, 2020), available at: https://www.lexology.com/library/detail.aspx?g=6a409f79-a121-4acb-a644-b6adc674e605.

papers is clearly a transposition of consolidated market practices, MiCA rules governing crypto-asset service providers are the result of the extension to crypto-assets of a regime deeply entrenched in the existing EU securities regulation[444].

MiCA defines crypto-asset services as any of the following services and activities relating to any crypto-asset: (i) the custody and administration of crypto-assets on behalf of third parties, (ii) the operation of a trading platform for crypto-assets, (iii) the exchange of crypto-assets for fiat currency that is legal tender, (iv) the exchange of crypto-assets for other crypto-assets, (v) the execution of orders for crypto-assets on behalf of third parties, (vi) the execution of orders for crypto-assets on behalf of third parties, (vii) placing of crypto-assets, (viii) the reception and transmission of orders for crypto-assets on behalf of third parties, and (ix) providing advice on crypto-assets[445].

First, crypto-asset services shall only be provided by legal persons that have a registered office in a EU Member State and that have been authorized as crypto-asset service providers[446]. An authorization as a crypto-asset service provider shall be valid for the entire EU and shall allow crypto-asset service providers to provide throughout the EU Member States the services for which they have been authorized[447].

The application shall be filed with the NCA of the EU Member State where the crypto-asset service provider has its registered office[448]. Within three months from the date of receipt of a complete application, the NCA will assess

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444 F. ANNUNZIATA, *supra* note 360.

445 Article 3(1)(9) MiCA.

446 Article 53(1) MiCA.

447 Article 53(4) MiCA.

448 Article 54(1) MiCA.

whether the applicant crypto-asset service provider complies with the necessary requirements and adopt a decision granting or refusing the authorization[449].

NCAs shall inform ESMA of all authorizations granted to crypto-asset service providers in order to allow ESMA to exercise a control on such authorizations in accordance with its supervisory duties. In this respect, ESMA may request information in order to ensure NCAs grant authorizations in a consistent manner[450]. In addition, ESMA shall establish a register of all crypto-asset service providers, that shall be publicly available on its website and shall be updated on a regular basis[451].

NCAs shall withdraw the authorization in a number of specific situations, including: (i) when the service provider has not used its authorization within 18 months of the date it was granted, (ii) has expressly renounced to its authorization, (iii) has not provided crypto-asset services for nine successive months, (iv) has obtained its authorization by irregular means, (v) no longer meets the conditions under which the authorization was granted, or (vi) has seriously infringed MiCA regulation[452].

Crypto-asset service providers shall then be subject to a set of organizational and prudential obligations modeled on the requirements prescribed by MiFID II for investment firms.

First, crypto-asset service providers shall act honestly, fairly and professionally in accordance with the best interests of their clients and prospective clients, and shall provide their clients with fair, clear and not misleading information[453].

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[449] Article 54(5) MiCA.

[450] Article 54(6) MiCA.

[451] Article 57(1) MiCA.

[452] Article 56(1) MiCA.

[453] Article 59 MiCA.

Crypto-asset service providers shall then comply with a set of prudential obligations. In this respect, they shall, at all times, have in place prudential safeguards in terms of minimum capital requirements, that shall be in the form of own funds or an insurance policy covering the territories of the EU where crypto-asset services are actively provided (or a comparable guarantee)[454].

In addition, crypto-asset service providers shall meet organizational requirements similar to the ones already discussed for asset-referenced tokens. Particular attention is given to measures in order to ensure continuity and regularity in the performance of crypto-asset services. To that end, crypto-asset service providers shall employ appropriate and proportionate resources and procedures, including resilient and secure ICT systems[455], and shall have internal control mechanisms and effective procedure for risk assessment[456] and to monitor and detect market abuse[457]. Crypto-asset service providers shall notify their competent authority of any changes to their management body and shall provide their competent authority with all the necessary information to assess compliance with the above organizational requirements[458].

Furthermore, crypto-asset service providers shall be subject to a number of other prudential obligations, including (i) making adequate arrangements to safeguard the ownership rights of clients and to prevent the use of a client's crypto-assets on own account except with the client's express consent[459], (ii) establishing and maintaining effective and transparent procedures for the prompt, fair and consistent handling of complaints received from clients[460], (iii)

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[454] Article 60 MiCA.

[455] Article 61(6) MiCA.

[456] Article 61(7) MiCA.

[457] Article 61(9) MiCA.

[458] Article 62 MiCA.

[459] Article 63 MiCA.

[460] Article 64 MiCA.

maintaining and operating an effective policy to prevent, identify, manage and disclose conflicts of interest between themselves and their shareholders, managers, employees, and clients[461], and (iv), taking all reasonable steps to avoid additional operational risk when they rely on third parties for the performance of operational functions (in any case, crypto-asset service providers shall remain fully responsible for discharging all of their obligations under MiCA)[462].

It is also worth mentioning that, in case of intended acquisition of a crypto-asset service provider, MiCA sets out an assessment procedure substantially similar to the one already examined in relation to asset-referenced tokens[463].

Finally, MiCA regulation provides for other sets of obligations specific for each single category of crypto-asset services provided, such as custody and administration and operation of a trading platform[464].

3.3.6 Prevention of Market Abuse

MiCA also provides for measures in order to prevent market abuse practices when trading with crypto-assets. The structure of MiCA regulation of market abuse substantially mirrors the structure of MAR, as it focuses on the disclosure of inside information and on the prohibition of insider dealing and market manipulation.

The scope of MiCA market abuse rules is very broad: it indeed applies to acts carried out by any person and that concern crypto-assets admitted to trading on a trading platform of crypto-assets operated by an authorized crypto-asset

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[461] Article 65 MiCA.

[462] Article 66 MiCA.

[463] Articles 74-75 MiCA.

[464] Articles 67-73 MiCA.

service provider, or for which a request for admission to trading on such a trading platform has been made[465].

In relation to disclosure of inside information, the proposed regulation requires issuers of crypto-assets to inform the public as soon as possible of inside information which concerns them, in a manner that enables the public to access that information in an easy manner and to assess that information in a complete, correct and timely manner[466]. Issuers of crypto-assets may however, on their own responsibility, delay disclosure to the public of inside information provided that all of the following conditions are met: (i) immediate disclosure is likely to prejudice the legitimate interests of the issuers, (ii) delay of disclosure is not likely to mislead the public, and (iii) the issuers are able to ensure the confidentiality of that information[467]. As we can see, the requirements for the delay of inside information are exactly the same prescribed by MAR for "traditional" financial instruments[468]. Furthermore, no person that possesses inside information shall disclose such information to any other person, except where such disclosure is made in the normal exercise of an employment, a profession or duties[469].

As concerns insider dealing, MiCA regulation prohibits any person to use inside information about crypto-assets to acquire those crypto-assets, or to dispose of those crypto-assets, either directly or indirectly and either for his or her own account or for the account of a third party[470]. In addition, no person that possesses inside information about crypto-assets shall recommend or induce, on the basis of that inside information, another person to (i) acquire or dispose of

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[465] Article 76 MiCA.

[466] Article 77(1) MiCA.

[467] Article 77(2) MiCA.

[468] See Article 17(4) MAR.

[469] Article 79 MiCA.

[470] Article 78(1) MiCA.

those crypto-assets, or (ii) cancel or amend an order concerning those crypto-assets[471]. This provision closely resembles the definition of "insider dealing" under MAR[472].

Finally, in relation to market manipulation, MiCA prohibits any person to engage in any of the following activities:

(1) entering into a transaction, placing an order to trade or any other behavior which (a) gives, or is likely to give, false or misleading signals as to the supply of, demand for, or price of, a crypto-asset, or (b) sets, or is likely to set, the price of one or several crypto-assets at an abnormal or artificial level (unless the person entering into the transaction demonstrates that such transaction has been carried out for legitimate reasons) [473];

(2) entering into a transaction, placing an order to trade or any other activity or behavior which affects or is likely to affect the price of one or several crypto-assets, while employing a fictitious device or any other form of deception or contrivance[474];

(3) disseminating information through the media, including the internet, or by any other means, which gives, or is likely to give, false or misleading signals as to the supply of, demand for, or price of a crypto-asset, or is likely to secure, the price of one or several crypto-assets, at an abnormal or artificial level, including the dissemination of rumors, where the person who made the dissemination knew, or ought to have known, that the information was false or misleading[475].

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[471] Article 78(2) MiCA.

[472] See Article 8 MAR.

[473] Article 80(1)(a) MiCA.

[474] Article 80(1)(b) MiCA.

[475] Article 80(1)(c) MiCA.

MiCA regulation then provides three sample behaviors that shall be considered "market manipulation": (i) securing a dominant position over the supply of or demand for a crypto-asset, which has, or is likely to have, the effect of fixing, directly or indirectly, purchase or sale prices or creates, or is likely to create, other unfair trading conditions, (ii) the placing of orders to a trading platform for crypto-assets which has one of the effects referred to under point (1) above by disrupting or delaying the functioning of the trading platform, making it more difficult for other persons to identify genuine orders on the trading platform, or creating a false or misleading signal about the supply of, or demand for, or price of, a crypto-asset, and (iii) taking advantage of occasional or regular access to the traditional or electronic media by voicing an opinion about a crypto-asset, while having previously taken positions on that crypto-asset, and profiting subsequently from the impact of the opinions voiced on the price of that crypto-asset, without having simultaneously disclosed that conflict of interest to the public in a proper and effective way[476].

Also the rules concerning market manipulation seem to be largely inspired by the regulation of market manipulation under MAR[477].

Despite MiCA's attempt to prevent any market abuse practices in the EU concerning crypto-assets, there is however no MAD II[478] equivalent in relation to this proposed regulation (or at least not yet). MAD II, as we know, aims at harmonizing criminal sanctions in the EU in relation to insider dealing and market manipulation by requiring EU Member States to implement domestic criminal laws.

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[476] Article 80(2) MiCA.

[477] See Article 12 MAR.

[478] Directive 2014/57/EU of the European Parliament and of the Council of 16 April 2014 on criminal sanctions for market abuse.

Therefore, that being the case, EU Member States will have the right but not the obligation to impose criminal sanctions on insider dealing and market manipulation with regard to crypto-assets[479].

3.3.7 Final remarks and open issues

Although the EC has put forward a comprehensive framework that will certainly spark a debate among the financial services industry and EU national lawmakers[480], we believe there are still some open issues that MiCA regulation did not properly address (or did not address at all).

(i) Scope

The scope of MiCA is identified through a "negative" approach: all crypto-assets fall within the scope of the proposed regulation unless they qualify as, *inter alia*, (i) financial instruments under MiFID II or (ii) e-money under EMD2. However, MiCA does not clarify the circumstances under which crypto-assets actually qualify as financial instruments or e-money.

As concerns financial instruments, although the European Commission has proposed an amendment to MiFID II definition in order to expressly include all those financial instruments issued by means of distributed ledger technology (DLT)[481], there is still some uncertainty on the criteria to adopt in order to qualify investment tokens as financial instruments. We have discussed in great detail in Chapter 2[482] whether, and to which extent, crypto-assets may qualify as financial

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[479] D. KLINGENBRUNN, M. BENZING, E. MCQUAID, *supra* note 443.

[480] *Ibid.*

[481] Proposal for a Directive of the European Parliament and of the Council amending Directives 2006/43/EC, 2009/65/EC, 2009/138/EU, 2011/61/EU, EU/2013/36, 2014/65/EU, (EU) 2015/2366 and EU/2016/2341 - COM(2020)596.

[482] See Chapter 2, paragraph 2.

instruments – namely as transferable securities, money-market instruments, units in collective investment undertakings, and derivatives. However, the criteria we have tried to identify are mainly based on soft-law and academic papers, and the absence of any guidance from EU lawmakers does not provide a sound basis for such criteria. For example, there is still uncertainty on whether investment tokens shall be at least comparable with one of the traditional forms of financial instruments (in particular transferable securities) in order to qualify as such, or on the categorization of the various forms of hybrid crypto-assets. MiCA proposed regulation missed the opportunity to provide clarity in this respect, although it would be appropriate for the EC to address such a sensitive issue either through an amendment to MiCA proposal or in the context of the ongoing review process of MiFID II/MiFIR regulatory framework.

The same holds true for those crypto-assets that may qualify as e-money under EMD2. As discussed in Chapter 2[483], pure payment tokens (like Bitcoin) are likely to qualify as instruments of payment, and this view seems to be confirmed by EU case law and ESMA/EBA. It is still unclear, however, whether payment tokens may under certain circumstances qualify as e-money under EMD2, the main problem being the absence of an issuer – that seems to be a fundamental element in EMD2 definition; and MiCA, unfortunately, does not provide further guidance in this respect. Furthermore, given that stablecoins technically have an issuer, they may also match EMD2 definition of "e-money"; hence, in order to avoid regulatory overlaps, the EC needs to specify the criteria under which stablecoins qualify as (i) asset-referenced tokens or e-money tokens, and are therefore subject to MiCA, or (ii) e-money under EMD2, and are therefore excluded from the scope of MiCA.

[483] See Chapter 2, paragraphs 2.1.3 and 3.1.

In addition, MiCA prescribes rules for the "issuance" of crypto-assets applying to persons engaged in such "issuance"[484]. However, MiCA does not define the term "issuance", which in turn is not self-explanatory[485]. This inattention of the EC may raise several concerns if we consider that, in the context of token issues, multiple entities together may operate the blockchain on which the token application runs[486]; hence it might be difficult sometimes to identify the formal issuer of tokens. The term "issuance" shall be therefore either defined or replaced with established terms of EU financial law (such as "offering")[487].

Another issue concerns the regime applicable to all those cryptocurrencies falling outside the definition of asset-referenced token and e-money token, such as Bitcoin and almost all altcoins (*e.g.* Ether and Ripple). Unless they qualify as e-money under EMD2, and are therefore subject to EMD2 regulation, it is not clear whether those cryptocurrencies fall within the catch-all category of "crypto-assets" under MiCA or if they should be regulated, instead, under the existing EU financial services laws (given their strong similarity with payment instruments). Similarly, it is also unclear whether or not stablecoins that do not qualify as asset-referenced tokens or e-money tokens – like algorithmic stablecoins – shall be regulated under the general crypto-assets category.

(ii) Utility tokens

Even in relation to utility tokens MiCA regulation leaves open a number of issues. In fact, the definition of "utility token" is purely descriptive, and does not allow any further analysis about potential financial elements of such tokens

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[484] D. A. ZETZSCHE, F. ANNUNZIATA, D. W. ARNER, R. P. ROSS, *supra* note 330, 22.

[485] *Ibid.*

[486] *Ibid.*

[487] *Id.*, 23.

(like for example an investment component) that may instead lead to their classification as financial instruments[488].

In addition, the scope of the definition clearly includes non-financial types of assets, such as DLT-based vouchers, just because they are based on DLT, despite the fact that voucher-like assets (such as frequent flyer miles or Ebay vouchers) are expressly excluded by Directive 2016/1065[489] from EU financial regulation[490]. It would therefore be advisable to exclude utility tokens without any investment component from the scope of MiCA in order to avoid placing a heavy burden on interesting non-financial blockchain projects due to regulatory hurdles (most significantly the preparation of a whitepaper) and compliance costs[491].

Another potential solution would be to create under MiCA a special and less onerous regime for utility tokens that takes into account the special features of such instruments, therefore avoiding the application of the excessively burdensome provisions of the general catch-all category of crypto-assets.

(iii) Central Bank Digital Currencies (CBDC)

The ECB, together with EU Member States' central banks when acting as monetary authorities, are expressly exempted from the scope of MiCA; hence all Central Bank Digital Currencies (CBDCs)[492] issued by the mentioned entities do

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[488] F. ANNUNZIATA, *supra* note 360.

[489] See Council Directive (EU) 2016/1065 of 27 June 2016 amending Directive 2006/112/EC as regards the treatment of vouchers.

[490] P. HANSEN, *New Crypto Rules in the European Union – Gateway for Mass Adoption, or Excessive Regulation?*, SLS Blogs – Regtrax (January 12, 2021), available at: https://law.stanford.edu/2021/01/12/new-crypto-rules-in-the-eu-gateway-for-mass-adoption-or-excessive-regulation/.

[491] *Ibid.*

[492] Central Bank Digital Currencies (CBDCs) are discussed under Chapter 2, paragraph 3.1.1.

not fall under MiCA regime, the reason being that a bespoke regulation would be a better way to ensure the quality of such crucial monetary functions[493]. It should be noted, however, that MiCA exemption does not extend to intermediaries acting in the issuance of CBDCs or providing services to CBDCs: as a consequence, a central bank would be exempted only when adopting a model under which retail CBDC holders have direct contact with such central bank, a model that in turn would be difficult to establish on a pan-European level with several hundred million potential users[494]. Hence, as presently proposed, MiCA regulation is likely to obstruct the sound development of a Digital Euro or other CBDC strategies of EU Member States' central banks[495].

(iv) Authorities' supervision

In our opinion, there is an insufficient oversight from authorities on the authorization and offering process.

First, as discussed above, the choice to allow the publication of crypto-assets white papers (other than asset-referenced tokens and e-money tokens) without any necessary approval from NCAs may raise some concerns. Although the rationale behind the choice of excluding any *ex ante* control on white papers is to avoid an excessive burden on NCAs, a mere power of intervention ex *post* may not be sufficient to guarantee adequate levels of integrity and reliability of crypto-markets[496]. Furthermore, investors receiving different versions of the white paper due to *ex post* interventions may find themselves confused[497].

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[493] D. A. ZETZSCHE, F. ANNUNZIATA, D. W. ARNER, R. P. ROSS, *supra* note 330, 24.

[494] *Ibid.*

[495] *Ibid.*

[496] *Id.*, 13.

[497] *Ibid.*

Indeed, only public authorities' *ex ante* review - coordinated by ESMA - can ensure that MiCA is applied consistently throughout all EU Member States[498].

Another issue relates to the fact that the qualification of a token as an asset-referenced token shall be supported by a legal opinion confirming that the proposed activity does not fall within the scope of existing financial legislation[499]. Two concerns have been raised in this respect. First, there is no reason why a similar legal opinion should not be required in relation to the catch-all category of crypto-assets (which also includes utility tokens): indeed, those tokens can be issued into the market without prior review or authorization by NCAs, subject only to mandatory disclosure[500]. Second, leaving the legal opinion to the private sector exacerbates the risk of promoting conflicts of interests and regulatory arbitrage, thus causing the migration of token issuers to jurisdictions in which practicing lawyers are most inclined to draft accommodating legal opinions[501]. Therefore, in order to increase investor protection, authorities (and not private parties) should effectively carry out their investigation on the nature of the token so as to assess whether the intended activity can be authorized[502].

(v) Supervisory cooperation

Pursuant to MiCA, the issuer must be established in the EU/EEA; EBA has jurisdiction over any significant asset-referenced token (SART) or significant e-money token (SEMT)[503] (*i.e.* global stablecoins) and acts like the chair of the

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498 *Ibid.*

499 Article 16(2)(d) MiCA.

500 D. A. ZETZSCHE, F. ANNUNZIATA, D. W. ARNER, R. P. ROSS, *supra* note 330, 23.

501 *Ibid.*

502 *Ibid.*

503 See Articles 99(2) and 101(2) MiCA.

supervisory college for issuers of SARTs and SEMTs[504]. Third country NCAs with whom the EBA has concluded an administrative agreement pursuant to Article 108 MiCA may participate in the supervisory college, but will have no voting rights on non-binding opinions[505] that form the basis of many college decisions[506]. It is likely that under those conditions no third country NCA will accept the EBA lead[507].

Furthermore, considering that MiCA applies every time there is an issuance in the EU, even the smallest amount of stablecoin issuance would require the EBA to demand the lead in the college in order to allow cooperation with third countries; this significantly conflicts with the concept of a global stablecoin[508].

It would therefore be advisable to introduce other mechanisms for supervisory cooperation with third countries, such as mutual recognition or allowing participation in a supervisory college where EU authorities accept the lead of other (large) third countries' NCAs (such as the U.S. and China)[509].

(vi) Decentralized Finance (DeFi)

Another open issue relates to crypto-asset services providers. In fact, under MiCA there is no reference to decentralized finance (DeFi), *i.e.* a peer-to-peer finance enabled by DLT and operating on a blockchain, which is the way the majority of crypto-asset activities and services are currently carried out. The most famous example of DeFi is Ethereum, a decentralized open-source

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[504] D. A. ZETZSCHE, F. ANNUNZIATA, D. W. ARNER, R. P. ROSS, *supra* note 330, 26-27.

[505] See Articles 100(4) and 102(4) MiCA.

[506] D. A. ZETZSCHE, F. ANNUNZIATA, D. W. ARNER, R. P. ROSS, *supra* note 330, 27.

[507] *Ibid.*

[508] *Ibid.*

[509] *Ibid.*

blockchain system with its own cryptocurrency (Ether). The lack of any reference to DeFi poses the question of whether such decentralized entities can still continue to operate with their current structure or if they shall be considered as prohibited by MiCA regulation[510].

The DeFi ecosystem is a crucial driver of innovation in the crypto industry, and the EU should not put an end to the legality of future DeFi tokens and projects if it wants to make the EU crypto market more competitive[511]. In this respect, the EC should clarify that decentralized projects shall not be considered as a "legal person" under MiCA's definition of "issuer of crypto-assets"[512], and should thus be exempted from MiCA's regulatory obligations[513].

In any case, until we have a clear answer to that question, we may assist to a substantial growth of decentralized financial operators that might take advantage of their lack of a tangible structure to bypass the authorization requirement for crypto-asset services providers under MiCA regulation[514].

(vii) Too burdensome requirements

Furthermore, MiCA regulation seems to favor incumbent financial institutions over Fintech start-ups, that may see the new stringent requirements as a significant barrier to entry the market[515]. In order to avoid such an

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[510] R. LENER, L. FURNARI, *Cripto-attività: prime riflessioni sulla proposta della commissione europea. Nasce una nuova disciplina dei servizi finanziari "crittografati"?*, Diritto bancario. Approfondimenti (October 9, 2020), available at: https://www.dirittobancario.it/approfondimenti/fintech/cripto-attivita-prime-riflessioni-sulla-proposta-della-commissione-europea-nasce-una-nuova-disciplina.

[511] P. HANSEN, *supra* note 490.

[512] Article 3(6) MiCA.

[513] P. HANSEN, *supra* note 490.

[514] R. LENER, L. FURNARI, *supra* note 510.

[515] ASHURST, *10 things you need to know about MiCA: Europe's proposals for regulating crypto assets, supra* note 344.

insurmountable obstacle for small market operators, some of the EU financial laws, such as EMD2 and PSD2, give EU Member States the option to implement a lighter regime for small institutions. Considering that the crypto-asset phenomenon is mainly based on small start-ups, we may wonder whether MiCA proposal did not provide for a less burdensome regime for entities falling below certain thresholds. In fact, even though MiCA, under Articles 15(3)(a) and 43(2)(b), provides for a small issuer exemption for asset-referenced tokens and e-money tokens if over a 12 month period the average outstanding amount does not exceed EUR 5 million, a white paper must still be issued no matter how small the issuance[516].

We also need to consider that the issuance of stablecoins is sometimes not a very profitable business, and it is likely that no issuer of the most used stablecoins on the market will be able and willing to comply with all MiCA obligations and apply for EU authorizations[517]. However, in the absence of the required authorizations, stablecoins cannot be listed on EU trading platforms, thus putting such platforms on a heavy locational disadvantage[518]. This would not only significantly limit the competitiveness of EU-regulated companies, but also drive many EU consumers towards non-EU regulated foreign exchanges, thus frustrating EU's goal of better consumer protection[519].

Without further changes to the current harsh stablecoin regulations resulting in lower and more proportionate requirements, there is a serious risk that MiCA will basically suppress stablecoins and damage EU companies as well as customers[520].

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[516] D. A. ZETZSCHE, F. ANNUNZIATA, D. W. ARNER, R. P. ROSS, *supra* note 330, 23.

[517] P. HANSEN, *supra* note 490.

[518] *Ibid.*

[519] *Ibid.*

[520] *Ibid.*

(viii) Market Abuse

In relation to market abuse, the lack of a MAD II equivalent poses the risk that some EU Member States may not introduce in their domestic laws criminal sanctions punishing insider dealing and market manipulation with crypto-assets, or that the criminal sanctions that EU Member States will inflict may not be adequate to prevent such unlawful market practices. It is not excluded, however, that before the entering into force of MiCA regulation the EC will amend MAD II in order to include market abuse practices with crypto-assets.

(ix) The impact of Brexit

Finally, we should also take into consideration the impact of Brexit on the EU regulation of crypto-assets under MiCA, particularly if we consider that the UK is one of the main financial hubs in the EU and many crypto-asset services are based in the UK. Even though MiCA will not be directly applicable in the UK, the latter may nonetheless seriously consider implementing MiCA under domestic law given the significant impact of this new regulation on the crypto-asset market. In fact, it is likely that crypto-assets covered by MiCA will be viewed as safer investments, therefore increasing the appeal of the EU crypto-asset markets possibly to the detriment of other markets, including the UK market[521]. Similarly, the increased credibility conferred on crypto-assets may result in banks and other credit institutions moving into the EU crypto-asset space[522]. In light of the above considerations, it is likely that the UK will publish in the near future a domestic law proposal that will probably share many similarities with MiCA[523].

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[521] D. A. ZETZSCHE, F. ANNUNZIATA, D. W. ARNER, R. P. ROSS, *supra* note 330, 23.

[522] *Ibid.*

[523] *Ibid.*

(x) Conclusion

Notwithstanding the appreciable efforts of the EC to create with MiCA a uniform EU regulatory framework for crypto-assets, we are still far from a comprehensive regulation addressing the core issues of this new phenomenon. As we have seen above, there are still too many fundamental questions that remain unsolved, as well as a lack of coordination between MiCA and the existing EU financial legislation that may leave many areas unregulated.

The overall impression is that MiCA misses out on a great opportunity to embrace the challenge for new technology in finance in a constructive and ambitious way[524]. Instead, the proposal shows the fear of losing monetary sovereignty to private actors after Facebook's announcement to adopt its own stablecoin Libra[525]; and it is no coincidence that, a few days after MiCA proposal was published, the ECB launched its initiative for a digital Euro[526]. Rather than being driven by fear and rather than recycling established principles from EU financial regulation, a really innovative approach to regulating crypto-assets should have been more self-confident and experimental[527], for example by introducing a regulatory sandbox that would allow market participants to test FinTech services in the real market under the close scrutiny of regulatory supervisors[528].

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[524] W. RINGE, *Building a European market for crypto-assets: Who's afraid of Libra?*, Oxford Business Law Blog (October 27, 2020), available at: https://www.law.ox.ac.uk/business-law-blog/blog/2020/10/building-european-market-crypto-assets-whos-afraid-libra.

[525] *Ibid.*

[526] EUROPEAN CENTRAL BANK, *A Digital Euro* (October 2020), available at: https://www.ecb.europa.eu/euro/html/digitaleuro.en.html.

[527] W. RINGE, *supra* note 524.

[528] See W. RINGE, C. ROUF, *Regulating Fintech in the EU: the Case for a Guided Sandbox*, European Journal of Risk Regulation – Volume 11, Issue 3 (September 2020), 604-629.

Nevertheless, given the rapid and unforeseeable evolution of the crypto-assets industry, it is not unlikely that MiCA proposal will be subject to several amendments and integrations before its final approval in order to better reflect the current needs of crypto-markets.

CHAPTER 4

THE U.S. APPROACH TO THE LEGAL QUALIFICATION OF CRYPTO-ASSETS: THE SEC AND CFTC POSITIONS

Introduction

We are now moving to the other side of the Atlantic Ocean to discuss the United States approach to the regulation of crypto-assets. As we will see, in the absence of a comprehensive regulatory framework applicable to crypto-assets, the US have adopted since the beginning a "substance over the form" approach, mainly thanks to the efforts of the Securities and Exchange Commission (SEC) and the Commodities Futures Trading Commission (CFTC).

In this Chapter 4 and in Chapter 5 we will not address again all the issues relating to crypto-assets in general already discussed while dealing with EU law, including for instance the categorization of crypto-assets, the advantages and risks of token offerings and the typical ICO process, and the challenges posed by the use of cryptocurrencies. We will therefore focus here only on the regulatory aspects under US law; for a detailed discussion about all the descriptive and empirical aspects of crypto-assets we refer to the previous Chapters 1, 2 and 3.

We will apply here the same approach followed in the EU section.

First, we will provide an overview of US federal securities regulation and the financial regulatory authorities (namely the SEC and the CFTC), with a particular focus on the Securities Act of 1933 and the Securities Exchange Act of 1934.

We will then move to the legal qualification of crypto-assets under US federal securities laws by analyzing the positions of the SEC and the CFTC. We will first discuss the SEC position on crypto-assets in The DAO investigation and

the application of the Howey test to token offerings in order to check whether such tokens qualify as investment contracts (hence securities) and therefore fall under SEC jurisdiction. Afterwards, we will examine the qualification of virtual currencies as commodities by the CFTC and the reach of CFTC jurisdiction over the trade of virtual currencies in derivatives markets and (in some cases) spot markets.

Finally, we will discuss the applicability of the existing US securities regulation to the offering and exchange of crypto-assets and the reach of SEC and CFTC jurisdiction. We will first identify the most relevant issues in applying the registration and disclosure requirements of the Securities Act to token offerings, in particular the alleged uselessness of Form S-1 in the context of ICOs. Our analysis will then move to scaled disclosure regimes (such as Regulation A+, Crowdfunding, and Private Offerings) and their suitability for ICOs. As concerns secondary markets, we will examine the applicability of the Exchange Act to crypto-exchanges and the regulation of crypto-derivatives markets. We will finally discuss the existing regulatory gaps and try to identify potential solutions in light of the recent crypto-market developments.

1. The US legal framework and financial regulatory authorities

1.1 An overview of US Securities Regulation

In the United States, securities regulation is mostly a matter of federal law. Its premise is that mandatory disclosure, as well as liability for fraud and regulation of intermediaries, will equip securities investors with all the necessary information to evaluate the return and risk entailed in securities investments[1].

[1] A. R. PALMITER, *Securities Regulation*, 7th ed., Wolters Kluwer (2017), 1.

1.1.1 The Securities Act of 1933 and the Securities Exchange Act of 1934

The federal securities laws, namely the Securities Act of 1933 ("Securities Act")[2] and the Securities Exchange Act of 1934 ("Exchange Act")[3], represent one of the most enduring successes of the "New Deal legislation"[4], *i.e.* the financial reforms implemented during the Great Depression by President Roosevelt aimed to restore the economic situation in the US after the collapse of Wall Street in 1929.

The Securities Act, that mainly regulates the offer and sale of securities, has two basic objectives: (i) to provide investors with material financial and other information concerning new issues of securities offered for sale to the public, and (ii) to prohibit fraudulent sales of securities[5]. The key provisions of the Securities Act, that we will discuss in greater detail below, are: (i) Section 5, that requires registration with the SEC of new issues (offered by the use of the mails or other instrumentalities of interstate commerce) and the draft of a prospectus that shall be filed together with the registration document, (ii) Sections 3 and 4, providing for some exemptions from the scope of the Securities Act, (iii) Section 7, that specifies the information required in the registration document, and (iv) Section 10, that prescribes the content of the prospectus[6]. The other sections of the Securities Act are mainly concerned with enforcement procedures; Sections 11, 17, and 12(a)(2), for example, prohibit fraud or misrepresentation in interstate sales of securities.

The Exchange Act, on the other hand, is mainly focused on governing secondary trading in the US. It covers a number of fronts, such as (i) the creation

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[2] 15 U.S.C. § 77a et seq.

[3] 15 U.S.C. § 78a et seq.

[4] A. R. PALMITER, *supra* note 1, 19.

[5] J. C. COFFEE, JR., H. A. SALE, *Securities Regulation – Cases and Materials*, 12th ed., Thomson Reuters / Foundation Press (2012), 96.

[6] *Id.*, 96-97.

of the SEC, (ii) the regulation of stock exchanges and securities firms, (iii) prohibitions against manipulative stock market practices, (iv) requirement of periodic disclosure by public companies, and (v) regulation of insider trading.

After fifty years of separate disclosure requirements, in 1982 the SEC created a unified approach to disclosure under both Securities Act and Exchange Act[7]. The forms under each act are now standardized and set out under Regulation S-K[8] for non-financial disclosure, and Regulation S-X[9] for accounting information. For example, both the Securities Act form for IPO disclosure (Form S-1) and the Exchange Act proxy statement (Schedule 14) refer to the same item of Regulation S-K as concerns information on executive compensation[10].

1.1.2 The most significant federal reforms concerning securities regulation

It is worth mentioning some recent reforms that affected securities regulation in the US that might be helpful for the purpose of our analysis.

(i) JOBS Act of 2012

The Jumpstart Our Business Startups Act of 2012 (JOBS Act)[11] amended both the Securities Act and the Exchange Act in order to stimulate economic growth by easing the regulatory burdens on business start-ups seeking to raise capital in securities markets[12]. Given that ICO issuers are generally small

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[7] Securities Act Release No. 6383 (March 3, 1982).

[8] 17 C.F.R. Part 229.

[9] 17 C.F.R. Part 210.

[10] A. R. PALMITER, *supra* note 1, 21-22.

[11] Pub. L. 112–106 (2012).

[12] A. R. PALMITER, *supra* note 1, 23.

enterprises, this reform may significantly ease the capital raising process in crypto-markets.

The main reform introduced by the JOBS Act is the possibility for small companies to sell securities online to small investors ("crowdfunding") without the need to register their offerings under federal or state law. In such a case, the issuer shall prepare a detailed offering document and the offering shall be conducted through a SEC-registered intermediary[13].

Furthermore, the JOBS Act makes it easier for companies to make private placements to accredited investors, as they can now engage in broad public marketing of their securities. In addition, emerging growth companies (*i.e.* those with revenues up to $1 billion) face fewer restrictions in registering their IPOs, such as confidential filing and dispensations from some of the disclosure and corporate governance rules[14].

(ii) Dodd-Frank Act

The Wall Street Reform and Consumer Protection Act (known as Dodd-Frank Act)[15] was adopted in response of the 2007-2008 subprime crisis in order to reform the US financial system.

The Dodd-Frank Act is a massive piece of legislation that covers many areas, including new shareholders powers, increased responsibilities of corporate gatekeepers, new SEC enforcement powers, and a more stringent regulation for certain financial intermediaries (such as credit rating agencies and private funds).

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[13] *Ibid.*

[14] *Id.,* 23-24.

[15] Pub. L. 111–203 (2010).

Perhaps the most interesting section for the purpose of our analysis is Title VII of the Dodd-Frank Act regulating OTC derivatives, given the rapid expansion of crypto-derivatives market. Indeed, the Dodd-Frank Act addresses a gap in US financial regulation by providing a comprehensive framework for the regulation of the OTC swaps markets. The Dodd-Frank Act divides regulatory authority over swap agreements between the CFTC and the SEC: the SEC has regulatory authority over "security-based swaps," defined as swaps based on a single security or loan or a narrow-based group or index of securities, while the CFTC has primary regulatory authority over all other swaps, such as energy and agricultural swaps[16]. The CFTC and SEC share authority over "mixed swaps," defined as security-based swaps that also have a commodity component. In addition, the SEC has anti-fraud enforcement authority over swaps that are related to securities but fall outside the definition of "security-based swap"[17].

The Dodd-Frank Act regulatory framework for OTC derivatives contemplates, *inter alia*: (i) mandatory clearing of swaps and security-based swaps for those trades subject to clearing, (ii) mandatory trading on an exchange if the transaction is cleared, (iii) public reporting of all cleared and uncleared swaps and security-based swaps, (iv) the imposition of capital requirements on dealers and major swap participants, (v) new prohibitions on market manipulation, and (vi) position limits on certain swap contracts[18].

1.1.3 State securities regulation

The Securities Act and the Exchange Act left intact a parallel system of state securities registration. As of today, every state has securities laws (known as "blue sky" laws) regulating the offering of securities and the licensing of broker-

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[16] https://www.sec.gov/spotlight/dodd-frank/derivatives.shtml.

[17] *Ibid.*

[18] J. C. COFFEE, JR., H. A. SALE, *supra* note 5, 60-61.

dealers and investment advisers, imposing civil liability for false and misleading information, and establishing state agencies for administering such laws[19].

However, in order to avoid a lack of coordination, the Congress passed the National Securities Markets Improvement Act of 1996 (NSMIA)[20] that allocates regulatory responsibility for particular securities offerings ("covered securities") exclusively to the federal government.

Therefore, under Section 18 of the Securities Act as amended by NSMIA, state securities regulation is preempted in four categories of covered securities: (i) securities listed on a stock exchange or quoted on NASDAQ, (ii) mutual funds, (iii) private placements, and (iv) exempt offerings. In relation to the above categories, no state registration, notice filings or sales reports are permitted; however, states can require fees and consent to service of process in the last three categories. In any case, states can continue to apply their national antifraud laws.

1.2 US financial regulatory authorities

In the US, authority over the securities industry is shared among three levels of regulators: (i) the SEC, a federal administrative agency, (ii) self-regulatory organizations ("SROs"), of which the most relevant is the Financial Industry Regulatory Authority ("FINRA"), and (iii) state securities commissioners and officials who enforce Blue Sky laws[21]. Furthermore, the US distinguishes between "securities" and "futures", and assigns the regulation of the latter (together with most OTC derivatives) to the CFTC, which is an independent federal administrative agency[22].

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[19] A. R. PALMITER, *supra* note 1, 44.

[20] Pub. L. 104-290 (1996).

[21] J. C. COFFEE, JR., H. A. SALE, *supra* note 5, 54.

[22] *Id.*, 54-55.

Among the above regulatory authorities, the SEC and the CFTC are the ones that showed the most proactive attitude in trying to regulate crypto-assets; hence they deserve particular attention in our analysis.

1.2.1 The SEC

The Securities and Exchange Commission is an independent federal agency created by the Exchange Act with the primary function of administering and enforcing securities laws. It is composed of five members (a Chairman and four Commissioners) appointed by the President with the advice and consent of the Senate, and is organized internally in four principal divisions (Corporate Finance, Trading and Markets, Investment Management, and Enforcement)[23].

The SEC exercises the following powers.

1) Executive powers. The SEC has broad investigative powers and can issue cease-and-desist orders, impose fines, and order disgorgement of profits in administrative proceedings. In addition, the SEC coordinates the enforcement of US securities laws with the other administrators outside the US, and can initiate court actions before the Justice Department for criminal prosecution for violations of securities laws[24].

2) Legislative powers. Pursuant to congressional authority, the SEC can promulgate rules and regulations that have the force of law. Even the guidelines issued by the SEC have the force of law. Other soft-law measures, such as interpretative releases, lack the force of law but are nevertheless followed by market participants. Furthermore, the SEC uses interpretative letters and no-action letters in order to express its views and provide guidance to securities planners[25].

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[23] *Id.*, 55-56.

[24] A. R. PALMITER, *supra* note 1, 25.

[25] *Id.*, 26.

3) Judicial powers. The SEC acts as original tribunal for disciplinary charges against securities professionals subject to its supervision, and as appellate tribunal for disciplinary actions taken by the stock exchanges, FINRA, and other SROs against their members[26].

4) Recipient of disclosure documentation. The SEC receives filing of a number of documents and information from market participants, including (i) registration statements (including the prospectus) from companies issuing shares to the public, (ii) annual, quarterly, and special information reports from public companies, (iii) tender offer documents from bidders, (iv) annual reports from broker-dealers, (v) any rule changes from securities exchanges, FINRA, and other SROs, and (vi) disclosure of sales from investors selling restricted securities and insiders selling shares of their companies. From May 1996 all companies must file their documents in electronic form using the EDGAR system[27].

5) Exemptive powers. The SEC is granted authority to exempt any person, security, or transaction (or any class thereof) from any provision of the Securities Act or the Exchange Act[28]. Are excluded from SEC exemptive authority the rules applicable to government securities brokers and dealers, currently administrated by the Treasury Department[29]. The SEC, however, does not have entire discretion in exercising its exemption authority. Indeed, the exemption powers can only be exercised on a finding that action is necessary or appropriate in the public interest, and consistent with the protection of investors[30]. In addition, in relation to the public interest standard, judicial review of any exemptive rule is subject to

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[26] *Ibid.*

[27] *Id.*, 27.

[28] Securities Act §28; Exchange Act §36.

[29] Exchange Act §15C.

[30] See A. R. PALMITER, *supra* note 1, 29.

the requirement that the SEC considers the promotion of efficiency, competition, and capital formation[31].

Finally, it is worth mentioning that the SEC handles its broad mandate by relying on a public-private partnership with self-regulatory organizations (SROS). While the SEC takes responsibility for the "big picture" areas, much of the day-to-day regulation of securities market participants is handled by firms themselves and SROs under SEC oversight[32]. SROs have broad disciplinary authority – which is, in turn, subject to SEC review – that can take a variety of forms: fines, censure, suspension from supervisory positions, and suspension from the industry (either permanently or temporarily)[33]. The most significant SROs are (i) the stock exchanges (such as the NYSE and NASDAQ), (ii) the Financial Industry Regulatory Authority (FINRA), a self-regulatory body with principal authority over brokers and dealers, and (iii) the Public Company Accounting Oversight Board (PCAOB), that regulates accounting firms and has broad rulemaking powers in relation to auditing, quality control, and ethical standards[34].

1.2.2 The CFTC

Created by the Commodities Futures Trading Commission Act of 1972, is an independent federal commission composed of five commissioners appointed by the President and organized internally in three divisions (Clearing and Intermediary Oversight, Market Oversight, and Enforcement).

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[31] See *Business Roundtable v. SEC*, 647 F.3d 1147 (D.C. Cir. 2011), pointing out SEC's unique obligation to consider effect of its rules on efficiency, competition, and capital formation.

[32] A. R. PALMITER, *supra* note 1, 28.

[33] J. C. COFFEE, JR., H. A. SALE, *supra* note 5, 68.

[34] While the formulation of generally accepted accounting standards remains the responsibility of the Financial Accounting Standards Board (FASB).

The mission of the CFTC is to promote the integrity, resilience, and vibrancy of the US derivatives markets through sound regulation[35]. The CFTC is indeed responsible for regulating derivatives that reference to commodities; in addition, the CFTC has authority to oversee spot markets for commodities and enforce federal prohibitions against fraud and market manipulation[36].

The basis of the CFTC jurisdiction is the Commodity Exchange Act (CEA), that provides the CFTC with authority to regulate transactions involving "commodity interests"[37]. A "commodity interest" refers to specific, commodity-linked instruments that take the form of (i) futures contracts, (ii) options on future contracts, (iii) swaps, and (iv) certain leveraged products[38].

Therefore, if a "commodity" is not involved in a contract, agreement, or transaction, the CFTC lacks the statutory basis to regulate the contract, agreement, or transaction[39]. The definition of "commodity" under CEA is however very broad, and includes agricultural products, precious metals, energy products, and "all services, rights, and interests […] in which contracts for future delivery are presently or in the future dealt in"[40]. Currencies, interest rates, and exchange rates are excluded from the definition of commodity[41]. As we will see below, the CFTC ruled that the definition of commodity also encompasses Bitcoin and all the other virtual currencies.

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[35] https://www.cftc.gov/About/AboutTheCommission.

[36] C. BRUMMER, *Fintech Law in a nutshell*, West Academic Publishing (2020), 178.

[37] 7 U.S.C. § 2(a)(1)(A) (2012); 17 C.F.R. § 1.3 (2016).

[38] 17 C.F.R. § 1.3(yy) (2016).

[39] M. KLUCHENEK, *Bitcoin and Virtual Currencies: Welcome to Your Regulator*, Harvard Business Law Review Online (2016), 2, available at: https://www.hblr.org/wp-content/uploads/sites/18/2016/12/M.-Kluchenek_Bitcoin-and-Virtual-Currency-Regulation-1.pdf.

[40] 7 U.S.C. § 1a(9) (2012).

[41] 7 U.S.C. § 1a(19) (2012).

Since its establishment, the CFTC has had a different regulatory style compared to the SEC. In fact, it defers more to self-regulation and makes less use of enforcement, and is strongly committed to "principle-based" regulation[42]. The CFTC has in fact used its authority to craft functional rulemaking, designate operational requirements, and prohibit certain conduct in order to ensure market integrity and stability[43].

2. The legal qualification of crypto-assets under US securities regulation

After the above overview of US securities regulation and financial regulatory authorities, we can now move to the analysis of the legal qualification of crypto-assets under US securities law.

When the popularity of Bitcoin rose worldwide in the early 2010s, regulators started to question the legal qualification of virtual currencies, the first form of crypto-assets appeared on blockchains. The first US regulator to express its view on the issue was the Financial Crimes Enforcement Network (FinCEN). In March 2013, FinCEN published an interpretative guidance to clarify the application of the US bank Secrecy Act to "convertible virtual currencies"[44]. While FinCEN defined "currency" as "the coin and paper money of the United States or of any other country that (i) is designated as legal tender and that (ii) circulates and (iii) is customarily used and accepted as a medium of exchange in the country of issuance"[45], in contrast defined "virtual currencies" as "a medium

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[42] J. C. COFFEE, JR., H. A. SALE, *supra* note 5, 67.

[43] C. BRUMMER, *supra* note 36, 181.

[44] FINANCIAL CRIMES ENFORCEMENT NETWORK, *Application of FinCEN's Regulations to Persons Administering, Exchanging, or Using Virtual Currencies*, FIN-2013-G001 (March 18, 2013), available at: https://www.fincen.gov/resources/statutes-regulations/guidance/application-fincens-regulations-persons-administering.

[45] *Id.*, 1.

of exchange that operates like a currency in some environments, but does not have all the attributes of real currency. In particular, virtual currency does not have legal tender in any jurisdiction"[46]. According to FinCEN, the persons involved in the transmission and acceptance of "convertible virtual currencies" (CVCs)[47] are required (like any money transmitter) to register with FinCEN as a Money Service Business (MSB) and comply with AML program, recordkeeping, monitoring, and reporting requirements[48]. In 2019, FinCEN confirmed and consolidated its 2013 guidance in relation to money transmission involving CVCs, stating that the same interpretative criteria also apply to other common business models involving CVCs (such as ICOs and various categories of wallet providers)[49].

The above guidance was followed in 2014 by a notice from the Internal Revenue Service (IRS)[50], the US federal fiscal agency. The content of the notice still remains the official position of the IRS, although the agency regularly updates the notice through several FAQs[51]. In essence, the IRS treats virtual currencies as property for US federal tax purposes, and not as foreign currencies.

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[46] *Ibid.*

[47] According to FinCEN, CVC is a type of virtual currency that either has an equivalent value as currency, or acts as a substitute for currency, and is therefore a type of value that substitutes for currency.

[48] See S. BLEMUS, *Law and Blockchain: a legal perspective on current regulatory trends worldwide*, Revue Trimestrielle de Droit Financier, RTDF N°4-2017 (December 2017), 1, available at: http://dx.doi.org/10.2139/ssrn.3080639.

[49] FINANCIAL CRIMES ENFORCEMENT NETWORK, *Application of FinCEN's Regulations to Certain Business Models Involving Convertible Virtual Currencies*, FIN-2019-G001 (May 9, 2019), available at: https://www.fincen.gov/sites/default/files/2019-05/FinCEN%20Guidance%20CVC%20FINAL%20508.pdf.

[50] INTERNAL REVENUE SERVICE, Notice 2014-21, IR-2014-36 (March 25, 2014), available at: https://www.irs.gov/pub/irs-drop/n-14-21.pdf.

[51] Available at https://www.irs.gov/individuals/international-taxpayers/frequently-asked-questions-on-virtual-currency-transactions (last updated October 8, 2020).

Our analysis will however focus here on the positions of the two main US financial regulators: the SEC and the CFTC.

The CFTC, as we will see in paragraph 2.2 below, ruled in a 2015 settlement order[52] that virtual currencies are encompassed in the broad definition of commodities. Accordingly, they are not real currencies, and therefore fall under the scope of the Commodity Exchange Act.

The SEC, on the other hand, published its guidance in 2017[53] in the context of its investigation on The DAO[54]. The SEC first defined virtual currencies as "a digital representation of value that can be digitally traded and functions as (i) a medium of exchange; and/or (ii) a unit of account; and/or (iii) a store of value, but does not have legal tender status in any jurisdiction". According to the SEC, virtual currencies differ not only from fiat currencies, but also from e-money, which is a mere digital representation of fiat currencies. However, the SEC's biggest contribution comes from its analysis of tokens issued in the context of an ICO and their potential qualification as securities, that will be discussed in paragraph 2.1.2 below. Indeed, the SEC was the first US regulator to broadly analyze the general category of crypto-assets instead of focusing only on virtual currencies.

We will now examine to which extent crypto-assets may qualify as (1) securities and (2) commodities in light of the SEC and the CFTC positions, respectively.

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[52] *In re Coinflip, Inc.*, CFTC No. 15-29, 2015 WL 5535736 (September 17, 2015).

[53] U.S. SEC. & EXCH. COMM'N, *Report of Investigation Pursuant to Section 21(a) of the U.S. Securities Exchange Act of 1934: The DAO*, Release No. 81207 (July 25, 2017), available at: http://perma.cc/C8V7-JNJJ.

[54] The DAO was a network of smart contracts where token-holders were granted voting rights on proposals and participation rights in future profits. The DAO investigation will be discussed under paragraph 2.1.2 below.

2.1 Crypto-assets as securities

The qualification of crypto-assets as securities gives rise to a number of mandatory registration and disclosure requirements under US securities regulation that will be discussed below. It is therefore of the utmost importance to identify precisely the criteria that shall be applied in order to assess whether a crypto-asset qualifies as a security under US securities regulation.

2.1.1 The definition of "security" and the Howey test

The Securities Act[55] and the Exchange Act[56] each define a "security" in both specific and more general terms[57]. They indeed define "security" with a list of financial instruments (such as stock, bonds, debentures, notes, and transferable shares) and generic catch-all terms (evidences of indebtedness, investment contracts, and certificates of interest in profit-sharing agreements)[58].

Both the general and specific definitions apply "unless the context otherwise requires": thus, even if an instrument seemingly falls within the above definitions, it nonetheless may not qualify as a security under the federal securities laws if the context otherwise requires[59].

Perhaps the most interesting part of the definition is the catch-all category of "investment contracts", a legal term without any commercial significance and defined nowhere in the two federal acts[60]. The definition of "investment

[55] Securities Act § 2(a)(1).

[56] Exchange Act § 3(a)(10).

[57] See J. C. COFFEE, JR., H. A. SALE, *supra* note 3, 246.

[58] A. R. PALMITER, *supra* note 1, 49.

[59] J. C. COFFEE, JR., H. A. SALE, *supra* note 5, 246.

[60] A. R. PALMITER, *supra* note 1, 49.

contract" is indeed a product of the landmark 1946 Supreme Court decision *SEC v. Howey*[61].

With a substance over the form approach, the Supreme Court in *Howey* defined an "investment contract" as any transaction in which (1) a person invests money (2) in a common enterprise (3) with a reasonable expectation of profits (4) coming solely from the efforts of others. This test, better known as "the Howey test", acquired during the years a quasi-statutory quality, and subsequent case law better defined the above four requirements as follows[62].

(1) Investment. The investment can be in both cash and non-cash consideration, and is expected to generate profits; investors are in fact looking for financial returns, not for consumable goods or services[63].

(2) Commonality. Multiple investors shall have interrelated interests in a common enterprise[64] (horizontal commonality)[65].

(3) Expected profits. The expected profits must be the principal motivation for the investment, and shall come from incomes of the enterprise or appreciation of the investment (not merely from additional contributions)[66].

(4) Efforts of others. According to the original Howey decision, profits must come "solely" from the efforts of others. However, some lower courts have generally accepted a participation of investors, although the efforts

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[61] *SEC v. W.J. Howey Co.*, 328 U.S. 293 (1946).

[62] A. R. PALMITER, *supra* note 1, 49.

[63] *Id.*, 50.

[64] *Ibid.*

[65] According to some courts (a minority), it is sufficient to have a single investor with a common interest with the manager of his investment in the enterprise (vertical commonality).

[66] A. R. PALMITER, *supra* note 1, 50.

of the managers or the promoters must be predominant and such investors shall be mostly passive[67].

Although the Howey test only applies to transactions falling outside the list of instruments under the definition (such as stock and notes), some courts have used the test also to decide whether the "context otherwise requires" in relation to instruments falling in the list[68].

2.1.2 Qualification of crypto-assets as securities under the Howey test

Crypto-assets are not enumerated under the list of financial instruments qualifying as securities under the Securities Act and the Exchange Act. Therefore, the primary means by which crypto-assets may be subject to US securities law involves whether or not they fall under the catch-all category of "investment contracts", hence if they meet the four requirements of the Howey test[69].

In this respect, The SEC was the first regulator to take a clear position regarding the application of US securities laws to token sales[70]. On July 25, 2017, the SEC released a report regarding the application of US securities laws to tokens issued by "The DAO"[71]. As already discussed in the previous chapters[72], The DAO was a network of smart contracts where the tokens gave investors the possibility to suggest how the raised funds should be invested; such tokens also granted voting rights regarding the proposals and participation rights in future profits[73].

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[67] *Ibid.*

[68] *Id.*, 51.

[69] C. BRUMMER, *supra* note 36, 136.

[70] P. MAUME, M. FROMBERGER, *Regulation of Initial Coin Offerings: Reconciling U.S. and E.U. Securities Law*, Chicago Journal of International Law, 2019, Vol. 19, No. 2, 564.

[71] U.S. SEC. & EXCH. COMM'N, *supra* note 53.

[72] See for example Chapter 2, paragraph 2.3.

[73] P. MAUME, M. FROMBERGER, *supra* note 70, 564.

The issue was whether tokens issued by The DAO could be considered as an "investment contract". The SEC found that such tokens amounted to an investment contract, hence qualified as securities. Indeed, all the four requirements of the Howey test are met: (1) investors paid for the tokens using Ethereum tokens, which is a contribution of value and thus an "investment of money", (2) The DAO constituted a common enterprise, (3) token holders had a reasonable expectation of profits, and (4) these profits were to be derived from the German company Slock.it (which was involved in setting up The DAO project) and The DAO curators, hence from the managerial efforts of others[74]. As no valid exemptions applied, tokens issued by The DAO should have registered with the SEC and comply with all the disclosure requirements.

In essence, the SEC did not treat crypto-assets differently from traditional instruments. In fact, instead of creating tailored requirements, the SEC ruled that crypto-assets qualify as securities under the Securities Act and the Exchange Act if they are "investment contracts", *i.e.* if they meet all the four prongs of the Howey test.

Using the traditional threefold taxonomy of crypto-assets, we will try to identify which classes of tokens may qualify as investment contracts – hence securities – under US securities regulation, it being understood that a case-by-case analysis would always be necessary in order to conduct a proper assessment (particularly when dealing with hybrid forms).

(i) Payment tokens

In the case of payment tokens, it appears that the first and third criteria of the Howey test are met, while the second and the fourth are not. We will take as an example payment tokens similar in their structure to the Bitcoin.

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[74] *Id.*, 564-565.

As concerns the first requirement, there is actually an investment, as purchasers must provide some kind of consideration – either fiat currencies or other cryptocurrencies – in order to buy payment tokens[75].

Also the third criterion, *i.e.* the expectation of profits, seems to be met, as investors generally purchase cryptocurrencies (and in particular Bitcoin) in order to speculate on their value and gain from their appreciation[76]. It might be argued, however, that the potential appreciation of the value of payment tokens comes from the possibility to trade such tokens on secondary markets. The appreciation in value merely derives, indeed, from the exchange rate of cryptocurrencies *vis-à-vis* fiat currencies or other cryptocurrencies in secondary markets. Although the vast majority of investors use of Bitcoin and other payment tokens as a store of value, the main purpose of a cryptocurrency is, instead, to be used as a means of payment, the same as any fiat currency. Therefore, it is not totally clear whether payment tokens meet the third requirement of the Howey test.

As concerns the second prong, we are of the opinion that payment tokens do not meet the common enterprise requirement. Although investors purchasing a cryptocurrency may obtain some participation rights in a joint or common endeavor, they do not generally pool their capital into a single, common enterprise from which they earn pro rata gains[77].

Finally, in relation to the fourth prong, purchasers of cryptocurrencies do not depend on the efforts of others for their profits. There is, in fact, no common entity that controls the issuance of payment tokens and the underlying blockchain, as the system is based on a DLT network. Similarly, there is no central entity with the task of increasing the value of the cryptocurrency[78]; this

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[75] C. BRUMMER, *supra* note 36, 138.

[76] *Ibid.*

[77] *Id.*, 139.

[78] *Id.*, 139-140.

holds true also for stablecoins, given that their value depends on external assets. Therefore, payment tokens are unlikely to meet the fourth requirement of the Howey test.

In light of the above considerations, it appears that (pure) payment tokens do not qualify as investment contracts; hence they cannot be considered securities. Accordingly, they should not be subject to US securities regulation.

(ii) Investment tokens

With investment tokens issued in the context of an ICO the situation is totally different. While cryptocurrencies such as Bitcoin are created in a decentralized ecosystem of miners, an ICO is an event conducted by a particular promoter or sponsor with the purpose of financing its project[79].

When applying the Howey test to investment tokens, the outcome will not be dissimilar from the SEC analysis of The DAO tokens seen above. In a typical ICO: (1) purchasers invest money, as tokens are bought with fiat or virtual currencies, (2) there is a commonality, since the proceeds are pooled and token holders receive a pro rata distribution of profits, (3) investors have a clear expectation of profits, and (4) token holders are entirely dependent on the efforts of promoters[80].

Investment tokens issued in the context of an ICO are therefore likely to qualify as securities.

(iii) Utility tokens

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[79] *Id.,* 145.

[80] *Ibid.*

Utility tokens, at least in their pure form, are designed primarily to provide their holders with some consumption rights, such as the access to a service in the issuer's ecosystem.

When we apply the Howey test to utility tokens, it seems that the first and the third requirements are not satisfied, as the principal motivation of utility token holders is the access to a service or the purchase goods rather than a reasonable expectation of profits. Indeed, the money they spend to buy tokens cannot be considered an investment, given that token holders are not looking for financial returns.

At this point we could easily conclude that utility tokens do not meet the Howey test, hence are not securities. However, when confronted with the question as to whether (allegedly) utility tokens were securities, the SEC surprisingly answered affirmatively. In the Munchee case[81], for instance, a company sought $15 million in capital to improve an app that allowed users to review restaurants and to buy advertisings or sell food by using their tokens[82]. Potential purchasers were told that they could buy goods or services with the tokens; the promoters, however, also affirmed that such tokens would increase in value due to their efforts in achieving and operative ecosystem[83]. In addition, promoters took steps to develop a secondary market for the trade of such tokens. The SEC then concluded that Munchee met the Howey test. Although purchasers invested in tokens having only a utility function, the project was designed to facilitate investments of money in the common Munchee enterprise where

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[81] U.S. SEC. & EXCH. COMM'N, *Order Instituting Cease-and-Desist Proceedings Pursuant to Section 8(a) of the Securities Act of 1933, Making Findings, and Imposing a Cease- and-Desist Order, In the Matter of Munchee, Inc.*, Release No. 10445 (Dec. 11, 2017), available at: http://perma.cc/T52S-PRXQ.

[82] C. BRUMMER, *supra* note 36, 149-150.

[83] *Id.*, 150.

investors' money was pooled and profits dependent on the efforts of promoters in developing a secondary market for such tokens[84].

More clarity came in April 2019 from the Division of Corporate Finance of the SEC with an informal guidance confirming the theory that in some cases utility tokens do not need to be registered[85]. The guidance came first with a framework for investment contract analysis of digital assets[86], and then through a no-action letter addressed to TurnKey Jet, Inc[87].

According to the SEC's Division of Corporate Finance, the main issue in determining whether or not tokens meet the Howey test arises from the interpretation of the "reasonable expectation of profits" and when "profits are derived from the efforts of others".

In determining whether profits are derived from the efforts of others, the SEC focused on the magnitude of the managerial authority of promoters over the project. Accordingly, where certain individuals are overwhelmingly responsible for creating or developing a digital asset network (for example by updating the code or providing trading liquidity), investors can be deemed to be dependent on others' efforts[88].

As concerns the reasonable expectation of profits, the Division of Corporate Finance provided a list of factors that will serve as indicators of a profit expectation of token holders. Those factors include, for instance: (i) the way tokens are marketed, (ii) the inability to immediately use tokens for services

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[84] *Ibid.*

[85] *Ibid.*

[86] U.S. SEC. & EXCH. COMM'N, *Framework for "Investment Contract" Analysis of Digital Assets* (April 3, 2019), available at: https://www.sec.gov/files/dlt-framework.pdf.

[87] U.S. SEC. & EXCH. COMM'N, *Response of the Division of Corporate Finance* (April 3, 2019), available at: https://www.sec.gov/divisions/corpfin/cf-noaction/2019/turnkey-jet-040219-2a1.htm.

[88] C. BRUMMER, *supra* note 36, 151.

or goods, (iii) any correlation between the purchase price of tokens and the market price of the service or good for which tokens may be exchanged, (iv) the contexts in which tokens can be used as a means of payment, and (v) significant prospects for token appreciation[89].

In the mentioned no-action letter, on the basis of the above criteria, the Division of Corporate Finance allowed the company TurnKey Jet, Inc. to issue blockchain-based tokens to customers without registering them with the SEC[90].

Even though the above guidance provided clarity on the circumstances where utility tokens may meet the Howey test and therefore qualify as securities, it remains just an informal opinion from the Division of Corporate Finance that was never confirmed or supported by any of the SEC Commissioners. This means that the SEC can adopt at any time rules amending or even reversing this guidance at its complete discretion[91].

2.1.3 SEC jurisdiction over crypto-assets

The SEC has jurisdiction over securities. Similarly, the SEC has jurisdiction over financial securities market intermediaries (such as exchanges and trading platforms) to protect investors and prevent fraud and manipulative trading practices.

Therefore, in order to be subject to SEC jurisdiction, a crypto-asset shall qualify as a security according to the Howey test examined above. In addition,

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[89] *Id.*, 151-152.

[90] U.S. SEC. & EXCH. COMM'N, *supra* note 75. In its no-action letter request, TurnKey, a jet-leasing company, informed the SEC that, if permitted, it would offer customers the ability to purchase tokens at $1 each that could be used to pay for charter flights outside banking hours. Given that the tokens were immediately usable and tied to a stable price, the Division of Corporate Finance decided not to treat such tokens as securities and therefore did not require registration.

[91] C. BRUMMER, *supra* note 36, 153.

any exchange or intermediary trading or handling crypto-assets qualifying as securities would be subject to US securities regulation: it shall therefore register with the SEC as an exchange or an alternative trading system (ATS), comply with all the applicable rules designed to include integrity and investor protection, and be subject to the SEC oversight[92].

The SEC even formed a Cyber Unit in 2017[93] in order to face, *inter alia*, the "explosion of ICOs"[94], and the SEC staff recently issued a statement[95] summarizing its enforcement actions and clarifying when crypto-asset secondary market trading activity requires registration as a national securities exchange[96], followed by a statement on broker-dealer custody of crypto-assets[97].

The SEC has brought a number of actions involving offerings of crypto-asset securities. To date, SEC's actions have principally focused on two questions: (i) when a crypto-asset is a "security" for purposes of the federal securities laws, and (ii) if a crypto-asset is a security, which SEC registration

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[92] T. G. MASSAD, *It's Time to Strengthen the Regulation of Crypto-Assets*, Economic Studies at Brookings (March 2019), 30, available at: https://www.brookings.edu/wp-content/uploads/2019/03/Timothy-Massad-Its-Time-to-Strengthen-the-Regulation-of-Crypto-Assets-2.pdf.

[93] U.S. SEC. & EXCH. COMM'N, *SEC Announces Enforcement Initiatives to Combat Cyber-Based Threats and Protect Retail Investors* (September 25, 2017), available at: https://www.sec.gov/news/press-release/2017-176.

[94] U.S. SEC. & EXCH. COMM'N, *Annual Report: Division of Enforcement* (2018), 3, available at: https://www.sec.gov/files/enforcement-annual-report-2018.pdf.

[95] U.S. SEC. & EXCH. COMM'N, DIVISION OF CORPORATION FINANCE, DIVISION OF INVESTMENT MANAGEMENT, AND DIVISION OF TRADING AND MARKETS, *Statement on Digital Asset Securities Issuance and Trading* (November 16, 2018), available at: https://www.sec.gov/news/public-statement/digital-asset-securites-issuuance-and-trading.

[96] T. G. MASSAD, *supra* note 92, 30-31.

[97] U.S. SEC. & EXCH. COMM'N, DIVISION OF TRADING AND MARKETS, OFFICE OF GENERAL COUNSEL, FINANCIAL INDUSTRY REGULATORY AUTHORITY, *Joint Staff Statement on Broker-Dealer Custody of Digital Asset Securities* (July 8, 2019), available at: https://www.sec.gov/news/public-statement/joint-staff-statement-broker-dealer-custody-digital-asset-securities.

requirements apply. For example, in 2018 the SEC issued settled orders against AirFox[98] and Paragon[99] in connection with their unregistered offerings of tokens. Pursuant to these orders, AirFox and Paragon had to pay penalties and undertake to register the tokens as securities and file periodic reports with the SEC.

Broadly speaking, according to the mentioned 2018 statement of the SEC, a platform that offers trading in crypto-asset securities and operates as an "exchange" (as defined by the federal securities laws) must register with the SEC as a national securities exchange or be exempt from registration[100].

Furthermore, the SEC stated that an entity that facilitates the issuance of crypto-asset securities in ICOs and secondary trading in crypto-asset securities may also be acting as a "broker" or "dealer" that is required to register with the SEC and become a member of a self-regulatory organization, typically FINRA[101]. Among other things, SEC-registered broker-dealers are subject to legal and regulatory requirements that govern their conduct in the marketplace and that provide important safeguards for investors[102].

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[98] U.S. SEC. & EXCH. COMM'N, *In the Matter of CarrierEQ, Inc, D/B/A Airfox,* File No. 3-18898 (November 16, 2018)

[99] U.S. SEC. & EXCH. COMM'N, *In the Matter of Paragon Coin, Inc.,* File No. 3-18897 (November 16, 2018)

[100] U.S. SEC. & EXCH. COMM'N, *supra* note 95. In this respect, see U.S. SEC. & EXCH. COMM'N, *In the Matter of Zachary Coburn,* File No. 3-18888 (November 8, 2018). In this case the SEC brought action in 2018 against Zachary Coburn, the founder of EtherDelta, a platform facilitating trading digital assets securities. According to the SEC's order, EtherDelta—which was not registered with the SEC in any capacity—provided a marketplace for bringing together buyers and sellers for crypto-asset securities through the combined use of an order book, a website that displayed orders, and a smart contract run on the Ethereum blockchain. The SEC found that EtherDelta's activities clearly fell within the definition of an exchange and that EtherDelta's founder caused the platform's failure either to register as a national securities exchange or operate pursuant to an exemption from registration as an exchange.

[101] *Ibid.*

[102] See, for example, U.S. SEC. & EXCH. COMM'N, *In the Matter of TokenLot LLC, Lenny Kugel, and Eli L. Lewitt,* File No. 3-18739 (September 11, 2018). The SEC's TokenLot Order

2.2 Crypto-assets as commodities

Having examined the SEC position on the qualification of crypto-assets as securities, that would trigger SEC jurisdiction on such crypto-assets, we will now discuss whether crypto-assets may qualify as commodities and therefore fall under CFTC jurisdiction.

2.2.1 The CFTC position

The CFTC expressed its first view on crypto-assets, more specifically on virtual currencies (or cryptocurrencies), in 2015 through an enforcement action involving a Bitcoin trading platform called "Derivabit" and its operator Coinflip[103]. Derivabit was launched as a "risk management platform […] that connects buyers and sellers of standardized Bitcoin options and futures contracts". However, the platform was not registered with the CFTC. The issue was whether Bitcoin could qualify as a commodity: in such a case, Derivabit was operating as an unregistered (hence illegal) derivatives exchange, as the contracts traded were derivatives like options and futures[104].

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illustrates the application of the broker-dealer registration requirements to entities trading or facilitating transactions in digital asset securities, even if they do not meet the definition of an exchange. According to the order, TokenLot was a self-described "ICO superstore" where investors could purchase crypto-assets, including crypto-asset securities, during or after an ICO, including in private sales and pre-sales. The parties' brokerage activities included marketing and facilitating the sale of digital assets, accepting investors' orders and funds for payment, and enabling the disbursement of proceeds to the issuers. They also received compensation based on a percentage of the proceeds raised in the ICOs, subject to a guaranteed minimum commission. TokenLot also acted as a dealer by regularly purchasing and then reselling digital tokens for accounts in TokenLot's name that were controlled by its operators.

[103] *In re Coinflip, Inc.*, *supra* note 52.

[104] C. BRUMMER, *supra* note 36, 182.

The CFTC ruled that Bitcoin was a commodity, as the definition of commodity under the Commodity Exchange Act (CEA) is broad enough to encompass Bitcoin and any other virtual currency; therefore Derivabit (and by extension Coinflip) was illegally offering CFTC regulated options without being registered as a derivatives exchange under the CEA[105].

The qualification of virtual currencies as commodity remains, as of today, the official position of the CFTC, as confirmed in all the subsequent releases of the commission[106].

2.2.2 *CFTC jurisdiction over crypto-assets*

The CFTC has jurisdiction over any derivative instrument involving a commodity and, as we will see below, limited jurisdiction over the spot market for the commodity itself.

In light of the CFTC's qualification of virtual currencies as commodities, any derivative instrument relating to a crypto-asset would fall under the CFTC jurisdiction as long as such crypto-asset consists of a "digital representation of value that functions as a medium of exchange, a unit of account, and/or a store of value, but does not have legal tender status in any jurisdiction"[107]. This definition mainly includes virtual currencies like Bitcoin; however, given its broad range it may also encompass other types of crypto-assets as long as they are used with the above-mentioned functions (including, for instance, some forms of hybrid tokens).

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[105] *Ibid.*

[106] See, for example, COMMODITY FUTURES TRADING COMM'N, *CFTC Staff Issues Advisory for Virtual Currency Products,* Release Number 7731-18 (May 21, 2018), available at: https://www.cftc.gov/PressRoom/PressReleases/7731-18.

[107] *In re Coinflip, Inc.*, *supra* note 52, *2 n.2. See also C. BRUMMER, *supra* note 36, 182.

(i) Leveraged Commodity Transactions

In essence, the CFTC authority extends to all derivatives with a crypto-asset (most likely a cryptocurrency) as a referenced asset[108]. However, those are not the only instruments falling under CFTC jurisdiction. Indeed, CFTC jurisdiction not only includes derivatives, but also "leveraged retail commodity transactions"[109].

Interestingly, this specific type of transaction does not necessarily need to consist of derivatives contracts that reference commodities, but can also include transactions for commodities (hence crypto-assets) taking place in spot – or cash – markets[110]. For example, in June 2016 the CFTC brought an action against Bitfinex[111], a Hong Kong company operating an online platform for trading in crypto-assets that did not involve any derivative products[112]. Instead, Bitfinex facilitated direct spot transactions in crypto-assets (mainly Bitcoin) in which parties borrowed money to finance their crypto-assets acquisitions[113].

There are, however, exceptions to the definition of leveraged retail commodity transactions. The most relevant is the "actual delivery" requirement, stating that such transactions are exempt if the actual delivery of the commodity

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[108] In fact, within a week of the Derivabit ruling, the CFTC brought another action against TeraExchange LLC, a platform that prearranged a Bitcoin-based swap, for violations of the CEA, requiring the platform to cease and desist from future violations. See *In Re TeraExchange LLC*, CFTC No. 15-33 (September 24, 2015).

[109] 17 C.F.R. § 1.3(yy) (2016).

[110] C. BRUMMER, *supra* note 36, 184.

[111] *In Re BFXNA Inc.*, CFTC No. 16-19, 2016 WL 3137612 (June 2, 2016).

[112] C. BRUMMER, *supra* note 36, 185.

[113] *Ibid.*

occurs within 28 days[114]. However, what "actual delivery" means for crypto-assets has been for a long time a matter of debate[115].

The CFTC has been wrestling for years with its interpretation of the term "actual delivery"[116]. First, in August 2013, the CFTC issued a final interpretation of "actual delivery" in the context of margined, financed or leveraged retail commodity transactions generally[117], which emphasized that, in determining whether actual delivery is accomplished, the CFTC will employ "a functional approach and examine how the agreement, contract, or transaction is marketed, managed, and performed, instead of relying solely on language used by the parties in the agreement, contract, or transaction"[118].

In December 2017, the CFTC issued a proposed interpretation of "actual delivery" specific for virtual currencies[119]. Under the 2017 proposed interpretation, "actual delivery" occurs in retail virtual currency transactions when:

(1) a customer secures (i) possession and control of the entire quantity of the commodity, whether it was purchased on margin, or using leverage, or any other financing arrangement, and (ii) the ability to use the entire

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[114] 7 U.S.C. § 2(c)(2)(D) (2012).

[115] In the Bitfinex case, for example, crypto-assets were stored in a private wallet, and Bitfinex was the only owner of the private key to access such wallet. Because of this exclusive control of Bitfinex, the CFTC ruled that customers could not have received actual delivery of crypto-assets.

[116] S. D. LEVI, J. VEBMAN, M. D. YOUNG, J. MARCUS, J. GIM, *CFTC Clarifies Meaning of 'Actual Delivery' in Margined, Leveraged or Financed Retail Transactions in Virtual Currencies*, Skadden, Arps, Slate, Meagher & Flom LLP (April 7, 2020), available at: https://www.skadden.com/insights/publications/2020/04/cftc-clarifies-meaning-of-actual-delivery.

[117] See *Id.*

[118] COMMODITY FUTURES TRADING COMM'N, *Retail Commodity Transactions Under Commodity Exchange Act*, 78 Fed. Reg. 52,426 (August 23, 2013).

[119] COMMODITY FUTURES TRADING COMM'N, *CFTC Issues Proposed Interpretation on Virtual Currency "Actual Delivery" in Retail Transactions*, 82 Fed. Reg. 60,335 (Dec. 20, 2017).

quantity of the commodity freely in commerce (away from any particular execution venue) no later than 28 days from the date of the transaction and at all times thereafter; and

(2) the offeror and counterparty seller (including any of their respective affiliates or other persons acting in concert with the offeror or counterparty seller on a similar basis) do not retain any interest in, legal right, or control over any of the commodity purchased on margin, leverage, or other financing arrangement at the expiration of 28 days from the date of the transaction.

After the above 2017 proposed interpretation, the CFTC issued in March 2020 its final interpretive guidance on the "actual delivery" requirement for virtual currencies[120]. The CFTC first clarified that, in interpreting the term "actual delivery" for the purposes of the CEA, the commission will continue (i) to follow the 2013 guidance by employing a functional approach, and (ii) to assess all relevant factors that inform an actual delivery determination consistently with the 2017 proposed interpretation. Then the CFTC provided a list of non-exclusive examples to further clarify the meaning of "actual delivery" in the virtual currency context[121].

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[120] COMMODITY FUTURES TRADING COMM'N, *CFTC Issues Final Interpretive Guidance on Actual Delivery for Digital Assets*, 85 Fed. Reg. 37,734 (March 24, 2020).

[121] The non-exhaustive list includes, *inter alia*, the following examples: (1) Actual delivery of virtual currency will have occurred if, within 28 days after entering into an agreement, contract, or transaction, there is a record on the relevant public distributed ledger or blockchain address of the transfer of virtual currency, whereby the entire quantity of the purchased virtual currency, including any portion of the purchase made using leverage, margin, or other financing, is transferred from the counterparty seller's blockchain address to the purchaser's blockchain address, over which the purchaser maintains sole possession and control; (2) Actual delivery will not have occurred if, within 28 days of entering into a transaction, the full amount of the purchased commodity is not transferred away from a digital account or ledger system owned or operated by, or affiliated with, the offeror or counterparty seller (or their respective execution venues) and received by a separate, independent, appropriately licensed, depository or blockchain address in which the customer maintains possession and control; (3) Actual delivery will not have occurred if, within 28 days of entering into a

(ii) Anti-fraud authority

The CFTC also enjoys broad authority to take action to limit fraud in the markets under its oversight. This authority has several statutory bases[122].

(a) First, CEA section 4b prohibits the conduct of cheating or defraud (or attempt to cheat or defraud) a person "in or in connection with" a commodity futures contract used for hedging, price discovery, or the delivery of a commodity[123]. This limitation to commodity futures contracts generates some ambiguity in connection with crypto-assets, given that Bitcoin is the only crypto-asset so far with futures contracts[124]. However, section 4b could still apply when the crypto-asset for which futures contracts have traded (in this case Bitcoin) is used as consideration for other cryptocurrencies[125].

(b) Second, section 6(c)(1) of the CEA, added by the Dodd-Frank Act, makes it unlawful for any person to use or employ any manipulative or deceptive device or contrivance in connection with any swap or a contract of sale of any commodity in interstate commerce or for future delivery[126]. Section 6(c)(1) is implemented by Regulation 180.1(a), which punishes any person that intentionally or recklessly uses or employs any manipulative device, scheme, or artifice to defraud in connection with the above-mentioned

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transaction, the agreement, contract, or transaction for the purchase or sale of virtual currency is rolled, offset against, netted out, or settled in cash or virtual currency (other than the purchased virtual currency) between the customer and the offeror or counterparty seller (or persons acting in concert with the offeror or counterparty seller).

[122] C. BRUMMER, *supra* note 36, 187.

[123] 7 U.S.C. § 6b (2012).

[124] C. BRUMMER, *supra* note 36, 187-188.

[125] *Id.*, 188.

[126] 7 U.S.C. § 9(1) (2012).

instruments[127]. Together, the two provisions significantly enhanced CFTC's enforcement authority, particularly in relation to the spot market. Previously, the CFTC faced the significant burden of proving manipulation; after the introduction of Section 6(c)(1) and Regulation 180.1(a), however, even fraud manipulative devices employed recklessly violates the rule, regardless of whether the conduct in question was intended to create (or did actually create) an artificial price[128]. Furthermore, there is no requirement to establish that the alleged fraud was in connection with a future or a swap "made, or to be made, for or on behalf of, or with" the defrauded person[129]. Since the introduction of the above rules, the CFTC has been asserting its authority aggressively, even in relation to spot transactions involving crypto-assets[130].

(iii) Anti-manipulation authority

Finally, the CFTC has authority to prevent manipulation of commodity prices, that potentially extends also to spot markets.

In order to successfully pursue an action against an alleged market manipulator, the CFTC shall demonstrate that (i) the commodity price is artificial and does not properly reflect supply and demand, and (ii) the defendant is responsible for the artificial price and intended to cause it[131].

As to date, even though the prospect for enforcement actions against Bitcoin and many altcoins is possible, the CFTC has not yet brought market

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[127] 17 C.F.R. § 180.1(a) (2017).

[128] C. BRUMMER, *supra* note 36, 190.

[129] *Ibid.*

[130] *Id.,* 190-191. See for example *CFTC v. Gelfman Blueprint, Inc.*, No. 17-7181, (S.D.N.Y. September 21, 2017), alleging that a scheme misrepresenting profits earned in Bitcoin trading scheme violated Rule 180.1(a).

[131] *Id.,* 191.

manipulation enforcement proceedings against a firm dealing with crypto-assets[132].

[132] *Id.,* 192.

CHAPTER 5

THE OFFERING AND TRADING OF CRYPTO-ASSETS UNDER US FEDERAL SECURITIES LAWS

Introduction

In this chapter we will discuss the applicability of the existing US federal securities regulation to the offering and exchange of crypto-assets.

We will provide in the first paragraph a general overview of the registration process for securities under the Securities Act and the Exchange Act, in particular the disclosure requirements, the most relevant exemptions, and the liability for false or misleading information provided by the issuer.

In the second paragraph we will discuss the most significant issues in applying the registration and disclosure requirements of the Securities Act and Exchange Act to token offerings, in particular the unsuitability of the current disclosure forms for crypto-assets. Our analysis will then move to the use of scaled disclosure regimes (such as Regulation A+, Crowdfunding, and Private Offerings) in the context of ICOs. As concerns secondary markets, we will examine the regulation of crypto-exchanges under US federal securities laws and the CFTC's regulation of crypto-derivatives markets.

In the last paragraph we will discuss the existing regulatory gaps and try to identify possible solutions in light of the recent crypto-market developments, with a particular focus on potential future regulatory interventions of the SEC, the CFTC, the Congress, and States' lawmakers.

1. US regulation of Initial Coin Offerings

We have already examined in the EU section[1] the ICO process and the main advantages and risks of this new capital raising method. We will therefore focus here only on the US regulatory aspects concerning token offerings.

1.1. Public offerings of securities under the Securities Act and the Exchange Act

The regulation of securities offerings to public investors aims at ensuring that investors receive all the material information when issuers raise capital by selling securities in public markets[2]. In this respect, unless an exemption applies, the Securities Act imposes a mandatory registration system on sellers of securities.

In the event the tokens offered in the context of an ICO qualify as securities under the Howey test[3], such ICO shall be subject, unless an exemption applies, to the registration requirements under the Securities Act, more specifically the filing of a registration statement (paragraph 1.1.3) and compliance with rules governing the prefiling, waiting, and posteffective periods (paragraph 1.1.2). In addition, token issuers and offerors would be subject to Securities Act liability and Exchange Act anti-fraud provisions in the event they violate registration rules or commit fraud in connection with the sale/offer of such tokens (paragraph 1.1.5).

We will therefore provide below a brief overview of the main provisions that would apply to issuers/offerors of crypto-asset securities.

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[1] See Chapter 3, paragraph 1.

[2] A. R. PALMITER, *Securities Regulation*, 7th ed., Wolters Kluwer (2017), 115.

[3] See Chapter 4, paragraph 2.1.2.

1.1.1 The definition of "materiality"

Issuers shall disclose to investors all the material information when offering securities. The Supreme Court defined "materiality" by ruling that a fact is material if "there is a substantial likelihood a reasonable investor would consider it important" in making a securities-related decision[4].

The Supreme Court explained that "substantial likelihood" means that the information "probably" would have been important, not that its importance was "merely possible". In addition, false or misleading information do not need to have impacted on the decision of the reasonable investors; it is sufficient that the misinformation would have assumed actual significance in the investors' deliberations[5].

As concerns the "reasonable investor" requirement, it is unclear whether the object of the disclosure regime is a sophisticated investor or an unsophisticated investor. What is clear is that courts do not take into consideration irrational investors, both individual and institutional[6]. Although in some cases courts considered the fact that the vast majority of the information disclosed in the context of a public offering is intended only for sophisticated professional analysts[7], in other decisions they underlined the congressional intent to protect the average small investors and therefore demanded a higher level of disclosure[8].

Courts will therefore decide on a case-by-case basis whether a specific piece of information was material for a reasonable investor to make a securities-related decision.

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[4] *TSC Industries, Inc. v. Northway, Inc.*, 426 U.S. 438 (1976).

[5] A. R. PALMITER, *supra* note 2, 82-83.

[6] *Id.*, 83.

[7] *Wielgos v. Commonwealth Edison Co.*, 892 F.2d 509 (7th Cir. 1989).

[8] *Pinter v. Dahl*, 486 U.S. 622 (1988).

1.1.2 The three phases of the registration process

Section 5 of the Securities Act divides the registration process into three phases, each subject to different rules:

1. The prefiling period, beginning when the issuer prepares for the offering (and is therefore "in registration"). In this phase the marketing and sale of any security is prohibited[9].

2. The waiting period, after a registration statement is filed with the SEC. Sales are still prohibited, and written marketing efforts are strictly regulated[10].

3. The posteffective period, after the registration statement becomes effective and until the offering ends (and the issuer is no longer "in registration"). Sales in this phase are permitted, although written marketing continues to be regulated, and purchasers must receive a prospectus[11].

1.1.3 Content of the registration statement

Section 7 of the Securities Act – by reference to the list under Schedule A – specifies the information that must be included in the registration statement and in the prospectus. The SEC created several "forms" for registration statements by using its rule-making powers. In general, forms are divided in two sections: the first section includes the prospectus, while the second one contains technical information, undertakings, signatures, and exhibits[12]. The prospectus includes a

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[9] *Id.*, 131.

[10] *Ibid.*

[11] *Ibid.*

[12] *Ibid.*

variety of information relating to, *inter alia*, the securities, the issuer and its business, the issuer's financial history, the distribution, and the use of proceeds[13].

The registration form under the Securities Act that an issuer will have to use depends on whether such issuer is (i) a nonreporting issuer, (ii) a seasoned reporting issuer, (iii) a smaller reporting issuer, (iv) an emerging growth company, or (v) a foreign issuer[14].

The most detailed and complete form is Form S-1, that must be used by those issuers not qualifying for Form S-3 (*i.e.* nonreporting issuers launching an IPO or small/unseasoned reporting issuers). Form S-3, on the other hand, can be used by large, seasoned companies that have been reporting for at least one year and, in case they are offering new equity securities, that have a public of at least $75 million ("seasoned reporting issuers"). Forms F-1 and F-3 apply instead to foreign companies selling securities in the US. Furthermore, smaller reporting companies (*i.e.* those with less than $75 million public float) can use the scaled reporting system introduced by the SEC in 2007[15]. Finally, the JOBS Act introduced in 2012 special rules for "emerging growth companies", defined as those companies with less than $1 billion in annual revenues during the most recent fiscal year[16].

Securities may be sold once the registration statement becomes effective, *i.e.* 20 days after its filing. After the filing, indeed, the SEC has 10 days to review the registration statement and, in case the information is incomplete or misleading, it gives notice of its intention to issue a refusal order. In any case, after the registration statement becomes effective, the SEC can issue a stop order if it finds a defect in disclosure.

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[13] *Ibid.*

[14] *Id.*, 131-132.

[15] Securities Act Rel. No. 8876 (2007).

[16] Securities Act §2(a)(19).

1.1.4 Exemptions from registration: a brief overview

The Securities Act exempts from registration certain classes of securities and offerings for which a full registration may be unduly costly given the sophistication of the investor or the issuer's small capital needs[17].

We will only provide here a brief overview of the classes of securities and offerings which are exempted from registration, while we will analyze in further detail in paragraph 1.2.2 below those exemptions that seem well-suited for ICOs.

We can roughly divide exemptions from registration into three groups.

(1) Exempt securities. This group focuses on the issuer and on the type fo securities offered, and includes: (i) government securities, (ii) commercial papers, (iii) certain securities subject to non-SEC regulation (such as securities issued by banks or by savings and loan associations (S&Ls)), and (iv) securities of not-for-profit issuers.

(2) Transaction exemptions. This exemption covers primary offerings by issuers in the context of (i) intrastate offerings, (ii) private placements to qualified investors, (iii) certain small offerings (including Regulation D and Regulation A+), (iv) crowdfunding offerings, and (v) issuer exchanges.

(3) State blue sky exemptions. Given that also state securities laws impose their registration requirements, states may decide to exempt (or not exempt) certain transactions from state registration, although state blue sky legislation is preempted for certain offerings exempted from federal registration (such as private placements, crowdfundings, and exempted securities).

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[17] A. R. PALMITER, *supra* note 2, 197.

1.1.5 Prospectus liability and anti-fraud provisions

The rules governing liability *vis-à-vis* investors for false or misleading information provided in the registration process are included in (i) the Securities Act (Sections 11, 12(a)(1), and 12(a)(2)), and (ii) the Exchange Act (Section 10-b and Rule 10b-5).

As a preliminary remark, it is worth specifying that the group of rules under the Securities Act provide for a private cause of action, *i.e.* investors are entitled to bring an action against issuers for civil liability for violation of the applicable offering rules[18]. Conversely, there is no such right of action granted to damaged investors for violations of the rules under the Exchange Act[19]. However, courts have remedied this regulatory gap by creating an implied cause of action for investors[20] in the event of violations of Section 10-b and Rule 10b-5 of the Exchange Act.

(i) Securities Act liability

As mentioned above, the most relevant Securities Act provisions governing liability for violations of registration requirements are (i) Section 12(a)(1), (ii) Section 12(a)(2), and (iii) Section 11.

Section 12(a)(1) applies when securities are offered or sold in violation of Section 5. In such a case, the purchaser may rescind the transaction and have his money back with interest or recover damages in case he has resold his stock. This section pertains to the most serious of the above violations, *i.e.* when, in case of a

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[18] M. VENTORUZZO, *La responsabilità da prospetto negli Stati Uniti d'America tra regole del mercato e mercato delle regole*, Egea (2010).

[19] *Ibid.*

[20] See, for example, *State of New York v. Bankers Life and Casualty Co.*, 404 U.S. 6 n. 9 (1971), and *J. I Case Co. v. Borak*, 377 U.S. 426 (1964).

public offer subject to Section 5, non-registered securities are offered to investors and a prospectus has not been published[21]. Given the seriousness of the violation, Section 12(a)(1) imposes strict liability against sellers of unregistered securities.

Section 11, on the other hand, refers to those cases where the registration statement has been filed with the SEC and a prospectus published, but such documents contain a material misrepresentation or omission[22]. In this case, the plaintiff will need to show a material misstatement or omission, while culpability, reliance, and causation are defenses that must be established by the defendants[23]. In addition, the issuer is subject to joint liability with a list of specified defendants – such as signers of the registration statement, issuer's directors, underwriters, and experts that provided their opinion in the registration statement – which are all deemed responsible for the material misrepresentation or omission in the registration statement.

Finally, Section 12(a)(2), like Section 11, refers to cases where the registration statement has been properly filed together with the prospectus. In this case, and provided that Section 11 does not apply, purchasers may seek rescission from sellers if the offering was conducted by means of a prospectus or oral communication that is materially false or misleading. Sellers have in this case a defense if they demonstrate that they did not know (and could not have known) of the misinformation[24].

Although the above liability would apply to offerings of crypto-asset securities in violation of registration requirements, it would be nonetheless difficult sometimes to identify the persons responsible for the violation, given the

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[21] M. VENTORUZZO, *supra* note 18.

[22] *Ibid.*

[23] A. R. PALMITER, *supra* note 2, 269.

[24] *Id.*, 280.

decentralized and anonymous nature of the blockchain. Furthermore, considering the novelty of the instruments and the absence of little to none case-law and sample registration statements for token issues, it would be difficult to assess the materiality of an allegedly omitted/misleading piece of information.

(ii) Section 10(b) and Rule 10b-5

Section 10(b) of the Exchange Act makes it unlawful to use or employ, in connection with the purchase or sale of any security, a manipulative or deceptive device or contrivance in contravention of such rules and regulations as the SEC may prescribe[25].

The SEC's implementing regulation, *i.e.* Rule 10b-5[26], further defines the scope of the statutory language. Rule 10b-5 is the basic anti-fraud provision of the federal securities laws, and covers all those frauds committed "in connection with a purchase or sale of a security[27]. The fact that the conduct shall be merely "in connection" with a sale/purchase of securities makes the reach of Rule 10b-5 wider than the liability under Sections 11 and 12(a)(2) of the Securities Act. Indeed, Rule 10b-5 is generally called "catch-all anti-fraud provision"[28].

Rule 10b-5 makes it unlawful for any person, directly or indirectly, in connection with the purchase or sale of any security: (a) to employ any device, scheme, or artifice to defraud, (b) to make any untrue statement of a material fact or to omit to state a material fact necessary in order to make the statements made, in the light of the circumstances under which they were made, not

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[25] 15 U.S.C. § 78j(b).

[26] 17 C.F.R. 240.10b-5.

[27] J. C. COFFEE, JR., H. A. SALE, *Securities Regulation – Cases and Materials*, 12th ed., Thomson Reuters / Foundation Press (2012), 919.

[28] M. VENTORUZZO, *supra* note 18.

misleading, or (c) to engage in any act, practice, or course of business which operates or would operate as a fraud or deceit upon any person.

The rule substantially applies to three types of fraud: (1) misrepresentations or omissions in corporate statements, (2) trading while in possession of material nonpublic information (*i.e.* insider trading), and (3) manipulation[29].

Furthermore, as mentioned above, despite Rule 10b-5 does not include an express private cause of action, an implied cause of action has been established by case law. It is also worth specifying that the Supreme Court made it clear that a Rule 10b-5 lawsuit can be concurrent with lawsuits under Section 11 and Section 12(a)(2) of the Securities Act[30].

As we can see, given its broad range, Rule 10b-5 seems to be more suitable for potential lawsuits against issuers of crypto-asset securities involved in any fraudulent conduct in connection with the issued tokens.

1.2. Application of the Securities Act and Exchange Act rules to crypto-assets

After the above overview of the main Securities Act and Exchange Act provisions that would apply to an offer of crypto-asset securities, we will now examine the suitability of such rules for ICOs and propose potential solutions in order to avoid regulatory gaps and ineffective disclosure.

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[29] J. C. COFFEE, JR., H. A. SALE, *supra* note 27, 919.

[30] *Herman & MacLean v. Huddleston*, 459 U.S. 375 (1983).

1.2.1 A comparison between US general disclosure requirements and token offerings

As seen above under paragraph 1.1.3, Form S-1 is the general standard disclosure document for securities offerings. However, Form S-1 is built on a number of assumptions about security issues that are not always well-suited for ICO tokens[31]. Indeed, Form S-1 is tailored to traditional forms of securities, and tokens significantly differ in many aspects from those instruments.

We will now examine some of the main disclosure items of Form S-1 and see whether or not they may be suitable for tokens.

(i) Financial Statements

Item 11(a) of Form S-1 requires, in the context of the financial disclosure, a description of the registrant's "plan of operation for the remaining fiscal year". It also requires substantial disclosure about anticipated material acquisitions, research and development (R&D) and financial information about each segment of the business[32].

Despite providing a detailed disclosure on the financial situation of the issuer, Item 11(a) may be of limited utility to prospective ICO investors. Indeed, given the predominant presence of new startups in the crypto industry, it is not uncommon that an issuer may have no historical financial information to share[33].

The issue may be solved by giving more weight to those disclosure items which are general enough to encompass the specificities of tokens. In this respect, Item 11(h), for instance, requires a discussion of the issuer's financial condition,

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[31] C. BRUMMER, T. KIVIAT, J. MASSARI, *What Should Be Disclosed in an Initial Coin Offering?*, Cryptoassets: Legal and Monetary Perspectives, OUP Press Forthcoming (November 29, 2018), 17, available at: https://ssrn.com/abstract=3293311.

[32] Form S-1, at Item 11(a) (pointing to Reg S-K at § 229.101).

[33] C. BRUMMER, T. KIVIAT, J. MASSARI, *supra* note 31, 18.

including "such other information that the registrant believes to be necessary to an understanding of its financial condition"[34], and how "material trends" will impact the business. This disclosure item may be extremely effective for ICOs, as promoters would be required to discuss the health of the company (although many ICOs are brand new projects with little to none history)[35].

(ii) Description of securities

Item 9 requires a description of the securities to be registered[36]. In order to provide guidance, Item 9 lists a series of sample securities and specifies disclosures concerning such securities (like voting or dividend rights). There is, however, no mention of tokens or similar instruments under Item 9, and the general disclosure requirements of Form S-1 seem to be unfit for the vast majority of ICO tokens' features[37]. Indeed, the disclosure requirements concerning securities are organized by sections entitled capital stock, debt, and warrants and rights; for all the other securities not explicitly mentioned, the form only requires a "brief description of the rights evidenced thereby"[38].

The first issue concerns the fact that the economic and operational features of tokens significantly differ from traditional securities. Whilst, on the one hand, token issuers will have to disclose some characteristics shared with traditional securities (like dividend policy and voting rights), on the other hand tokens present some features that, despite being fundamental for investors, may not be

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[34] Form S-1, at Item 11(h) (pointing to Reg S-K at § 229.303).

[35] C. BRUMMER, T. KIVIAT, J. MASSARI, *supra* note 31, 18.

[36] Form S-1, at Item 9 (pointing to Reg S-K at § 229.202).

[37] C. BRUMMER, T. KIVIAT, J. MASSARI, *supra* note 31, 18.

[38] Reg S-K at § 229.202.

captured by the S-1 disclosure requirements (such as access to future services instead of claims on profits)[39].

Another relevant issue relates to future token supply. Indeed, information regarding mining of tokens or the existence of any caps would be of the utmost importance for investors, considering the high risk of capital dilution that may cause a significant depreciation of tokens' value[40]. There is however no clear obligation to disclose such information. Even Item 6, that requires disclosure of dilution-related costs, seems to apply only when common equity securities are being registered[41].

As we have seen, the most relevant features of tokens are not explicitly required to be disclosed under Form S-1; hence ICO disclosure may deprive investors of a number of significant information which are likely to impact on the value of their investment.

(iii) Corporate Governance

Item 11 requires disclosure of information relating to corporate governance, including the identity of directors, the identification of independent directors, and details on compensation of key managers[42].

It is however unclear whether disclosure requirements on corporate governance would cover a totally different governance system like a blockchain. Indeed, decisions on the blockchain are taken in a totally different way compared to firms, as there is no board of directors. Decisions on the blockchain are,

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[39] C. BRUMMER, T. KIVIAT, J. MASSARI, *supra* note 31, 19.

[40] *Ibid.*

[41] Form S-1, at Item 6 (pointing to Reg S-K at § 229.506).

[42] Form S-1, at Item 11(*l*) (pointing to Reg S-K at § 229.402 and § 229.407).

instead, the result of a more complex process involving several actors that include developers, miners, and holders of crypto-assets[43].

Form S-1 governance disclosure requirements are therefore likely to be unfit for ICOs: indeed, while traditional corporate governance is based on the separation of ownership and control, blockchains are inspired by concepts of direct democracy that foster immediate participation of token holders in the decision-making process.

The absence of an obligation to disclose blockchain governance requirements can therefore be detrimental for investors, as they would not be able to understand how decisions are taken in relation to delicate issues such as the ability to create new tokens – or to modify the existing ones – and upgrades to the blockchain software[44].

In addition, disclosure of the identity of management may not be sufficient for ICOs, as those who practically run the platform and are able to give effectiveness to network's decisions are the members of the technology team. Such individuals are in fact the ones with more visibility during the ICO process, as their names often appear on white papers and are touted in the offering documentation as prominent and experienced experts[45]. Item 11(k) includes one catch-all provision that may impose disclosure of those "technologists", as it requires the identification of significant employees "who make or are expected to make significant contributions to the business of the registrant"[46].

(iv) Secondary Trading

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[43] C. BRUMMER, T. KIVIAT, J. MASSARI, *supra* note 31, 20.

[44] *Ibid.*

[45] *Id.,* 22.

[46] Form S-1, at Item 11(k) (pointing to Reg S-K at § 229.401).

Item 8 requires issuers to disclose whether the securities are to be offered on an exchange[47]. The extent of this obligation for ICO issuers is unclear.

As we know, securities are only permitted to be traded on specifically designated national securities exchanges that shall be registered with the SEC. Tokens, on the other hand, are traded on crypto-exchanges that are not registered as national securities exchanges, and instead constitute Alternative Trading Systems (which are subject to less intense regulatory scrutiny and oversight); some of those crypto-exchanges operate under bespoke state licenses (like New York's BitLicense) that allow some activities beyond the scope of US federal securities laws[48].

Given that crypto-exchanges often operate with rules diverging from those governing national securities exchanges, disclosure of information concerning those crypto-exchanges would be extremely important for investors. This lack of disclosure might in fact have material effects such as liquidity risks and a decrease in the value of listed ICO tokens[49].

(v) Risk Factors

Item 3 requires discussion of "the most significant factors that make the offering speculative or risky", excluding however those risks "that could apply to any issuer or any offering"[50]. The risks factors that shall be disclosed include, *inter alia* (i) a lack of operating history, (ii) a lack of recent profitable operations, (iii) the financial position of the issuer, (iv) the business or proposed business, or (v) the lack of a market for common equity securities[51].

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[47] Form S-1, at Item 8 (pointing to Reg S-K at § 229.508).

[48] C. BRUMMER, T. KIVIAT, J. MASSARI, *supra* note 31, 22-23.

[49] *Id.,* 23.

[50] Form S-1, at Item 3 (pointing to Reg S-K at § 229.503(c)).

[51] *Ibid.*

Considering that they usually involve companies with little to none financial and operating history, ICOs may pose significant risks for investors. Therefore, disclosure documents should inform investors about all the potential risks they assume when investing in ICOs, together with the likelihood of occurrence of such risks[52].

Although the definition of "significant factors" under Item 3 seems to be broad enough to encompass all the most relevant risks that ICOs may pose, it appears however that the exclusion of risks that could apply to any issuer or any offering may be particularly problematic in the ICO context[53].

Indeed, there is no case law addressing the issue of whether the "any offering" exclusion refers generally to all types of offerings or specifically to offerings of similar types of securities[54]. In case we decide to follow the second and more specific interpretation (*i.e.* risks applying "to any ICO"), a significant number of blockchain-specific (but common) risks – such as the risk that the blockchain technology could fail or be hacked – would become exempted from disclosure[55].

1.2.2 Exemptions potentially applicable to ICOs

The standard registration procedure under the Securities Act can be excessively burdensome and expensive for small token issuers, that would need to hire an investment bank to underwrite the securities, as well as lawyers and auditors to help them in the preparation of disclosure documentation and

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[52] *Id.,* 23-24.

[53] *Id.,* 24.

[54] *Id.,* 24-25.

[55] *Id.,* 25.

financial statements[56]. In fact, as to date, only one ICO issuer has filed a full registration statement that has been approved by the SEC[57].

We have also seen in the previous paragraph that the standard disclosure regime for public offerings of securities (*i.e.* Form S-1), although requiring disclosure of a sheer amount of information, is unlikely to capture the most essential and fundamental information that ICO investors might need; hence Form S-1 disclosure would likely result in a waste of energies and resources.

In order to reduce the regulatory burden, ICO issuers, which are usually small and medium enterprises with little to none financial history, may take advantage, if the necessary requirements are met, of the various exemptions to standard registration, that provide for scaled disclosure regimes[58].

We have identified, among others, three exemptions to standard registration requirements that seem to be well-suited for ICOs.

(i) Crowdfunding (Rule 4(a)(6))

The crowdfunding provisions, introduced with the JOBS Act, exempt crowdfunded securities (*i.e.* small offerings conducted via online platforms) from a wide range of registration and disclosure requirements[59].

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[56] *Ibid.*

[57] INX Limited, a Gibraltar-based private company formed in 2017, announced on August 24, 2020 that the SEC declared as effective INX Limited's Form F-1 registration statement (Form F-1 is the registration form required for foreign companies seeking to issue securities under US federal law). This approval marks the first instance in which the SEC has cleared a full registration statement for a public offering of crypto-tokens. See C. MURRER, *U.S. SEC Approves the First Full Securities Registration for a Company Issuing Crypto-tokens*, Blockchain – Baker McKenzie (August 31, 2020), available at: https://blockchain.bakermckenzie.com/2020/08/31/u-s-sec-approves-the-first-full-securities-registration-for-a-company-issuing-crypto-tokens/.

[58] C. BRUMMER, T. KIVIAT, J. MASSARI, *supra* note 31, 25.

[59] See A. R. PALMITER, *supra* note 2, 223.

In order to benefit from the crowdfunding exemption, issuers shall meet several requirements, in particular: (i) all the transactions shall take place through an SEC-registered intermediary, (ii) the amount of money to be raised shall not exceed $ 1.070.000 in a 12-month period, and (iii) there is a limitation on the amount that individual investors can invest across all crowdfunding offerings[60].

The disclosure document for crowdfunding is Form C, that requires disclosure of a number of information partly inspired by public offerings (but less invasive), including information on directors, officers, and owners of 20% or more of the issuer, a description of the issuer's business and the use of proceeds from the offering, and a discussion of the issuer's financial conditions[61].

First, Form C provides for a lighter financial disclosure. More specifically, Form C requires only abbreviated financial statements for the two most recently completed periods[62]. Therefore, Form C provides less comprehensive financial information as compared to Form S-1.

Second, Form C demands a general description of the securities being offered[63]. It is unclear, however, whether such disclosure obligation only covers traditional securities' features (such as profits and voting rights) or if it also extends to token-specific functionalities.

Third, disclosure on corporate governance is very limited in Form C, given that it only requires disclosure of "risks to purchasers associated with corporate actions" and lists four examples: (i) additional issuances, (ii) issuer repurchases, (iii) a sale of the issuer or its assets, and (iv) related-party

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[60] C. BRUMMER, T. KIVIAT, J. MASSARI, *supra* note 31, 25.

[61] *Id.*, 25-26.

[62] Form C at 14 (Q&A 29).

[63] Form C at 10 (Q&A 13).

transactions[64]. As we can see, the requirement is less expansive than the equivalent in Form S-1, which also covers other corporate governance information including director independence and board meetings[65]. Furthermore, such as Form S-1, Form C targets officers and directors as the issuer's key persons, thus leaving technologists, *i.e.* the effective key leaders in ICOs, out of its reach. Technologists may fall within Form C catch-all provision that requires disclosure of "any persons occupying a similar status or performing a similar function"[66]. However, given that the main tasks of technologists are related to engineering and coding, it may be difficult to identify their work as similar to that of a director or officer[67].

Fourth, Form C does not require any information on exchange listings; hence, there are no legal grounds to mandate disclosure of a token's ultimate liquidity and the market for such token[68].

It seems evident from the above considerations that Form C provides ICO investors with less comprehensive information about the issuer and the offered tokens. However, it should be noted that in certain areas Form C provides more suitable ICO disclosure than Form S-1[69]. One example is the required disclosure about the terms of the offering, that specifically asks for the maximum offering amount (or cap) and the price determination method[70]. Such information seems in fact to be perfectly tailored to ICOs, where the amount of funding is not

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[64] Form C at 12 (Q&A 23).

[65] C. BRUMMER, T. KIVIAT, J. MASSARI, *supra* note 31, 27.

[66] Form C at 6 (Q&A 5).

[67] C. BRUMMER, T. KIVIAT, J. MASSARI, *supra* note 31, 27.

[68] *Id.,* 28.

[69] *Ibid.*

[70] Form C at 1.

always determined ex ante (sometimes funding just stops when the amount raised hits a set cap) and the price may vary during the offering period[71].

(ii) Regulation A+

Regulation A+, implemented under the JOBS Act, offers another opportunity for scaled disclosure by establishing two tiers of investment: (i) Tier 1, which allows offerings of up to $20 million in a 12-month period, and (ii) Tier 2, which permits offerings of up to $50 million in a 12-month period[72]. Regulation A+ is becoming increasingly popular for ICOs: so far, a number of ICO issuers, such as Blockstack[73] and YouNow[74], have applied for Regulation A+ and have received the SEC approval.

The disclosure document for Regulation A+ offerings is Form 1-A, a scaled-down version of Form S-1, that includes a number of disclosure requirements similar to those in regular public offerings[75].

Although being more expansive than Form C, also Form 1-A does not capture several pieces of relevant information when applied to ICOs. For example, Form 1-A requires abbreviated and sometimes non-audited financial statements[76], and demands a discussion on the securities rights that does not

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[71] C. BRUMMER, T. KIVIAT, J. MASSARI, *supra* note 31, 28.

[72] See A. R. PALMITER, *supra* note 2, 209-210.

[73] See P.VIGNA, *SEC Clears Blockstack to Hold First Regulated Token Offering*, The Wall Street Journal (July 10, 2019), available at: https://www.wsj.com/articles/sec-clears-blockstack-to-hold-first-regulated-token-offering-11562794848.

[74] See D. KUHN, *SEC Gives YouNow's Ethereum Token 'Props' Reg A+ Approval*, CoinDesk (July 13, 2019), available at: https://www.coindesk.com/sec-gives-younows-ethereum-token-props-reg-a-approval.

[75] C. BRUMMER, T. KIVIAT, J. MASSARI, *supra* note 31, 28.

[76] Form 1-A at Item 1.

cover token-specific features[77]. Furthermore, like Form C and Form S-1, it primarily focuses on officers and directors, and technologists may only fall under the "significant employees" category[78]. Finally, unlike Form C, Form 1-A does not provide for any disclosure item that might be relevant for ICOs, such as caps on the sale and price-determination methods[79].

(iii) Private Offerings

Finally, ICO issuers may take advantage of private offering exemptions. As opposed to public offerings, where securities are sold to retail investors, private offerings are available only to accredited or sophisticated investors[80]. Private offerings are typically conducted via Regulation D's Rules 504 and 506 and then resold via qualified institutional buyers under Rule 144A of Securities Act[81].

Issuers enjoy a high degree of flexibility with respect to disclosure requirements, and as concerns offerings made exclusively to accredited investors there are no specific requirements under Rule 504 and 506. According to the Supreme Court, investors are considered sophisticated when they can "fend for themselves"[82]. Lower courts, in interpreting such requirement, have focused both on the investor's ability to evaluate the investment and on his/her access to information about the investment[83]. Furthermore, Rule 501(a) sets out the

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[77] Form 1-A at Item 4.

[78] Form 1-A at Circular Item 10.

[79] C. BRUMMER, T. KIVIAT, J. MASSARI, *supra* note 31, 29.

[80] *Ibid.*

[81] Rule 144A provides a safe harbor from the registration requirements of the Securities Act for certain private resales of minimum $500.000 units of restricted securities to qualified institutional buyers.

[82] *SEC v. Ralston Purina Co.*, 346 U.S. 119 (1953).

[83] A. R. PALMITER, *supra* note 2, 206.

categories of accredited investors, mainly focusing on such investor's net worth and incomes[84].

In this respect, it is worth mentioning the increasingly popular practice in some ICO transactions (known as Simple Agreement for Future Tokens – SAFT) to pre-sell tokens to accredited investors before they are issued via Regulation D (thereby avoiding registration with the SEC). The proceeds of the sale are then used to fund the development of the project[85]. Once an application or network is operable, tokens are finally issued and delivered to investors. Most importantly, such tokens are not securities, given that delivery occurs after the project is completed – hence their value lays in consumption and not in investment[86]. As a consequence, tokens will not be subject to SEC registration and can be traded on a large variety of exchanges, whether or not they are licensed by the SEC[87]. This practice may raise, however, some concerns from a regulatory perspective, as it is aimed at bypassing registration with the SEC. For example, it may be argued that current laws do not support SATF's distinction of pre and post issuance phases: indeed, all the phases of the fundraising process, even those before the formal token issuance, shall be subject to the Howey test in order to check whether tokens qualify as securities (and are therefore subject to registration)[88].

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[84] See J. C. COFFEE, JR., H. A. SALE, *supra* note 27, 355-356.

[85] C. BRUMMER, *Fintech Law in a nutshell*, West Academic Publishing (2020), 154-155.

[86] *Id.*, 155.

[87] *Ibid.*

[88] See D. FELSENTHAL, J. OVERALL, *Bad News: SAFTs May Not Be "Compliant" After All*, Crowdfund Insider (March 16, 2018), available at: https://www.crowdfundinsider.com/2018/03/130229-bad-news-safts-may-not-compliant/.

1.2.3 Final remarks

As we have seen above, merely designating a token as a "security" will not necessary improve disclosure made available to investors, as the disclosure regime under the Securities Act is tailored to traditional forms of securities and is not well-suited for new instruments such as crypto-assets[89].

As a result, reliance on Securities Act disclosure requirements would be not only unnecessarily burdensome and costly, but also inadequate for investors protection[90].

A first step would be to revise disclosure forms in order to demand more token-specific information, or the SEC to issue guidelines in such respect. However, this first move shall be necessarily followed by macro-level reforms that would ensure the accessibility of those disclosure to retail investors, together with a supporting regulatory infrastructure for auditors to ensure quality of disclosure[91].

2. The regulation of crypto-exchanges

The vast majority of crypto-assets trade on venues commonly referred to as "crypto-exchanges". We will first discuss the spot (or cash) market for crypto-assets and then the crypto-derivatives market.

2.1 Crypto-exchanges and the SEC jurisdiction

Crypto-exchanges can operate in a variety of different ways and can be therefore subject to different regulation. However, crypto-exchanges that list and

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[89] C. BRUMMER, T. KIVIAT, J. MASSARI, *supra* note 31, 34.

[90] *Ibid.*

[91] *Ibid.*

trade crypto-assets qualifying as securities must register with the SEC according to the Exchange Act rules.

2.1.1 National Securities Exchanges

Crypto-exchanges where crypto-asset securities are exchanged can register with the SEC as "national securities exchanges" under Section 6 of the Exchange Act. To date, no crypto-exchange has registered as a national securities exchange.

The main advantage of registering as a national securities exchange is the ability to function with relative autonomy, as the venue would be free to set up its own rules of conduct, trading rules, and fee structures. It would also be recognized as a SRO and be therefore subject to the exclusive oversight of the SEC[92].

On the other hand, national securities exchanges are also subject to a number of obligations. For instance, they must participate in the National Market System, which requires all registered exchanges to provide customers with fair and equal access to orders. In addition, the exchanges would be subject to order display, execution access, and fair access requirements for non-members[93].

2.1.2 Federally Regulated Alternative Trading Systems (ATS)

Another option for crypto-exchanges listing and trading crypto-asset securities is registering with the SEC as an alternative trading system (ATS).

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[92] C. BRUMMER, *supra* note 85, 164-165.

[93] *Id.*, 165.

ATSs are subject to more relaxed rules compared to national securities exchanges, and are regulated as a broker-dealer rather than an exchange. Accordingly, it shall register as such with the SEC and FINRA[94].

As a broker-dealer, a crypto-exchange will be subject to a number of obligations, such as (i) having reasonable policies and procedures to prevent misuse of material non-public information, (ii) meet certain books and records requirements, and (iii) comply with financial responsibility rules[95]. In addition, they must provide customers with fair access to the trading system, and are prohibited from labeling themselves as "exchanges".

2.1.3 State-Regulated Exchanges

Many crypto-exchanges choose to operate under state license.

One of the most popular state license is surely the "BitLicense" granted in the state of New York. The program was launched in 2015 for companies willing to trade crypto-assets. Firms applying for the BitLicense shall have a US subsidiary and demonstrate that they have an established business plan, financial controls, and a compliance officer[96].

State licenses, however, come with some limitations. For instance, state-licensed venues cannot trade securities, as they are not federally regulated. In the event a traded crypto-asset qualifies as a security, the trading venue shall become subject to federal licensing registration requirements[97]. On this basis, in 2018 the SEC commenced (and settled) an action against Zachary Coburn[98], the founder of

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[94] *Id.,* 162.

[95] *Ibid.*

[96] *Id.,* 159.

[97] *Id.,* 160-161.

[98] *In re Zachary Coburn*, Securities Act Release No. 84,553 (November 8, 2018).

the trading venue EtherDelta, for operating as an unregistered national securities exchange, as the SEC claimed that certain tokens traded on EtherDelta qualified as securities[99].

2.1.4 Decentralized Digital Asset Trading Venues

Many crypto-exchanges operate as decentralized trading venues, allowing investors to exchange crypto-assets directly on the blockchain.

The SEC has not yet clarified the legal status of such platforms. Decentralized venues technically do not hold securities, but they act as a peer-to-peer interface on a blockchain. Accordingly, they are unlikely to be subject to many securities law requirements, including broker-dealer rules and clearing agent requirements[100].

2.2 CFTC's regulation of crypto-derivatives exchanges

The CFTC enjoys broad powers in regulating derivatives exchanges, including markets of derivatives referencing to crypto-assets qualifying as commodities (like Bitcoin). On the other hand, where transactions involve derivatives relating to a security, the SEC shall enjoy primary authority. However, derivatives that reference to a crypto-asset security (such as ICO products) do not exist at the moment; hence the CFTC is currently the sole regulator in this field[101].

Under Section 5 of CEA, any market that seeks to provide a facility for the trading of futures, options on futures, or options on commodities must apply to

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[99] C. BRUMMER, *supra* note 85, 161.

[100] *Id.,* 166-167.

[101] *Id.* 192-193

the CFTC to be designated as a contract market (DCM)[102]. In addition, any person offering a platform in which more than one market participant has the ability to execute or trade swaps shall apply to the CFTC to register as a Swap Execution Facility (SEF) or be designated as a DCM[103].

All those venues applying for DCM or SEF status shall demonstrate compliance with twenty-five statutory standards in the CEA called the "DCM Core Principles", that require specified financial resources, surveillance, operational and system safeguards, as well as trading and product requirements[104]. Applicants shall also certify that any new product complies with the CEA and the applicable CFTC regulations.

The marketplace for cryptocurrencies derivatives is rapidly expanding, although it remains, however, largely unregulated. Nonetheless, albeit still dominated by unregulated exchanges, it is gradually facing greater competition from regulated alternatives[105]. CFTC Chairman Heath Tarbert, on his side, in a January 2020 interview expressed the Commission's positive thoughts about regulating crypto-derivative markets, as investors would be able to "rely on" for better "price discovery, hedging and risk management"[106].

Furthermore, in October 2020, acknowledging the lack of a comprehensive federal or state regulation and oversight, the CFTC issued an advisory to futures commission merchants (FCMs) regarding the holding of virtual currencies in

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[102] *Id.,* 193.

[103] *Ibid.*

[104] *Id.,* 194.

[105] The platform Bakkt, for example, launched physically delivered Bitcoin futures in September 2019, and CME, which first launched Bitcoin futures in December 2017, opened trading for options contracts in January 2020.

[106] P. BAKER, *Regulated Derivatives Will 'Legitimize' Crypto, Says CFTC Chair*, CoinDesk (January 14, 2020), available at: https://www.coindesk.com/regulated-derivatives-will-legitimize-crypto-says-cftc-chair.

segregated accounts[107]. In particular, the Commission has determined that receiving virtual currencies from a customer and holding such currencies as segregated funds creates additional risks for the other customers in the same origin. More specifically, the CFTC has pointed out that virtual currencies present a degree of custodian risk that is beyond what is currently present with depositories, such as banks and trust companies. The CFTC has therefore provided guidance to FCMs on (i) how to hold and report certain deposited virtual currency from customers in connection with physically-delivered futures contracts or swaps, and (ii) designing and maintaining risk management programs concerning the acceptance of virtual currencies as customer funds.

2.3 Crypto-funds regulation

A practice that is becoming more and more popular in the US is setting up funds that invest in crypto-assets, particularly in cryptocurrencies (known as "crypto-funds"). The advantage of crypto-funds is that investors do not purchase and manage the crypto-assets directly, but instead can purchase shares in a fund that invests in crypto-assets or tracks crypto-markets.

This practice has raised several concerns among regulatory authorities, given that the requirements governing investment funds, in particular those relating to asset custody and liquidity, seem to be unfit for investments in volatile and fragmented crypto-markets.

Indeed, since crypto-markets lack the liquidity, stability, and regulatory certainty of traditional securities markets, crypto-funds should have a greater

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[107] COMMODITY FUTURES TRADING COMM'N, DIVISION OF SWAP DEALER AND INTERMEDIARY OVERSIGHT, *Accepting Virtual Currencies from Customers into Segregation*, CFTC Letter No. 20-34 (October 21, 2020), available at: https://www.cftc.gov/PressRoom/PressReleases/8291-20.

burden of disclosure to investors than a traditional fund[108]. Nonetheless, crypto-funds face significantly less regulation compared to traditional funds, as they trade exclusively in crypto-assets that do not qualify as securities. As a result, they are permitted, for example, to solicit investment from a far broader range of investors and have more flexibility in setting their fees, thus granting them a significant competitive advantage against other traditional funds.

In the US fund sponsors have different options for setting up their crypto-fund, including (i) SEC-regulated funds (Open-End Funds, ETFs, Closed-End Funds, and Exchange Traded Products), (ii) private funds, and (iii) hedge funds.

2.3.1 SEC-regulated funds

In the event sponsors want to raise capital through a SEC-regulated fund that invests in crypto-markets, they would have the following four options.

(1) Open-End Funds. Better known as mutual funds, they are registered under the Investment Company Act of 1940[109] and are actively managed by an asset manager. Open-end funds issue shares whenever an investor purchases them, as typically do not limit the number of shares they can offer. Shares are always redeemable upon request of holders. Given the costs that a managed fund requires, open-end funds are not of great interest among token issuers[110].

(2) Exchange Traded Funds. They are similar to open-end funds as concerns registration and redemption of shares. However, ETFs are typically not actively managed, and therefore the costs are significantly reduced. ETFs

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[108] E. MOKHTARIAN, A. LINDGREN, *Rise of the Crypto Hedge Fund: Operational Issues and Best Practices for an Emergent Investment Industry*, 23 Stan. J.L. Bus. & Fin. 112 (2018), 114.

[109] 15 U.S.C. § 80-1 et seq.

[110] C. BRUMMER, *supra* note 85, 170-171.

are listed on an exchange where investors can buy and sell their shares[111]. In a recent interview, the SEC Chairman affirmed that the commission is working on regulations that may authorize the use of cryptocurrency ETFs[112].

(3) Closed-End Funds. In contrast to open-end funds, closed-end funds limit the number of shares they can issue. After the initial offering, such shares start being traded on secondary markets. Furthermore, closed-end funds are not required to satisfy daily redemption requests from investors, therefore they are free to invest in less liquid investments[113].

(4) Exchange Traded Products. In the event sponsors decide to set up a fund holding solely commodities, such fund would not need to be registered with the SEC. Given the qualification of cryptocurrencies as "commodities" by the CFTC[114], a fund holding solely Bitcoin or similar virtual currencies would therefore be exempted from registration with the SEC[115]. However, the fund needs the SEC approval for the listing and trading of its shares on an exchange. Since March 2017, when the SEC denied an application to list and trade shares of the shares of the Winklevoss Bitcoin Trust on the Bats BZX Exchange[116], the SEC has been rejecting applications from cryptocurrency funds raising concerns about

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111 *Id.*, 171-172.

112 S. NAGARAJAN, *Cryptocurrency ETFs could soon be a reality now that regulators are actively studying them, SEC chair Jay Clayton says*, Business Insider (October 17, 2020), available at: https://markets.businessinsider.com/currencies/news/cryptocurrency-etf-under-consideration-sec-jay-clayton-says-2020-10-1029690330.

113 C. BRUMMER, *supra* note 85, 172-173.

114 See Chapter 4, paragraph 2.2.1.

115 The fund would be, however, a commodity pool, hence its operator would fall under the CFTC jurisdiction.

116 U.S. SEC. & EXCH. COMM'N, *Self-Regulatory Organizations; Bats BZX Exchange, Inc.*, Release No. 34-83723 (July 26, 2018), available at: https://www.sec.gov/rules/other/2018/34-83723.pdf.

valuation, manipulation in underlying Bitcoin markets, and fund capacity to meet redemption orders[117].

The above types of SEC-regulated funds are subject to several investor-protecting measures under the Investment Company Act. In this respect, the SEC issued a staff letter in 2018[118] addressed to the fund industry outlining its concerns as to whether crypto-asset funds would be able to meet the requirements of the Investment Company Act.

The SEC in the staff letter raised, *inter alia*, the following issues.

First, custodians of funds' assets are subject to a number of obligations; most importantly, they would need to ensure safeguard and necessary verification of those assets. Custodians shall also demonstrate sufficient cybersecurity protection for the assets. In case of a crypto-fund, promoters should therefore be able to demonstrate how custodians of cryptocurrencies intend to validate existence, exclusive ownership, and software functionality of private cryptocurrency keys and other ownership records[119].

Second, open-end funds shall comply with strict liquidity provisions, as they must be able to satisfy investors' daily requests to redeem their shares. Open-end funds shall also establish a liquidity risk management program that classifies investments in terms of their liquidity. The SEC pointed out that successful crypto-fund applicants would need to develop policies that take into account trading history, price volatility, and trading volume of cryptocurrency futures contracts[120]. Furthermore, given the volatility of crypto-markets, they will

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[117] C. BRUMMER, *supra* note 85, 173-174.

[118] U.S. SEC. & EXCH. COMM'N, *Staff Letter: Engaging on Fund Innovation and Cryptocurrency-related Holdings* (January 10, 2018), available at: https://www.sec.gov/investment/fund-innovation-cryptocurrency-related-holdings.

[119] C. BRUMMER, *supra* note 85, 175-176.

[120] *Id.*, 176-177.

need to consider whether an unusually sizable potential daily redemption amount might be needed[121].

Finally, an ETF's market price cannot deviate materially from its net asset value (NAV) in order to ensure that investors are treated fairly and to deter fraud. To ensure compliance with that rule, crypto-funds would need to demonstrate the ability to properly value crypto-assets – a particularly challenging requirement given the high degree of volatility and fragmentation of crypto-markets[122]. At the same time, applicants shall explain how differences among the various classes of crypto-assets would impact valuation and accounting/audit policies[123].

2.3.2 Private Funds

Sponsors also have the option to set up a non-SEC registered private fund, offered solely to accredited investors. Indeed, are exempted from the scope of the Investment Company Act (i) funds with less than 100 investors[124], and (ii) funds offered solely to qualified purchasers[125]. The term "qualified purchaser" is defined as any natural person, company or trust that owns at least $5 million in investments or invests at least $25 million on an account on a discretionary basis for her own account or the account of others[126].

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[121] *Ibid.*

[122] *Id.*, 177.

[123] K. A. HOWES, S. HUNG, J. A. KLAYMAN, *SEC Staff Raises Concerns Related To Cryptocurrency ETFs And Mutual Funds*, Morrison Foerster (January 24, 2018), available at: https://www.mondaq.com/unitedstates/Technology/666934/SEC-Staff-Raises-Concerns-Related-To-Cryptocurrency-ETFs-And-Mutual-Funds.

[124] Section 3(c)(1) Investment Company Act.

[125] Section 3(c)(7) Investment Company Act.

[126] Section 2(a)(51) Investment Company Act.

This has been, for instance, the choice of the Bitcoin Investment Trust, where accredited investors had the ability to purchase restricted shares directly from the fund manager (Grayscale Investments) at the daily NAV[127]. Such shares are neither traded on an exchange nor available to retail investors; however, those investors who hold their shares for one year can then sell their "seasoned" shares on the OTC market to the public[128].

2.3.3 Hedge Funds

Hedge funds are alternative investments using pooled funds that employ different strategies to earn active returns for their investors. Hedge funds are generally only accessible to accredited investors, as they face less regulation than mutual funds and other investment vehicles.

This relaxed regulation fueled the growth of hedge funds investing in crypto-assets. A recent study showed that the total assets under management of crypto hedge funds globally increased to over $2 billion in 2019 from $1 billion the previous year[129]. The vast majority of crypto hedge funds trade cryptocurrencies (with 97% trading Bitcoin), and 52% of crypto hedge fund managers are based in the US[130].

The four most significant areas in which traditional hedge funds are regulated in the US are: (i) anti-fraud and non-solicitation provisions under the Securities Act and the Exchange Act; (ii) investment activity regulation under the

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[127] L. CARRELL, *Everyone Calls Bitcoin Investment Trust An ETF, But It's Not; Here's What It Is*, Investor's Business Daily (February 2, 2018), available at: https://www.investors.com/etfs-and-funds/etfs/everyone-calls-bitcoin-investment-trust-an-etf-but-its-not-heres-what-it-is/.

[128] C. BRUMMER, *supra* note 85, 174-175.

[129] PWC, ELWOOD, *2020 Crypto Hedge Fund Report* (2020), 4, available at: https://www.pwc.com/gx/en/financial-services/pdf/pwc-elwood-annual-crypto-hedge-fund-report-may-2020.pdf.

[130] *Ibid.*

Investment Advisers Act of 1940 and the Investment Company Act of 1940; and (iii) regulation by the CFTC[131].

The provisions of the Securities Act and the Exchange Act generally prohibit public solicitation and fraud in connection with a public offering of securities. Interests in a hedge fund are treated as "equity securities" under both the Securities Act and the Exchange Act. Offerings on interests in a hedge fund shall therefore either comply with the registration requirements of the Securities Act or seek an exemption from registration[132].

In addition, the Investment Company Act (as modified by Dodd-Frank Act of 2010) places significant limitations on the behavior of entities falling within its definition of "investment company", which covers any issuer which is engaged primarily in the business of investing, reinvesting or trading in "securities"[133]. This includes limitations on shorting, use of leverage, and other trading activities. These limitations are highly prohibitive to the investment strategies employed by hedge funds[134]. Thus, most hedge funds rely on either Sections 3(c)(1) or 3(c)(7) of the Investment Company Act to avoid classification as an investment company, *i.e.*: (i) funds with less than 100 investors, or (ii) funds offered solely to qualified purchasers.

However, crypto funds do not need to obtain an exemption to the Investment Company Act. By generally trading cryptocurrencies, which are

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131 The CFTC, under the Commodities Exchange Act, has jurisdiction over all commodity swaps and other derivative contracts, as well as the investment advisers and pooled investment funds dealing in such commodity interests. Trading of such products must occur on designated self-regulatory exchanges, authorized and supervised by the CFTC. Investment managers and pooled investment vehicles trading on such exchanges must also register with the CFTC, and abide by a set of requirements comparable to those funds operating under the Investment Advisers Act and Investment Company Act. See *id.*, 19.

132 E. MOKHTARIAN, A. LINDGREN, *supra* note 108, 125.

133 Section 3(a)(1)(A) Investment Company Act.

134 E. MOKHTARIAN, A. LINDGREN, *supra* note 108, 128.

considered non-securities by the SEC and the CFTC, crypto hedge funds do not "engage primarily in the business of investing, reinvesting, or trading in securities", hence they do not need to comply with the Investment Company Act's amplified non-solicitation provisions[135]. Crypto funds thus have far broader discretion in choosing and marketing to smaller investors, and in turn a significant competitive advantage compared to other hedge funds[136].

In essence, by trading exclusively in commodity tokens, crypto hedge funds evade most hedge fund-focused regulation. They thus have a significant competitive advantage *vis-à-vis* other hedge funds, insofar as they can more freely solicit funding from small to mid-sized investors and set compensation more flexibly.[137] Regulators should therefore take into consideration the unique technology underlying various types of cryptocurrencies and create a crypto hedge funds regulatory regime that acknowledges and regulates those differences according to the risks they pose[138].

3. Room for regulatory intervention

The overall impression is that there is a substantial lack of clarity in the regulation of crypto-assets in the United States.

First, it is not totally clear how the Howey test should be applied to crypto-assets, particularly with reference to utility tokens; this unclear situation creates, of course, uncertainty among token issuers in the US.

Furthermore, the limits of SEC and CFTC jurisdiction over crypto-assets need to be precisely defined, particularly in relation to cryptocurrencies. So far,

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[135] E. MOKHTARIAN, A. LINDGREN, *supra* note 108, 133.

[136] *Ibid.*

[137] *Id.*, 145.

[138] *Id.*, 146.

cryptocurrencies have been generally regulated by the SEC when traded in the cash markets and by the CFTC when traded in certain segments of the securities-based derivatives markets[139].

Finally, many states have implemented state regulation of crypto-assets. Sometimes such regulation may significantly differ from state to state, and even give rise to regulatory arbitrage. For example, as seen above, New York implemented a BitLicense, under which many cryptocurrency businesses will have to be licensed to engage in business with New York customers (retail or institutional) or otherwise operate in New York[140]. Wyoming has adopted several laws designed to make the state much friendlier for crypto-asset businesses, including exemptions of certain transactions from securities laws[141].

3.1 In search for the best regulatory approach

In light of the current uncertain regulatory situation, the issue is not only whether crypto-assets will be regulated, but also whether such regulation will result from piecemeal actions or from a coherent framework[142]. The former would, in fact, result in insufficient investor protection, regulatory confusion, greater costs, and significant risks for the financial system[143].

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[139] H. E. JACKSON, M. E. TAHYAR, *Fintech Law – The case studies*, Harvard Law School (2020), 137, available at: https://projects.iq.harvard.edu/fintechlaw/home.

[140] See DAVIS POLK & WARDWELL, *New York's Final "BitLicense" Rule: Overview and Changes from July 2014 Proposal* (June 5, 2015), available at: https://www.davispolk.com/files/new_yorks_final_bitlicense_rule_overview_changes_july_2014_proposal.pdf.

[141] T. G. MASSAD, *It's Time to Strengthen the Regulation of Crypto-Assets*, Economic Studies at Brookings (March 2019), 36, available at: https://www.brookings.edu/wp-content/uploads/2019/03/Timothy-Massad-Its-Time-to-Strengthen-the-Regulation-of-Crypto-Assets-2.pdf.

[142] *Id.*, 37.

[143] *Id.*, 37-38.

3.1.1 Congress granting regulatory authority to SEC and CFTC

A first approach would demand action from the Congress to increase the authority and the resources of the SEC and the CFTC and to precisely set the limits of the respective jurisdictions.

Many attempts to stimulate Congress' intervention have occurred during the past few years. In 2019, for instance, seven Congressmen delivered a letter to the Director of the National Economic Council in which they were asking the Administration to hold a forum on blockchain technologies and support innovation and development of blockchain as an emerging technology[144]. Despite not having any specific recommended actions, the letter urged the U.S. government to engage with the private sector, academia, and policymakers to research and promote blockchain technologies[145].

Perhaps the most incisive action was taken in 2018, when the Token Taxonomy Act was proposed in a session of the Congress; the bill was never voted during that session, and was reintroduced first in 2019 and then in March 2021. In an effort to improve regulatory clarity, the act is seeking to amend the Securities Act of 1933 and the Securities Exchange Act of 1934 "to exclude digital tokens from the definition of a security"[146]. Crypto-assets would need to meet certain specified criteria in order to qualify as "digital tokens" and be therefore exempted under the act. More specifically: (i) the digital token must be created either in response to the verification of proposed transactions, or pursuant to rules for creation that cannot be altered by any single person or persons under common control, or "as an initial allocation of digital units that will otherwise be

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[144] A. D. KIM, *Seven U.S. Members of Congress Urge Administration to Support Blockchain Technology*, Chamber of Digital Commerce (May 24, 2019), available at: https://digitalchamber.org/seven-u-s-members-of-congress-urge- administration-to-support-blockchain-technology/.

[145] H. E. JACKSON, M. E. TAHYAR, *supra* note 139, 136.

[146] *Ibid.*

created in accordance" with either of the first two options; (ii) the assets must have a transaction history recorded in a distributed digital ledger or data structure on which consensus is reached via a mathematically verifiable process; (iii) after consensus is reached, the transaction record must resist modification by any single person or persons under common control; (iv) the interest shall be capable of being transferred between persons without the need of a custodian (*i.e.* in peer-to-peer transactions); and (v) the digital asset cannot be a representation of a financial interest in a company or partnership[147].

Excluding crypto-assets that qualify as digital tokens under the Token Taxonomy Act from the definition of security means that the SEC will lose its authority to regulate fraud in connection with transactions involving these interests, leaving the bulk of enforcement to other agencies, in particular the CFTC, lacking the resources available to the SEC[148]. In this respect, the Congress would need to provide clarity in relation to the supervision of the spot market for those crypto-assets that do not qualify as securities[149]. Both the SEC and the CFTC would be fit to be the lead agency for oversight, and it would be costly and inefficient to create an ad hoc agency[150]. Perhaps the SEC would be the best candidate for the role, as it is more focused on retail investors and cash markets[151].

The next step for the Congress would be to grant the SEC and the CFTC clear authority to figure out how exactly to define the crypto-assets categories,

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147 For the complete text of the bill, see https://www.congress.gov/bill/116th-congress/house-bill/2144/text?format=txt.

148 C. GOFORTH, *The Token Taxonomy Act of 2021: Preemption of inconsistent state laws*, Cointelegraph (March 14, 2021), available at: https://cointelegraph.com/news/the-token-taxonomy-act-of-2021-preemption-of-inconsistent-state-laws.

149 T. G. MASSAD, *supra* note 141, 38.

150 *Ibid.*

151 *Ibid.*

subject to general and adaptable guidelines instead of detailed definitions[152], and proper leeway to develop regulations.

In the meantime, while we wait for the Congress' next move, the crypto industry may develop self-regulatory standards for trading, custody, and other functions, that will supplement government and authorities oversight in the same way as in the securities and derivatives industries[153].

3.1.2 Regulatory sandbox

Another approach would be to create regulatory sandboxes in which rules can be relaxed in order to promote innovation, rather than granting authority to the SEC and the CFTC[154].

A number of jurisdictions, such as Australia, Singapore, and Hong Kong, have already launched sandboxes in order to promote financial innovation[155].

It may be argued, however, that using sandboxes to grant waivers to regulations may create a lack of transparency and favoritism. In this respect, both the SEC and the CFTC may employ another tool: the no-action letter[156]. In this respect, the authorities would issue a letter in response to a written inquiry seeking clarification on the application of a specific rule[157]. Furthermore, transparency would not be violated, as no-action letters are available to the public; hence everyone can check which exemptions were granted and on which grounds[158].

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[152] *Ibid.*

[153] *Id.,* 57.

[154] *Id.* 42.

[155] *Id.*, 43.

[156] *Id.,* 45-46.

[157] *Id.,* 46.

[158] *Ibid.*

Regulatory sandboxes have also been criticized by SEC Commissioner Hester Peirce based on the fact that the "regulator in a sense sits in the sandbox with the innovator"[159]. The regulator may, in fact, interfere with the creative process and try to control the development of new technologies. Commissioner Peirce recently proposed, instead, a safe harbor for token projects that would give crypto startups a three-year grace period from their first token sale to achieve a level of decentralization sufficient to pass through the agency's securities evaluations, including the Howey Test[160]. This solution would leave innovators with a substantial degree of flexibility without any interference from regulators.

[159] H. PEIRCE, *Beaches and Bitcoin: Remarks Before the Medici Conference*, (speech, Los Angeles, CA, May 2, 2018).

[160] N. DE, *SEC Commissioner Hester Peirce Proposes 3-Year Safe Harbor Period for Crypto Token Sales*, CoinDesk (February 7, 2020), available at: https://www.coindesk.com/sec-commissioner-hester-peirce-proposes-3-year-safe-harbor-period-for-crypto-token-sales.

CONCLUDING REMARKS

THE DELICATE BALANCE BETWEEN REGULATION AND TECHNOLOGICAL DEVELOPMENT

The above analysis on the current and potential future regulation of crypto-assets evidenced, in both the EU and the US, an increasing interest of regulators in setting up an effective legal framework for this new phenomenon. However, regulatory interventions and proposals have left so far too many issues open, and a lack of coordination between lawmakers and financial authorities, on the one side, and crypto-market participants, on the other side, may be detrimental to the creation of a favorable environment for crypto-assets.

In order to improve the quality of regulatory interventions, lawmakers and financial authorities shall adopt an approach that starts from the bottom and involves market participants from the crypto industry. Nonetheless, the most recent interventions from regulators, first of all MiCA proposal in the EU, are mostly adapting current pieces of financial legislation to new instruments which have little to do with traditional securities.

In addition, given the cross-border nature of blockchain technology, it would be appropriate to have uniform international standards in the regulation of crypto-assets. In this respect, the International Organization of Securities Commissions (IOSCO), which includes securities regulators from 115 jurisdictions, is working to harmonize crypto-assets regulation worldwide. Therefore, in order to avoid legal uncertainty and regulatory arbitrage, the EU and the US, which are among the most active players in the international financial landscape, shall put all their best efforts to uniform their proposals for regulating crypto-assets to the same standards. The same, of course, holds true for all the other major players in the crypto-industry, such as China, Japan, Singapore, Russia, India, and Brazil.

In light of the above considerations, the most productive approach for regulators would be to sit together with representatives of the crypto industry, such as blockchain developers, ICO promoters, and crypto-exchange operators, in order to implement regulations aimed at solving the most significant regulatory challenges discussed in this thesis without frustrating the beneficial features of this new phenomenon. Otherwise, the immediate consequence would be that blockchain, like all new technologies, will always mutate into new forms and structures to escape too stringent regulations, and regulators will therefore have to chase it in an endless run.

The obvious result, like in Zeno's paradox of Achilles and the tortoise, would be that blockchain technology, albeit slower than regulators and law enforcement, will always be a step ahead in the run.

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